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E.L. 8/96 "SOUTH HENTY"

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June '96 to June '97

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ANNUAL REPORT - **VOL 1 OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

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8 Sericite+silica+Mn carbonate+sulphide alteration. Sample 385502 is from 665 metres. It has a Ti/Zr of 15.5, Na2O of 0.5%, MnO 1.55% and S 0.83%; sample 385505 (from 668 metres) has a Ti/Zr of 20.5, Na2O of 0.35%, MnO 2.12% and S 0.66%; and sample 385522 (from 685 metres has a Ti/Zr of 24.8, Na2O of 0.12%, MnO of 1.58% and S 0.53%. 385502 has Pb 0.1% and Zn 1.5%.

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10 Mineralised examples from sericite+silica+Mn carbonate+sulphide alteration zone. 666.5 metres is the best example of a base metal stringer intersected by SHD-1 with 666m - 667m assaying 198ppm Cu, 3.45% Pb, 0.92% Zn and 0.04g/t Au. 667.2 and 669.9 are examples of later stage quartz-calcite veins with 'sweat out' sulphides.

11 Mineralised examples from sericite+silica+Mn carbonate+sulphide alteration. Sample 676.4 metres has 20.5% Ba, Ti/Zr 24.0 (Ti=1319, Zr=55), 404ppm Cu, 0.69% Pb, 1.82% Zn and 0.17g/t Au. 677m - 678m assayed 0.3% Pb, 0.16% Zn and 0.13 g/t Au. 678m - 679m assayed 0.2% Pb and 0.15% Zn. The quartz-calcite vein on the LHS of 678.6 metres is cross-cutting the quartz+carbonate+sulphide (RHS) vein.

12 Mineralised examples from sericite+silica+Mn carbonate+sulphide alteration zone. 680m - 681m assayed 0.3% Pb and 0.3% Zn, 693m - 694m assayed 0.13% Pb and 0.13% Zn. 697m - 698m assayed 0.13% Pb and 0.2% Zn. Note carbonate in the sample from 697.3m.

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14 Less sulphidic alteration deeper in SHD-1.

15 Typical sulphidic sericite+silica+sulphide alteration in SHD-2 below the QFpA unit at 264.8 metres. 276m - 277m (Ti/Zr 12.5) assayed 175ppm Cu and 0.07g/t Au; and 316m - 317m assayed 0.25% Cu and 0.4 g/t Au.

16 Styles of carbonate alteration in SHD-2. 385876 assayed 5.29% MnO but only 0.53% CaO and has Ti/Zr 14.8. Spheroidal, cabbage shaped textures as shown in the lower sample are usually developed in finer grained units. The middle sample is pervasive alteration with the top sample pervasive but less intense than 385876.

17 Stringer sulphide vein in SHD-2 and adjacent alteration. 372.3m - 372.8m assayed 0.5m @ 0.13% Cu, 11.7% Pb, 18.2% Zn, 3.42g/t Au and 220g/t Ag. 370m - 371m assayed 0.75% Pb and 1.94% Zn. 356m - 357m assayed 0.15% Zn. Note the spotty nature of sulphide and carbonate alteration.

18 Spillway basalt breccia from SHD-2. The purple staining of clasts is typical of a significant part of this intersection.

19 Footwall pumice breccia from below the main basalt intersection in SHD-2

20 Dominantly basalt breccia with possibly minor dacite. From below the main basalt intersection in SHD-2.

21 Ashy tuffaceous siltstones, sandstones (felsic with Ti/Zr 7.4 for 386263, 7.1 for 386261 and 8.0 for 386259) towards the end of SHD-2.

22 Newton Creek Fault in SHD-10 (547m - 548m). Rocks to the left of the fault (uphole) are QFpR from the Mt Julia Rhyolite in the middle Tyndall Group. Rocks to the right (downhole) include polymict breccias with epiclasts of QFpR and metasediments in a quartz crystal rich matrix, black shaley siltstones and quartz pebble conglomerates (far right of plate). The apparent similar appearance between rocks immediately on either side of the fault is due to overprinting silicification and pink (albite?) alteration masking original textures.

23 Henty-Comstock horizon in SHD-13; limestone to 628m, mixed basalt breccia and limestone 628m to 630m, basalt breccia (haematitic and foliated) from 630m to 634m.

24 Weak peripheral chlorite±sericite alteration of dacitic volcaniclastics including pumiceous and hyaloclastic dacite clasts.

25 $MnCO_3$ and sericite alteration in SHD-13 below the black shaley siltstone. These samples contain only some minor blebby sulphides.

Appendices

Appendix	Title
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1.0 SUMMARY

Resolute's first year programme was based on a relatively broad approach with five zones, i.e. Tyndall Creek, Access Road, Henty Canal, Spillway and Lake Newton, initially targetted. This work included re-logging ~8km's of old drill core, drilling 4369 metres of diamond drilling, ~14 line km's of dipole-dipole IP and the collection and assaying of 389 "wacker" C-horizon soli sampls. Results from four of these areas were generally disappointing, however, the fifth, the Lake Newton (mushroom) prospect appears to have excellent potential for a high grade polymetallic of Rosebery style.

The Henty Canal and Access Road Alteration zones and alteration associated with structures in the Tyndall Creek area were targetted as possibly representing subcropping shear hosted gold deposits. Dipole-dipole IP defined a number of weak/moderate chargeability responses which were covered with "wacker" C-horizon soil sampling with mixed but generally disappointing results. Four shallow drill holes (see plate 1) targetted on best IP and soil geochemical anomalies (0.878g/t Au) at Tyndall Creek are interpreted to have explained the anomalies but with only minor mineralisation and no further work is proposed for shear hosted gold targets at the Tyndall Creek prospect.

Sericite+quartz+pyrite alteration intersected in SHD-8 (sse plate 2), targetted on coincident IP/soil geochemistry on the Access Road prospect, assayed up to 1m @ 0.5g/t. This alteration is interpreted to be due to ponding of hydrothermal fluids beneath the quartz feldpsar phyric dacite (QFpD - see Table 4a and 4b for geological key and lithcodes) sill and is considered to be assocated with the Lake Newton Alteration zone discussed below.

The Henty Canal alteration was also tested with dipole-dipole IP and "wacker" soil geochemistry, followed by a single ~250 metre DDH. The anomalous IP response was probably explained by a shaley siltstone at target depth, however, the outcropping sericite+pyrite±barite±base metals±gold alteration remains enigmatic and may warrant more consideration, perhaps as a pointer rather than a target itself. Cambrian Pb isotopes for the Henty Canal alteration, the intriguing sliver of Howards basalt in the footwall to the altered dacites in SHD-6 and the silica+albite(?) alteration of dacitic pumiceous volcaniclastics or quartz feldspar phyric rhyolite (QFpR) in SHD-6 remain unresolved. The prospect has many similarities with Henty's upper mineralised zone.

Two holes (SHD-2 and SHD-12) were drilled beneath and along strike of the host horizon to the massive sulphide clasts outcropping in the Lake Newton spillway. Neither intersected any evidence for exhalative mineralisation on any of the possibly significant contacts. Some minor alteration in pumice breccias and basalt and dacite>>basalt breccias in the footwall to this horizon in SHD-2 (see plates 19 and 20) (none was seen in SHD-12) is likely to be related to alteration further uphole. DHEM on both SHD-2 and SHD-12 has not seen any conductive sulphides in the vicinity of either holes. The sulphide clasts (see plate 3a in appendix A) are a very difficult target in themselves and at best indicate that there were massive sulphides forming around the time the fire fountain basalt

was extruding. Although results have not been encouraging, there remains as much as 1.5 kilometres of untested strike of the spillway horizon in the south-west of the licence south of YNC13. Exploration for this target should continue to focus on locating alteration in the footwall to the spillway horizon.

However exploration on the Lake Newton prospect, or the "mushroom" (see figure 9) based upon the shape of the aeromagnetic low, by deep diamond drilling (SHD-1, SHD-10 and SHD-13 with support from SHD-2) has proven more successful with the definition of a significant alteration system described as the Lake Newton Alteration Zone.

The initial target model of exhalative mineralisation on the Henty-Comstock horizon immediately above a discordant mushroom shaped aeromagnetic low was tested by two holes SHD-1 and SHD-13 (see figures 9, 11 and 12). SHD-10, which was targetted on this horizon, was aborted after passing through the Newton Creek Fault. SHD-10's target was tested by SHD-13. Neither SHD-1 or SHD-13 intersected anything other than limestone and/or Howards Basalt on the horizon, however, both holes were extended considerable depths into the footwall looking for the roots of stringer zones or for Rosebery style replacement deposits.

SHD-1 (see figure11) passed through limestone marking the Henty-Comstock horizon at 317 metres (see plate 5) into weakly but pervasively sericite±chlorite±haematite± Kspar±carbonate altered, non-sulphidic, Na depleted, pumiceous (dacitic>andesitic) volcaniclastics with minor basalt dykes (feeders to the Howards Basalt above the Henty-Comstock horizon) with a few minor zones of stronger sericite+silica+pyrite alteration. Alteration becomes more sericitic downhole. From 664 metres to 758 metres the hole intersected a zone (see plates 8 - 12) of sericite+silica+Mn carbonate+sulphide (pyrite, low Fe sphalerite, galena)+barite alteration, with stringer style base metal sulphide in veins and blebbs as well as later 'sweatout' fibrous quartz+carbonate veins, averaging 94m @ 0.2% Zn, 0.13% Pb and 38ppb Au including better zones:

666m to 667m, 1m @ 0.92% Zn and 3.45% Pb (see plate 10)
672m to 673m, 1m @ 0.93% Zn, 0.3% Pb and 0.17 g/t Au
676m to 677m, 1m @ 1.82% Zn, 0.7% Pb, 20.5% Ba and 0.17 g/t Au (see plate 11)
715m to 717m, 2m @ 0.7% Zn. 0.2% Pb and 0.30 g/t Au
730m to 731m, 1m @ 0.73% Zn

MnO levels are up to 2.5% indicating a mass change addition of Mn of ~1.3g/100g, a significant addition. The only realistic site for this Mn is in the pervasive overprinting carbonate alteration, i.e. in some form of manganiferous carbonate. The alteration zone is also characterised by elevated Ba averaging ~0.5% with 1m @ 20.5% from 676 - 677m (see plate 11). This alteration has similarities to alteration associated with the Rosebery-Hercules massive sulphide deposits.

The drill intersections of this main zone of alteration in SHD-1 coincides with the first (downhole) significant volcaniclastic unit characterised by distinctive large (~5mm)

rounded/resorbed ARF type (see definition in section 6.10.2) quartz crystals with cream melt inclusions. SHD-1 had been extended in order to intersect this unit which is altered in HA8. There is no evidence of exhalative mineralisation on the finer graded top of this altered/mineralised unit with alteration/mineralisation apparently stratabound within this ARF type quartz crystal volcaniclastic and coherent ARF type quartz feldpsar phyric dacite (QFpD) counterpart in HA7 and HA8. The blebby (in part) style of mineralisation is suggestive of replacement (alteration) of the volcaniclastics. The porous, permeable nature of the host rocks is conducive for this style of alteration/mineralisation.

The main alteration zone intersected by SHD-1 is interpreted to be formed by the replacement of these unconsolidated pumiceous volcaniclastics by the mixing of upwelling hydrothermal fluids and downwelling seawater, this taking place at around 300 to 350 metres below the sea-floor at the time, considered to be under a shallow sea. Evidence regarding the palaeoenvironment of deposition of the limestones on or near the Henty-Comstock horizon has been provided by petrology on fossiliferous samples. This evidence suggests that sea-water depths were as shallow as a few tens of metres.

Similar Mn carbonate but less sulphidic alteration was also intersected by SHD-13 (see plate 25) in broadly the same unit as is altered/mineralised in SHD-1 except that in SHD-13 the unit of feldspar phyric hyaloclastic breccia between the ARF unit and the black siltstone is equally altered. SHD-13 was extended from the Henty-Comstock horizon at ~630 metres to 1051 metres in order to intersect this stratigraphic zone.

The results of these two holes and the sericite+silica+sulphide (pyrite, low Fe sphalerite, galena)+carbonate alteration/mineralisation intersected in previous DDH's HA7 and HA8 (plate 5 in appendix A) are interpreted to spatially define this stratabound zone of alteration/mineralisation described somewhat optimistically as the Sulphide Zone (see figure 21). The Sulphide Zone lies largely (the exception is in SHD-13 described above) within the upper part of coherent (in part) QFpD (ARF) and clastics with ARF type quartz crystals (ARF - see lithcodes in Table 4a and 4b) of dacitic composition in HA7 and HA8 and within andesitic/dacitic volcaniclastics with similar but lesser quartz crystals in SHD-1 and SHD-13 (andesitic composition for SHD-13's ARF crystal bearing unit is unproven lithogeochemically). These SHD-1 and SHD-13 intersections were at the depths expected based on projecting HA7 and HA8's intersections down-dip (see figures 13 and 14).

Further strong alteration was intersected in the "stalk" of the "mushroom" in SHD-2 (see plates 15, 16 and 17) which was principally targetted on the spillway horizon but which is interpreted to have clipped the "stalk" of the "mushroom" on the way to its principal target (see figure 9). It intersected a zone of strong sericite+silica+sulphide (pyrite, chalcopyrite, high Fe sphalerite, galena)±carbonate (±Mn) alteration with elevated Cu and Au and containing a ~0.3m true width high Fe sphalerite+galena+pyrite stringer (see plate 11). The strong alteration stops at the contact with the overlying/adjacent (?) quartz feldspar phyric andesite QFpA (ARF) though weak alteration persists into the andesite. Best results include:

279 - 289m	11m @0.38 g/t Au (see plate 15)
inc. 288 - 289m	1m @ 1.5 g/t Au
295 - 301m	7m @ 0.44 g/t Au
inc. 298 - 299m	1m @ 0.82 g/t Au
311 - 321m	10m @ 0.28% Cu
inc. 312 - 313m	1m @ 1.1% Cu
315 - 321m	6m @ 0.34 g/t Au (see plate 15)
inc. 315 - 316m	1m @ 0.93 g/t Au
341 - 342m	1m @ 0.11 g/t Au
364 - 365m	1m @ 0.18% Pb & 0.53% Zn
370 - 374m	4m @ 2.2% Pb, 3.75% Zn & 0.49 g/t Au (see plate 17).
inc. 372.3 - 372.8m,	0.5m @ 0.13% Cu, 11.9% Pb, 18.2% Zn, 3.42 g/t Au & 220 g/t Ag (see plate 17)
377.1 - 378m	0.9m @ 0.41% Pb & 0.6% Zn

The 0.3 metres thick intersection of stringer vein reinforces the polymetallic, potentially high grade nature of the mineralising system. The copper-gold rich nature of the alteration suggests that the hole has passed through or near to the central, hotter part of the hydrothermal system. This supports the interpretation of the "stalk" of the "mushroom" as representing a major conduit of hydrothermal fluid (see figures 9 and 21).

Further alteration/mineralisation intersected below the spillway fire fountain basalt for the first time in any drilling to date is considered (arguably) to be related genetically to the upper zone. This alteration is characterised as sericite±chlorite±silica±carbonate (±Mn)±sulphide (pyrite, high Fe sphalerite, galena) but is generally of a lower tenor than the upper zone with sulphide levels an order of magnitude less. Best results include:

532 - 533m	1m @ 0.1g/t Au, 0.34% Pb & 0.51% Zn
541 - 542m	1m @ 0.66% Zn
542 - 543m	1m @ 0.69 g/t Au
550 - 551m	1m @ 0.60% Pb & 0.35% Zn

The work to date suggests that there is excellent potential for a significant tonnage polymetallic (Rosebery style sphalerite rich?) massive (semi?) sulphide at the Lake Newton prospect, along stratigraphic strike from the zone of base metal+gold anomalous sericite+silica+Mn carbonate+sulphide (pyrite, low Fe sphalerite, galena)+Ba alteration intersected in SHD-1 and SHD-13 (lower tenor) and the base metal+gold anomalous sericite+silica+sulphide(pyrite, low Fe sphalerite, galena)+carbonate alteration in HA7 and HA8, in a zone lying around 300 - 350 metres in the largely pumiceous footwall to the Henty-Comstock horizon (which was probably the seafloor at the time). Alteration in SHD-2 quite possibly represents a footwall stringer zone to this zone with the projection of SHD-2's alteration onto the Sulphide Zone a high priority target . This target model is summarised in figures 9 (aeromagnetics overlay on 1:5000 geology with drilling shown), figure 21 (an isometric summary showing the Sulphide Zone and previous drilling) and

sections AA' to EE' through the Lake Newton alteration zone shown in figures 10 to 14 (at 1:5000).

The alternative model, suggested by SHD-2's intersection (from 0 to 265 metres) of a QFpA with holocrystalline groundmass and the presence of elevated K2O levels indicating Kspar alteration of the groundmass in samples of alteration and mineralisation from SHD-1, SHD-11, NC4, HA7 and HA8, is that mineralisation is related to this intrusive. In such a model the "stalk" of the "mushroom" shaped aeromagnetic low may be due to magnetite destructive alteration adjacent to this intrusive QFpA (ARF) quartz diorite.

This model is less favoured, however, a hole drilled north-south through the "stalk" should provide sufficient information to resolve the problem, as well as testing for mineralisation hosted within the "stalk" itself (epithermal style mineralisation).

Recommendations are made for an initial three hole programme at the Lake Newton prospect including this north-south hole followed by two holes into the Sulphide Zone itself. The north-south hole through the "stalk" may help in better locating the focus of the hydrothermal fluids with its projection onto the Sulphide Zone a target. At a minimum a single hole into the centre of the Sulphide Zone, i.e. the projection of the alteration in SHD-2, must be drilled.

Further potential in this Sulphide Zone may lie to the north of the aeromagnetic low where shallow coherent andesite and rhyolite may be overlying a northerly, perhaps plunging, extension of this zone. Further north again anomalous base metals+Mn carbonate alteration in Pasminco's YNC4, 5 and 10 holes may indicate the presence of another hydrothermal alteration zone, perhaps at depth. Two holes are proposed in this zone.

Recognition of the shallow sea depth at the time the Henty-Comstock horizon was the sea-floor and consideration of deposits in similar settings elsewhere has provided increased encouragement that similar high grade polymetallic mineralisation may lie or on or near to the Henty-Comstock horizon in the southern part of the E.L. where the Henty-Comstock horizon is underlain by the Anthony Road Andesite stratovolcano. In particular previous work, supplemented by some mapping/sampling by Resolute, has leant weight to the interpretation that the barite+silica+sphalerite+galena+chalcopyrite+tetrahedrite-tennantite +chalcocite+electrum mineralisation associated with variably haematitic sericite±silica alteration at Tyndall Creek, as well as the intriguing tetrahedrite+pyrargyrite+native silver mineralisation associated with haematite+carbonate+barite alteration in HA4, are high sulphidation assemblages deposited hydrothermal fluids high in the volcanic pile under shallow sea water depths. At least one hole should be targetted on the Henty-Comstock horizon or its immediate footwall to the south of Lake Newton.

2.0 INTRODUCTION

2.1 Tenure and Land Usage

E.L. 8/96 "South Henty" was granted to Resolute Samantha Limited (now Resolute Limited) on 14th June 1996. Resolute was granted the licence as the result of a tendering process in which Resolute committed to conducting a certain level of exploration and expenditure over the first two years. Resolute has more than met those conditions.

The licence area consists of Crown Land and land vested in the H.E.C. Both land uses come under the Mines Act. The area west of the break in slope down to the Henty Gorge is part of the Mt Read R.A.P. This does not preclude exploration in the designated area.

The Henty Gold Mine has an easement right over much of the peneplained area north of the lake and west of the Henty Canal. R.G.C., who operate the Henty gold mine around 7 km's north, have been required to sterilise the ground beneath the tailings dams to a depth of 50 metres and have supplied the data relating to this sterilisation (drill core re-assays, rock and C-horizon soil sampling and pitting) to M.R.T. Resolute retains the mineral rights in this area.

The land vested in the H.E.C. surrounds and includes Lake Newton and the associated pump station, access roads etc., the Henty Canal and service track and the high tension powerlines and their service track.

The initial advertising of the E.L. in the Mercury showed those areas vested in the HEC in white with the rest of the ground shown hatched with the hatched area defined to be the area being discussed in the advertisement.

Although it was clearly explained by M.R.T. that the land vested in the HEC was technically included in the area for exploration (with some consideration of engineering problems the HEC may have) with the exclusion in order to ease administration, it was felt that the advertisement may leave Resolute open to plainting in the future and the E.L. was re-advertised with the whole area shown hatched. The area vested in the HEC contains some of the most prospective ground in the E.L.

2.2 Location and Access

E.L. 8/96 "South Henty" lies approximately mid-way between Queenstown and Tullah on Tasmania's west coast (see figure 1). It is accessible by bitumen road (Anthony Road) joining these two towns. Further access within the eastern two-thirds of the E.L. is provided by a number of dirt roads, mostly constructed by the H.E.C. during construction of Lake Newton and the Henty Canal. The western third lies on either side of the Henty Gorge and access is more problematic.

The licence has been covered by a number of grids over the last 30 years. There is very little area of prospective volcanics without grid lines at at least 200 metre line spacings with significant areas covered by 100 metre line spacings. There are also a number of loop

lines and access walking tracks. Resolute needed to cut new tracks and grid lines in order to optimise coverage of mapping, soil sampling and ground geophysical surveys, however, existing access has always been used if considered sufficient.

2.3 Topography and Vegetation

E.L. 8/96 contains the 300 metres deep Henty Gorge (30 degree slopes) in the western third with the Tyndall Range rising up in the eastern part, with the central, more prospective part occupying a peneplain at ~500 metres a.s.l.

The area of this peneplain north of the lake and east of the Anthony Road is largely covered by low heath (buttongrass±tea tree). Apart from the slopes of the Tyndall Range (also covered by heath), the rest of the licence is covered by rainforest.

The soil is generally black and peaty, often with a gravel lag at the base of the peat, up to ~1-2 metres thick at most at South Henty though thicker glacial cover is not rare.

3.0 EXPLORATION PHILOSOPHY

E.L. 8/96 "South Henty" contains ~4 km's strike of the time-stratigraphic horizon referred to herein as the Henty-Comstock horizon. The horizon is essentially the base of the Tyndall Group, on or near to the base of the Lynchford Member (White and McPhie, 1996). Knowledge of this horizon has been gained from published data and first hand work on Comstock.

This horizon is believed to represent a highly significant time in the construction of the Mt Read Volcanics. At the time this horizon was the sea floor, under shallow mid-Cambrian seas, the high grade gold deposit at Henty and the vast Mt Lyell copper-gold deposit (with associated small but high grade massive sulphides at Comstock) were formed. Mineralisation at both locations was by V.H.M.S. type(?) hydrothermal fluids in the footwall to this seafloor.

This horizon extends northwards from Comstock for ~25 kilometres to Henty. South Henty contains a significant portion of this strike with a number of occurrences of mineralisation spatially associated with the horizon (Tyndall Creek barite+base metal and Howards Anomaly silver).

A significant target was defined by the colour enhanced total magnetics image shown in Quayle (1995). The image shows a "mushroom" shaped aeromagnetic low, due in part to hydrothermal alteration (HA7 and HA8) and with a "stalk" discordant to the stratigraphy appearing to stop at the Henty-Comstock horizon. It was considered a strong possibility that the "mushroom" aeromagnetic low may be mapping out a footwall alteration zone beneath the Henty-Comstock horizon. The possibility that this magnetic low may be due to alteration was discussed by P Smith and G Dixon in appendix 8 in Quayle (1995).

Exploration here will require a commitment to drill deeper holes based largely on geology with support from deeper seeing geophysical methods DHEM, DHMMR, and particularly gravity and quality aeromagnetic data. Intersection of alteration/mineralisation should allow vectoring to economic mineralisation.

E.L. 8/96 also contains at least 3.5 km's (and as much as 4.5km's) of the horizon on which high grade massive sulphide clasts outcrop in the spillway to the Lake Newton dam. Their existence should be simply taken as confirmation that massive sulphide deposits were exposed on this horizon (locating the actual source of the clasts is an extremely difficult task). Exploration should focus largely on locating alteration in the footwall to this horizon with extensive gradient IP a useful tool in locating disseminated sulphides in such an alteration system.

"South Henty" also contains a number of occurrences of alteration which may be related to structures active during those times when gold may have been introduced (or concentrated) at Henty. It is conceivable that gold bearing late Cambrian/mid Devonian(?)

fluids exploited such structures, depositing gold along with pyrite±sericite±silica in dilational zones.

Structurally hosted gold deposits should have an associated soil geochemical anomaly (base metals, arsenic, bismuth?, gold) but with spiky data given the chemistry of typical west coast soils), and/or a coincident I.P. chargeability anomaly (at short dipole spacings). Shallow diamond drilling is likely to be more cost effective in testeing these essentially shallow targets. Although structurally hosted gold deposits are considered to be a low priority target (given the lack of examples of economic deposits on the west coast) the relatively cheap exploration expense required is considered justified.

4.0 REGIONAL GEOLOGY

E.L. 8/96 "South Henty" lies in the central part of the main Mt Read Volcanic belt on Tasmania's west coast.

The Mt Read Volcanics are a Cambrian belt of mafic to felsic volcanics and associated sediments. The main part of the belt runs north south from Guildford to Elliott Bay respectively with a smaller belt running west east from Guildford to Deloraine respectively.

The regional geology of the Mt Read Volcanics is perhaps best illustrated historically with the following based largely on Crawford and Berry (1992) and Berry (1994).

Around 600 Ma attenuation and eventual rifting of Proterozoic continental crust resulted in the formation of a thinned passive continental margin. This passive margin collided with an oceanic arc in the late Early to early Middle Cambrian with major slices of for-arc mafic/ultramafic complexes thrust westwards over Tasmania.

This thrusting locked the plate boundary. Continued compression resulted in the formation of half grabens (relaxation rifts) of which the Dundas Trough (in which the main belt of the Mt Read Volcanics lies) is the main one. The Henty and Great Lyell Faults are bounding faults to this trough.

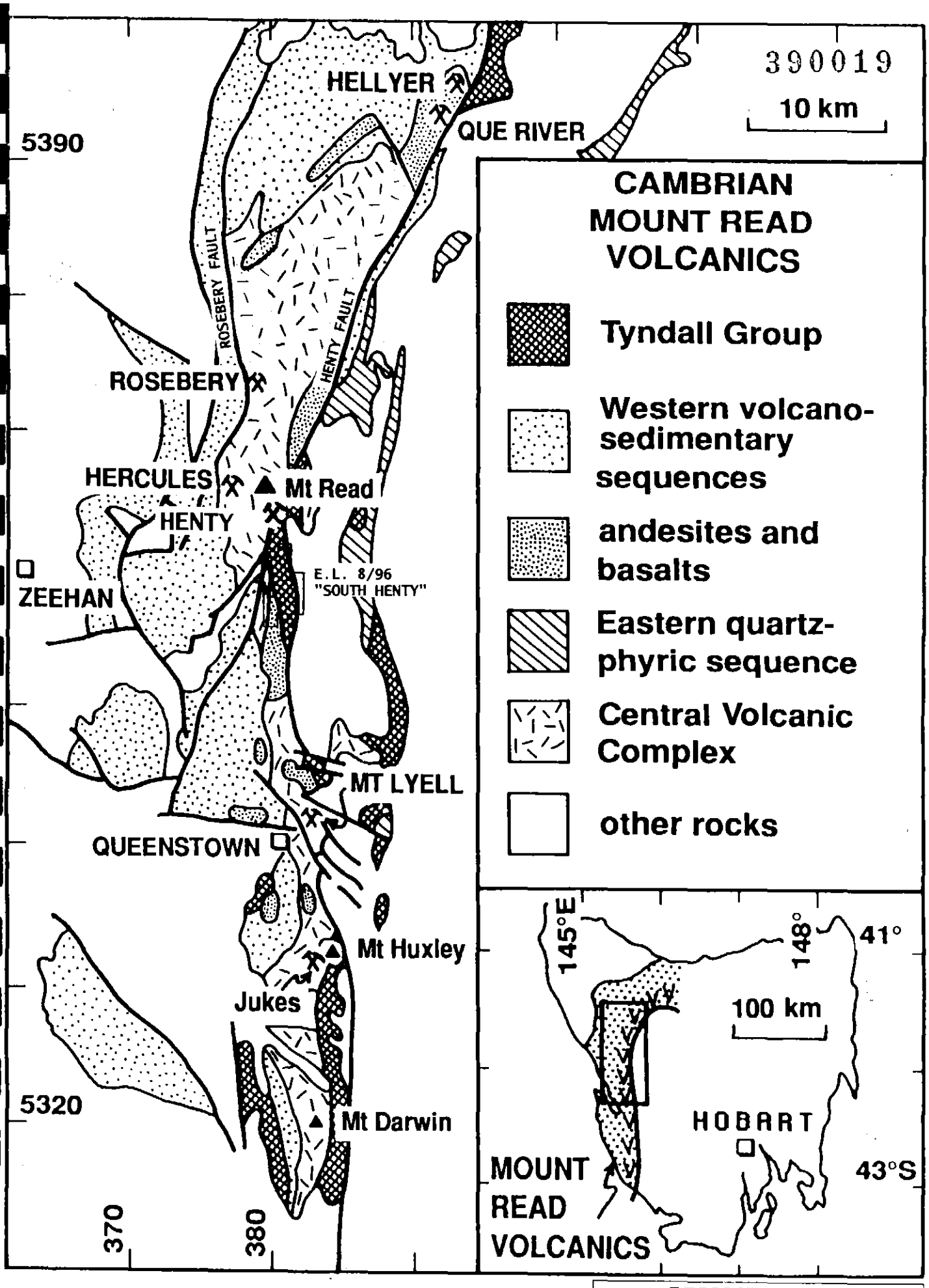
Initial sedimentation into the Dundas Trough was derived from Proterozoic crystalline crust on the eastern side (Sticht Range Beds) and the mafic/ultramafic complexes and passive margin to the west. This sedimentation was followed by and continued coincidentally (as the Western volcano-sedimentary complexes) with the eruption of the Mt Read Volcanics along the eastern side of the Dundas Trough.

Initial volcanism was predominantly felsic with the predominantly feldspar phyric Central Volcanic Complex (host to the Rosebery, Hercules and Mt Lyell deposits) the major unit whilst the predominantly quartz-feldspar phyric Eastern Quartz-phyric sequence erupted to the east against against the Sticht Range Beds. The Rosebery and Hercules deposits lie along a time-stratigraphic horizon near the top of the Central Volcanic Complex.

This was followed by andesitic-basaltic volcanism with major units being the Que-Hellyer Volcanics (host to the Hellyer and Que River deposits), the Anthony Road Andesite (within E.L. 8/96) and a correlate at Comstock which directly underlies small massive sulphide lenses and is itself intensely silicified in part (at Mt Lyell).

The final phase of volcanism was felsic with the eruption of the Tyndall Group and correlates to the north.

Mineralisation at Mt Lyell, a footwall stringer style of chalcopyrite-pyrite mineralisation, was formed at the time when the contact between the andesitic-basaltic volcanics and the



5 cm

RESOLUTE LIMITED		
EL 8/96 "SOUTH HENTY"		
Regional Geology and Project Location		
Compiled GM	Scale 1:25000	
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Date May 1997	Plan No.	1.

Tyndall Group was the sea-floor. This is the same horizon in whose immediate footwall the Henty gold deposit lies (Henty being the product of intense V.M.S./epithermal? type footwall alteration). The horizon is referred to as the Henty-Comstock horizon.

Coeval with the deposition of these dominantly volcanic sequences was the deposition of the Western volcano-sedimentary sequences in the western half of the Dundas Trough. These sediments are of mixed volcanic and metamorphic provenance.

The eruption of the Mt Read Volcanics was followed by a phase of compression in the late Cambrian in which major faults were reactivated as reverse faults (e.g. Henty Fault) and new faults were activated (e.g. Rosebery Fault).

The other period of geological history of significance to mineralisation in western Tasmania was the Middle Devonian Tabberrabberran Orogeny in which major faults in western Tasmania (e.g. Henty) were reactivated with sinistral strike-slip movement. The syn- to post- kinematic granitoids associated with this orogeny produced the considerable skarn, greisen and vein style tin deposits (e.g. Renison, Mt Bischoff, Cleveland, King Island) as well as numerous more minor base metal and gold veins.

5.0 PREVIOUS EXPLORATION

Good summaries of previous exploration can be found in Lewis (1995b for a good tabulation of all previous exploration bar Pasminco-Arimco's on E.L. 11/85), Quayle (1995 for Pasminco-Arimco's work on E.L. 11/85) and Fitzgerald (1987 summarising Mt Lyell Mining and Railway Co.'s exploration on E.L. 9/66).

The area would have been prospected late last century (everywhere else was). The only evidence of old workings is the Tyndall Mine, a quartz>galena vein striking north-north-west, intriguingly apparently on the Henty-Comstock horizon but with Devonian lead isotope ratios. The 1:50 000 mineral Deposit Sheet of the area shows the Harriss Reward mine in the Henty Gorge roughly where the Henty-Comstock horizon would be expected to pass but there is no reference to this and the only references to mines of such or similar name is from the Zeehan and Lake Beatrice areas. There are also some shallow pits on veiny to disseminated base metal sulphide mineralisation around Howards Anomaly, Tyndall Creek and old Line 30. It is unclear as to the origin of these pits as some were dug in the early days of modern exploration by Pickands Mather.

Pickands Mather explored the area in the late 50's/early 60's as part of their SPL107(?) Reporting from this time is almost non-existent and none of the original work was sighted though it must exist within the library. Pickands Mather used EM, mapping and soil and rock sampling as well other ground geophysical surveys and located a gossan near Tyndall Creek, known as Howards Anomaly. The gossan is believed to be over the base metal-barite mineralisation at Tyndall Creek (hence pits etc.).

From 1966 to 1984 the area was explored by Goldfields Limited (as the then Mt Lyell and Railway Company) as E.L. 9/66. From 1966 to 1970 work involved gridding, soil sampling and IP surveying (due to successes at Mt Lyell e.g. Cape Horn) as regional (Elms, 1967; Newnham, 1968; Newnham, 1969; and Newnham, 1970) reconnaissance tools (400m spaced magnetic east-west grid) leading to the drilling of HA1/2 (HA1 was stopped short of target and redrilled as HA2) (McKibben, 1971) on anomalous IP/soil geochemistry. Subsequent work from 1970 to 1979 involved further IP surveying and A-horizon soil sampling in the south-eastern (Howards Anomaly) part of the E.L. and the drilling of HA3 and HA4 on IP/soil geochemical anomalies (Stevens-Hoare, 1975; Reid, Meares, Walter, Hutton & Drake, 1979; and Meares, Walter & Hutton, 1980).

The recognition of silver mineralisation (veins associated with barite, calcite and haematite) in HA4 led to the deepening of the hole and the reassaying of HA1/2 and HA3 (Meares, Walter & Hutton, 1980). This zone of haematite and calcite with elevated barite and silver became the focus of work at the Howards Anomaly prospect. Further work to 1983 included IP and soil geochemistry and the drilling of HA5 in the original Howards Anomaly area at Tyndall Creek with HA6 drilled further north, both holes more geologically driven, following-up the anomalous silver intersections (Meares, Hutton & Komyshan, 1981; and Meares, Purvis, Hutton & Komyshan, 1982).

The review of 1982/83 (which addressed Goldfields large E.L. 9/66 which covered the southern half of the Mt Read Volcanics, roughly south of the Gooseneck) (Purvis, Fitzgerald & Komyshan, 1983) recognised two zones at Howards Anomaly. The silver zone was defined by the haematite, calcite, barite and silver intersected in drilling to date. The sulphide zone was defined by fresh sphalerite in peaty soil in the valley of Newton Creek below the confluence with Tyndall Creek (now under water) and anomalous soils and IP. HA7 was targetted on the strongest soil+IP anomaly with HA8 targetted on the strongest IP+soil anomaly (Roberts and Cartwright, 1984). Both holes intersected zones of strong sericite-silica-pyrite-carbonate alteration with HA8 averaging 232 metres at 0.2% Zn including 15 metres at 0.1g/t Au. Goldfields were required to relinquish the area. Goldfields had drilled eight holes (HA1 to HA8 for 2076.1 metres)

CRAE successfully tendered for the eastern half of the current E.L. (i.e. east of A.M.G. 380 000mE) as E.L. 5/85 "Lake Margaret" with Arimco/EZ successful in the west as E.L. 11/85 "Yolande River". Both companies carried exploration in the second half of the 1980's. CRAE's work consisted largely of A-horizon soil sampling and complete UTEM coverage (on 400m line spacings - old Mt Lyell grid) before they joint ventured in 1989 with Aberfoyle (Sheppard, 1986).

Arimco/EZ carried out limited reconnaissance work to 1989. Pasminco Exploration assumed managership of the J.V. in 1990 and carried out more systematic C-horizon soil sampling, mapping, rock sampling, helimag and blanket UTEM east of the Henty River. This was followed by an ambitious drilling programme (a total of 4412.7 metres in YNC1 to 16 drilled from 1992 to 1995) with almost all holes (YNC3 to 15) based on chasing the source of the high grade massive sulphide clasts exposed in the spillway of the Newton Dam (Poltock and Fitzgerald, 1991; Poltock, 1992; Quayle, 1993; Quayle, 1994; and Quayle, 1995). YNC16 was drilled into the Henty-Comstock horizon, apparently based on a stratigraphic model for Henty whilst YNC1 and 2 were early shallow holes targetted on anomalous soil/rock geochemistry on the side of the Henty Gorge.

Aberfoyle carried out further gridding (200m spaced A.M.G east-west) soil sampling, helimagnetics and more thoughtful geology (lithogeochemistry, petrology, isotopes) (Richardson, 1991; Sharpe, 1992; and Sharpe, 1993). They drilled five short holes underneath rediscovered barite-sulphide float/outcrop in Tyndall Creek with some almost ore-grade intersections (2.1m @ 5% Pb and 7% Zn in TC5) (Lewis, 1994).

Aberfoyle were apparently swayed early on from believing that the spillway massive sulphide clasts had any relevance to exploration on their ground by some trace element lithogeochemistry which showed some discrepancies between the dacite clasts in the polymict breccia hosting the sulphide clasts and the massive dacites outcropping south of the dam wall (Sharpe, 1993).

In the latter two years of the licence's life Aberfoyle drilled four deep diamond holes (NC-1 to NC-4 for 3119 metres) designed to chase a conceptual target at the intersection of the lower Tyndall Group (favourable horizon) with the Great Lyell Fault (favourable

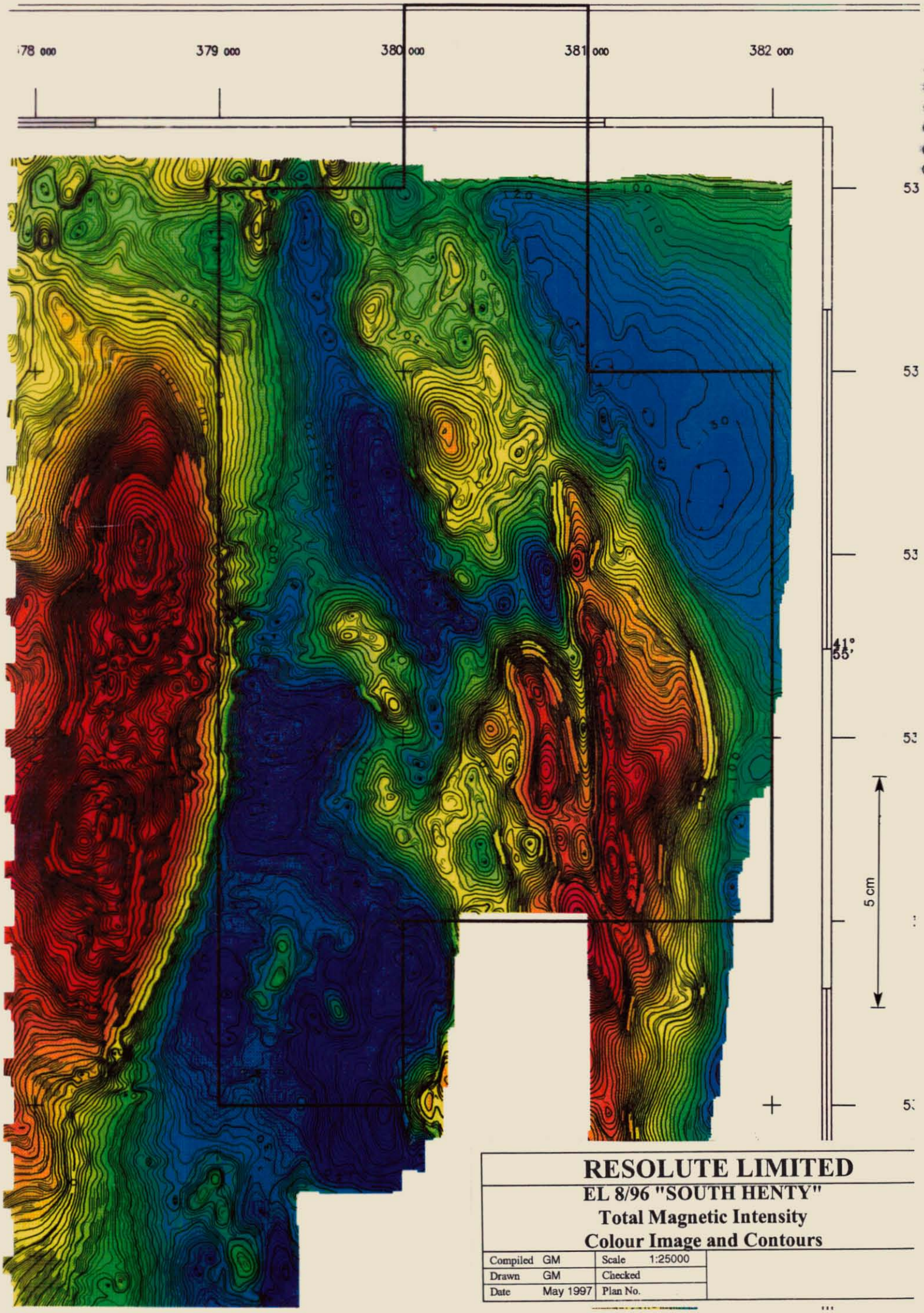
early lived extensional structure) (Lewis, 1995a and Lewis 1995b). Nowhere do Aberfoyle precisely state the location of their favourable horizon, however, I am aware that they saw two potential horizons; one characterised by strong haematite-calcite "alteration", their Howards Tuff, and the other defined by the basaltic andesite unit which they also apparently recognise to the south at "Basin Lake". Aberfoyle did DHEM on all four holes as well as systematic side grind whole rock/trace element lithogeochemistry. Their faith in DHEM is evidenced by their decision to extend NC2 from the Great Lyell Fault at 490 metres to 631 metres through upthrown Owen Conglomerate.

6.0 WORK DONE/RESULTS

6.1 Introduction

Work conducted in the first year of the E.L. (from 15/6/96 to 14/6/97) consisted of the following:

- Check surveying (GPS) of the base line.
- Four months review/relog/remap phase in which almost all of the 10km's of existing drill core were relogged, strategic areas were remapped, previous geophysical and geochemical data was appraised and rocks and pieces of drill core were assayed for a range of elements. A comprehensive report titled "Volcanic facies, alteration and exploration targets in E.L. 8/96 South Henty, Tasmania" was completed by Herrmann and MacDonald (appendix A).
- Drill SHD-1 (779m) on the Lake Newton (aeromagnetic low) prospect targetted on the Henty-Comstock horizon directly above the head of the "mushroom" aeromagnetic low.
- Drill SHD-2 (655m) on the Spillway prospect targetted on the spillway sulphide clast horizon.
- DHEM surveys on SHD-1, SHD-2 and SHD-12 (with SHD-13 completed early in the next reporting year but included here).
- Drill SHD-10 (45m first attempt, 574m second attempt) on the Lake Newton (aeromagnetic low) prospect targetted on the Henty-Comstock horizon stratigraphically above footwall alteration intersected in SHD-1. Hole stopped after intersecting Newton Creek Fault.
- Drill SHD-12 (643m) on the Spillway prospect targetted on the spillway sulphide clast horizon.
- Drill SHD-13 (1051m) on the Lake Newton (aeromagnetic low) prospect targetted on the Henty-Comstock horizon stratigraphically above footwall alteration intersected in SHD-1 and extended to pass along stratigraphic strike from the same alteration.
- ~10.5km's of gridding on the Tyndall Creek and Henty Canal prospects as well as infill lines north and south of the lake. A further ~1km was cut for DHEM loops.
- Surveying ~14km's of dipole-dipole IP on the Tyndall Creek, Henty Canal and Access Road prospects as well as the old line 14 in the south west of the E.L. and a line on HA8 point.
- Collection of 389 "wacker" C-horizon soil samples from Tyndall Creek, Henty Canal and Access Road prospects.
- Drill SHD-3 (56.15m) and SHD-4 (57.65m) into a coincident IP response and favourable structure on line 400W at Tyndall Creek. Drill SHD-5 (47.2m) and SHD-7 (52.0m) into coincident anomalous "wacker" C-horizon soil geochemistry and a favourable structure on line 300W at Tyndall Creek.
- Drill SHD-6 (249.5m) into broadly coincident anomalous "wacker" C-horizon soil geochemistry and IP at the Henty Canal prospect, interpreted to lie along a favourable structure.



390025

RESOLUTE LIMITED

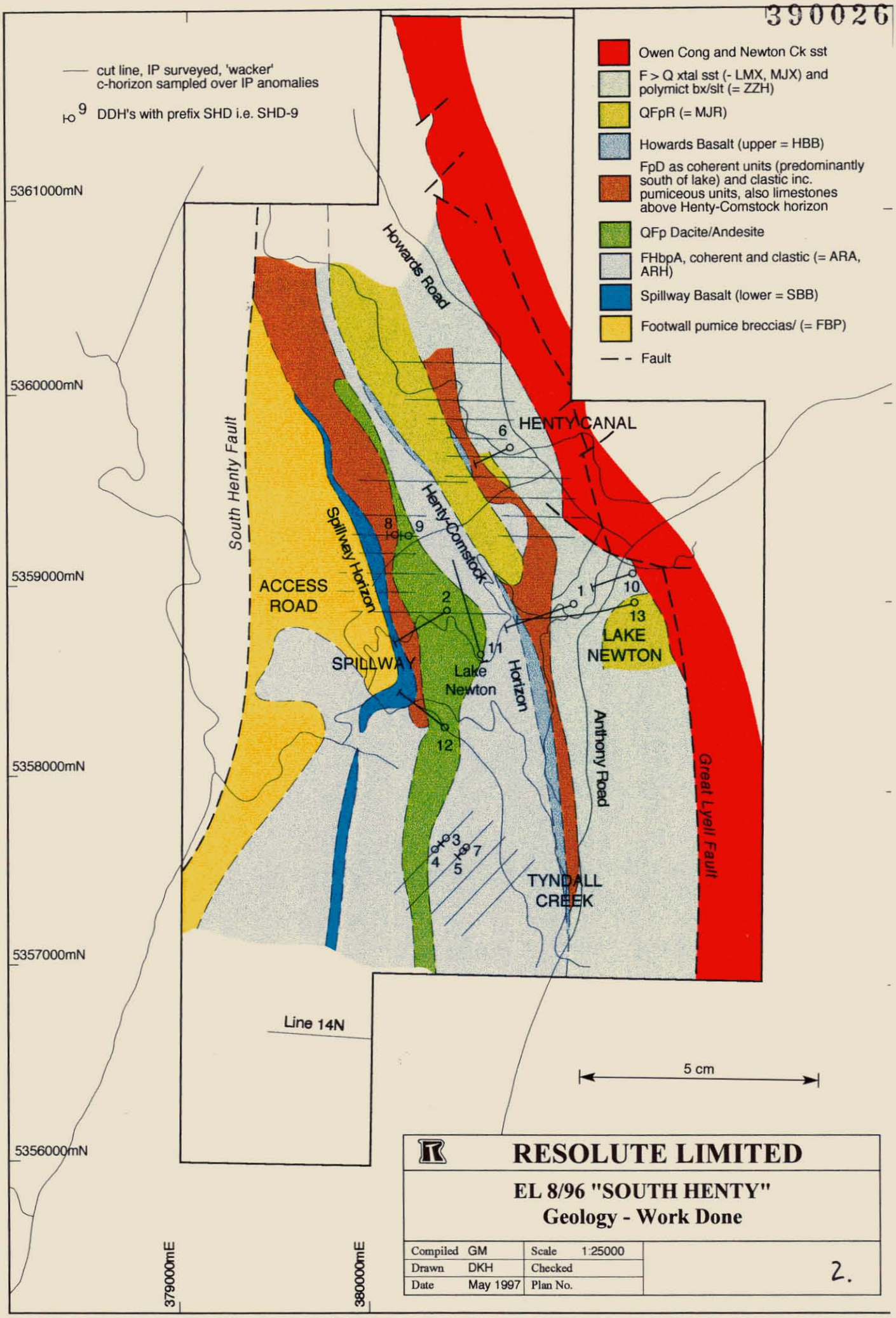
EL 8/96 "SOUTH HENTY"

Total Magnetic Intensity

Colour Image and Contours

Compiled	GM	Scale	1:25000
Drawn	GM	Checked	
Date	May 1997	Plan No.	

390026



RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Geology - Work Done

Compiled	GM	Scale	1:25000
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

2.

390026

390026

378 000 379 000 380 000 381 000 382 000

cut line, IP surveyed, 'wacker' c-horizon sampled over IP anomalies

9 DDH's with prefix SHD i.e. SHD-9

Owen Cong and Newton Ck sst

F > Q xtal sst (- LMX, MJX) and polymict bx/slt (= ZZH)

QFpR (= MJR)

Howards Basalt (upper = HBB)

FpD as coherent units (predominantly south of lake) and clastic inc. pumiceous units, also limestones above Henty Comstock horizon

QFp Dacite/Andesite

FHbpA, coherent and clastic (= ARA, ARH)

Spillway Basalt (lower = SBB)

Footwall pumice breccias/ (= FBP)

Fault

5360000mN

5359000mN

5358000mN

5357000mN

5356000mN

5355000mN

South Henty Fault

ACCESS ROAD

LAKE NEWTON

380000mE

53

41° 55'

5 cm

5 cm

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"

Geology Work Done

Compiled	GM	Scale	1:25000
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"

Total Magnetic Intensity

Colour Image and Contours

2.

Compiled	GM	Scale	1:25000
Drawn	GM	Checked	
Date	May 1997	Plan No.	

- Drill SHD-8 (55.0m) into anomalous IP (with some coincident anomalous "wacker" C-horizon soil geochemistry) and SHD-9 (47.5m) into anomalous "wacker" C-horizon soil geochemistry and geology on line 59300N at the Access Road alteration prospect.
- Drill SHD-11 (56.5m) into the 'stalk' of the 'mushroom' aeromagnetic low on HA8 point.
- Collection and assaying of rocks from the field with assaying for a range of elements including trace elements.
- Petrology (Dr Clive Calver, M.R.T.) and analysis of existing Carbon/Oxygen isotopic data (Dr Garry Davidson, CODES) of samples of limestones(?) from Henty and Comstock as well as C13 and O18 analysis of similar(?) limestones from "South Henty".
- Petrology on samples of QFpD, basalt and alteration/mineralisation from SHD-1 and SHD-2 by Dr Tony Crawford.

6.2 Geological re-mapping

The geological report arising from the four months or reviewing old data, relogging the large amount (~10km's) of old drill core and remapping important areas in the field is included as appendix A. It includes graphic logs of all core relogged (the bulk of the 10 kilometres), a 1:5000 geological plan of the E.L., a number of schematic sections and stratigraphic columns as well as graphic sections of all holes relogged. The colour enhanced aeromagnetics (TMI) image at 1:5000 from which the overlay to figure 9 was taken, showing the mushroom shaped low, is also included. The available lithogeochemical data (Aberfoyle's, Pasminco's and Resolute's) are comprehensively compiled and analysed in the appendices to appendix A and there is a brief discussion of the use of mobile and immobile elements in understanding alteration.

Wally Herrmann did the bulk of this geological work and has described the geology and alteration/mineralisation styles occurring (or with potential to occur) quite comprehensively yet succinctly, providing an excellent geological understanding of the licence from which to base future work. In particular Wally's use of lithogeochemistry as an aid to logging, especially in altered rocks has been invaluable in understanding the rocks at South Henty.

A number of significant conclusions were drawn from the work. Major lithofacies and their lithological and geochemical characteristics were recognised and defined and a synthesis made of the palaeovolcanological setting. This synthesis is repeated as section 7.2.1.

Four styles of alteration were recognised and their lithological and geochemical characteristics described. One of these four styles is Henty style massive silicification. Samples of Henty MQ ore were analysed for whole rock and trace elements with the conclusion that the massive quartz is the product of intense silicification of dacitic volcanics/volcaniclastics and is surprisingly characterised by a marked loss of Al2O3, an element (Al) generally immobile in VHMS systems. A sample of massive silicification

from the Comstock 'chert' at Mt Lyell also showed the same geochemical changes except that the precursor was andesitic (in agreeance with the existence of massive andesitic lava - a correlate of the Anthony Road Andesite in South Henty - along strike). The location of two occurrences of similar silicification in the same stratigraphic setting, ~20 kilometres apart, provides supporting evidence for the existence of the Henty-Comstock horizon.

Exhalative mineralisation at Comstock (see plate 8 in appendix A) is hosted within a 50 -100 metre thick package of limestones, marly sandstones and volcaniclastic sandstones and siltstones overlying the Comstock 'chert' which is a pipelike zone of intense silicification discordant to the andesite lavas and breccias which stratigraphically underlie the sedimentary package. This package, in the Lynchford Member of the Comstock Formation (White and McPhie, 1997), is overlain by typical Comstock Tuff crystal rich sandstones. The chalcopyrite+pyrite±bornite orebodies of Lyell Comstock also lie in the footwall to this 'horizon'. The Henty deposits, while less well reported upon, lie along a horizon (the Henty horizon - see figure 23 in appendix A) which lies near the contact at the base of the Tyndall Group.

Resolute's knowledge of the Henty deposit is based upon limited data from a number of sources, however, we are confident that the Henty-Comstock horizon lies in, or perhaps more likely at the very base of, the Lynchford Member of the Comstock Formation (White and McPhie, 1997). This is essentially the contact between the overlying Tyndall Group and the underlying andesite (Anthony Road Andesite, Comstock andesite) or Central Volcanic Complex in areas without andesitic volcanism. White and McPhie (1997) also show the Eastern Quartz Phyric Sequence and Yolande River Sequence as forming the footwall to the Tyndall Group east and south of Mt Lyell (respectively) with the Southwell Subgroup forming the footwall on the Cradle Mountain Link Road in the north.

The Henty-Comstock horizon was defined to be the contact between Na depleted dacitic>andesitic volcaniclastics in the footwall to a partly altered, foliated, haematitic basaltic unit called Howards Basalt in NC4. This lithogeochemically distinct (Ti/Zr 38 to 56) unit is cited as an excellent marker unit. In NC4 this basalt in turn underlies a limestone typical of sedimentary limestones found along the Henty-Comstock horizon. Prospects along, or in the immediate footwall to, this horizon are discussed i.e. Lake Newton anomaly, Tyndall Creek barite, Tyndall Mine and Howards Anomaly.

The spillway horizon, the source horizon for the high grade massive sulphide clasts outcropping in the spillway, is defined and its potential discussed. A similar basaltic unit, the Spillway Basalt Breccia or Fire Fountain Basalt (after Allen, 1993) was recognised and defined as a marker unit for this horizon. Exhalative mineralisation from which the clasts may have been sourced is believed to lie probably at the upper or lower margin of this basalt.

The potential for Henty style gold mineralisation is also discussed in detail with discussion of the favoured stratabound model as well as the more empirical and structural models.

The report concludes with the definition of seven exploration targets, in order of decreasing priority:

- Lake Newton Anomaly; VHMS footwall style alteration, partly delineated by the aeromagnetic low, situated stratigraphically below the Henty Comstock favourable horizon. Potential for either VHMS and Henty type deposits.
- Spillway favourable horizon to north of Lake Newton; 1 kilometre strike of this favourable horizon lie between the spillway with its outcropping massive sulphide clasts, and the relatively thick (proximal?) intersection of spillway basalt breccia in YNC11. An alternative target closer to the spillway, where the favourable horizon is folded in a steeply plunging anticline, was also suggested.
- VHMS/gold potential on Henty-Comstock horizon; Apart from the obvious Lake Newton anomaly, the Henty-Comstock horizon has potential throughout the licence with the Tyndall Mine shallow UTEM anomaly and the anomalous silver in HA4 two immediate targets. A suggestion was also made here for a hole drilled into the "stalk" of the "mushroom" aeromagnetic low in order to help explain the magnetic feature.
- Spillway favourable horizon to south of Lake Newton; Although complicated by numerous coherent andesitic and dacitic bodies, the spillway basalt can be traced southwards to the access track to YNC13 with a further 1.5 kilometres of possible strike to the south.
- Tyndall Creek barite prospect; The mineralisation is interpreted to be stratiform on the Henty-Comstock horizon. Although alteration vectors and previous drilling don't leave much room a single drill hole may be warranted.
- Henty Au type potential on the Henty-Comstock horizon near intersections with faults associated with type 3 alteration; The empirical model for Henty appears to emphasise the intersection between the favourable horizon and the Henty Fault. This intersection does not occur in South Henty. Analagous faults were listed as the Great Lyell Fault at depth which was partly tested by Aberfoyles deeper holes, Tyndall Creek Fault and perhaps the Henty Canal alteration zone.
- Type 2 alteration in YNC5 & YNC10 area; The strongest occurrence of sericite+Mn carbonate+Kspar Type 2 alteration. The relationship between this type of alteration and VHMS fluids is unclear but if positive this area should be targetted in later work.

The essential conclusion to be drawn is that there are two favourable horizons running through South Henty, i.e. the spillway (lower) and Henty-Comstock (upper) horizons, both marked roughly by lithogeochemically distinct basalt breccias.

Further mapping (subsequent to the mapping reported upon in appendix A) was carried out in the area north-west of the pump station and around the Anthony Road/Howards Road intersection in order to resolve complexities in the geology. That mapping is presented in figure 15 with the results incorporated into the 1:5000 interpretative geology in figure 16 and further discussed in section 7.2.

6.3 Induced Polarisation Surveys

6.3.1 Introduction

Since small discrete structurally hosted gold deposits with associated pyritic alteration are likely to have anomalous chargeability responses it was decided to use dipole-dipole IP with as close a dipole spacing as possible as the first pass technique on the Tyndall Creek, Henty Canal and Access Road prospects. A single line was read on Mt Lyell Line 14N in the south-west and two roughly perpendicular lines read on HA8 Point. Locations of surveyed lines are shown on figure 22.

There has been considerable IP surveying in the South Henty area in the past, however, most of Resolute's prospects have seen only the early reconnaissance dipole-dipole IP (400 metre spaced lines) with the Henty Canal, Access Road and Mt Lyell 14N only covered in this way. The Tyndall Creek lines lie just west of the extensive surveys carried out previously in the more immediate Howards Anomaly area. The HA8 Point area lies on the northern edge of the Howards Anomaly surveys and south of the Tyndall Mine survey. The HA8 Point area, lying over the "stalk" and base of the "head" of the aeromagnetic "mushroom" has only been covered by Line 26N (300' dipole-dipole IP; Elms, 1967; Newnham, 1968) and the northernmost lines of the Scintrex 1974 gradient (Stevens-Hoare, 1975) and Scintrex 1979 gradient (Meares, Walter & Hutton, 1979) array IP surveys.

Scintrex were contracted to carry out the surveying and the work was done in November/December 1996 with only minor lost time for weather or breakdowns. A total of ~14 line km's were read.

A trial survey was conducted on line 60000N on the Henty Canal prospect with both 50m (figure 30) and 25m (figure 29) dipole spacings. Neither survey recorded an anomalous response associated with the outcropping pyritic alteration so the similar alteration outcropping on line 59800N was covered by a 25m spread with limited but more success (figure 32). Subsequent surveying was conducted at 25m dipole spacings and reading to N=8. The exception being Line 14N in the south-west corner which was read at 50m spacings in order to test for footwall style V.H.M.S. alteration at depth. Noise was not a major problem with any lines. Survey results are included as figures 23 to 43 with those anomalies drill tested also shown as figures 3 to 6 (in text). The locations of lines surveyed is shown on figure 22 and summarised in figure 2.

Anomalies (generally chargeability highs±resistivity lows) were recorded on each of the three prospects in locations considered geologically favourable (i.e. essentially along strike from outcropping alteration), however, anomalies are generally discontinuous. Anomalies were also recorded in areas considered geologically unfavourable. These anomalies were not tested. I.P. responses in similar settings from previous surveys have been explained by shales. The exception would appear to the anomaly at the north-eastern end of the Tyndall Creek grid which is apparently due to disseminated pyrite over quite a large area. There may be some benefit in reappraising some of those anomalies not tested, however, a

short dipole spacing means that these are likely to be small shallow sources with a lack of coincident soil anomalism sufficient to downgrade anomalour responses.

6.3.2 HA8 Point

In order to gain information on the nature of the "mushroom" aeromagnetic low it was decided to extend line 58900N to the east to cover the contact between the base of the "head" of the "mushroom" aeromagnetic low and underlying more magnetic rocks (see figure 41). A north-north-west trending line "80425E" (or line "Eric") along the western slope of HA8 Point (the drowned ridge just beyond the end of which HA8 was drilled prior to flooding) was also cut and surveyed (see figure 42). This line was designed to cross the northern edge of the "stalk". Neither lines were optimal in that in both cases the line only just crossed into the magnetic low before the lake shore was met. Further, since the lines were limited in length only 25 metre dipole spacing could be used, thus limiting the depth to which the survey could be read.

Line 58900N has the beginnings of a weak/moderate chargeability anomaly on the very eastern end of the line, whilst "80425E" has the beginnings of a weak anomaly at its southern end, however, neither response was as strong as was hoped. The weaker style of alteration intersected in SHD-1 in the more immediate footwall to the Henty-Comstock horizon (i.e. from 317 to ~664 metres except fot the three sericite+silica+sulphide zones) would not be expected to give a chargeability response, however, sulphidic alteration of the type intersected in SHD-1 between 664 metres and 758 metres and in old holes HA7 and more significantly HA8 (given its proximity to the end of line "80425E") as well as that intersected in SHD-2 (with up to 5% sulphides over individual metres) would most certainly be expected to give a positive response.

It is surprising that a stronger response was not recorded on the southern end of line "80425E" as this line lies almost crosses HA8 with its strong sericite+silica+pyrite alteration. Short DDH SHD-11, which was partly targetted on this IP response intersected only weakly altered QFpD with trace pyrite towards the end of the hole. The end of this hole is only 70 metres north and a similar distance above the strong alteration intersected in HA8. Alteration intensity must drop rapidly over a relatively short distance, suggesting a downwards vector toward increasing alteration. Further evidence for a downwards vector for alteration is discussed in section 7.3.4.

Interestingly HA8 was drilled into the peak of a gradient array IP anomaly (anomaly B on the chargeability contour plan figure 34 in Meares, Walter and Hutton, 1981) on the second northernmost line with the chargeability anomaly apparently closed off by the last line. This suggests that the alteration zone intersected in HA8 also drops in intensity rapidly northwards which is concerning as HA8 lies on the southern side of the "stalk" though surveying is depth limited.

6.3.3 Mt Lyell grid line 14N

A single line was surveyed in the south-western square kilometre of the licence in order to test for chargeable sulphides in what would be the footwall to the spillway horizon if it

continues to trend southerly from the last time it is seen just east of the collar to YNC13. Although more systematic work is warranted and recommended in this area to look for massive sulphides along the spillway horizon and its associated marker unit the spillway basalt breccia, an opportunity for a final two days of surveying prior to committed demobilisation dates allowed a single line to be read in this area.

The line chosen was old Mt Lyell grid (not to be confused with Cyprus' similarly numbered lines which were cut up from the Henty Gorge in the late 1980's) line 14N as it was centrally placed and open. 50 metre dipole spacing was used with only the last station dropping over the edge into the Henty Gorge. The survey was read to N=8. The pseudosection is shown in figure 43.

The 380000E baseline acts as the border between South Henty and Aberfoyle's Basin Lake licence. The baseline/border cuts Line 14N at ~430W. To read to N=8 at 425W required the pots to be laid out eastwards over the same line 14N in Basin Lake. No data was collected for the pots inside Aberfoyle's ground, however, there is an anomalous chargeability response building up on the eastern end of line 14N in South Henty indicating the presence of an anomalous source in Aberfoyle's Basin Lake E.L.(the source is thus expected to lie ~240W in Basin Lake). There is no anomalous response in the South Henty part of the line 14N. Recommendations are made for further IP surveying in this area.

6.3.4 Henty Canal Alteration

The sericite+silica+pyrite altered dacitic volcanics with elevated barite (to 7.7%), arsenic (to 1175ppm) and gold (to 0.079ppm) outcropping in the Henty Canal and on line 59800N at ~380087.5E (discussed in Lewis, 1995b) were considered to have potential for shear hosted gold mineralisation. No grid cutting was required as existing 200 metre spaced lines were used with uncut lines (odd multiples of 100 metres) flagged across the low heathy country. Pseudosections are in figures 28 to 37.

The weak anomaly centred on 380487.5E on line 59800N coincides with the pyritic alteration outcropping in a small gully just west of the canal. It was felt that similar responses on lines 59700N and 59600N were continuations of the same pyritic structure with the structure changing strike and becoming more east-west by 59500N. Strong anomalies on lines 59400N and 59300N are considered to be a separate trend. They coincide with outcropping FHbpA and remain unexplained.

North of the orientation line 59800N the weak response associated with the pyritic alteration dies, even though the same alteration outcrops on the edge of the canal (~60080N) over ~50 metres. A ~2 metre thick cover of glacials does not appear to be causing the problem.

Subsequent drilling of the prospect by SHD-6 is described in section 6.7.4. The hole did not intersect any sulphidic alteration, however, a number of thin black shaley siltstones at around target depth may be the source of the response (see figure 6).

In light of the lack of similar pyritic sericitic alteration in the hole, the unexpected intersection of Howards Basalt at the end of the hole and the Cambrian lead isotope signature (see appendix V in Sharpe, 1993), further attention on this alteration is justified. The alteration may be a pointer to a more significant deposit. Intriguingly the alteration appears to have some similarities to the silica+albite alteration seen in the hangingwall to Henty which would appear to lie at a similar higher stratigraphic level than the Henty-Comstock horizon. This alteration is discussed further in section 7.3.8.

6.3.5 Access Road Alteration

The surveying of five lines on the Access Road prospect was centred on the outcropping sericite+silica+sulphide (pyrite, sphalerite, galena) alteration on the access road to the Lake Newton dam at ~380050E. Previous channel sampling by Aberfoyle had reported assays up to 103ppm Cu, 660ppm Pb, 1553ppm Zn and 0.069g/t Au. Single grab samples also assayed up to 0.105 and 0.083 g/t Au (Sharpe, 1992). No grid cutting was required as existing lines were used with uncut lines 59300N, 59100N and 58900N west of 380000E flagged across low heathy country.

The IP survey appears to show two anomalous trends (see figures 36 to 41 for pseudosections). The response recorded on line 59400N at 380037.5E intensifies on 59300N at 380062.5E before weakening on line 59200N at ~380087.5E and merging with a separate (unexplained) response centred at ~380200E. Two holes were drilled on line 59300N (see figure 5) with SHD-8 targetted on the strong IP response (SHD-9 was drilled further east on a geology/soil geochemistry defined target).

A strong response was recorded on line 58900N at 380112.5E. This was considered to be a potential drill target until SHD-2 intersected black shaley siltstones at depth but at the same stratigraphic position. This response does not continue with any strength to line 59000N. A deeper weak response on line 59100N centred at ~ 380087.5E is probably associated with the outcropping alteration originally targetted in the surveying however the strength of the response is not encouraging.

John Bishop, who assisted in interpretation of the IP survey, considers responses east of 380000E on lines 58900N to 59100N to be of interest. These correspond with footwall pumice breccia and may represent pyritic alteration in the footwall to the spillway horizon. Unfortunately these anomalies have limited depth.

6.3.6 Tyndall Creek

The Tyndall Creek area was surveyed in order to trace the gold anomalous pyritic alteration intersected in HA1/2 (see discussion and logs in appendix A) as well as similar pyritic shears outcropping in the road cut to the Anthony Road (just north of the Tyndall Creek bridge - see figure 20 in appendix A) and on the first part of the access track used for YNC12 and 13. The survey was designed to trace the north-west to north-north-west trending altered structures further to the north-west.

Line 000E, previously surveyed by Aberfoyle, was re-surveyed in order to orientate our results with Aberfoyles, and to resolve some confusion about the orientation of the survey plots of Aberfoyle's survey. Aberfoyle's Tyndall Creek grid was extended north-westwards with lines 100W to 400W cut and surveyed at 100 metre spacings parallel and to the north-west of 000E. Pseudosections are in figures 23 to 27.

The best anomaly was recorded on line 400W at 900N with a similar but weaker response on line 300W at 912.5N. Both anomalies line up along the expected north-west trend of these structures. The anomalies did not extend with any strength on lines 200W, 100W and 000E. Strong responses were recorded on the north-eastern ends of lines 200W to 000E. These are due to pyritic alteration which is intriguing, lying in the footwall to the Henty-Comstock horizon to the south of the Lake Newton prospect, and is discussed later. A pair of holes were drilled on each of lines 400W and 300W with the targets summarised in figures 3 and 4.

6.4 Wackers

"Wacker" sampling is a method, adapted and (assuredly) improved by Nick Poltock of the Don, of obtaining a bedrock C-horizon soil sample even through metres of cover. The sample, roughly the size of a thick sausage, can help with mapping, especially supported by trace element lithogeochemistry. Cover is a problem over much of the prospective rocks at South Henty (those that aren't under water) with the problem fluvio-glacial gravels up to 10's of metres thick (the thicker parts of these gravels in part form in predictable generally westerly trending paleo-channelways which could be mapped if such was considered warranted).

The "Wacker" machine has a two stroke engine with rotating cam in the 'head' of the machine which sends high frequency vibrations directly downwards onto the rods. The bit is an ~10cm long cylindrical pipe of diameter of ~50mm with tungsten-carbide serated leading edge. The other end of the pipe, just where it tapers down to become part of the rod, has an opening of similar cross-sectional area to that of the pipe. Clay is forced through the bit and out the back opening until the leading edge is impeded by bedrock in which case the rods are retrieved (by jacking) and the sample is the last 10cm of clay or rock left in the bit.

The "wacker" has trouble in glacials due to the presence of large boulders of hard, weathering resistent Owen Conglomerate which has shed from the Tyndall Range to the east, resulting in a number of 'failed' samples. Although the exact number has not been calculated, ~20% of samples taken by Resolute were of glacial cover.

An initial sampling programme was carried out in the Tyndall Creek area in order to assist in planning sample spacings. Anomalous Aberfoyle "wacker" and hand augered C-horizon sites were resampled with locations midway (12.5 metres) between previously sampled sites also sampled. Samples were assayed for Cu, Pb, Zn, Au, Ag, Bi, Mn and As. Results were variable with both good and bad correlation between Resolute's and

Aberfoyle's surveys. Sample locations of Resolute's and previous companies sampling is shown on figure 44 with results for Au, As and Ag on figure 45 Unfortunately a plot of Cu, Pb and Zn was not available at the time of reporting and it has not been included. Sample locations (A.M.G.) are given for all samples in appendix B.

Summary sections of those IP±soil geochemistry anomalies drill tested by short DDH's show these soil geochemical results (see figures 3 to 6).

"Wacker" sampling is constrained by the same problems encountered by other conventional methods of soil sampling in the wet, acidic, poorly developed soils on Tasmania's west coast. In such soil environments metals dispersal patterns, and particularly gold, are not those seen in older, deeper weathered terranes. Gridded C-horizon soil sampling often gives spiky data, particularly for gold. Each soil sample is in fact a 'blind' spot rock sample. If the gold deposit itself does not have a hard rock halo, it is unlikely to form such a halo in the overlying soil profile on Tasmania's west coast. Fortunately pyritic footwall alteration systems below V.H.M.S. deposits often contain broadly dispersed low but anomalous levels of gold. In exploration for discrete shear hosted gold deposits, sample spacings must be of the same order as the expected width of the deposit and associated alteration halo.

A total of 389 "wacker" samples were collected from the Tyndall Creek, Access Road and Henty Canal prospects, all recognised as relatively minor targets but which warranted attention. The first batches of samples were logged and samples of recognisably glacial material were not submitted for assaying. These samples were marked with an x on the sample record sheets. Subsequent batches were not logged prior to assaying and some glacial material was assayed. These were subsequently logged and have been marked by an x on the sample record sheets. Both locations and results for all of these glacial samples are not shown on figures 44and 45 respectively. Samples were assayed for Cu, Pb, Zn, Ag, As and Au.

As predicted results were generally spiky for gold with base metal anomalies generally broader. Best results can be summarised as follows:

Henty Canal	Au to 0.110 g/t, Zn to 1543 and 384 ppm, Pb to 2370 and 115 ppm and Cu to 109 and 96 ppm.
Access Road	Au to 0.109 and 0.062 g/t, Zn to 328 and 285 ppm, Pb to 205 and 113 ppm and Cu to 95 and 60 ppm.
Tyndall Creek	Au to 0.878 and 0.157 g/t, Zn to 257 and 143 ppm, Pb to 56 and 56 ppm and Cu to 133 and 64 ppm.

6.5 Rock Sampling/mapping

Strategic rock sampling and further mapping was carried out after the completion of the initial remapping phase. Rocks collected and assayed as part of this initial mapping work are not discussed here (these are numbers 384001 to 384003 and 384031 to 384150). Sample descriptions are in appendix B with assays in appendix C.

Nine samples (384151 - 384159) of fill on the dam wall were sampled after Wally Herrmann recognised the similarity between these intensely silicified felsic(?) volcanics with quartz+sulphide veinlets and Henty ore. After much excitement and speculation as to the source of these boulders, the assay results indicated a best Au of only 0.024g/t (Cu was up to 0.35%, Pb to 30ppm, Zn to 288ppm). The source of the boulders was found to be (reasonably confidentally) from the King power scheme tunnel under Mt Jukes with the rock chosen to face the dam wall on the basis of its aesthetics and weather resistence (discussed in a 1983 H.E.C. report on planning for the Newton Dam, which also discusses the possibility of draining the lake should exploration around HA7 and HA8 at the time should prove successful).

Seven samples of limonitic float (384162 - 384168) were collected along the first ~150 metres of the rehabilitated access track for YNC's 12 and 13, and thus overlying HA1/2. Two samples (384161 and 384162) of strongly schistose chloritic volcanics with a north-westerly strike to the foliation, and a third sample (384160) of chlorite altered volcanic with a quartz+galena veinlet were also collected along the access track. The limonitic samples assayed up to 0.026g/t Au (rest BDL), 1877ppm Zn, 646ppm Pb and 47ppm Cu. The chloritic schist assayed up to 0.9% Zn, 0.24% Pb, 0.14% Cu and 0.062g/t Au. The quartz+galena veined sample assayed 0.17% Zn, 0.25% Pb and 0.01g/t Au.

Nine samples of specular haematite veined feldspar phyric andesite or dacite (384170 - 384180) from the log infested point at 58850mN 380690mE, within the "head" of the "mushroom", were assayed with best results 40ppm Cu, 756ppm Pb (next best 24ppm), 358ppm Zn (same sample as high Pb) and 0.02g/t Au.

A further seven samples of Henty massive quartz (MQ) ore (384271 - 384277) and one of associated sericite+pyrite alteration (384278) were sampled from the old dump used by RGC prior to the construction of the Anthony Road. The area has been rehabilitated but pieces of recognisable Henty (sill zone) ore are still there. Interestingly, the samples of ore assayed between 0.08g/t and 121g/t Au with Cu to 0.57%, Pb to 1.4%, Zn to 681ppm, Ag to 171ppm, Bi to 450ppm, As to 123ppm, low Ba to 282ppm and Sb to 52ppm. There is a recognisable correlation between high Au and high Cu, Pb, Zn, Ag, Bi and Sb (the latter four elements at lower levels). Ti/Zr ratios ranged between 8.5 and 11.8 with a single 5.3, suggesting that the alteration is overprinting dacitic clastics or volcanics, or mixed dacitic-rhyolite derived clastics.

Seventeen samples (384279 - 384295) of outcrop, creek float and mullock adjacent to a recent pit in the Tyndall Creek area were collected. Samples are of

barite+sulphide±haematite. Ba is up to 43.7%, Cu to 0.3%, Pb to 6.6%, Zn to 7.2%, Ag to 250g/t, Au to 3.8g/t, Bi to 15ppm, As to 539ppm and Sb to 209ppm. Ti/Zr ratios range widely from 3.4 to 21.9 with most >10. However, absolute Ti and Zr levels are only moderately low with Ti to 350 to 2920ppm but generally ~500ppm, and Zr 21to 157ppm but generally ~50ppm suggesting that there has been intense alteration producing relative depletion of these absolute amounts of Ti and Zr by the addition of significant amounts of other elements (Ba) to precursor volcanics. Exhalative mineralisation should have very low levels of the elements Ti and Zr which appear to have been immobile in all examples of alteration at South Henty known to date. Their immobility means they are not leached, transported and subsequently exhaled by hydrothermal fluids.

There is a strong correlation between high Ba and low Ti and Zr with the addition of Ba expected to be sufficient to explain this depletion in these immobile elements. This is interpreted to indicate that the barite in the float and outcrop is the product of alteration of a precursor volcanic. However, the correlation between these massive barite samples and moderately low Ti and Zr does not mirror the Ti and Zr values of drill core sample from TC1 to TC5 (appendix A). Ti levels are generally very low i.e. <50ppm in barite rich zones with Zr generally also very low (<34 ppm in the barite rich zone except for a single 156ppm in TC5. This casts some doubt upon the above interpretation, however, the analytical method (XRF) used for determining Ti is suspect with high levels of Pb or Ba (both highly elevated in these samples) when the full suite of majors is not analysed. Barite±sulphide mineralisation at Tyndall Creek is interpreted to be the product of intense alteration of volcaniclastic breccias and sandstones, perhaps unconsolidated and perhaps immediately below the seafloor which was probably the Henty-Comstock horizon at the time.

The area of the Lake Newton prospect was mapped at 1:2500 scale as figure 15 with the results of this and new knowledge from the drilling incorporated into an updated version of the interpretative geology at 1:5000. Thirteen rocks (384751 - 384763) were collected during this work and assayed for trace elements in order to help with identification. Sample locations are shown on figure 15. The results of this mapping are discussed in later sections.

6.6 Shallow diamond drilling

6.6.1 Introduction

A total of seven short diamond drill holes were drilled by Nick Poltock in January-March 1997 using his custom man-portable diamond drilling rig. The rig, shown in plates 1 and 2, is capable of drilling a diamond hole to ~50 metres with ~NQ (actually TT55) sized core to ~30m and ~BQ (actually TT45) sized core the rest. Recovery was generally good (if we remember that the rock at this depth is that which normally troubles drillers).

Nick's rig was used as it provides a cost-effective (no earthworks - though man-portable should really read men-portable), environmentally unobtrusive, (see plates 1 and 2),

1 **Drilling SHD-7, Tyndall Creek (left to right, Mark Smith and Nick Poltock).**

2 **Drilling SHD-8, Access Road alteration (left to right Nick Poltock, Mark Smith's buttocks, Sam Taylor).**

3 **Collar of SHD-1 with the pump station on the right side and Lake Newton through the trees.**

geologically effective first pass for testing shallow targets and providing geological information in areas of limited outcrop.

Drill hole locations are shown on figure 16, survey data is included in appendix H, drill logs are included in appendix D and summary geochemistry in appendix I. Summary sections, without geology, of SHD-3, 4, 5, 7, 8 and 9 in figures 4 to 7 show the trace of the holes with respect to their IP and/or soil geochemical targets. SHD-11 has no such section though it is shown on figure 12.

6.6.2 Tyndall Creek Line 400W; SHD-3 (56.15m) and SHD-4 (57.65m)

Due to the desire to commence drilling as early as possible (coupled with the fact that Nick Poltock monopolises both "wacker" sampling and man portable diamond drilling - note the expression in plate 2), the first target selected was necessarily an I.P. alone target as "wacker" results had not yet been received. Two scissor holes were planned on the strongest IP response from the whole IP survey on line 400W. Locations of the holes are shown on figure 16.

SHD-3 intersected massive, coherent FHbpAndesite, fresh and unaltered with negligible sulphides. There is a weak foliation (at 30 degrees to the core axis) below 47.5 metres. No core was assayed.

The surprisingly disappointing result from SHD-3, with no recognisable source for the IP anomaly, led to SHD-4 which had a similar result.

SHD-4 intersected coherent essentially unaltered FHbpA with a weak foliation increasing below 47.5 metres to maximum strength at ~51.5 metres. A few pyritic veins run sub-parallel to the core axis from 47.65 to 48.9 metres. Eleven samples of core from below 47.0 metres were submitted for assay with best result a single 1m @ 0.014g/t Au from 48 to 49 metres. Best other results were 44ppm Cu, 72ppm Pb, 71ppm Zn, 1g/t Ag, 14.4ppm As and 0.005g/t Au.

The IP anomaly may have been due to clays in a glacial gutter (John Bishop, *pers. comm.*). This is suggested by the apparent fairly rapid deepening of the glacial cover corresponding with the IP response (illustrated in figure 3). This may be verified by modelling the IP response, however, this is not considered a priority.

6.6.3 Tyndall Creek Line 300W; SHD-5 (47.2m) and SHD-7 (52.0m)

The second target selected was the best soil anomaly generated by the "wacker" sampling, results of which had since been received. The locations of the two holes is shown on figure 16.

The 0.878 ppm Au anomaly on line 300W was from a sample just north-east of a creek in the rainforest on the slope leading up from the creek (see figur 4). Given the suspected steeply north-easterly dip of the structure hoped to be responsible for this anomaly (based upon the orientations of similar structures in the Tyndall Creek area) this led to less than

390041

Key

Assays (all ppm)
Cu, Pb, Zn, As, Ag and Au

900N

Ground Surface

Sample depth = Bedrock

GLACIAL - Bedrock depth unknown

IP REFERENCE SURFACE

775N 800N 825N 850N 875N 900N 925N 950N 975N 1000N 1025N 1050N

39, 10, 55, 2·8, <1, <
23, 16, 36, 6·0, <1, <
16, 6, 28, 4·4, <1, <
133, 13, 37, 7·4, <1, <
35, 24, 57, 41, <1, <
19, 14, 38, 36·8, <1, <
34, 5, 51, 6, <1, <
28, 27, 66, 40, <1, <
20, 12, 56, 33, <1, <
26, 28, 257, 8, <1, <
12, 17, 128, 27, <1, <
24, 15, 114, 15, <1, <
6, 15, 60, 26, <1, <
15, 55, 29, 10, <1, <
34, 56, 48, 40, <1, <
32, 24, 60, 7, <1, <
32, 30, 84, 57, <1, <
27, 18, 36, 8, <1, <
16, 15, 71, 24, <1, <
27, 56, 45, 42, <1, <
17, 37, 60, 18, <1, <

SHD-4 -52° to 224·5° (TN)

SHD-3 -48° to 226·5° (TN)

CHARGEABILITY (mv/V)

RESISTIVITY (Ω-m)

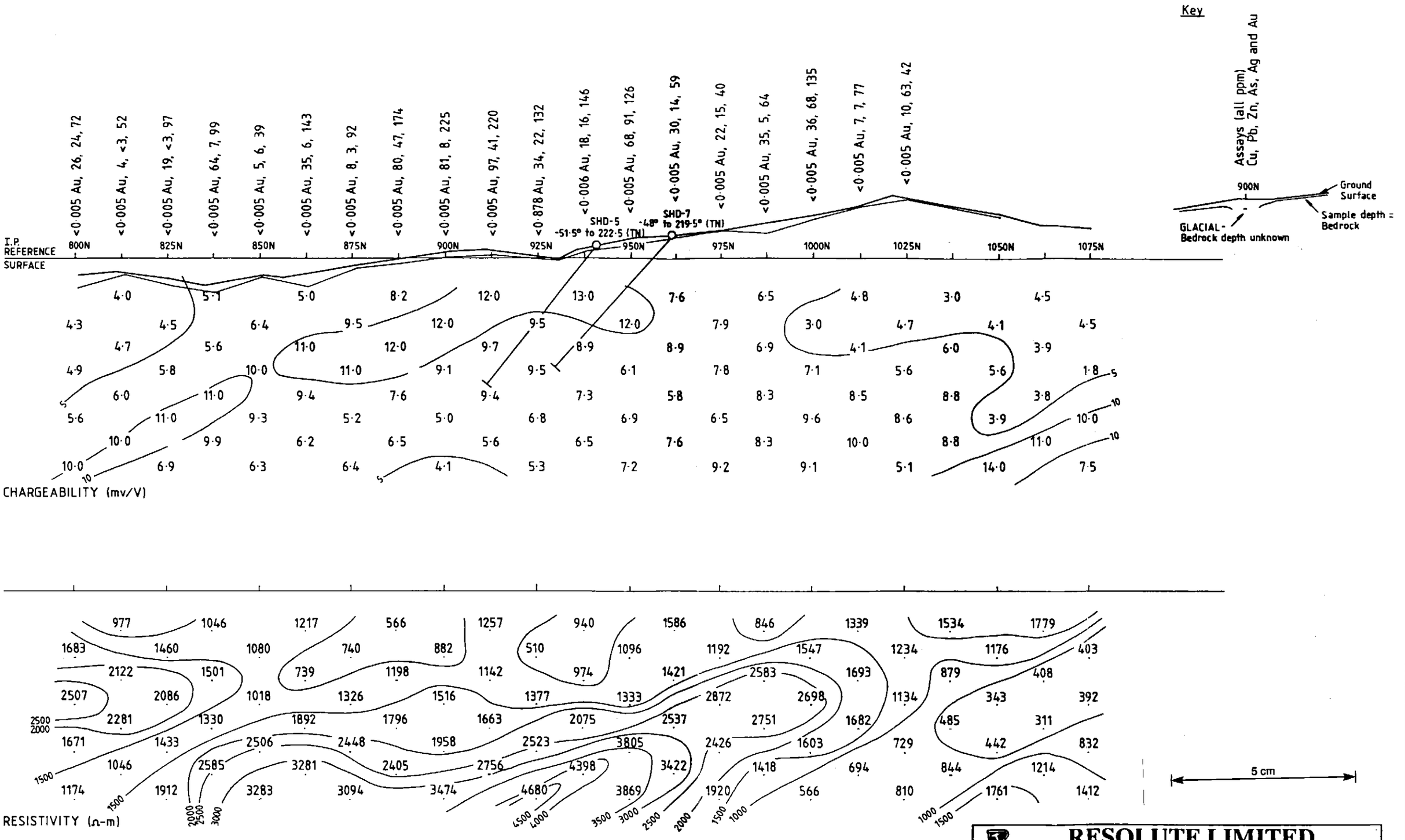
5 cm

RESOLUTE LIMITED

TYNDALL CREEK PROSPECT
Summary Section - Line 400W
IP, "Wacker" geochemistry and drilling

Compiled	GM	Scale	1:1000
Drawn	DKH	Checked	
Date	Nov 1996	Plan No.	3.

390042



RESOLUTE LIMITED

TYNDALL CREEK PROSPECT
Summary Section - Line 300W
IP, "Wacker" geochemistry and drilling

Compiled	GM	Scale	1:1000
Drawn	DKH	Checked	
Date	Nov 1996	Plan No.	4.

390043

Key

Assays (all ppm)
Cu, Pb, Zn, As, Ag and Au

900N

Ground Surface

Sample depth = Bedrock

GLACIAL - Bedrock depth unknown

I.P. REFERENCE SURFACE

79950E 79975E 80000E 80025E 80050E 80075E 80100E 80125E 80150E 80175E 80200E 80225E

18, 26, 73, 7·2, <1, <
17, 16, 113, 4·8, <1, <
17, 21, 48, 3·1, <1, <
28, 24, 67, 5·3, <1, <
7, 25, 33, 5·2, <1, <
4, 16, 18, <0·5, <1, 0·062
5, -, 21, 1·6, <1, 0·009
6, 25, 17, <0·5, <1, 0·015
8, 133, 12, 0·6, <1, <
3, 13, 13, 0·5, <1, <
4, 71, 15, 1·5, <1, <
3, 9, 23, <0·5, <1, <
4, 7, 13, <0·5, <1, <
6, 4, 44, 0·8, <1, <
21, 9, 142, 14·5, <1, <
62, 7, 260, 2·8, <1, 0·035
53, 5, 178, 0·7, <1, <

SHD-8 -52° to 270·5° (TN)

SHD-9 -48° to 264·5° (TN)

5·5 2·6 3·2 8·7 14·0 12·0 5·3 8·6 9·2 9·3 8·6
5·8 3·7 4·2 6·2 12·0 14·0 12·0 6·6 7·8 10·0 9·7 8·9
3·9 4·8 7·4 10·0 13·0 14·0 15·0 6·1 7·5 8·6 8·7
4·3 5·2 8·2 11·0 10·0 13·0 16·0 15·0 6·8 6·0 6·9 8·5
5·8 8·9 12·0 11·0 9·9 14·0 15·0 15·0 6·4 5·3 6·5
5·1 9·8 12·0 11·0 11·0 11·0 12·0 15·0 15·0 6·9 5·7 6·2
9·2 12·0 11·0 10·0 12·0 9·4 12·0 15·0 15·0 7·8 5·5
7·0 12·0 12·0 10·0 12·0 11·0 9·4 13·0 14·0 15·0 7·6

10 15

CHARGEABILITY (mv/V)

246 218 524 1029 1061 1508 1412 1403 1612 801 422
265 392 517 361 844 1350 975 973 1385 983 333 370
523 837 461 302 938 1027 744 1120 1056 511 381
824 1031 688 398 338 697 821 894 884 664 586 374
1551 831 595 460 267 570 1021 722 550 825 560
1979 1232 723 692 379 217 701 831 449 754 816 600
1544 1064 848 576 322 268 566 526 643 782 877
1180 1309 1248 706 510 399 221 355 829 686 833

1500 1000 500 500

RESISTIVITY (Ω-m)

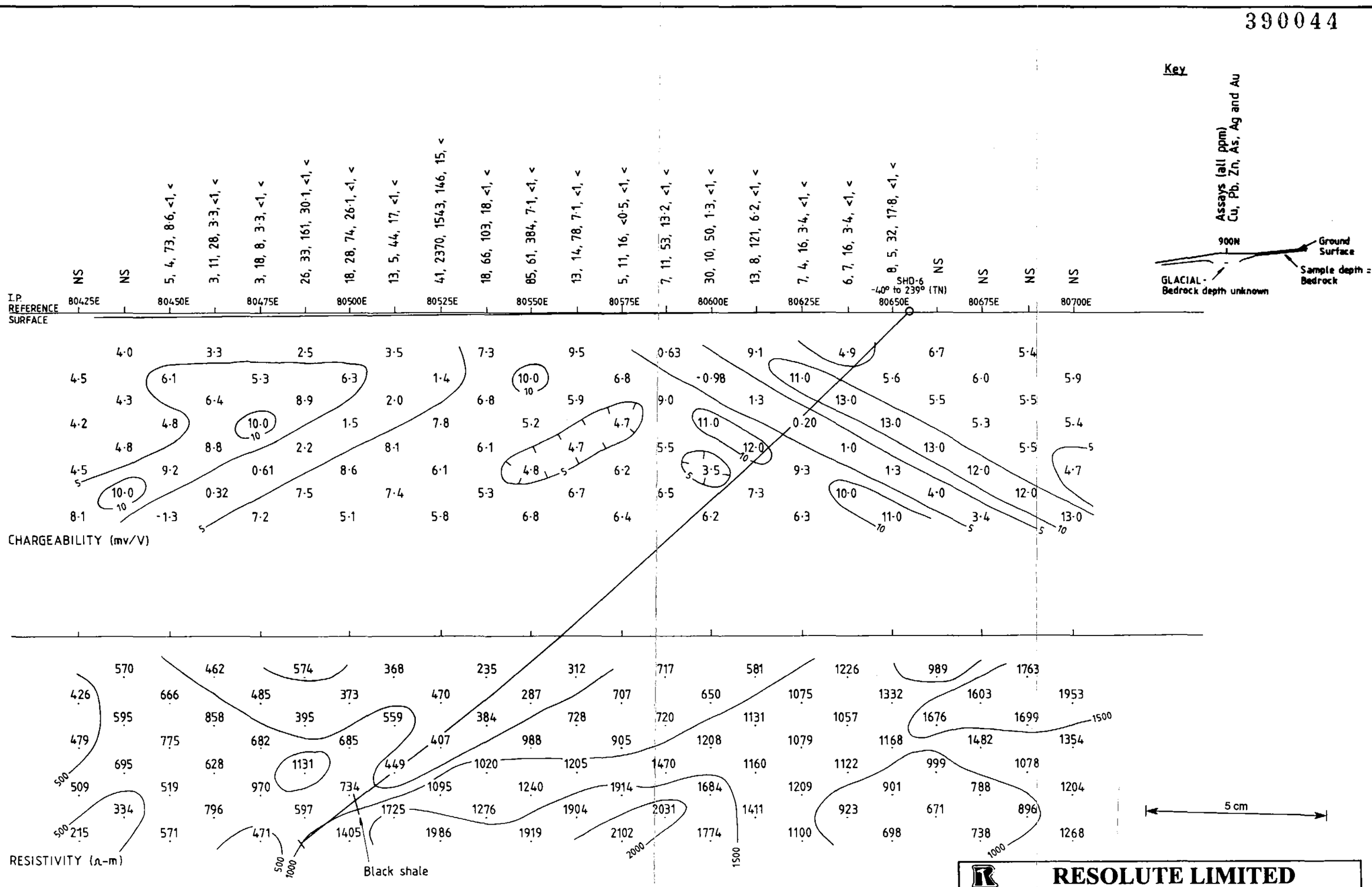
5 cm

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY" ACCESS ROAD PROSPECT
Summary Section - Line 59300N
IP, "Wacker" geochemistry and drilling

Compiled	GM	Scale	1:1000
Drawn	DKH	Checked	
Date	Nov 1996	Plan No.	5.

390044



RESOLUTE LIMITED			
EL 8/96 "SOUTH HENTY" HENTY CANAL PROSPECT Summary Section - Line 59700N IP, "Wacker" geochemistry and drilling			
Compiled	GM	Scale	1:1000
Drawn	DKH	Checked	
Date	Nov 1996	Plan No.	6.

ideal drilling conditions. SHD-5 was targetted directly underneath the anomaly and expected to pass ~15 metres directly below it. The hole intersected coherent FHbpA with pyritic clayey zones generally above ~18 metres and variably oxidised pyrite filled fracture veinlets below this depth. The whole hole was assayed with 44 1 metre samples submitted. Best gold results were 8m - 11m, 3m @ 0.014g/t Au, and 13m -15m, 2m @ 0.012g/t. Best Cu was 164ppm, Pb 133ppm, Zn 231ppm, Ag 3ppm and As 38.8ppm.

SHD-7 (see plate 1) was drilled ~20 metres behind and thus underneath SHD-5 to further intersect the pyritic zones intersected in SHD-5. The hole intersected less sulphide than SHD-5 with only minor pyrite veinlets at ~30 metres and a single 5-10mm thick massive fracture fill pyrite vein sub-parallel to the core axis from 37.9 metres to 38.7 metres. Five samples covering the pyritic zones were assayed. The best assays from this hole were 11ppm Cu, 6ppm Pb, 30ppm Zn, 179ppm As and 0.01g/t Au (all silver <1ppm).

The pyritic veins are sufficient to explain any IP response and the anomalous Au.

6.6.4 Access Road Line 59300N; SHD-8 (55.0m) and SHD-9 (47.5m)

The best IP high and coincident anomalous "wacker" C-horizon soil geochemistry (Au to 0.062, 0.015 and 0.009g/t - summarised in figure 5) was tested by SHD-8 (see plate 2) which intersected strongly sericite+Mn carbonate+pyrite and chlorite+carbonate altered dacitic volcaniclastics similar in appearance to the altered and mineralised rocks between the QFpD/A and the spillway basalt in SHD-2.

The whole hole was assayed with three samples analysed for whole rock/trace elements. These samples confirmed the dacitic composition of the volcanics with Ti/Zr 14.7, 12.6 and 14.0 (from 13 - 14m, 15 - 16m and 19 - 20m respectively). Best gold results include 30 - 33m, 3m @ 0.76g/t Au including 30 - 31m, 1m @ 0.51g/t Au; 15 - 17m, 2m @ 0.12g/t Au; 42 - 47m, 5m @ 0.05. Base metals were elevated up to 1469, 1290 and 1024ppm Cu; 840, 747 and 685ppm Pb and 2988, 2074 and 1590ppm Zn

The alteration in the upper part of the hole, above ~39 metres, is sericite+pyrite+silica with the sericite+quartz as pervasive alteration, subsequently(?) foliated, with disseminated pyrite. Carbonate appears to be a slightly later stage and is generally semi-pervasive or in veins. Below ~39 metres the alteration becomes more chloritic with discrete carbonate veins (deformed but later stage in the alteration sequence).

The presence of strong sericite+silica+sulphide±carbonate (±Mn) alteration with elevated Cu and Au beneath the unaltered QFpA (thought at the time to also be a QFpD and a correlate of the QFpD striking roughly north-south from ~57000N to YNC10 at ~60000N) in the recently completed SHD-2 suggested that there may be ponding of hydrothermal fluids up underneath this sill with the hotter assemblage Cu+Au adjacent to the contact.

It was planned to test this theory with SHD-9. The hole was planned to intersect the contact between volcaniclastics and QFpD. Unfortunately lack of outcrop and generally

poor "wacker" success due to glacial cover led to target definition being imprecise. Nevertheless SHD-9 did intersect this contact, albeit in very weathered core. It appears that the QFpD may exist as two discrete intervals within the hole, though weathering makes rock recognition problematic, and this would accord with the apparent thinning of the unit northwards and its apparently bizarre behaviour in DDH's YNC5 and 10, thinning rapidly from YNC10 to YNC5.

Two zones of trace to minor pyritic alteration were intersected in the hole. A weaker zone lies between the two QFpD intersections from 28.2 - 32m with a stronger zone around the lower contact of the lower QFpD intersection at 40.5m. The pyrite is associated with variable chlorite±sericite alteration.

The whole hole was assayed with best results only 84ppm Cu, 51ppm Pb, 366ppm Zn, 0.02g/t Au and Mn to 1093, 588 and 575ppm Mn (though Mn here may reflect weathering).

6.6.5 HA8 Point; SHD-11 (56.5m)

A single hole was drilled near the end of HA8 Point in order to intersect the "stalk" of the mushroom aeromagnetic low to provide geological information on the nature of this low (see figure 9). As expected (and planned) the hole intersected QFpD throughout. The hole was also partially designed to approach a weak IP chargeability high on Line "80425E" on HA8 Point. There is a trace amount of pyrite at the bottom the hole which may indicate the existence of more pyritic alteration off the end of the hole.

As noted earlier, the QFpD is only weakly altered (sulphidically at least) which is surprising given the proximity of HA8 (~75 metres away) with its strongly sulphidic alteration.

The whole hole was assayed with all Au <=0.002g/t except for 0.016g/t from 8.5 - 9m. Best Cu is 69ppm, Pb 26ppm and Zn 242ppm. Four samples were analysed for whole rock and trace elements including LREE (see Table 2 and section 6.9.2). These were also shown to Tony Crawford who discusses their petrology and chemistry in appendix F with his conclusions summarised in section 6.9.2. This work confirms the existence of weak sericite+silica+chlorite+Kspar±pyrite alteration.

6.7 Diamond drilling

6.7.1 Introduction

A total of six diamond holes were drilled by Almac Drilling Pty Ltd (Zeehan) for Resolute Limited. Total depth of these holes is 3702 metres (this excludes 45 metres drilled and aborted due to excessive lift/kick in the first 30 metres of SHD-10). Two of the holes (SHD-2 and SHD-12) were targetted on the spillway horizon with the other three (SHD-1, 10 and 13) targetted on the Henty-Comstock horizon (effectively only two holes as SHD-10's target had been downfaulted and was not reached. It was subsequently

tested by SHD-13. A sixth hole, SHD-6, was drilled for 249.5 metres on the Henty Canal prospect.

Drilling commenced on 1st November, and except for ~two weeks off at Christmas, continued essentially uninterrupted until the 27th of June.

6.7.2 Lake Newton Prospect (SHD-1, SHD-10 and SHD-13)

SHD-1 (779m)

SHD-1 (see plate 3) was targetted on the Henty-Comstock horizon, directly above the "mushroom" shaped aeromagnetic low (see figure 9), interpreted to represent magnetite destructive footwall alteration beneath a V.H.M.S./Henty deposit on or in the immediate footwall to the Henty-Comstock favourable horizon. The hole was designed so that it was drilling down the "stalk" of the mushroom, interpreted to possibly represent the focus of hydrothermal fluid flow. It was designed to intersect this horizon at ~300 metres, beyond UTEM or IP range.

Target models were the following; a classic exhalative massive deposit on the seafloor, a Henty style gold deposit with high grade gold in intense hydrothermal silicification in the immediate footwall to the sea floor; perhaps a Rosebery-like massive sulphide deposit formed by replacement of porous, premeable pumiceous footwall rocks, especially if sea levels were low; or some style of mineralisation more likely to be deposited on or near the seafloor under shallow seawater depths, transitional between VHMS and epithermal style mineralisation.

The hole was designed to intersect a significant thickness of the footwall in order provide as much DHEM coverage of the Henty-Comstock horizon as possible and to possibly intersect the roots of a footwall stringer system. A third reason was to test for the Rosebery type replacement model which would be expected to lie at some depth (~200 metres?) in the footwall.

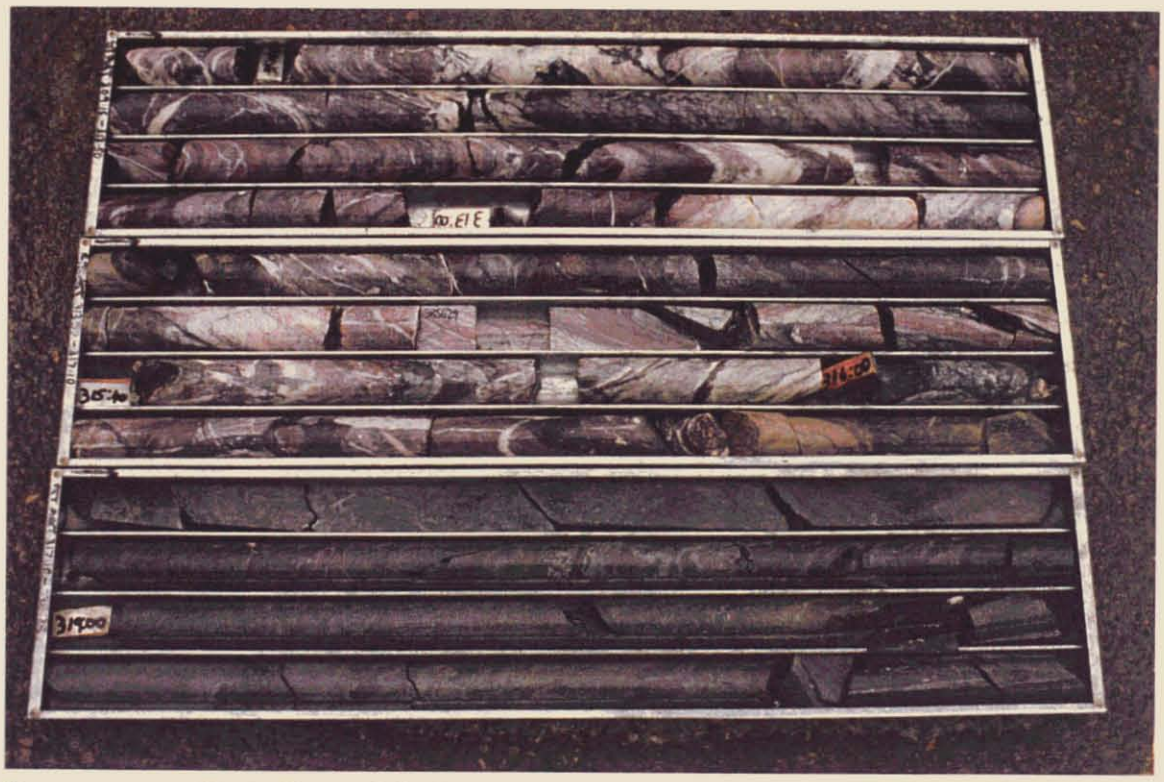
A summary log is as follows:

0 - 170m	F>Q crystal rich sandstones/breccias (dominantly QFpR clasts)
170 - 188m	Limestone slump breccia
188 - 276m	Howards basalt, coherent and brecciated (hyaloclastic) F phyric including the haematitic/calcite rich foliated basalt from 263 - 268m (see plates 4a and 4b).
276 - 301m	another pulse of F>Q crystal sandstones/breccias
301 - 317m	Marly sandstone which gradually becomes a more pure fossiliferous limestone downhole to the lower contact at 317m (see plate 5). Henty-Comstock horizon interpreted to be 317 m
317 - 394m	Dacitic>andesitic volcaniclastics. Weakly chlorite±haematite±sericitealtered with Na2O depletion (see figure 7 and plate 6). Essentially non-magnetic below the contact.
394 - 396m	Zone of moderate sericite+quartz+pyrite alteration with anomalous Pb and Zn in smoky grey quartz veinlets (<10mm).

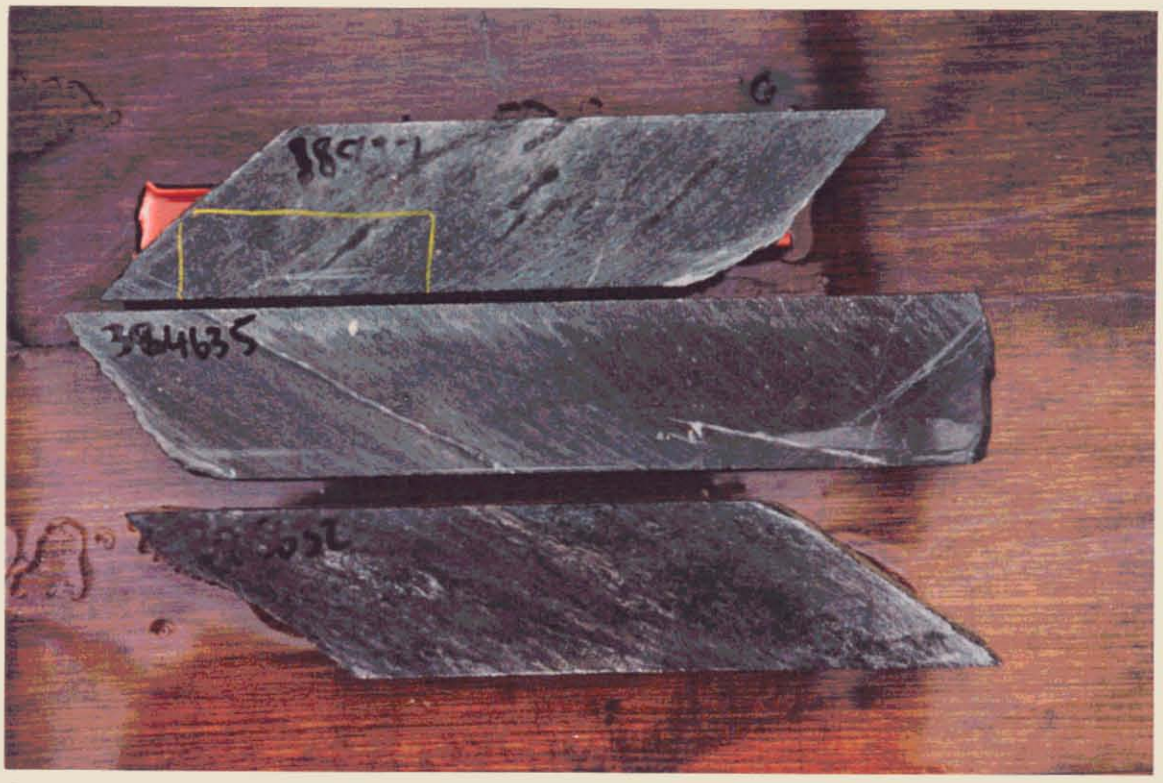
4a

4b

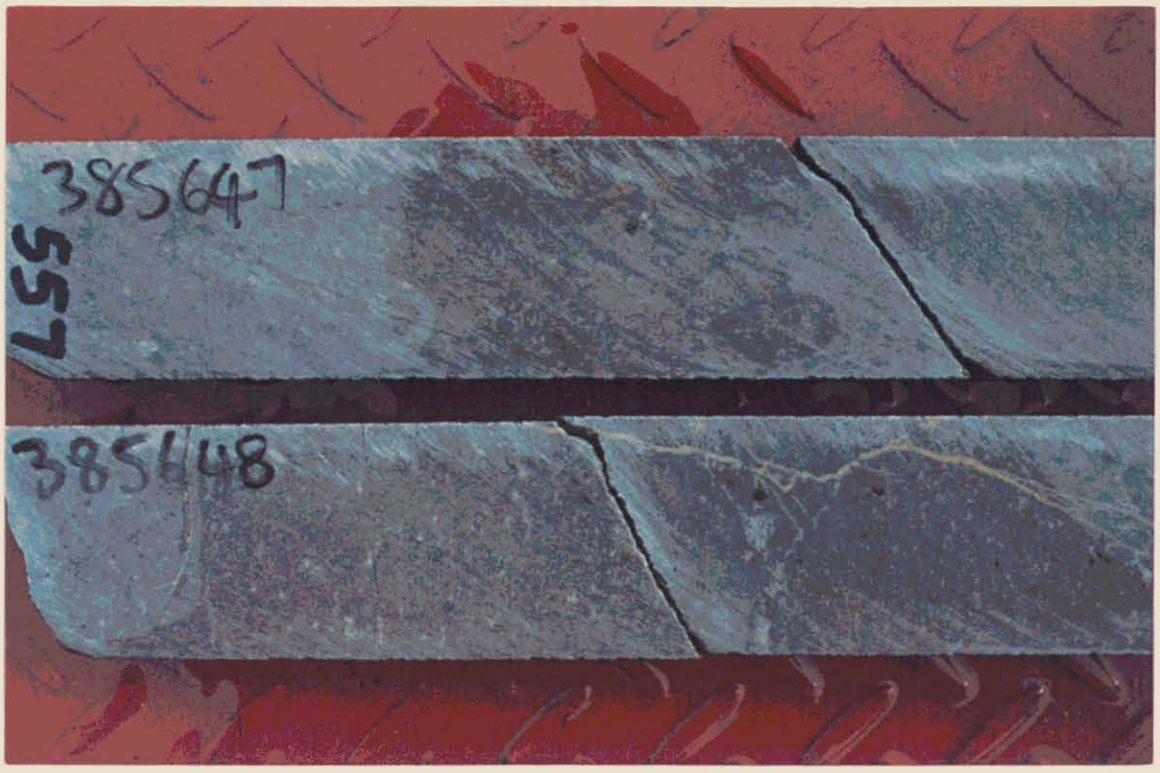
4a & b **Howards basalt in SHD-1 showing both haematitic, carbonate rich, strongly foliated (mylonitic?) examples (385625 and 385626 in 4a) and coherent examples (385621, 385623 and 385628). Samples 385621 and 385623 are taken from stratigraphically above the samples in 4a, whilst 385628 is taken from stratigraphically below.**



5 **Henty-Comstock horizon at 317 metres. Defined to be the contact between variably (initially weak, increasing downhole) altered pumiceous(?) volcaniclastics and the overlying fossiliferous limestone, typical of such limestones in the lower Tyndall Group, upper Anthony Road Andesite.**



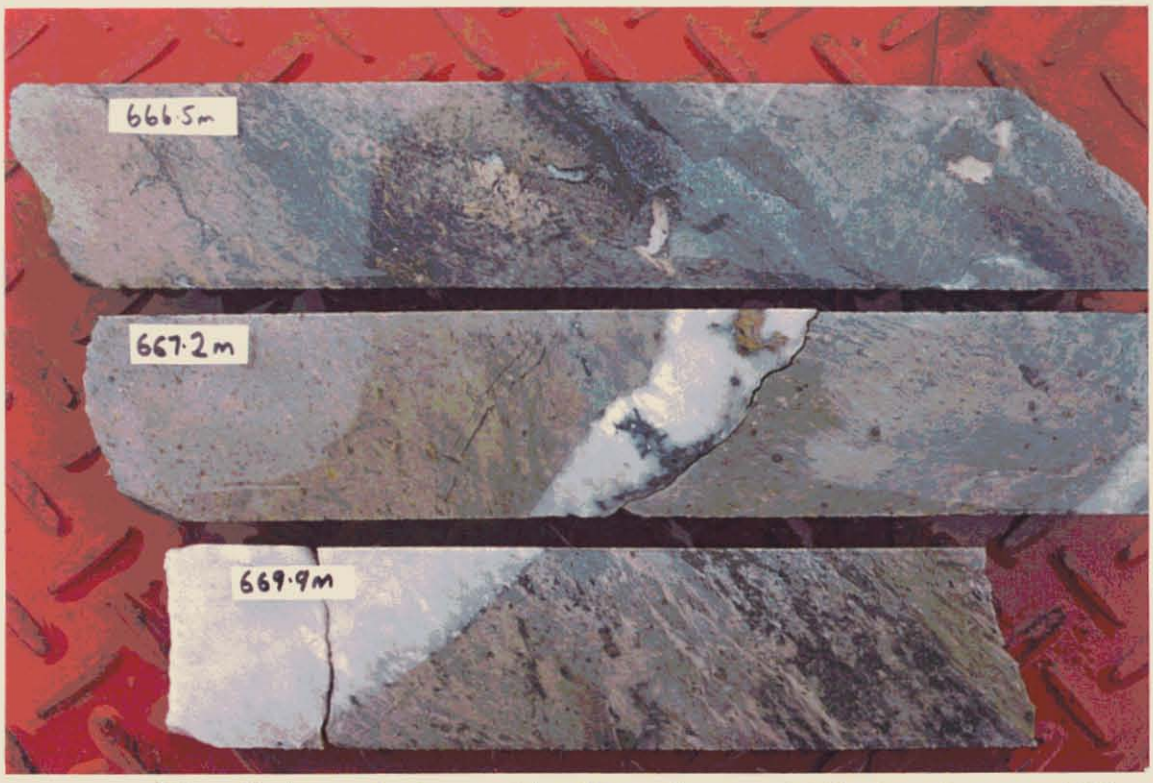
6 **Rocks in the footwall to the Henty-Comstock horizon (interpreted to be at 317 metres) intersected by SHD-1. 385632 has Ti/Zr of 15.0 and Na2O 1.75% and is from 348.5m; 385(4 here is an error)635 has Ti/Zr 18.1 and Na2O 2.58% and is from 389.5m; and 385637 has Ti/Zr 14.5, Na2O of 1.06% and is from 412.5m.**



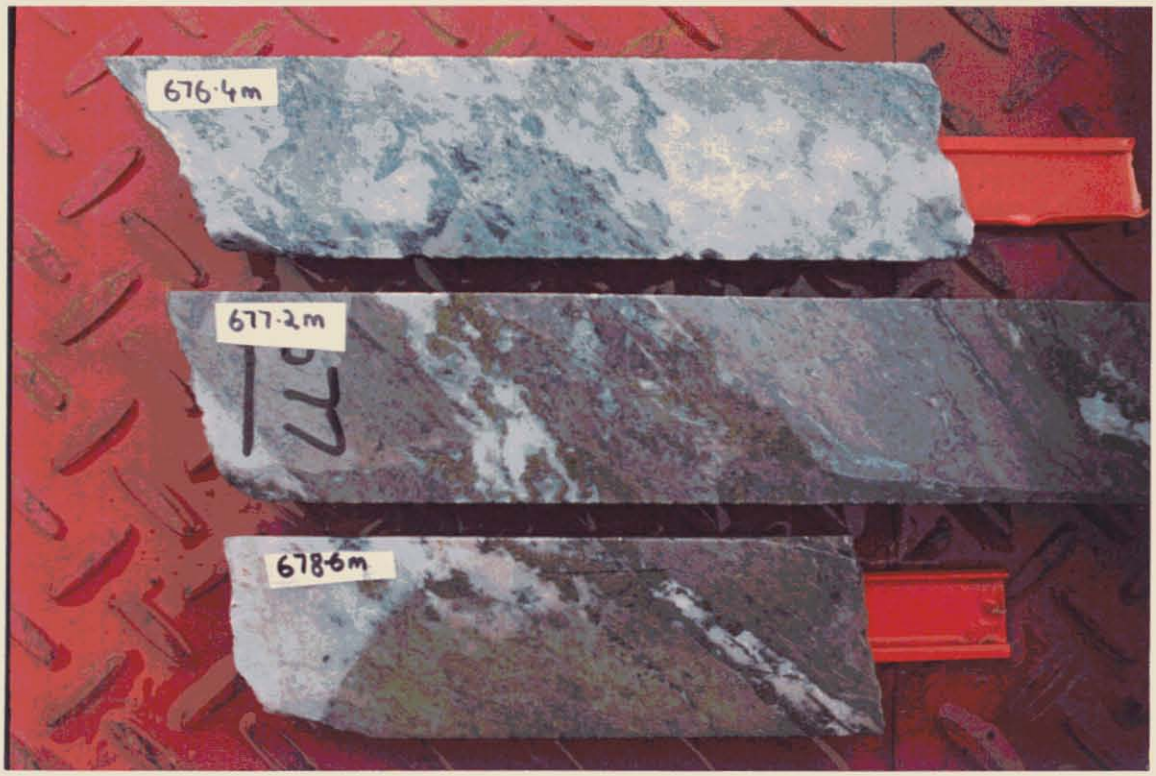
7 **Weaker peripheral Na depleting alteration. Sample 385647 (from 557 metres) has Ti/Zr of 22.2 with Na2O 0.06%; sample 385648 (from 574 metres) has a Ti/Zr of 23.1 and Na2O of 0.09%.**

8 **Sericite-silica-carbonate alteration. Sample 385502 is from 665 metres. It has a Ti/Zr of 15.5, Na2O of 0.5%, MnO 1.55% and S 0.83%; sample 385505 (from 668 metres) has a Ti/Zr of 20.5, Na2O of 0.35%, MnO 2.12% and S 0.66%; and sample 385522 (from 685 metres has a Ti/Zr of 24.8, Na2O of 0.12%, MnO of 1.58% and S 0.53%. 385502 has Pb 0.1% and Zn 1.5%.**

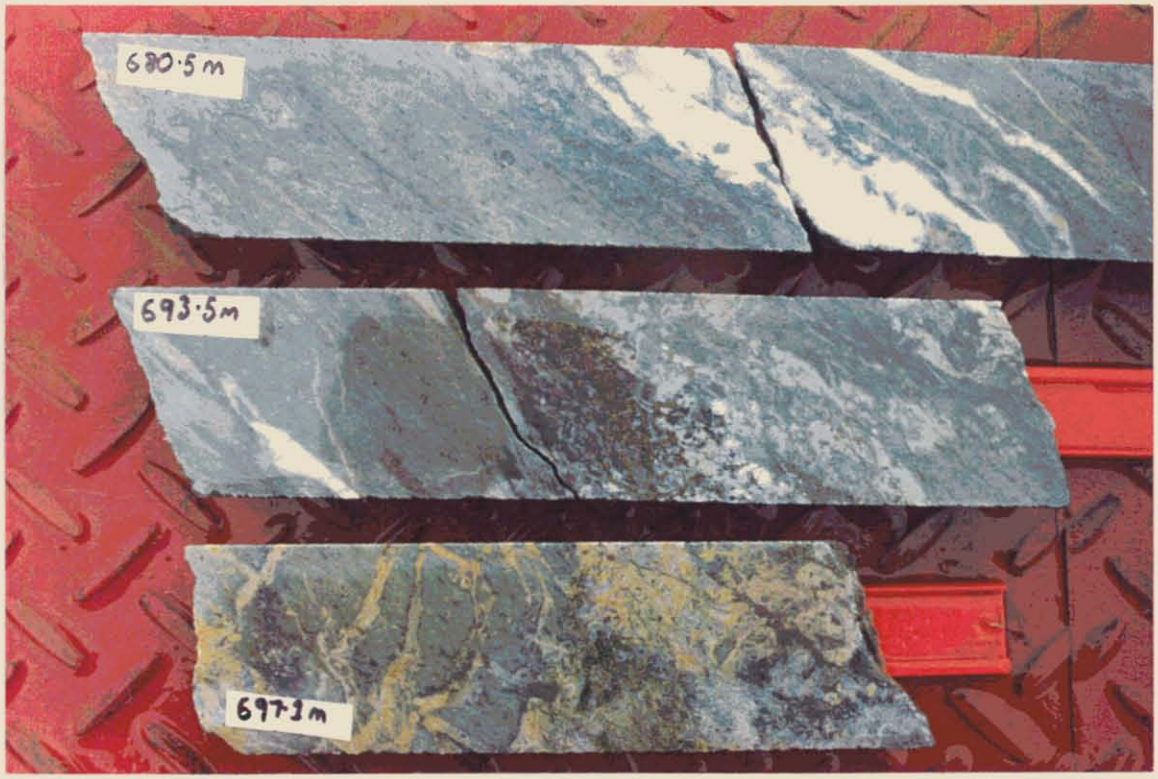
9 **Sericite-silica-carbonate alteration. Sample 385532 is from 695 metres and has Ti/Zr 24.4,Na2O 0.8%, MnO 1.23% and S 1.55%; sample 385538 is from 701 metres and has Ti/Zr 21.1, Na2O 0.18%, MnO 2.51% and S 1.34%; and sample 385546 has Ti/Zr 26.8, Na2O 0.07%, MnO 1.7% and S 0.65%. 385532 has 0.15% Zn, 385538 has Zn 0.3% and 385546 0.1% Zn and 0.05g/t Au.**



10 **Mineralised examples from sericite-silica-carbonate-sulphide alteration zone. 666.5 metres is the best example of a base metal stringer intersected by SHD-1 with 666m - 667m assaying 198ppm Cu, 3.45% Pb, 0.92% Zn and 0.04g/t Au. 667.2 and 669.9 are examples of later stage quartz-calcite veins with 'sweat out' sulphides.**

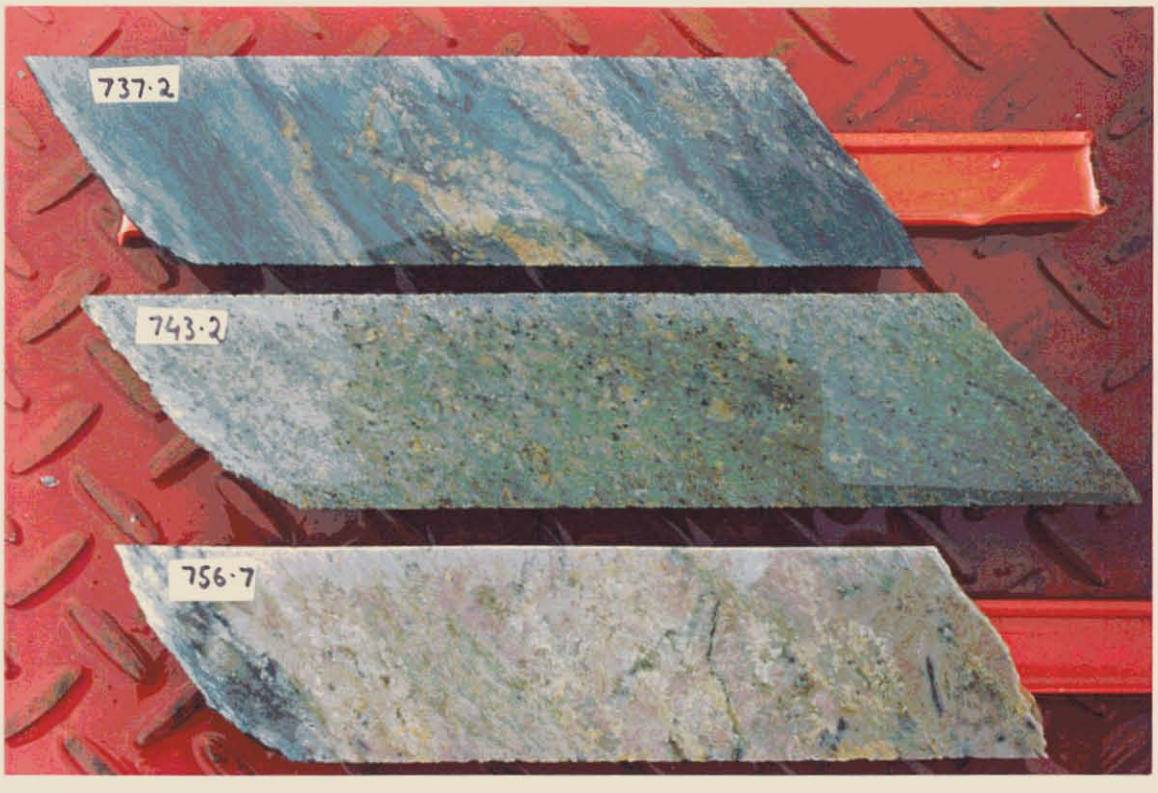


11 **Mineralised examples from sericite-silica-carbonate-sulphide alteration. Sample 676.4 metres has 20.5% Ba, Ti/Zr 24.0 (Ti=1319, Zr=55), 404ppm Cu, 0.69% Pb, 1.82% Zn and 0.17g/t Au. 677m - 678m assayed 0.3% Pb, 0.16% Zn and 0.13 g/t Au. 678m - 679m assayed 0.2% Pb and 0.15% Zn. The quartz-calcite vein on the LHS of 678.6 metres is cross-cutting the quartz-carbonate-sulphide (RHS) vein.**



12 **Mineralised examples from sericite-silica-carbonate-sulphide alteration zone. 680m - 681m assayed 0.3% Pb and 0.3% Zn, 693m - 694m assayed 0.13% Pb and 0.13% Zn. 697m - 698m assayed 0.13% Pb and 0.2% Zn. Note carbonate in 697.3m.**

13 **Less sulphidic alteration deeper in SHD-1. Sample 385588 is from 751 metres and has Ti/Zr 7.3, Na2O 0.11%, MnO 1.25% and S 0.41%. 385592 is from 755 metres and has a Ti/Zr 6.2, Na2O 0.09%, MnO 1.06% and S 0.4%.**



14 **Less sulphidic alteration deeper in SHD-1.**

390054

SHD-1

m

F > Q crystal sandstones > breccia (clasts siltstone, QFpR)

F > Q crystal sandstone/breccia (clasts QFpR)

Limestone siltstones, marly sandstone slump (?) breccia

Howards Basalt - coherent F phyric and breccia

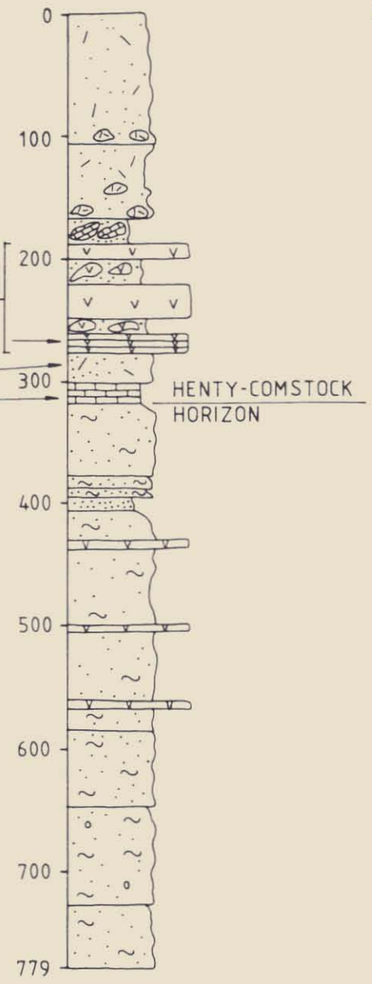
hematite carbonate basalt breccia - Howards Tuff

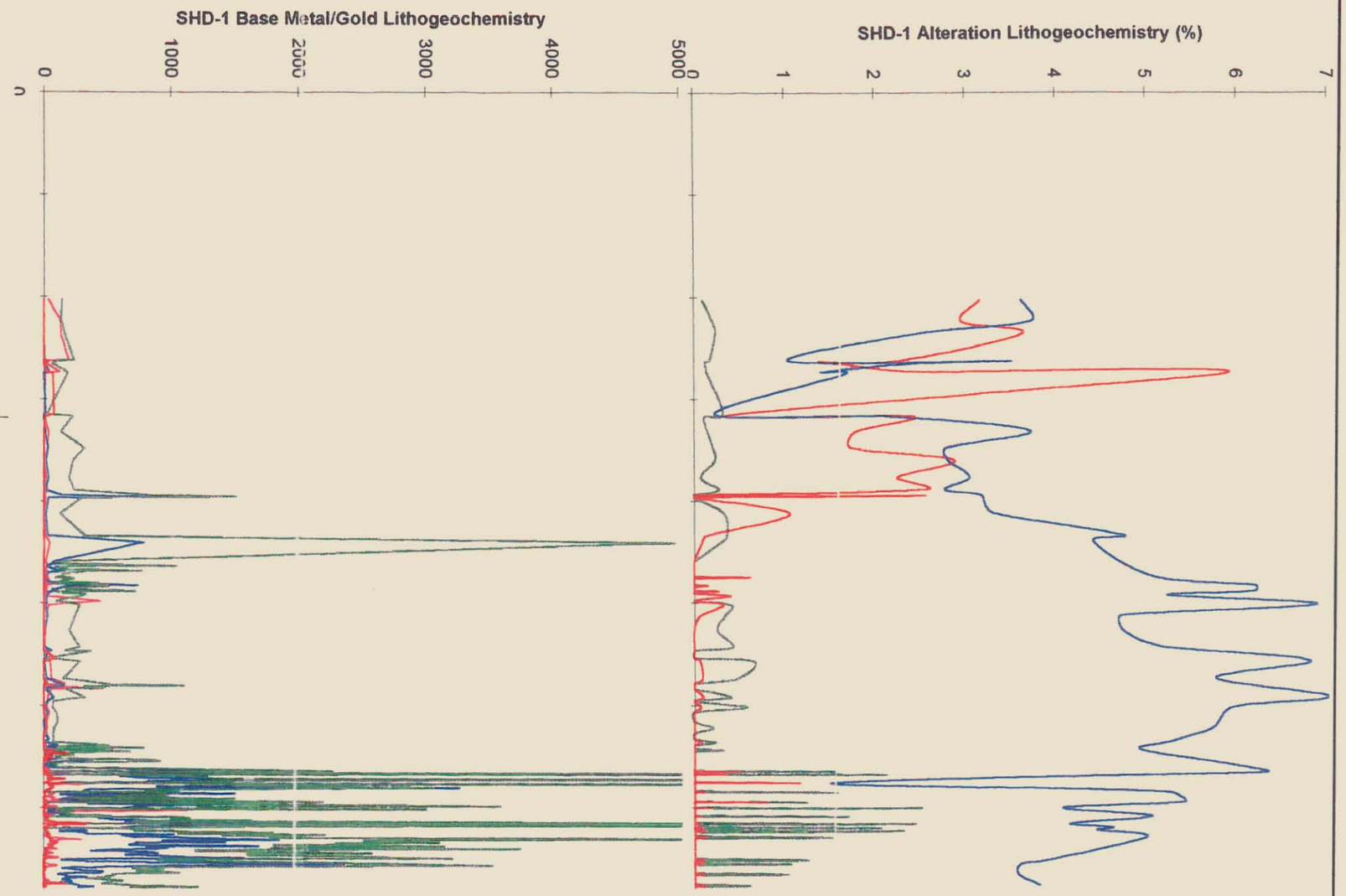
F > Q crystal sandstones

Limestone

HENTY-COMSTOCK HORIZON

Dacitic and Andesitic (and Rhyolitic) pumiceous volcaniclastics with basalt dykes
weak (317m - 655m)
to strongly (655m - 779m) altered





RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY" - SHD-1
Summary Geology and Geochemistry

Compiled	GM	Scale 1:5000	7
Drawn	GM/DKH	Checked	
Date	May 1997	Plan No.	

396 - 460m	Andesitic volcaniclastics with a basalt dyke from 440 - 445m. Only weakly altered as for 317 - 394m but haematite not present.
460 - 490m	Moderately sericite+quartz+pyrite altered andesitic/dacitic volcaniclastics
490 - 583m	Andesitic to dacitic volcaniclastics, weakly chlorite±sericite±carbonate altered with two thin basaltic dykes (see plate 7).
583 - 585m	Moderately sericite+silica altered zone with base metal sulphides in quartz veins as above.
585 - 664m	Dacitic volcaniclastics, weakly (but increasingly so downhole) sericite+silica+carbonate altered.
664 - 758m	Strong sericite+silica+sulphide++Mn carbonate+Ba alteration with base metal sulphides in pre-deformational stringers (best example is in plate 10) and syn-deformational 'sweat-out' quartz+carbonate veins (see plates10 and 11). In both cases the sphalerite is an light orange/brown colour. The carbonate is a yellowy green and blebby to pervasive and appears to be later than the sericite but pre-deformational. Overall the sulphidic alteration assays (1 metre split NQ core): 664m to 758m, 94m @ 0.2% Zn, 0.13% Pb and 38ppb Au with better individual zones: 666m to 667m, 1m @ 0.92% Zn and 3.45% Pb (see plate 10) 672m to 673m, 1m @ 0.93% Zn, 0.3% Pb and 0.17 g/t Au 676m to 677m, 1m @ 1.82% Zn, 0.7% Pb, 20.5% Ba and 0.17 g/t Au (see plate 11) 715m to 717m, 2m @ 0.7% Zn. 0.2% Pb and 0.30 g/t Au 730m to 731m, 1m @ 0.73% Zn The alteration and sulphides are typical of alteration found in the footwall to V.H.M.S. deposits with Na2O depletion. The carbonate is particularly intriguing and is discussed further in section 7.3.2. Trace element lithogeochemistry indicates that the altered rock was andesitic. The upper boundary of the alteration/mineralisation essentially coincides with the presence of Anthony Road Andesite type quartz crystals typical of the coherent and clastic QFpD in HA7 and HA8.
758 - 779m	Less sulphidic alteration of rhyolitic to andesitic volcaniclastics (pumiceous in part).

The location of the hole is shown on figures 9, 15 and 16, the log of the hole is in appendix D, summary geochemistry in appendix I, drill section in figure 17, geology, alteration and base metal/gold geochemistry summarised in figure 8 and the interpreted geology on section BB' in figure 11. The alteration is discussed in section 7.3.2 and the geology is further discussed in section 7.2.8 and 7.2.9. It was felt at the time that the alteration intersected between 664 and 758 metres possibly represented the edge of a deeper footwall stringer zone but that an alternative explanation may involve some form of stratabound mineralisation in the ARF quartz crystal volcaniclastic with a follow-up hole (SHD-10) proposed.

SHD-10 (574m)
SHD-10 was the first attempt to intersect the Henty-Comstock horizon stratigraphically above the alteration intersected between 664 - 758m in SHD-1.

The original proposed hole was started at -68°, however, by 45 metres the hole had lifted to -63° due to deflection by strongly foliated siltstones. As it was considered at the time that the hole would miss the target (given the gradual lift expected throughout the rest of the hole) the hole was stopped at 45 metres and moved ~1 metre and steepened up and restarted at -71° to accommodate for expected lift. It was intended to keep the hole relatively straight through the foliated siltstone unit in which the lifting occurred in the first hole and then allow gradual lift (~1 degree per 30 metres) over the rest of the hole (at a rate determined from our experience with SHD-1).

This was done (though the foliated siltstone gave way to more typical F>Qxtal sst/bx (clasts QFpR>slt) at 55.0 metres, however, at ~190 metres the hole passed into massive quartz-feldspar porphyritic rhyolite and remained effectively straight (e.g. at 346 metres the hole was at -66° having lifted 2° from 121 metres). It was apparent throughout the rest of the hole that it was imperative that the hole lift due to the proximity of the Great Lyell Fault at depth below the hole, however, the hardness of the rhyolite stopped the driller from doing anything to obtain this lift.

At ~510 metres the hole passed into some siltstones (with aphyric rhyolite clasts) but passed back into massive rhyolite at ~530 metres until a fault was intersected from 547 to 549 metres (see plate 22). Below 549 metres the hole intersected a package of sandstones (silicified adjacent to the fault), black shales with minor interbeds of sandstone and quartz pebble conglomerate, and polymict conglomerate with clasts of rhyolite and Precambrian metasediments in a quartz crystal rich matrix. These rocks are from the Zig Zag Hill Formation (Upper Tyndall Group). Even though the fault is only 2 metres wide and at a shallow angle to the core it is clearly a significant fault as it juxtaposes lower Middle Tyndall Group (Mount Julia Formation) with Upper Tyndall Group (Zig Zag Hill Formation) rocks, a vertical throw of ~500+ metres.

The existence of the fault passing though the Newton Creek/Anthony Road intersection was known and discussed in the original drilling proposal, however, it was not expected to dips as shallowly as is the case (~65°). Subsequent mapping in the immediate area (see figure 15) confirmed the probable orientation of the Newton Creek Fault (new term).

The location of the hole is shown on figures 9, 15 and 16, the log of the hole is in appendix D, drill section in figure 17 and the interpreted geology on section AA' in figure 10.

SHD-13 (1051m)
SHD-13 was drilled at the same target as SHD-10 but making allowances for the structural situation at depth. To this end the hole was moved south ~100 metres and turned more westerly. An added reason for drilling deeper was that the favourable

horizon is closer to the Great Lyell Fault, a potential Cambrian feeder structure at whose intersection with the Henty-Comstock horizon the Henty and Comstock deposits lie.

The hole presented little problems with lift maintained as expected. The rotation of the azimuth clockwise was actually fortuitous (in the end) as it brought SHD-13 onto SHD-1's section (see figures 11 and 12).

A summary log is as follows:

0 - 163m	QFpRhyolite and lesser green siltstones.
163 - 336m	F>Q crystal sandstone/breccia (QFpR and rafts of siltstone).
336 - 372m	F>Q crystal sandstone with pink albite alteration.
372 - 530m	F>Q crystal sandstone/breccia with ~5% clasts QFpR, green siltstone, pale green FpD/R(?)
530 - 534m	Limestone
534 - 555m	Marly sandstone/siltstone - slump breccia
555 - 602m	F>Q crystal sandstone/breccia with clasts of QFpR
602 - 613m	Marly sandstone
613 - 628m	Limestone
628 - 634m	Howards basalt breccia marking the Henty-Comstock horizon (see plate 23). Weak chlorite±sericitealteration persists down to the balck siltstone.
634 - 839m	unaltered to weakly altered dacitic volcaniclastics with basalt, generally as dykes i.e. below 660 metres. The uppermost intersection at least is extrusive in part. Basalt intersections from 640 - 644m, 649.5 - 655.7m, 666 - 700m, 715.4 - 716.2m, 720.2 - 723m, 729.6 - 730.2m, 731.2 - 731.9m, 734.2 - 738.6m, 769 - 775.8m and 781 - 783m. The volcaniclastics are apparently one massive unit which is the same as that intersected in SHD-1 and are generally unaltered with zones of very weak chlorite±sericite alteration.
839 - 864m	three normally graded pumiceous sandstone/breccia units, weakly altered.
864 - 918m	FpD. Massive unaltered feldpsar phyric sill with hyaloclastic base 915.1-918m, weakly altered.
918 - 943m	Two pumiceous volcaniclastic sandstone/breccia units, weakly altered.
943 - 966m	Two massive FpD units with an interbedded hyaloclastic breccia between 953 - 956.6m, weakly altered.
966 - 984.3m	dacitic pumiceous volcaniclastics with ~25% FpD subangular clasts suggesting remobilisaton of a pumiceous bed by a hyaloclastic apron in front of an advancing dacite flow, weakly altered.
984.3 - 992m	poorly graded with interbedded units of siltstone and pumiceous volcaniclastics, weak to moderately altered..
992-1006.5m	black siltstone, poor conductor (bedding ~30 to 50 degrees to core axis)
1006.5-1023m	hyaloclastic FpD breccia as for 915.1-918m with ~50% clasts in a pumiceous matrix. Moderately sericite+ Mn carbonate alteredwith minor sulphides inc. orange/brown sphalerite.

1023-1051m moderately sericite+Mn carbonate (Mn levels are up to 0.4%) altered volcaniclastic, possibly pumiceous, but with occasional ARA (or more particularly ARF) type quartz crystals. Correlate of similarly altered units in HA8 and SHD-1. Only very minor pyrite and base metal sulphides.

The location of the hole is shown on figures 9, 15 and 16, the log of the hole is in appendix D, drill section in figure 20 and the interpreted geology on section BB' in figure 11 and CC' in figure 12. The alteration is discussed in section 7.3.3 and the geology is discussed in section 7.2.

The hole was nearly stopped at 877 metres, however, it was decided to continue the hole after it was realised that the alteration in SHD-1 may be broadly stratiform and not part of a sub-vertical stringer system, and that to test the alteration the hole must continue for another ~200 metres. The hole was extended to 1051 metres when it was necessary to stop the hole as the rig was about to encounter problems and the cost associated with bringing in a BQ rod string not considered justified.

SHD-13 passes only ~200 metres away from SHD-1 down-dip. The zone intersected from 1006m - 1051m in SHD-13 is considered to be a correlate of this zone in SHD-1 and appears to support the model of a stratabound zone of mineralisation correlatable between SHD-1, SHD-13, HA7 and HA8. Unfortunately the tenor of alteration, and in particular the low sulphide levels, indicates that the system may be getting weaker with depth and that the next hole should be up-dip and north or south of SHD-1. The significance of this alteration is also discussed in section 7.3.3.

6.7.3 Spillway Prospect (SHD-2 and SHD-12)

SHD-2 (655m)

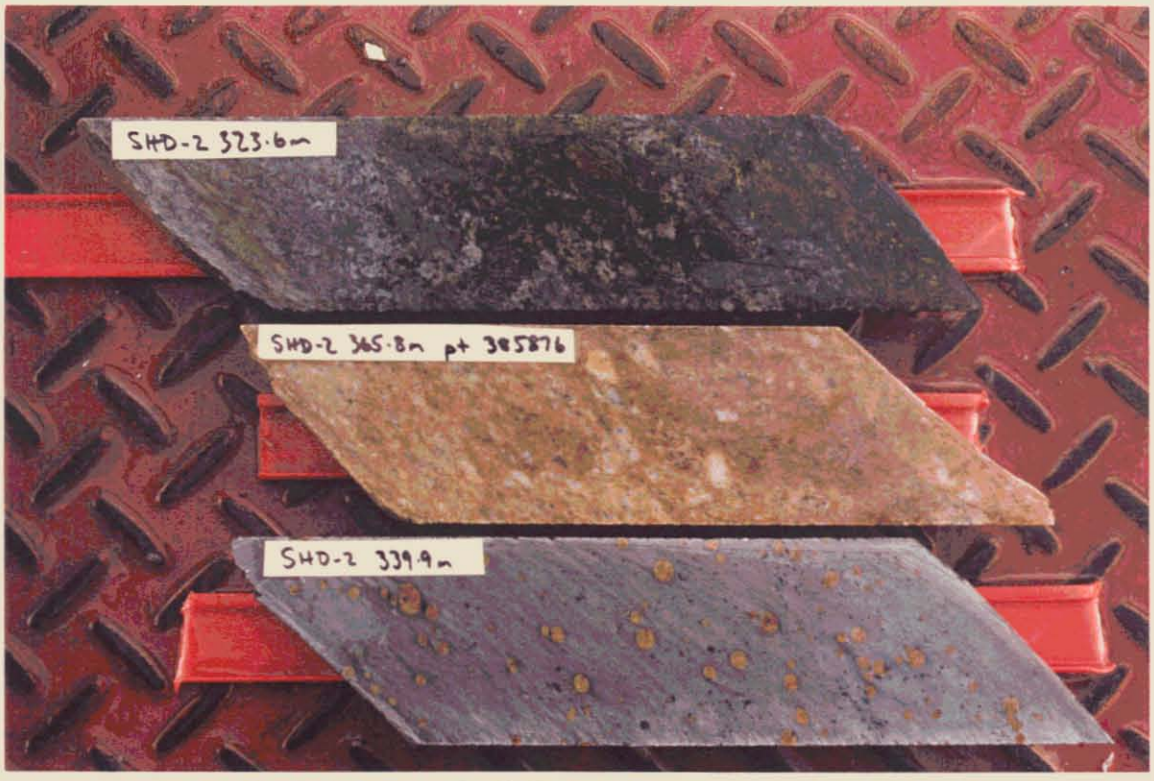
SHD-2 was targetted on the horizon which hosts high grade massive sulphide clasts in the spillway to the Lake Newton dam. The hole was targetted on this favourable horizon at the base of the "stalk" ~1 km's north along strike from the spillway outcrop (see figure9). If the "stalk" is due to focussed hydrothermal fluids active later in the geological history, earlier lived hydrothermal systems may have exploited the same conduit deeper in the stratigraphy. The hole was also designed to clip the westerly extension of the northern edge of "stalk" of the "mushroom" shaped aeromagnetic low, albeit where the magnetic low becomes concordant with the stratigraphy, on the way to this principal target (see figure 9). A summary log is as follows:

0 - 265m QF porphyritic Andesite, massive unaltered (ARF)

265 - 377m highly sericite+silica+sulphide±carbonate (±Mn) altered base metal (Cu, Pb, Zn)/gold anomalous dacitic pumiceous breccias with lesser sandstones and siltstones. Strongly foliated with sulphides in veins in the cleavage or as disseminations (see plates 15 and 17). Carbonate alteration is associated with elevated Mn around the main stringer with carbonate in siltstone

390059

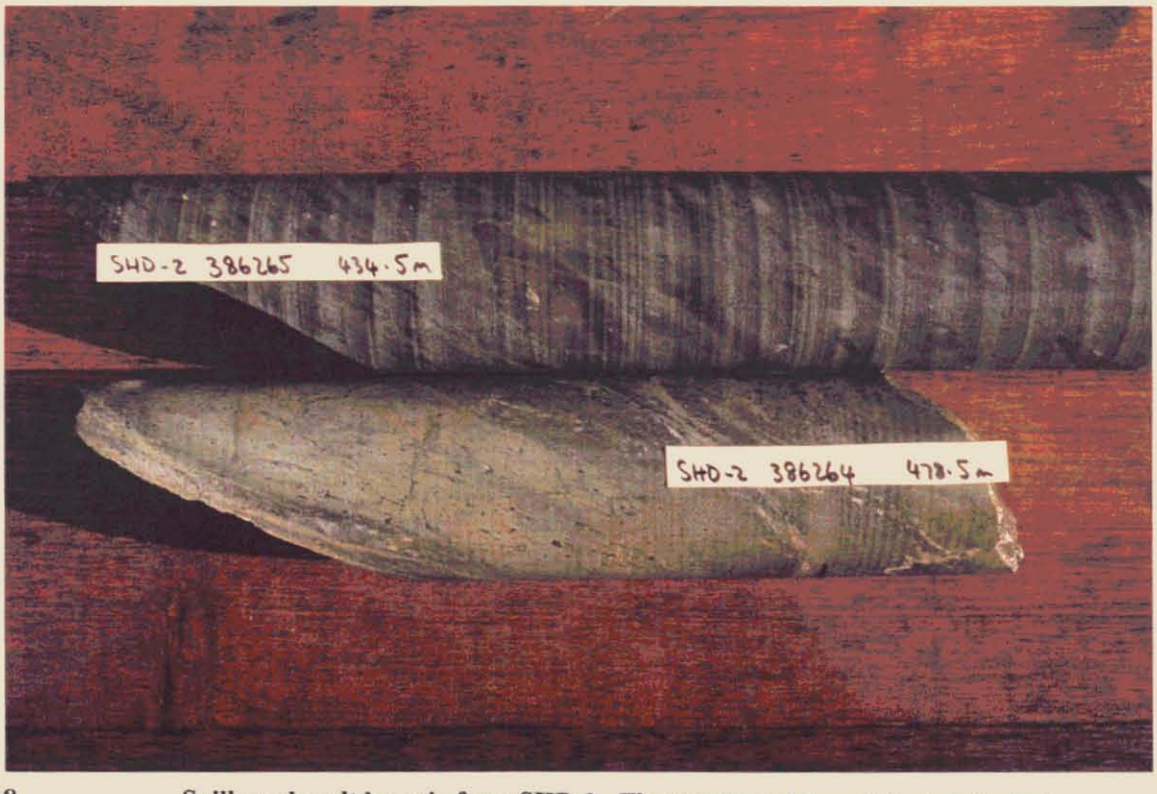
15 **Typical sulphidic sericite-silica alteration in SHD-2 below the QFpD/A unit at 264.8 metres. 276m - 277m (Ti/Zr 12.5) assayed 175ppm Cu and 0.07g/t Au; and 316m - 317m assayed 0.25% Cu and 0.4 g/t Au.**



16 **Styles of carbonate alteration in SHD-2. 385876 assayed 5.29% MnO but only 0.53% CaO and has Ti/Zr 14.8. Spheroidal, cabbage shaped textures as shown in the lower sample are usually developed in finer grained units. The middle sample is pervasive alteration with the top sample pervasive but less intense than 385876.**

390060

17 **Stringer sulphide vein in SHD-2 and adjacent alteration. 372.3m - 372.8m assayed 0.5m @ 0.13% Cu, 11.7% Pb, 18.2% Zn, 3.42g/t Au and 220g/t Ag. 370m - 371m assayed 0.75% Pb and 1.94% Zn. 356m - 357m assayed 0.15% Zn. Note the spotty nature of sulphide and carbonate alteration.**



18 **Spillway basalt breccia from SHD-2. The purple staining of clasts is typical of a significant part of this intersection.**

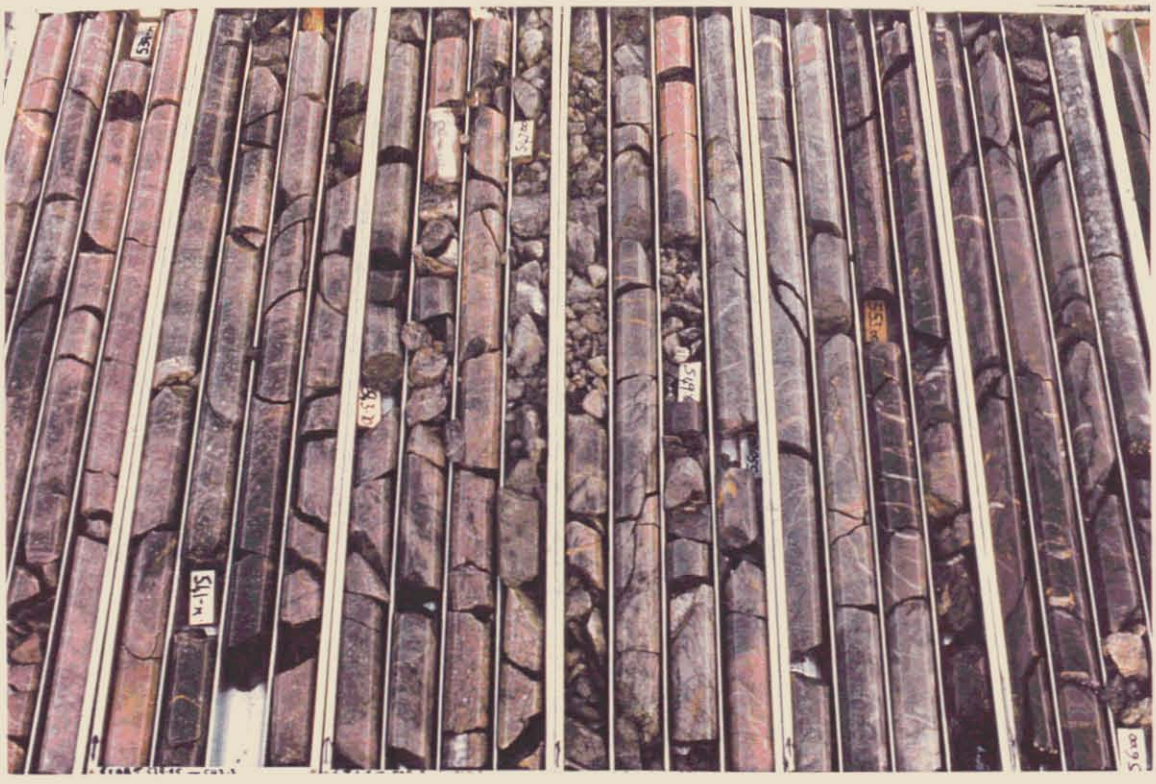
390061

19 **Footwall pumice breccia from below the main basalt intersection in SHD-2**

20 **Dominantly basalt breccia with possibly minor dacite. From below the main basalt intersection in SHD-2.**

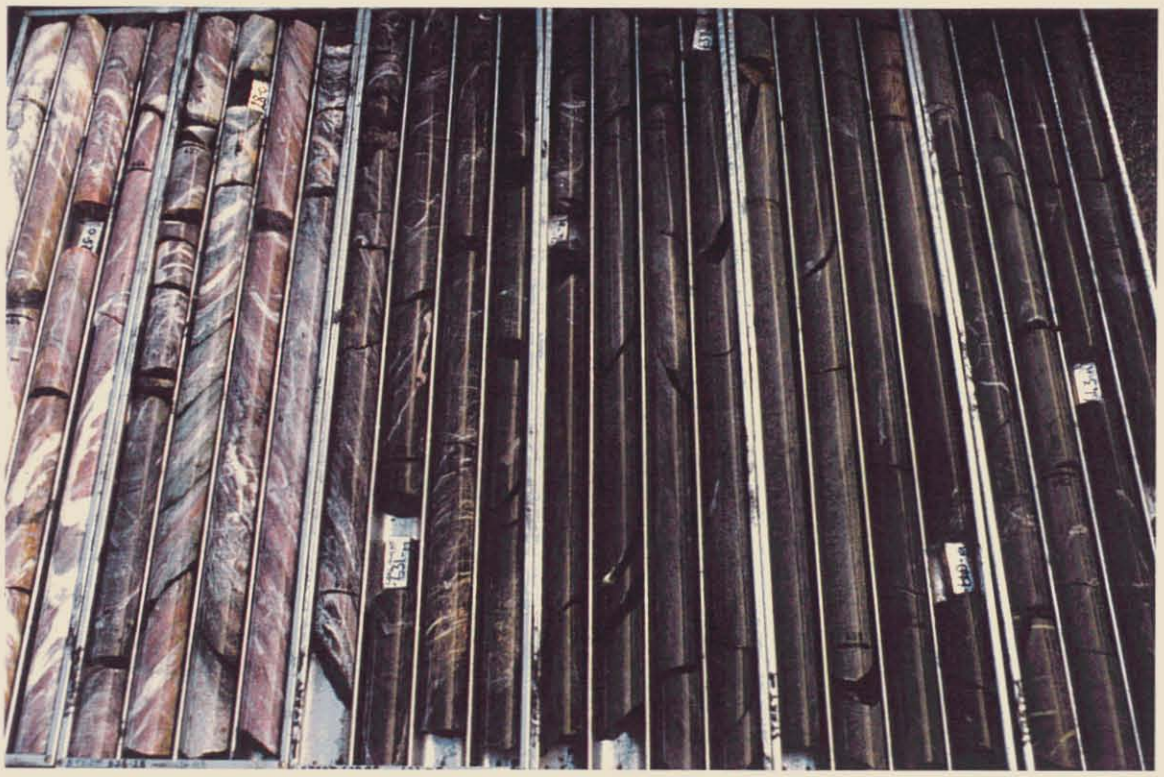
390062

21 **Ashy tuffaceous siltstones, sandstones (felsic with Ti/Zr 7.4 for 386263, 7.1 for 386261 and 8.0 for 386259) towards the end of SHD-2.**

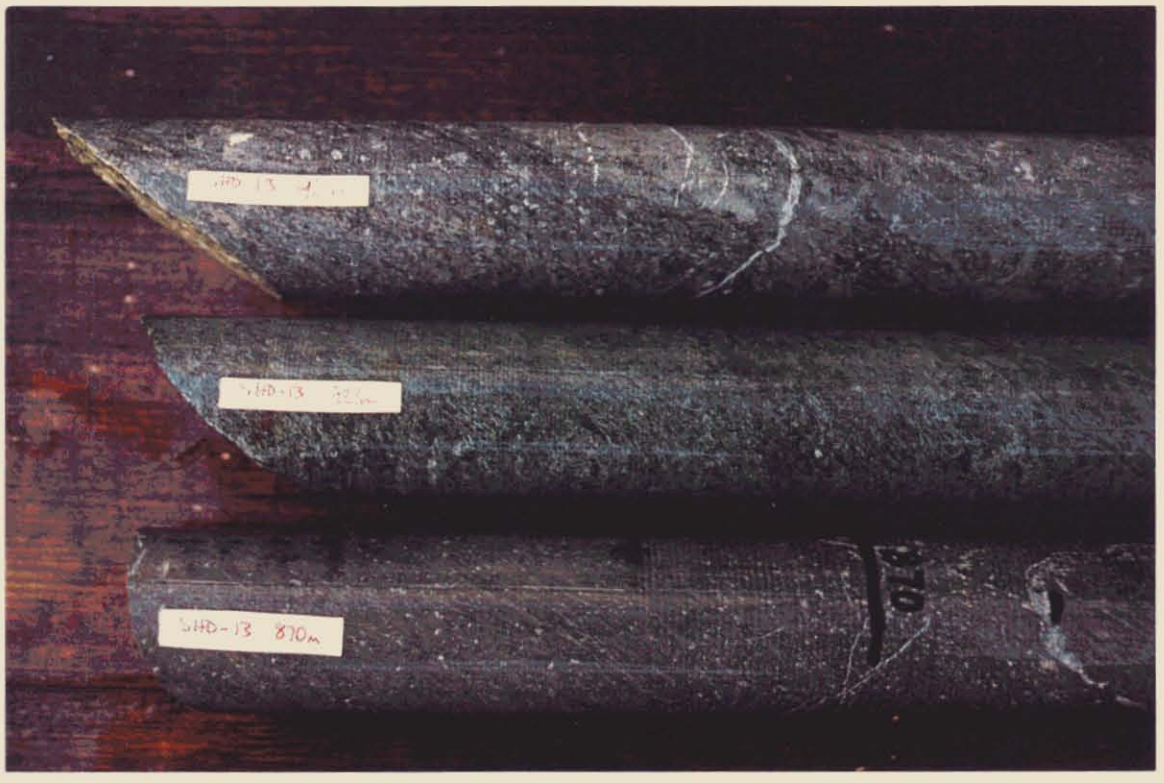


22 **Newton Creek Fault in SHD-10 (547m - 548m). Rocks to the left of the fault (uphole) are QFpR from the Mt Julia Rhyolite in the middle Tyndall Group. Rocks to the right (downhole) include polymict breccias with epiclasts of QFpR and metasediments in a quartz crystal rich matrix, black shaley siltstones and quartz pebble conglomerates (far right of plate). The apparent similar appearance between rocks immediately on either side of the fault is due to overprinting silicification and pink (albite?) alteration masking original textures.**

390063



23 **Henty-Comstock horizon in SHD-13; limestone to 628m, mixed basalt breccia and limestone 628m to 630m, basalt breccia (haematitic and foliated) from 630m to 634m.**



24 **Weak peripheral sericite+Kspar(?) alteration of dacitic volcaniclastics including pumiceous and hyaloclastic dacite clasts.**

390064

25 **MnCO3 and sericite alteration in SHD-13 below the graphitic black shale. These samples show strong MnCO3 alteration with some minor blebby sulphides.**

330065

25 **Sericite+Mn carbonate alteration in SHD-13 below the black shaley siltstone.**

390066

SHD-2

Quartz Feldspar phyric Andesite - holocrystalline matrix, deeper intrusive

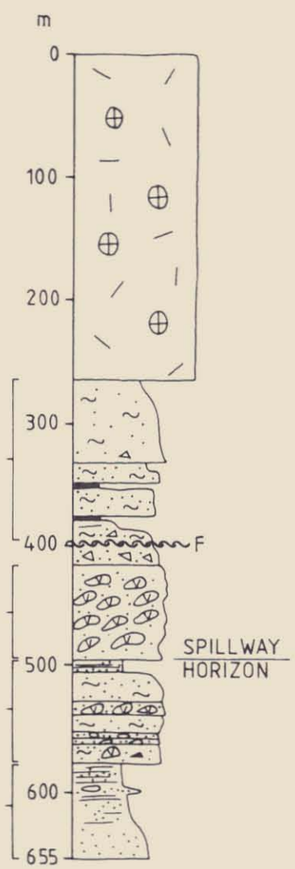
Dacitic pumiceous volcaniclastics, with minor black shales Strongly sericite-silica-pyrite-carbonate altered

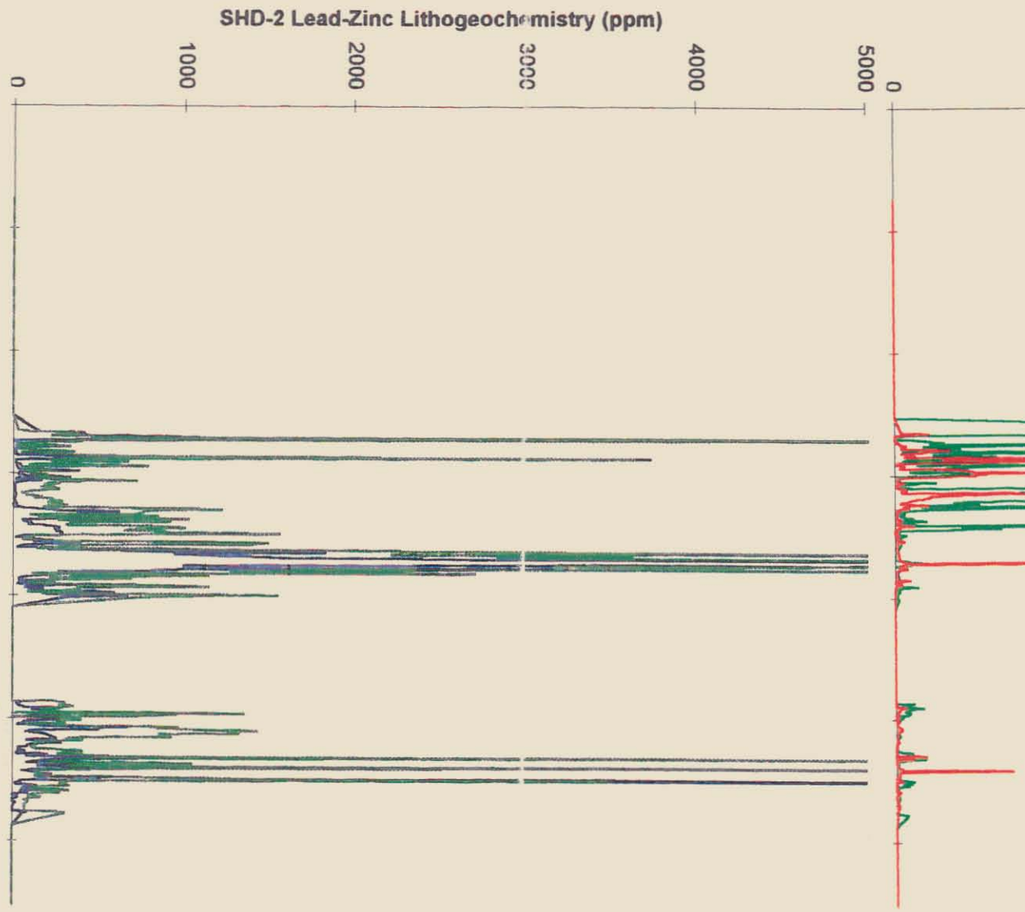
Dacite breccia

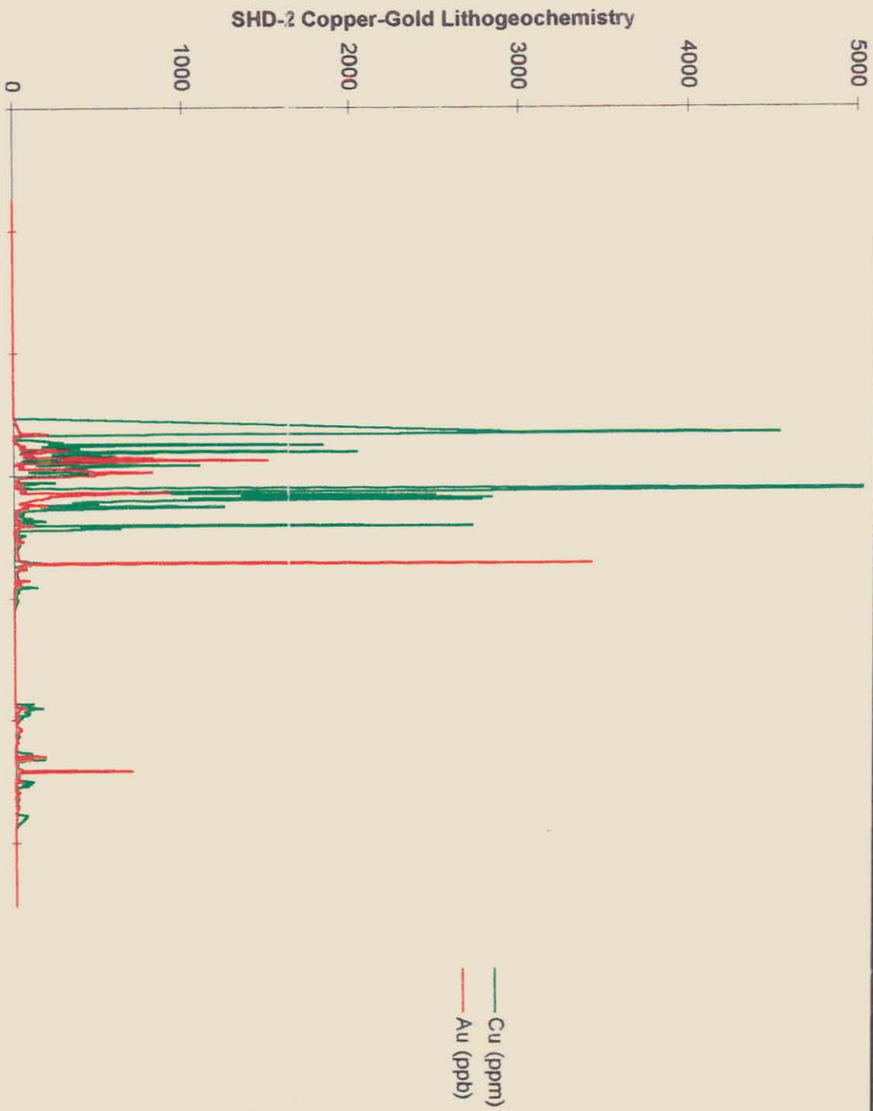
Spillway basalt breccia

Siltstones, Footwall Pumice Breccia (moderately altered in part) and Basalt Breccias

Siltstones and ashy Sandstones (felsic)







RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY" - SHD-2
Summary Geology and Geochemistry

Compiled	GM	Scale 1:5000	8.
Drawn	GM/DKH	Checked	
Date	May 1997	Plan No.	

forming radial crystals, otherwise blebby to pervasive (see plate 16). Best assays include:

279 - 289m	11m @0.38 g/t Au
inc. 288 - 289m	1m @ 1.5 g/t Au
295 - 301m	7m @ 0.44 g/t Au
inc. 298 - 299m	1m @ 0.82 g/t Au
311 - 321m	10m @ 0.28% Cu
inc. 312 - 313m	1m @ 1.1% Cu
315 - 321m	6m @ 0.34 g/t Au (see plate 15
inc. 315 - 316m	1m @ 0.93 g/t Au
370 - 374m	4m @ 2.2% Pb, 3.75% Zn & 0.49 g/t Au (see plate 17).
inc. 372.3 - 372.8m,	0.5m @ 0.13% Cu, 11.9% Pb, 18.2% Zn, 3.42 g/t Au & 220 g/t Ag (see plate 17)
341 - 342m	1m @ 0.11 g/t Au
364 - 365m	1m @ 0.18% Pb & 0.53% Zn
377.1 - 378m	0.9m @ 0.41% Pb & 0.6% Zn

The 0.5 metres thick intersection of stringer vein (probably ~30cm true thickness) assayed 0.5m @ 0.13% Cu, 11.9% Pb, 18.2% Zn, 3.42 g/t Au and 220 g/t Ag reinforcing the polymetallic, potentially high grade nature of the mineralising system. The copper-gold rich nature of the alteration (eg 11m @ 0.38 g/t Au inc. 1m @ 1.5 g/t Au and 10m @ 0.28% Cu inc. 1m @ 1.1% Cu) suggests that the hole has passed through or near to the central, hotter part of the hydrothermal system. This apparently support the interpretation of the "stalk" of the "mushroom" as representing a major conduit of hydrothermal fluid to the Henty-Comstock horizon. Alternative explanations are given in discussions in sections 7.3.6 and 7.3.9.

377 - 415m	normally graded mass flow unit with a polymict base consisting of hyaloclastic dacite>>basalt clasts;
415 - 487m	Spillway (or fire fountain) basalt breccia (see plate 18).
487 - 578m	sericite±chlorite±sulphide±carbonate altered base metal (Pb, Zn)/gold anomalous interbedded footwall pumice breccias (see plate 19) and hyaloclastic basalt and polymict dacite>>basalt (or siltstone clasts) (see plate 20). Alteration intensity decreases downhole. Best results are:
	532 - 533m 1m @ 0.1g/t Au, 0.34% Pb & 0.51% Zn
	541 - 542m 1m @ 0.66% Zn
	542 - 543m 1m @ 0.69 g/t Au
	550 - 551m 1m @ 0.60% Pb & 0.35% Zn
578 - 655m	unaltered siltstones (Yolande River Sequence? - see plate 21).

The location of the hole is shown in figures 9, 15 and 16 with the log in appendix D and summary geochemistry in appendix I. The geology, Pb/Zn and Cu/Au mineralisation in SHD-2 is summarised in figure 8. A full section is included as figure 18 and the hole is shown on the summary interpretative section AA' in figure 10.

SHD-12 (643m)

SHD-12 was designed to intersect the spillway horizon (now considered more likely to lie at the base of the spillway basalt based upon the alteration in SHD-2 in this position) at depth (below surface EM range), ~150 metres along strike from the spillway outcrop, in the hinge of an enigmatic anticlinal fold closure. No similar folds are seen within E.L. 8/96 and it was felt that its existence may be due to the focussing of strain around a relatively ductile massive sulphide deposit.

A summary log is as follows:

0 - 183 m	Quartz Feldspar porphyry (Dacitic ?) - (ARF)
183 - 197 m	Dacitic pumiceous volcaniclastics. These rocks were the host to alteration and mineralisation in the "stalk" intersected in SHD-2 where they were ~150 metres thick.
197 - 552m	Basalt. Essentially unaltered except for ~2% carbonate (calcitic) as infilling between clasts and veinlets. This significant thickness of basalt may be a product of being within a hinge zone, alternatively it may be a primary feature i.e. closer to the vent.
552 - 598m	Footwall pumice breccia. Unaltered and unmineralised.
598 - 626m	Volcaniclastic breccia with clasts of rounded green dacite and pale dacite(?).
626 - 637m	Siltstones. Felsic tuffaceous siltstones equivalent to thick unit of siltstones at end of SHD-2.

The location of the hole is shown in figures 9, 15 and 16. The log is in appendix d. A full section of this hole is included in figure 19. Drill core is yet to be submitted for assay.

6.7.4 Henty Canal Alteration (SHD-6)

SHD-6 (249.5m)

SHD-6 was targetted on the best coincident "wacker" C-horizon soil sample results (1543ppm Zn and 2370ppm Pb) and IP response from work on the Henty Canal prospect. Although a LY44 is not ideal for a shallow (250m) hole at -40 degrees it was desirable to keep the rig on site whilst DHEM surveying was carried out on SHD-1 and SHD-2.

The target was considered to lie along a ~300 metres long zone of sericite+pyrite alteration with anomalous gold±base metals±barite. The zone was thought to be due to a fault, probably between massive F>Q Crystal sandstones and Mount Julia Rhyolite, probably with a less coherent dacite sandwiched between these two units. Subsequently it appears that the alteration has many similarities to Henty's upper mineralised zone and associated silica+albite alteration.

SHD-6 was stopped at 249.50 metres, essentially at the proposed depth. The hole did not intersect any significant sulphides or structures. A summary log is as follows:

0 - 18m	F>Q sandstone/breccia (clasts QFpR)
18 - 20m	Grey siltstone
20 - 25m	QFpR rich breccia with F>Q crystal matrix
25 - 35m	Grey siltstones
35 - 63m	QFpR rich breccia with F>Q crystal matrix
63 - 82m	Green/grey dacitic(?) sandstone
82 - 96m	very fossiliferous limestone
96 - 111m	QFpR hyaloclastic breccia
111 - 143m	massive, coherent QFpR
143 - 191m	Dacitic(?) pumiceous volcaniclastics with a white alteration (= Henty's silica+albite(?) alteration). 386103 from 156 - 157m has Ti/Zr of 8.4(?), Na2O 5.8% and SiO2 75.3%, alternatively the rock is a weakly altered typical MJR QFpR.
191 - 192m	Black shaley siltstone
192 - 198m	Marly sandstone, weakly pyritic
198 - 205m	Limestone
205 - 242m	Dacitic pumiceous volcaniclastics with carbonate matrix to around 215m and two black shaley zones near the top of the unit.
242 - 249.5	Basalt, coherent, considered to be a discrete lens of Howards basalt

Eight samples assayed for base metals and gold returned very low results
The IP response is almost certainly due to the black shale at ~192 metres. The spot base metal anomaly is due to a fortuitous bedrock soil sample, probably from the weakly pyritic siltstones between ~192 and 212 metres.

The hole intersected ~ 8 metres of the Howards Basalt at the end of the hole. This was confirmed lithogeochemically (sample numbers 386267 and 386268) and petrologically (appendix F). The basalt intersection is interesting as there is some scattered outcrop of Mount Julia QFpRhyolite along strike but apparently stratigraphically below this basalt intersection. This needs to be explained by either a fault repetition or perhaps rhyolitic volcanism to the north was just starting as the basalt was being erupted with some interfingering in this area.

Based upon drilling SHD-1 the Henty-Comstock horizon is likely to be ~60 metres further downhole. The horizon at this point has coincident moderate UTEM anomalies over three 200 metre spaced lines. Although these anomalies are probably due to shales the hole has been left open should the lengthening of this hole in the future be justified.

With regard to the alteration outcropping on lines 59800N and ~59500N, the hole has adequately traversed the trend of these two zones and it is considered that these zones are isolated with no along strike continuity. This alteration is further discussed in section 7.3.8.

The alteration intersected in the dacitic volcaniclastics is intriguing. The very high silica levels with elevated Na is suggestive of the silica+albite alteration reported at Henty from ~50 metres above the upper mineralised zone in the hangingwall rocks. This alteration is discussed in section 7.3.

6.8 DHEM

DHEM was read on both SHD-1 and 2 soon after completion of the holes. SHD-12 was completed in the 1996/97 reporting year with SHD-13 completed during time given for some editing. SHD-2, 12 and 13 were lined with 40mm Class 18 P.V.C. with SHD-1 only lined with Class 12. The holes were read by Outer Rim using CRONE's directional system. Some resurveying was necessary due to equipment problems but this was done voluntarily.

Results of the surveys from SHD-1, 2, 12 and 13 is included as appendix E with the data supplied digitally to M.R.T. also. Preliminary results from surveying of SHD-12 and SHD-13 show no significantly anomalous responses due to conductive sulphides

Preliminary modelling of the results of the first two holes was completed to a sufficient standard to be confident that there were no obvious conductive responses which warranted drill testing, as borne out by the locations of subsequent drill holes. Anomalous responses in SHD-2 were resolved as an areally small body near hole, with some shearing along the QFpD/altered volcaniclastics helping to explain the response. It was also felt that there may be something weak below SHD-1. It was resolved at the time that any such detailed interpretation and modelling of the data was better to wait for the results of the surveys from SHD-12 and SHD-13 as they are sufficiently close to SHD-2 and SHD-1 respectively to affect any such interpretation. It is intended that this modelling will be done and included in next years reporting.

6.9 Carbonate geochemistry/petrology

6.9.1 Introduction

The Henty-Comstock horizon broadly coincides with cream to pink often fossiliferous limestones at Comstock, Henty (?) and at South Henty.

Faunal assemblages in the fossiliferous limestones appear macroscopically consistent and may provide information regarding water depths at the time of their deposition (at least some fossiliferous limestones lie along the Henty-Comstock horizon itself). Water depths are highly significant for ascending hydrothermal fluids, particularly whether the fluid boils and drops its metal before reaching the sea floor.

Resolute is aware that RGC consider the carbonates at Henty at least to be in part exhalative with perhaps a similar inference drawn of the carbonates at Comstock and even regionally (though I suspect that regionally the limestones may be significant as a marker

unit). Carbon and oxygen isotopic data is available for both Henty (Yeates, 1989) and Comstock (MacDonald, 1990) and a consultant was asked to address the results from these two areas and discuss the usefulness of this data for exploration. Subsequently seven samples from South Henty were analysed for C and O isotopes at the Central Science Laboratory at the University of Tasmania.

6.9.2 Petrology

Samples of fossiliferous limestones were given to Dr Clive Calver (along with sections etc.) for thin sectioning and determination, if possible, of palaeoenvironment of deposition of the faunal assemblage.

Jago *et al* (1972) describe trilobites, echinoderm plates, hyolithids, gastropods and brachiopods from the limestone at Comstock and concludes that the limestone was probably deposited in a "near-shore, shallow bank" environment during a lull in volcanism. The presence of haematite indicates that the environment was strongly oxidising.

Clive was unable to say anything definitive about water depth from some of the South Henty limestone samples as they contain breccia clasts of limestone suggestive of movement from a distant origin, however, the limestone in YNC16 is considered to be "bone fide", with the richly fossiliferous limestones (dominantly trilobites and possibly echinoderm ossicles) indicative of water depths of "a few tens of metres or less". Clive is concerned that the samples viewed by himself appeared to be breccias and may have moved downslope. However, macroscopically the fossils in the samples described are typical of those found in all limestones in the Tyndall Group in the South Henty area, (clearly coherent or brecciated) and hence palaeoenvironment on the sea floor at the time of deposition of the limestones in the samples described by Clive is taken as indicative of the sea level depths at the time, i.e. "a few tens of metres or less".

Clive describes the carbonate from 740.8m in NC3 as saddle dolomite and discusses the exploration significance of this being that it is commonly associated with epigenetic base metal mineralisation. The significance of this observation is unclear.

6.9.3 C and O isotope geochemistry

Dr Garry Davidson of the CODES SRC at the University of Tasmania was asked to comment on the significance of C13 and O18 isotopes values for samples of limestone from Comstock (Mt Lyell) and carbonate/limestone(?) from Henty (the uncertainty of description is based upon uncertainty of the nature of the carbonates at Henty. One of Garry's specialities is stable isotopes and particularly those of C and O.

Garry considers the variable Henty values with changing C without changing O and the fossiliferous nature of the Comstock limestones and concludes that "carbonates developed in the Tyndall Group, either around hydrothermal vents, or in shallow water at sites favouring normal marine carbonate deposition".

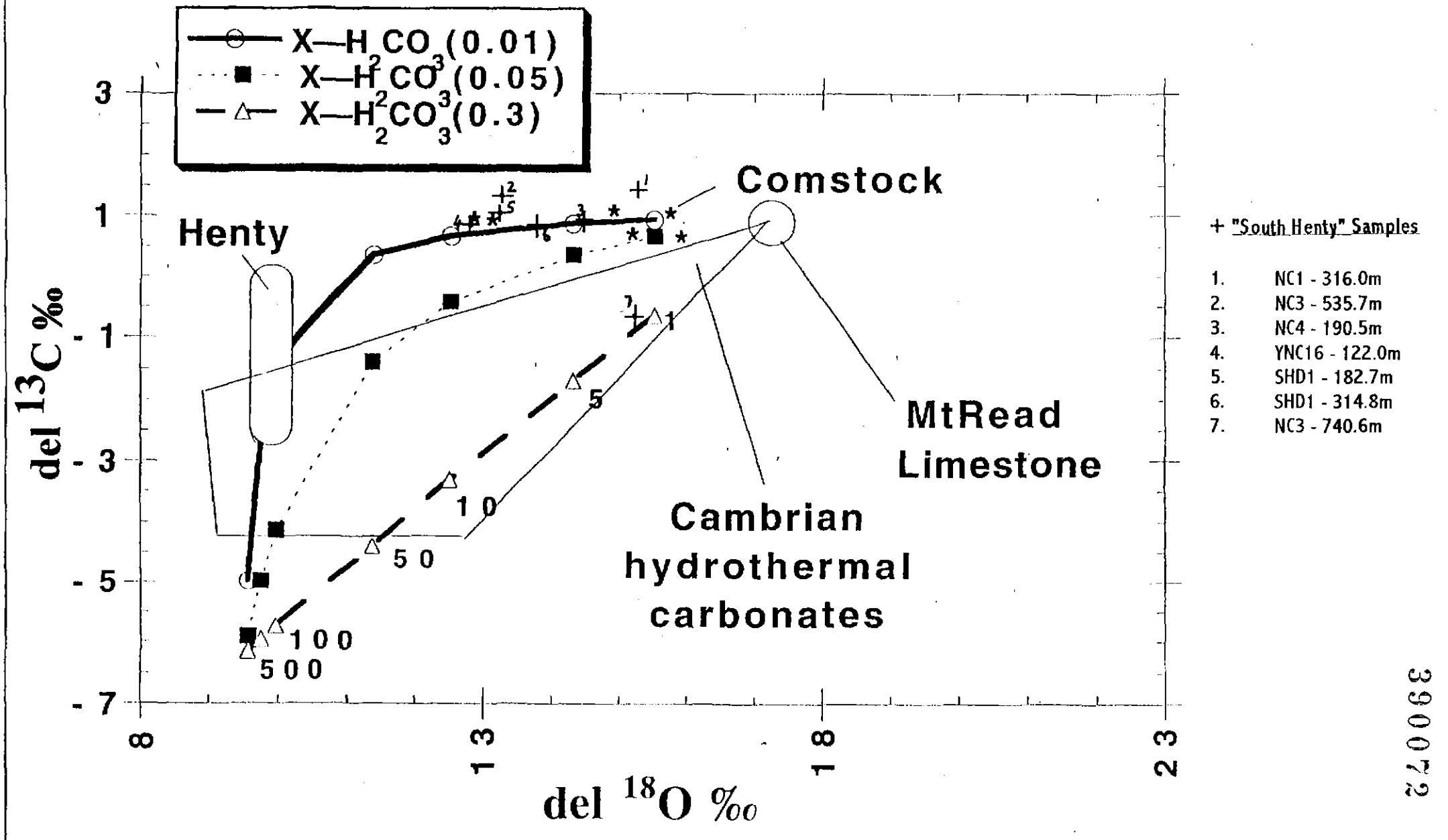


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figure 46: C and O isotopes for carbonates from Henty, South Henty and Comstock (from appendix G)

Comstock results after MacDonald (1990), Henty results after Yeats (1989), Cambrian Hydrothermal Carbonates field after Khin Zaw (1991)

A modern day analog may be Ambitle Island off Papua New Guinea where boiling hydrothermal fluids (carrying CO2?) are passing through a sandy mixed carbonate volcaniclastic sea floor a few hundred metres from the shore (Pichler and Dix, 1996).

Garry goes on to say that the isotopic values of each set could not now be considered marine. He explains this as being due to subsequent overprinting hydrothermal fluids resetting the C and O isotopic values and concludes that the difference between the two sets of data (Henty and Comstock) is most likely due to different water/rock ratios (higher at Henty and lower at Comstock) with higher W/R ratios considered favourable.

Seven samples of limestones from "South Henty" were subsequently analysed for C13 and O18 (results in Table 1) by Mike Power of the C.S.L. at the University of Tasmania. The

Table 1: South Henty limestones - 13C and 18O isotopes

Sample Location	13C (wrt PDB)	18O (wrt PDB)	18O (wrt SMOW)
NC1, 316.0m	1.392	-15.101	15.293
NC3, 535.7m	1.326	-17.020	13.314
NC4, 190.5m	0.909	-15.879	14.491
YNC16, 122.0m	0.985	-17.468	12.853
SHD-1, 182.7m	1.000	-17.104	13.228
SHD-1, 314.8m	0.837	-16.564	13.785
NC3, 740.6m	-0.574	-15.180	15.212

results were not available to Garry at the time of his work, however, the results plot in the Comstock field. The only exception would appear to be that from 740.6 in NC3, the same sample as the saddle dolomite described by Calver (an alternative explanation may involve the different whole rock geochemistry of this latter sample). Results are plotted in appendix G and figure 46.

6.10 Petrology

6.10.1 Introduction

Dr Tony Crawford of the University of Tasmania has has considerable experience looking at thin sections of Mt Read Volcanics for industry geologists, and on the way to accumulating this experience has also accumulated considerable geochemical data. Tony was given a number of sets of samples and asked to answer specific questions as well as more wide ranging implications.

6.10.2 QFpDacite/Andesite (ARF)

One of the more significant questions to attempt to answer was the nature of the "stalk" of the mushroom aeromagnetic low. Previous mapping suggested that the distinctive Quartz Feldspar porphyry struck through the "stalk" (see figures 2 and 9). Thus indicating that the magnetic low is (at least in part) discordant to the stratigraphy. This, in combination with the evidence that the low is in part due to hydrothermal alteration, underpinned much

of Resolutes exploration concept for the upper (Henty-Comstock) horizon in the Lake Newton area.

Tony was asked to compare samples of QFp from SHD-2 wioth similar ARF quartz bearing QFp YNC10, HA7 and HA8 as well as the short DDH SHD-11 drilled into the "stalk" of the mushroom with altered and unaltered samples from other drill holes and was supplied with whole rock and trace element (including LREE) data for the samples. The locations of the eight samples of QFp studied are listed on Table 2. The location "15" is also shown on figure 15. The opportunistic hand sample "10" was from Pumphouse Point and its location is similarly shown. It is not relevant to this discussion.

Regarding the correlation of QFp samples from SHD-11 and SHD-2, Tony concludes that "with the exception of outcrop sample 15 (a quartz+plagioclase phyric crystal tuff) and the apparently intrusive or slowly cooled sample 386255 from SHD-2, the petrographic data, including the descriptions of Aberfoyles samples 623044 (HA8 at 180.0m) and 623039 (HA7 at 200.1m) support the notion that all the samples in this set are from the same lithostratigraphic unit ...a quartz+plagioclase±biotite±hornblende-phyric rhyodacitic lava or very shallow sill".

Macroscopically the QFp is similar in appearance in all intersections and it was expected that SHD-2's unit would be dacitic with a Ti/Zr in the relatively tight range shown for non SHD-2 samples in Table 2. However, Ti/Zr ratios differ markedly and consistently (see Table 2) giving the SHD-2 QFp unit an andesitic signature. The SHD-2 samples have higher TiO2, lower P2O5 and generally lower SiO2 than the four analysed samples from SHD-11 and Tony says that "on the basis of the data above, I would suggest that the samples from SHD-11 definitely cannot be directly related with those in SHD-2. It cannot be ruled out, however, that the SHD-2 dacitic rocks are less fractionated products of the same parental magma that evolved (from these dacites) eventually to a rhyodacitic composition", (Tony categorises rock types differently to our dataset, we would refer to the SHD-11 samples as dacitic, those from SHD-2 as andesitic).

However, "compositional fields of these rocks on (his) figure 1" (which shows Ti/Zr against TiO2/P2O5 and Zr against TiO2) are considered by Tony to be "very similar ... with respect to the entire spectrum of MRV compositions" whilst the REE patterns have "striking similarity". He "strongly suggest(s) that the rhyodacites in SHD-11 are related to the dacites in SHD-2 by fractional crystallisation, and are derived from the same parental magma."

Prior to this work the ARF quartz porphyry with its distinctive quartz crystals was classified as a QFpD on the basis of a number of Ti/Zr analyses. The andesitic Ti/Zr ratios in SHD-2 have led to this unit being re-classified as a QFpA or QFpD/A when uncertain (all studied coherent ARF occurrences except for that in SHD-2 are dacitic). These ARF units are discussed further in section 7.2.6.

Table 2. QFpDacite and Andesite samples (ARF)

Sample No.	Location	Ti/Zr	Description
384090*	YNC-10, 187.4m	13.2	F(plag)+Q(ARF) lava or shallow intrusive, silica+chlorite+haematite overprinted by sericite+silica, same unit as 384091 below (K2O 0.41%)
384091*	YNC-10, 226.6m	13.4	Q(ARF)+F(plag.)±B±Hb R/Dlava or shallow sill, early chl+silica altn (syn-diagenetic?) with later sericite+silica (K2O 5.38%)
384038*	HA8, 197.3m	13.5	Q(ARF)+F(plag)R lava, groundmass quatzo-feldspathic (Kspar? K2O is 8.54%) with later sericite+silica+pyrite
384039*	HA8, 204.4m	13.4	Q(ARF)+F(plag)R lava, sericite+silica+pyrite altd (no cb noted), K2O 9.01%
386251	SHD-11, 8.5-9m	14.4	
386252*	SHD-11, 24.3m	13.8	Q(ARF)+F(plag)±B R/D lava sim to HA8 samples, silica+chlorite altn with later sericite, no pyrite, K20 9.37%
386253	SHD-11, 39.4m	13.7	
386254*	SHD-11, 54.9m	12.7	Q(ARF)+F(plag)R, weak sericite+silica alteration, K2O 10.2%
386255*	SHD-2, 75.5m	21.5	holoxtal Q+F(plag) intrusive or core of flow, no hydrotheraml altn, K20 2.46%
386256	SHD-2, 164.5m	24.3	
386257	SHD-2, 252.5m	22.2	
"15"*	58640N 380560E	n/a	Q+F(plag.) volcanoclastic, Q xtals after ARF type?, sericite+silica+pyrite

Nb: * indicates sample described petrologically, other samples listed were provided as hand samples with lithogeochemical data. Selected samples studied petrologically are considered macroscopically typical of the relevant intersection/outcrop. Lithcodes used are given in Table 4b.

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The alteration is described by Tony as (obviously variable given the wide sample spacing) but generally "an early weak quartz-chlorite±pyrite, possibly the background regional propylitic alteration, was overprinted by a sericite-quartz±Kspar(?)±pyrite alteration assemblage". Of the SHD-11 samples Tony states that "high K2O contents and relatively low LOI values suggest at least some of the K2O may be located in very fine-grained Kspar intergrown with quartz and sericite". He continues to say that "working with a porphyry type model, this pronounced Kspar alteration, ... suggests proximity to an intrusive source of the K-rich fluids, and has obvious implications for exploration". This alteration is further discussed in sections 7.3.5 (HA8 and HA7), 7.3.4 (SHD-11) and section 7.3.6 (SHD-2) as well as in appendix A (Type 1 and 2 alteration).

Lithogeochemically the samples from SHD-11 and SHD-2 are correlated with the Anthony Road hornblende andesite as Suite II (Crawford *et al* 1992).

The opportunistic hand sample is described as a chlorite altered plagioclase phyric andesite lava breccia. Based upon mapping and lithogeochemistry of nearby outcrop it is likely to be dacitic and has been mapped as such.

6.10.3 Basalts

After expressing interest in the existence of a basaltic unit at the base of the Tyndall Group, Tony was given eight samples of Howards basalt and three of the Spillway (or fire fountain after Allen, 1993) basalt. Whole rock and trace element lithogeochemistry was supplied with most samples.

The spillway (or fire-fountain basalt) basalt samples are described as plagioclase phyric basaltic andesite lava breccias with common quartz, calcite and/or chlorite filled vesicles. Because of the scattering of Ti/Zr and TiO2/P2O5 ratios more than one flow is likely within the Fire Fountain Basalt intersections/outcrop.

Tony notes a similarity with the Howards basalt and the sample (384084) from YNC8 at 235.6m but this is geologically unreasonable. The Howards basalt is described as a plagioclase phyric basaltic andesite, variably strongly haematitic and foliated to coherent. Lithogeochemically it is characterised by Tony as having; TiO2 1.0 - 1.3%, Zr 150 - 200ppm, Ti/Zr (in least altered samples) ~34 - 40, P2O5 0.3 - 0.4% and TiO2/P2O5 3 - 3.6. Scattered trace element values and ratios suggest more than one flow for this basalt also.

The basalt in SHD-6 is described as almost identical petrographically to sample 385623 from SHD-1 (see plate 5b).

Trace element lithogeochemical data for Howards basalt is plotted on six graphs in appendix F (basalt section) with the samples from NC4 showing higher K2O and MnO and lower Na2O than the SHD-1, SHD-6 and fire fountain (spillway) basalts. These changes are similar to the peripheral weaker Type 2 alteration seen in SHD-1 (see section 7.3.2). These major element levels are discussed with Tony suggesting that the higher

MnO and K2O represent a Mn and K rich chlorite replacing plagioclase, removing Na, hence the low Na2O levels. He states that it is apparently unrelated to carbonate alteration present and instead offers an unlikely alternative, particularly since in the thin section descriptions he refers to a murky carbonate in 625578 which has 1.46% MnO. Tony had not seen the samples of alteration described in section 6.10.4 below at the time of his description of this high MnO basalt sample and the Mn is considered to be in this murky carbonate.

"Best preserved examples of these units (both the Howards Basaltic Breccia and Fire Fountain Basalt) are probably best classified as basaltic andesites geochemically, though the absence of mafic phases (or their altered counterparts) in these lava/breccias is far more typical of andesites. My guess would be that the protolith lavas had 52-55% SiO2, and were particularly low-Mg basaltic andesites" (appendix F).

The best correlate of the Howards basalt is considered to be the Hellyer shoshonitic basalts (though with some different lithogeochemistry), however Ti/Zr levels are "consistently higher than most Hellyer basalts", interpreted by Tony to suggest "first notice of the change from the calc-alkaline and shoshonitic basalts to the high Ti/Zr tholeiitic basalts" in his description of the evolution of the Mt Read Volcanic's mafic rocks.

The Fire Fountain basalt is considered more problematical in this model on the basis of its tholeiitic character deeper in the sequence. Tony argues that the similarity in the lithogeochemistry between the Howards basalt and Spillway (Fire Fountain) basalts indicates that "the magma source and crystallisation processes involved in the generation of the Fire Fountain basalt changed little by the time the Howards basalt breccia was erupted" (he would like the Fire Fountain basalt to be an intrusive which is clearly not the case). However the Anthony Road Andesite was erupted immediately to the south in the period between the eruption of the Spillway (fire fountain) and Howards basalts.

Perhaps it may be reasonable to conclude that it is unclear as to precise lithogeochemical correlates in the Mt Read Volcanics.

6.10.4 Alteration from SHD-1 and SHD-2

Tony was given thirteen plain thin sections and eight polished sections of samples of altered and mineralised volcanics from DDH's SHD-1 and SHD-2 (see appendix F). Locations and summary descriptions of these samples are given in Table 3:

In the eight polished sections Tony describes sulphide mineral assemblages typical of VHMS systems with 'garden variety' sulphides i.e. sphalerite, galena, chalcopyrite and pyrite, with generally typical alteration assemblages i.e. sericite, chlorite, silica and carbonate.

Tony also almost invariably describes the presence of a murky brown carbonate which is generally later, along with quartz±chlorite, than the sericite+quartz+pyrite alteration.

Table 3: Alteration and mineralisation, SHD-1 and SHD-2

No.	Depth Cu, Pb, Zn, Au (ppm); MnO, Na2O (%)	Ti/Zr	Description
SHD-1; thin sections			
385633	360.5 6, 14, 228, <; 0.23, 2.88	15.2	aphyric R+clc F(plag)pD/A, lava bx with Q+ser(?)+tc py altd mx
385646	543.5 8, <, 281, <; 0.47, <	14.5	Q+chl+murky cb and ser+cb domains, altd vitric tuff
385648	574.5 63, 19, 153, <; 0.47, 0.09	23.1	ser+cb+Q+mn py+hmt, altd QFp or Q F xtal v/clastic
385502	664.5 16, 1039, 1510, 0.012; 1.55, 0.5	15.5	ser+Q+py altd pumx Fp lava bx, not completely F destructive altn, but murky fg cb altn of F's (20.5% Ba)
385505	668.9 85, 1294, 827, 0.019; 2.12, 0.35	20.5	ser+Q+murky fg cb, mn py+sph(colourless) altered QFpR lava bx
385513	676.5 404, 6900, 18200, 0.168; 0.07, 1.16	24.0	ser+Q+murky cb altd, fc v/clastic sst or lava bx
385538	701.5 48, 549, 3020, 0.016; 2.51, 0.18	21.1	ser+Q+py, clots sph(pale yellow)+Q, altd fc lava bx or v/clastic
385560	723.5 16, 127, 1128, 0.015; 2.31, 0.12	22.9	ser+murky cb+py altd QpR lava bx
385566	729.5 60, 1077, 1785, 0.048; 1,52, 0.13	14.0	ser+murky cb+Q, 1% sph(yellow), altd fc xtal poor vitric tuff
385592	755.5 41, 2372, 3151, <; 1.06, 0.09	6.2	ser+Q, sph(pale yellow), altd fc vitric tuff
385613	776.5 10, 276, 689, <; 0.61, 0.13	12.3	Q+ser+cb, mn py+sph(yellow), altd fc vitric tuff with F(plag)Px(augite)pA/D
SHD-1; polished thin sections			
SHD-1	666.5 198, 34500, 9200, 0.044; n/a, n/a	n/a	Q+ser+fg cb in less altd areas, then albite>Q+sulphides overprinted by cb(calc?), then(?) bands fg py+sph>gn and large areas of calc+gn+py+sph(colourless)>cpy
SHD-1	676.3 283, 2899, 1635, 0.132; n/a, n/a	n/a	Ba+Q+py overprinted by cb(fg calc)+sph(colourless)+gn+cpy
SHD-2; thin sections			
385876	288.5 12, 950, 2230, 0.023; 5.29, 1.6	14.8	dark cb overprinting earlier ser+Q, altd vitric tuff(?)
385933	511.5 11, 77, 1270, 0.013; 2.07, 0.12	7.1	ser+dirty bn cb+Q+chl+mn py, altd v/clastic(?)
SHD-2; polished thin sections			
385772	266.5 4533, 154, 94, 0.199; 0.15, 0.31	12.8	Q+ser+py(~20%)+tc cpy>gn+sph, altd fc lava bx or v/clastic
385794	288.5 50, 461, 347, 1.502; <, 0.21	12.0	bands (to 10mm) fg py in ser+Q altn, tc gn>cpy+sph along frac's in py, poss fc lava bx or v/clastic
385818	312.5 11000, 11, 203, 0.069; 0.63, 0.19	15.1	bands Q+cb+chl+ser+(~30%)cpy separated by Q+ser+py, tc sph+gn, altd Fp lava
385821	315.5 765, 13, 88, 0.925; 0.55, 0.18	15.0	Q+ser+py, between less altd Q+ser, tc gn+sph, altd fc lava bx(?)
385835	371.6 156, 10400, 19100, 0.09; n/a, n/a	n/a	Q+ser±spotty to pervasive bn cb±(p gn)chl with fg py and spots gn+sph + large patches sph(orange-red)+gn>cpy, poss F xtals
385836	372.5 1300, 117000, 182000, 3.42; n/a, n/a	n/a	50% red-bn sph>gn+py>cpy separated from Q+ser altn by py rims, altd fc lava bx or v/clastic

Nb: Lithcodes are in Table 4b

390078

These samples almost always have high MnO levels (to 5.29%) which cannot be accounted for by any of the alteration minerals except carbonate. Whole rock geochemistry was not available at the time so Tony was not aware of the elevated K2O levels which suggest Kspar alteration.

The descriptions of the thin sections have been incorporated into discussions of alteration in SHD-1 (section 7.3.2) and SHD-2 (7.3.6).

7.0 GEOLOGY/ALTERATION/MINERALISATION

7.1 Introduction

The geology of the "South Henty" area is described in much detail in appendix A ("Volcanic facies, alteration and exploration targets in E.L. 8/96 South Henty, Tasmania"). Work completed in the ensuing 8 months has provided much additional geological information not known at the time of completion of the remapping work. This section intends to start with the geology described in appendix A, with section 3.3 "Synthesis of volcanic lithofacies and palaeovolcanology" reproduced below, and to focus on departures from this based upon the recent drilling results, as well as addressing the exploration significance of alteration and mineralisation intersected in drilling.

7.2 Geology

7.2.1 Introduction

The follow reproduction of the "synthesis of volcanic lithofacies and palaeo-volcanology" (section 3.3 in appendix A) summarises the geological history of the volcanics in the South Henty area as best understood from the work done during the remapping phase. Codes in parentheses refer to the lithcodes defined in appendix II-d in appendix A.

"The earliest eruptions recorded in the volcanic sequence at South Henty were explosive rhyolitic eruptions, from as yet unknown but relatively shallow water (<1000m, McPhie and Allen, 1992) or sub-aerial vents, which generated large volumes of pumiceous pyroclastics deposited in thick massive to graded units by sub-aqueous mass flows (FPB). These were intercalated with minor massive to bedded volcaniclastic sandstones and lithic breccias partly derived from intrabasinal dacitic to rhyolitic sources with minor extrabasinal pelitic metamorphic provenance. Water depth of the depositional environment is not well constrained.

"Rhyolitic explosive volcanism was succeeded by subaqueous basaltic fire fountain eruptions which deposited a thin but laterally extensive unit of mainly monomict basaltic breccia and mafic volcaniclastic sandstone (SBB).

"Volcanism continued with intrusion and eruption of dacitic sills and cryptodomes (NCD) which developed constructional features in sea floor palaeo topography, generated large volumes of unstable dacitic hyaloclastic debris (NCC) and activated submarine mass flows to deposit polymictic volcaniclastic breccias and sandstones including pumiceous, rhyolitic, basaltic and rare massive sulphide clasts from the underlying stratigraphy (SPB). The resulting sequence of dacitic sills, domes, dacitic breccias and polymictic volcaniclastics attained a thickness of ~400m, dominated by intrusive coherent facies.

"Intrusion of a distinctive group of high P2O5 andesitic (ARA and ARH) to rhyo-dacitic (Suite II) (most ARF) magmas led to construction of a broad strato-volcano in a shallow? marine setting centred south of (the present location of) Newton Creek. Limestones

Table 4a: Geological key for South Henty

Denison Gp		Owen Conglomerate: siliciclastic cgl and sst
		Newton Creek Sandstone: turbiditic micaceous siltstone, quartzwacke and congl (NCS)
Tyndall Gp		Zig Zag Hill Fmn: post eruptive volcanolithic congl and sst (ZZH)
		Mt Julia Member: syneruptive massive Q-F xtal rich (rhyo-dacitic) lithic volcaniclastic sst (MJR)
		" : massive Q-F phyric rhyolite and assoc volcaniclastic breccias (MJX)
		Lynchford Member: syneruptive massive F xtal rich (andesitic) lithic volcaniclastic sst (LMX)
		" : massive carbonate, fossiliferous limestone and calcareous (volcaniclastic) sst (LMS)
		" : felsic/intermediate (mainly dacitic, also andesitic) volcaniclastic breccia, sst, slst and chert slst, pumiceous in SHD-1, 6 and 13 (LMD)
		? : Howards Basalt; fg/vesicular basalt and basaltic breccia; some mixed felsic-mafic volcaniclastic sst; formerly "Howards Tuff" (HBB)
CVC (Suite II)		"Anthony Rd Andesite": Q-F Porphyry; dacitic, mostly coherent probably intrusive, minor assoc volcaniclastic sst?, distinctive large resorbed inclusion rich Q phxts (ARF)
		" : Q-F Porphyry; andesitic, intrusive, holocrystalline groundmass, with ARF type Qxtals (ARF)
		" : F(Q-Hb) phyric Andesite; coherent extrusives and various volcaniclastic breccias and sst, commonly assoc with carbonate breccias, or calcareous clastic matrix (ARA & ARC)
		" : F-Hb(Q) Porphyry, coherent probably intrusive stocks and sills (ARH)
CVC (Suite I)		"Newton Creek Dacites": Dacite > andesite dominated volcaniclastic breccia, sst and minor slst, pumiceous in SHD-2 and 12 (NCC)
		" : F phyric to aphyric massive coherent Dacite and minor assoc monomict (hyaloclastite) breccia (NCD)
		"Spillway polymict Breccia": massive to bedded coarse polymictic volcaniclastic breccia-congl (incl: rare MS clasts) and volcaniclastic sst (SPB)
		" : massive to stratified, near monomictic basaltic "fire fountain" breccia and assoc finer volcaniclastic sst (SBB)
		"Footwall Pumice Breccia": massive F phyric sericitic pumice breccia, ubiquitous relict tube pumice, local pink felsic lava clasts, minor intercalated felsic clast rich breccia and volcaniclastic sst (FPB)

 chlorite

 hematite

 carbonate (calcite and Mn CO3)

 base metal sulphide veins\ disseminations

 barite veins

 pyritic veining/alteration

Table 4b: Lithcodes used in maps, logs, tables and text

Abbreviation	Word
A	Andesite
aa	as above
aft	after
Ag	silver
altd	altered
altn	alteration
amyg	amygdale
ang	angular
asp	Arsenopyrite
assd	associated
Au	gold
B	Basalt
ba	Barite
bb	bleb
bc	broken core
bk	black
blw	below
bn	brown
bx	breccia
bxd	brecciated
c	with
calc	Calcite
cb	carbonate
cct	cross cutting
cg	coarse grained
chl	Chlorite
chy	cherty
conf	conformable
cong	conglomerate
cpy	Chalcopyrite
cs	contains
cy	clay
D	Dacite
det	detrital
dh	down hole
dk	dark
dsd	disseminated
epi	Epidote
F	Feldspar
fbdd	flowbanded
fc	felsic
ferrug	ferruginous
fest	ironstone
fg	fine grained
fg	fine grained
flt	fault
fn	foliation
fol	foliated
frac	fracture
fw	footwall
gl	Galena
gly	generally
gn	gree
gy	grey
Hb	Hornblende
hmt	Haematite
hw	hanging wall
hyalo	hyaloclastic
ibdd	interbedded
inc	including
int	intermediate
irreg	irregular
K	Potassium
lc	lower contact
lst	limestone
ltc	lithic
mc	mafic
mc	mafic
mg	medium grained
Mn	Manganese
mn	minor
mnst	manganese stained
mod	moderately
mott	mottled
msv	massive
Mt	Magnetite
mx	matrix
my	moderately
mzd	mineralised
mzn	mineralisation
Na	Sodium
neg	negligible
ocl	occasional/ly
org	orange
ornin	orientation
ov	overlying
oxd	oxidised
p	porphyritic
p	pale
pk	pink
Prec	Precambrian
pu	pumice
pumx	pumiceous
py	Pyrite
Q	Quartz
R	Rhyolite
rdd	rounded
sd	sulphide
sdc	sulphidic
ser	Sericite
sface	surface
sh	shale
sig	significant
sil	Silica
sim	similar
slt	siltstone
sph	Sphalerite
sst	sandstone
sts	schistose
sy	strongly
t/o	throughout
tab	tabular
tc	trace
tk	thick
ts	tuffaceous
uc	upper contact
uh	up hole
un	underlying
v	very
v/clastic	volcaniclastic
vl	vesicle
vn	vein
vng	veining
vnt	veinlet
volc	volcanic
wed	weathered
wk	weak
wk	weak
wt	white
wt	white
wy	weakly
xtal	crystal
yw	yellow
z	zone

formed on the shallower shoulders of the strato-volcano and contributed carbonate detritus to mixed andesitic volcaniclastic sediments (ARC) deposited off the northern flanks and locally intercalated with or overlain by volcaniclastics (NCC) and sills (NCD) associated with continuing dacitic volcanism.

"There followed another phase of basaltic volcanism (HBB) which had compositional and eruptive similarities to the lower fire fountain basalt and marked the cessation of Suite II eruptions. Continuing local, shallow marine? limestone-mudstone-dacitic volcaniclastic sedimentation (LML) was abruptly overwhelmed by the inception of thick, crystal rich, syn-eruptive mass flow type volcaniclastic deposits derived from extra basinal andesitic (LMX) to rhyolitic (MJX) explosive eruptions and formation of an intrabasinal rhyolitic dome complex (MJR). Cessation of volcanism was followed by a period of post eruptive re-sedimentation of volcanolithic detritus in shallow marine to subaerial alluvial fan environments (ZZH) which gradually became dominated by siliciclastic sedimentation from progressive uplift of PreCambrian continental basement."

The following discussion is arranged stratigraphically from base to top and summarises the conclusions drawn from drill intersections, petrology, lithogeochemistry and mapping.

7.2.2 Basal siltstones - Yolande River Sequence

The deepest part of the sequence was intersected by SHD-2 and SHD-12, both targetted on the spillway "horizon". Both holes intersected felsic tuffaceous siltstones>sandstones at the end of the hole with SHD-2 intersecting 75 metres of this unit (see plate 21 and figures 8and 10). Six samples from this intersection have Ti/Zr between 7.1 and 8.1 indicating a rhyolitic composition. This in agreeance with earlier mapping (Poltock 1992) showing siltstones outcropping along the upper edge of the east side of the Henty Gorge. The Yolande River Sequence (Corbett, 1992) outcrops along the Anthony Road further ~5 km's south and contains units similar in description to those interescted in SHD-2 and SHD-12.

The felsic tuffaceous siltstones>sandstones are therefore considered to be from this Yolande River Sequence (YRS), with the YRS interfingering with the footwall pumice breccias (FPB) and lesser FpDacite sills(?) and probably lensing out northwards.

No evidence of the FHbpA intrusive (ARH) outcropping in Newton Creek below the spillway was seen in SHD-2 or SHD-12.

7.2.3 Footwall pumice breccias (FPB)

Footwall pumice breccia (FPB) was intersected in both SHD-2 and SHD-12 between these YRS tuffaceous siltstones>sandstones and the main basalt intersection. However, in SHD-2 the pumice breccias (see plate 19 and figures 8 and 10) are interbedded with four or five poorly graded units, a few metres thick, of monomict basalt breccias (see plate 20) and a polymict basalt?>siltstone breccia. The footwall pumice breccias and basalt breccias in SHD-2 are weakly sericite+carbonate altered and mineralised in part with fine stringer

style veinlets and blebs of pyrite±sphalerite±galena. This alteration/mineralisation is discussed later in section 7.3.6.

SHD-12 did not intersect any such basalt breccia units below the main large basalt intersection and the footwall pumice breccias are unaltered and in a single graded unit. The coarser base of this unit contains pale Fp clasts which may be clasts of coherent FpD or alternatively silicified F crystal rich pumice clasts.

7.2.4 Spillway basalt (SBB)

The main basalt intersections in SHD-2 and SHD-12 are typical basaltic breccia>sandstone units.

SHD-2's intersection (see plate 18 and figures 8 and 10) is interpreted to be dominantly volcaniclastic breccia. The ~70 metre thick intersection is comparable in thickness with the ~80 metre thick intersection in YNC11, 600 metres to the north. This YNC11 intersection is also logged as breccia. (appendix A). Samples of basalt from SHD-2 (as well as numerous other spillway basalt samples from the YNC holes) were studied petrologically and lithogeochemically in appendix F, with conclusions drawn summarised in section 6.10.3.

SHD-12 was targetted on the spillway horizon in the hinge zone to the steeply south-easterly plunging anticline interpreted to lie just east of the spillway. No structural evidence supporting the existence of this fold is seen in the essentially massive basalt breccia and basalt derived sandstones. The orientation of the foliation w.r.t the core axis remains relatively consistent and the hole appears to have stayed in the northerly limb of the fold before passing into the footwall pumice breccias, rather than cutting the hinge of the anticline.

The apparent thickness of the basalt is probably an artefact of the obliqueness of SHD-12's intersection and not a true width. There are not reliable bedding indicators in SHD-12's intersection to even estimate this width.

7.2.5 Dacitic pumiceous volcaniclastics below QFpD/A (NCC)

Both SHD-2 and SHD-12 intersected feldpsar phyric dacitic pumiceous volcaniclastics above the SBB. In the case of SHD-12 this unit is only ~15 metres thick and visually unaltered. SHD-2 in contrast intersected ~150 metres of altered pumice breccias>sandstones+siltstones in a series of normally graded flows (see figures 9 and 10). The rocks here are altered throughout (see plates 15, 16 and 17 for altered and mineralised examples) with very strong sericite+silica+sulphide (pyrite+chalcopyrite) in the upper ~130 metres (see plates 15 and 16) and sericite+silica+Mn carbonate+sulphide alteration in a broad selvedge to the sphalerite+galena stringer at 372.5m (see plate 17). Alteration and mineralisation here is discussed in section 7.3.5, however, the upper main zone is suggestive of the central hotter parts of a stringer zone or alternatively ponding of hydrothermal fluids up against the QFpA.

Tony has described altered samples in Table 3 as being generally volcaniclastics with feldspar crystals.

SHD-8 intersected very similarly sericite+Mn carbonate+sulphide altered (becoming more chloritic downhole) dacitic pumiceous volcaniclastics ~400 metres north. This alteration is visually very similar to that intersected by SHD-2 below the QFpA but this alteration is less Cu rich in SHD-8 (best is 1m @ 0.15% Cu). SHD-9 was drilled with the intention of looking for further ponding of sulphides up against the QFpD, however, although weathering makes logging difficult there is only moderate chlorite+pyrite alteration of two volcaniclastics, similar in appearance to the SHD-8 dacitic pumiceous volcaniclastics, below and between the two intersections of QFpD.

7.2.6 QFpDacite and Andesite (ARF)

AQF porphyritic unit (not to be confused with QFporphyritic Rhyolite from the Mt Julia Rhyolite higher in the sequence) was intersected by SHD-2, SHD-9 (very weathered), SHD-11 and SHD-12 as well as previous drill holes HA7, HA8 and possibly NC4. The ARF unit was described in appendix A as "a =>3km long stratiform body of distinctive rhyo-dacitic, coarse quartz-feldspar porphyry (ARF) up to about 200m thick. It is typically coherent and massive consisting of 10-15%, 1-3mm tabular, somewhat glomeroporphyritic plagioclase, ~5%, 2-4mm rounded/resorbed quartz, and sparse chloritised relict skeletal/prismatic mafic phenocrysts in a fine grained dark brownish-grey glassy? or quartzo-feldspathic matrix with accessory granular magnetite. A large proportion of the quartz phenocrysts are crowded with unmistakable small (~0.1-0.2mm) spherical white and green (melt?) inclusions.

"Several analyses of ARF (Appendix II-b and Figures 21 & 22) show a tight compositional range of ~67% SiO2, 13 Ti/Zr and 0.5-0.6 P2O5/TiO2 which clearly distinguishes it to be of MRV Suite II (Crawford et al., 1992).

"In most exposures (HA7, YNC4, YNC10 and outcrops north and south of Lake Newton) the ARF unit appears to be coherent and the upper contact in YNC10 (although confounded by carbonate-chlorite veining) is vaguely peperitic, suggesting emplacement as an intrusive sill although the gross morphology is equally consistent with an extrusive emplacement. In HA8, however, there are unequivocal variations in proportions of the distinctive quartz crystals and relict bedding which, despite the strong alteration overprint, indicate that the ARF porphyry was at least partly erupted and volcaniclastically re-sedimented." (appendix A).

The ARF samples referred to above are from HA7, HA8 and YNC10 and are of coherent QFpD with Ti/Zr 12.7 to 14.4. The significance of the ARF unit to Resolute's conceptual model for the Lake Newton prospect, discussed in section 6.10.2, is that it appears to strike through the "stalk" of the "mushroom" with the "stalk" probably due to magnetite destructive hydrothermal alteration.

Due to this significance the unit has received considerable attention with six samples from SHD-2, SHD-11, YNC10, HA8 and outcrop analysed petrologically and a number more lithogeochemically in section 6.10.2. A major conclusion from this work is that the QFp intersected in SHD-2 (see figures 9 and 10) differs markedly lithogeochemically, though little petrologically (except for a coarser grained holocrystalline groundmass in the SHD-2 unit), from that intersected in SHD-11 (see figure 12), HA8 (see figure 13) and YNC10 with the former (SHD-2) having andesitic Ti/Zr (21.5, 22.2 & 24.3) ratios (see appendix F and Table 1 in section 6.10.2) whilst the latter (all other occurrences sampled) show Ti/Zr ratios tightly clustered between 12.7 and 14.4 (see Table 1 in section 6.10.2). The SHD-2 unit is therefore more correctly symbolised as a QFpA whereas all previously known QFp occurrences have been symbolised as QFpD. QFpD (ARF) rocks are differentiated on figures 3, 9 and 16 but not 2 and 15.

These latter dacitic Ti/Zr values from HA8 (12.7 and 14.4) are higher than Aberfoyle's side grind data with the 25 metre side grind of coherent QFpD within which the two HA8 samples were taken having Ti/Zr of 9.7. Similar values are reported by Aberfoyle for the volcaniclastics overlying and underlying suggesting some form of systematic discrepancy. Either way the ARF quartz crystal bearing volcaniclastics are dacitic to rhyodacitic in gross composition.

With SHD-2 samples having higher TiO2, lower P2O5 and generally lower SiO2. Tony Crawford states that this unit in SHD-2 cannot be directly correlated with the similar looking rock in SHD-11, but is prepared to strongly suggest that they are related by fractional crystallisation with derivation from the same parent magma. The ultimate source of this conclusions is the whole rock/trace element assays for three SHD-2 samples. Upon reflection these results want confirmation by repeat sampling of the unit in SHD-2, however, the three SHD-2 samples were sent in the same batch as the SHD-11 samples as well as a standard (of rhyolite composition) and the analytical results are considered to be reliable. Tony does state in his description of the one sample of SHD-2 QFpD/A that the major difference petrologically between this sample and the other seven is the unambiguously holocrystalline nature of the groundmass and the distinction between the QFp intersected in SHD-2 and the other occurrences is considered valid.

The massive QFp unit intersected in SHD-12 from the collar to 183 metres has not been sampled or assayed yet, however, macroscopically the unit looks much more similar to the QFpDacite intersected in SHD-11 than the QFpAndesite in SHD-2 (this will be verified at least lithogeochemically). The lower contact of the QFp in SHD-12 against the underlying dacitic volcaniclastics is sharp and sheared and tells us little except that there is no hyaloclastic debris. The categorisation of the SHD-12 QFp as a dacite lends some support to Resolute's original conceptual model as it apparently strikes through the "stalk" of the "mushroom".

On the northern side of Lake Newton the QFpD extrusive/shallow intrusive unit in SHD-11 lies stratigraphically higher than the QFpA intrusive in SHD-2 with the contact between the two not seen in core or outcrop (see figures 10 to 14). This QFpA in SHD-2

lies immediately above, or in contact with, the altered dacitic pumiceous volcaniclastics. The QFpD in SHD-12 south of the lake immediately overlies, or is in contact with, these same dacitic pumiceous volcaniclastics ~400 to 500 metres south of SHD-2. The QFpA unit is not intersected in SHD-12. The conclusion here is that the QFpAndesite intrusive does not extend any significant distance southwards (nor ~ 1.1 to 1.3 km's northwards to YNC4 and YNC10) and that it is a discrete plug like body which lies deeper than the coherent QFpD unit outcropping on HA8 Point and intersected in HA7, HA8 and SHD-11. Ti/Zr ratios and sample descriptions were used to help map out the interpreted outcrop of the QFpA (see figure 16).

Although discussed later in section 7.3, the sericite+carbonate(±Mn)±barite±sulphide alteration of coherent QFpD (ARF) and associated clastics with ARF quartz crystals intersected by DDH's SHD-1, SHD-13, HA7 and HA8 is considered to represent the replacement of porous, permeable, pumiceous volcaniclastics 300 to 350 metres below the sea floor by fluids which had been channelled through a zone of weakness in the QFpD. This pre-diagenetic replacement style of alteration and mineralisation is similar to that described for Rosebery (Allen, 1994). Ideally the "stalk" of the "mushroom" aeromagnetic low should represent the feeder structure to this stratabound zone.

If the QFpAndesite, perhaps even more correctly a Quartz Diorite, in SHD-2 is a discrete intrusive this introduces the possibility that the alteration in SHD-2 and perhaps in HA8, HA7, NC4, SHD-1 and SHD-13 is associated with this intrusive. The idea that the QFpD intersected in drilling prior to SHD-2 (i.e. HA8, HA7, and YNC10) was responsible for the sericite+Mn carbonate+Kspar+sulphide alteration in YNC5 and YNC10 was considered during the initial remapping and shown to not be supported by the core. However, it is a strong possibility that the QFpA or Quartz Diorite intersected in SHD-2 behaved differently with the alteration underlying (SHD-2) and overlying (HA7, HA8, NC4, SHD-1, SHD-11 & SHD-13) related to this intrusion. The Kspar reported independantly by Wally and Tony is significant, though not necessarily negatively, however, Tony C states that the Kspar alteration suggests proximity to an intrusive source of K rich fluids. Certainly alteration intensity is greatest nearer to the base of the QFpA, however, this would be equally expected from ponding hydrothermal fluids or in a discordant stringer system preferentially exploiting more permeable units.

The top of the QFpD is only seen in highly altered form in HA7 and HA8 (in YNC10 both the top and bottom are peperitic) where it is associated with clearly clastic units in the form of at least some well graded coarser to finer sandstone units with the distinctive ARA type rounded/resorbed quartz crystals to 2-4mm, a large number of which are crowded with white and green melt(?) inclusions (from appendix A). The grossly stratabound nature of alteration with the ARF unit strongly sericite+silica+carbonate+sulphide altered, overlain by weakly (haematitic) altered FHbpA, was noted in the remapping work. It was this unit which was targetted by the ends of SHD-1 and SHD-13, albeit as a lower priority at the time. Significantly these ARF quartz crystal volcaniclastics appear to coincide with and help define a broadly stratabound zone of sericite+carbonate (±Mn)±pyrite alteration.

ARF quartz crystal bearing volcaniclastics from the main alteration zone in SHD-1 have variable Ti/Zr ratios (15.5 to 26.8 but generally >20) and thus variable but generally andesitic gross composition (see plates 8 to 12). Alteration does persist down into the underlying non-ARF quartz crystal bearing volcaniclastics (with variable Ti/Zr from 6.2 to 24.0) but more weakly (see plates 13 and 14). ARF quartz crystal bearing volcaniclastics/volcanics in NC4 are also andesitic (Ti/Zr 20.3 to 30.3), however, it is less likely that these rocks are part of the stratabound zone of alteration as the hole does not appear to penetrate deep enough into the stratigraphy (see figure 14). As noted earlier the altered ARF quartz crystal volcaniclastics in HA8 are dacitic, perhaps rhyodacitic,. The quartz crystals are considerably more plentiful in HA8 than in SHD-1.

The source of the quartz crystals thus appears to be closer to the current surface. Either the quartz crystals were shed from extrusive QFpD or they were erupted as crystal tuffs, possibly co-magmatically with the shallow intrusive/extrusive QFpD sill/lava. In both cases the suggestion is that this took place closer to HA8 than SHD-1.

The andesitic character of the host to the ARF quartz crystals, and alteration, in SHD-1, may be explained by it being more distal from the source of the quartz crystals with only a few crystals finding their way into essentially andesitic derived volcaniclastics.

7.2.7 Anthony Road Andesite (ARA)

Further south the shallow holes SHD-3, 4, 5 and 7 were drilled into IP and/or "wacker" geochemical anomalies in the rainforest south of Lake Newton. All four holes intersected massive to occasionally foliated FHbpA typical of ARA andesites. The nature of this Anthony Road Andesite is elaborated below.

7.2.8 Footwall (to Henty-Comstock horizon) volcaniclastics/Dacites (NCC/NCD)

The Henty-Comstock horizon in the Lake Newton area was intersected by SHD-1 (see plate 5) and SHD-13 (see plate 23) as well as previous hole NC4, with all three holes extending into the footwall to this horizon for some distance. The holes SHD-1 and SHD-13 on the Lake Newton prospect, SHD-6 on the Henty Canal prospect as well as detailed mapping in the area (see figure 15) have provided information on these rocks, yet raised new questions.

Both SHD-1 (see plates 6 and 7 and figures 7 and 11) and SHD-13 (see plate 24 and figures 11 and 12) and NC4 (see figure 14) intersected a sequence of units (tens of metres thick) of graded pumiceous volcaniclastic breccia/sandstone. Clear clasts are rare with just a few pebbly volcaniclastic beds. The rocks contain ~25% feldspar crystals irregularly distributed. Rare felted textures are suggestive of tube pumice and the rock is interpreted fairly confidentally to be a Fp pumice breccia. More andesitic clastic units often have a more massive or sandy appearance. Tony described altered samples from the footwall in Table 3. Although his descriptions vary from sample to sample, relationships in core and hand specimen identification indicates that the rocks are pumiceous volcaniclastics. Whole rock analysis for SHD-1 volcaniclastics below the Henty-Comstock horizon show a range of lithogeochemical compositions. Most discrete graded units have dacitic Ti/Zr with

lesser with andesitic ratios. Only the end of the hole encounters felsic Ti/Zr values. The ARA type Quartz crystal bearing volcaniclastic is andesitic with Ti/Zr 15.5 to 26.8 though generally >20. A very similar sequence is intersected in NC4 with dacitic compositions>andesitic.

The pumiceous volcaniclastic units are cut by basalt dykes in SHD-13 and to a much lesser degree SHD-1 (see figures 11 and 12) with at least the second uppermost basalt intersection in SHD-13 extrusive yet beneath 5 metres of pumiceous volcaniclastics. The Howards Basalt is discussed in section 7.2.8, however, a conclusion drawn is that SHD-13 lies closer to an extrusive basalt centre than SHD-1, the latter perhaps occupying a relative topographic low to account for the thicker more coherent units.

The other lithotype seen in the footwall to the Henty-Comstock horizon (and above the ARF units) is FpDacite as coherent extrusives or shallow intrusives with derived hyaloclastic breccia. These dacites are most common in NC4 (see figure 14), less so in SHD-13 (see figure 11) and non-existent in SHD-1 (see figure 11) suggesting a southerly and deeper vector towards the source of the dacite sills and coherent and brecciated extrusives.

By HA3, 350 metres further south from NC4, the pumiceous volcaniclastic>dacite sequence forming the footwall to the Henty-Comstock horizon has given way to thicker accumulations of limestone and marly sediments and coherent or brecciated FHbpA of ARA type suggesting a closer proximity to the Anthony Road Andesite volcano. Most available outcrop along the eastern shore of HA8 Point is of coherent FHbpA, however, SHD-1's intersection only contains clastics of grossly andesitic composition, suggesting that the more massive coherent andesitic units thin with depth.

The area north of SHD-1 has been mapped in some detail (see figures 15 and 16). Dacitic volcaniclastics are mapped along the shore of Lake Newton immediately west of the pump station, however, these are interpreted to lie stratigraphically above the Henty-Comstock horizon which is interpreted to trend north-north-westwards through the Tyndall Mine. It is not clear as to the significance the massive extrusive QFpR outcropping in the area, however, an alternative possibility is that this rhyolite is forming the northern edge to this pumiceous volcaniclastic filled basin at Lake Newton. This interpretation requires the Henty-Comstock horizon to trend more north-westerly and pass stratigraphically above the rhyolite on Pumphouse Point. This is considered less likely than the Henty-Comstock horizon trending north-north-west through the Tyndall Mine. This trend is based on the bedding to core axis orientations in SHD-1 suggesting a moderately steep but not vertical easterly dip. Apart from a single "wacker" C-horizon sample with Ti/Zr of 25 (see figure 15) the first time evidence of the Howards Basalt is seen to the north is in the basaltic clasts in a F>Q crystal sandstone in the upper part of YNC4. The highest priority drill hole proposed will test this favoured Tyndall Mine trend of the Henty-Comstock horizon en-route to its principal target.

We can perceive of the pumiceous volcaniclastic>dacite sequence to be occupying a depositional basin on the northern flanks of the Anthony Road Andesite stratovolcano.

Although the "mushroom" shaped aeromagnetic low is considered to be due to hydrothermal alteration where it is discordant to the stratigraphy, it has always been recognised that the "head" of the "mushroom" may be at least partly lithological (see figures 2 and 9). The dacitic>andesitic volcaniclastics which occupy the footwall in the "head" would not have been significantly magnetic initially, regardless of the effects of hydrothermal alteration. The gradual pinching of the "head" towards the south of NC4 mirrors changes in the nature of the footwall with both magnetic FHbpAndesites and intercalated generally non-magnetic limestones increasingly important to the south.

7.2.9 Howards Basalt/Lynchford Member (HBB/LMC, LMS & LMD)

A number of interesting intersections of Howards Basalt were made in SHD-1, SHD-6 and SHD-13. SHD-1 and SHD-13 intersected Howards basalt breccia (HBB) immediately above the head of the mushroom aeromagnetic low (see figures 9, 11 and 21). Samples of HBB from SHD-1, SHD-6 and NC4 were studied petrologically in appendix F and summarised in section 6.10.3.

The footwall pumiceous volcaniclastics/dacites SHD-1 (see figures 7 and 11) are overlain by a sedimentary, partly fossiliferous, limestone (301 - 317m) which is in turn overlain by a pulse of F>Q crystal sandstone/breccia (276 - 301m). This is overlain in turn by a coherent FpBasalt (see figure 4b), a thin green siltstone bed, ~3 metres of strongly haematitic, calcitic and foliated basalt breccia (263 - 268m - see plates 4a and 4b), followed by another green siltstone and then a ~70 metres thick sequence of undeformed green coherent FpBasalt (see plate 4b) and monomict FpBasalt volcaniclastic breccia (188 - 276m). This is overlain by marly sedimentary breccia with limestone clasts/rafts (170 - 188m) which are overlain by Lynchford Member crystal sandstones. The haematitic carbonate rich foliated basalt is the Howards Tuff unit of Aberfoyle (e.g. Lewis 1995a and b).

The Henty-Comstock horizon is interpreted to lie at 317 metres, at the top of the weakly altered pumiceous volcaniclastics and the base of the limestone (see plate 5). The foliated, haematitic basalt (Howards Tuff of Aberfoyle) lies slightly higher in the stratigraphy (263 to 268 metres), between coherent basalt units (and siltstones). All basalt intersections above 317 metres are extrusive. There are also three thin basaltic dykes intersected in the footwall rocks below 317 metres which are interpreted to be feeders to the upper extrusive units. Alteration in these basalt dykes is discussed in section 7.3.

In SHD-13 the lower limestone immediately overlies haematitic±calcitic±chloritic foliated basalt breccia (629.7 - 634.2m) which in turn immediately overlies the pumiceous volcaniclastics/dacites (see plate 23 and figures 11 and 12). Here Aberfoyle's "Howards Tuff" essentially coincides with the Henty-Comstock horizon, interpreted to be defined in this area by the top of the pumiceous volcaniclastics/dacites. There is no thick accumulation of basalt above the limestone as in SHD-1. Conversely there are many more

basalt dykes beneath the upper foliated, haematitic occurrence. SHD-13 appears closer to a mian vent of the basalt than SHD-1 whilst SHD-1 may be occupying a relative topographic low in order to accumulate the extrusive basalt above the lower limestone.

The basalt intersected at the end of SHD-6 is very intriguing (see figure 15). It apparently overlies extrusive coherent and clastic Mt Julia Rhyolite with outcrops just to the west from the up dip projection of the basalt intersection in SHD-6. Mapping (in figure 15) suggests that the basalt lies at the base of the dacitic pumiceous volcaniclastics which trend north-north-west from above the QFpR, through the Access Road to the outcropping altered dacites in the Henty Canal. There is no basalt outcrop along the canal nor the Access Road road cuttings. It is possible that this basalt represents the northerly extension of the stratigraphically higher basalt intersections in SHD-1 with the basalt a somewhat discrete lens. Lithogeochemistry and petrology (section 6.10.3) confirm the similarities of this more coherent basalt in SHD-1 (in particular sample 385623 from SHD-1 in plate 4b) with that in SHD-6.

A structural explanation is also possible, with the basalt a faulted repetition of the Howards Basalt, however this is somewhat difficult to envisage. There are a number of more east-west striking faults outcropping along the Access Road road cuttings, however, there is no obvious similar dislocation of the well defined lower part of the stratigraphy. The Newton Creek Fault is shown as trending towards SHD-6 on figure 15, however, this fault is interpreted to dip moderately steeply to the south-west with a reverse throw of ~500 metres, making a purely structural explanation complicated.

Re-logging of previous DDH HA4 was not completed during the remapping work. This hole, drilled west to east, has intersected a relatively thick sequence of foliated, haematitic, carbonate rich, FpBasalt breccia. Although visually these rocks could be FpAndesite, two whole rock/trace element analyses of typical breccia have Ti/Zr of 35.5 (623788 from 178.6m) and 49.4 (623792 from 288.2m). The log for HA4 is included in appendix D. The anomalous silver mineralisation is hosted within this basalt breccia unit as a later overprinting phase with barite+haematite+calcite alteration. This mineralisation is discussed in more detail later.

7.2.10 Mt Julia Member rhyolite and andesite

Mapping on grid lines between the pump station shore and the access road indicates that there are two large coherent bodies outcropping. Immediately east of the Tyndall Mine is a body, ~400 metres thick, of QFp Mount Julia Rhyolite. This is overlain by a smaller body, ~300 metres thick, of FHbpA which is in turn overlain by the dacitic pumiceous and more hyaloclastic volcaniclastics. These two bodies, interpreted to be at least partly extrusive, are shown by White and McPhie (1996 - see figure 3) to lie in the Mt Julia Member of the Comstock Formation with the dacitic volcaniclastics outcropping along the pump station lake shore also included in this Mt Julia Member.

The crystal sandstones intersected in NC4 just above the Lynchford Member limestones/basalts indicate a grossly andesitic composition with similar crystal sandstones

overlying these andesitic sandstones in NC4 having a rhyolitic composition (based upon Ti/Zr ratios). This is the reverse of the relationship between the coherent, partly extrusive FHbpA and QFpR units indicating that there is no clear relationship between these coherent units with the crystal sandstones.

7.3 Alteration and Mineralisation

7.3.1 Introduction

Strong hydrothermal alteration with significant mineralisation was intersected in SHD-1 and SHD-2 as well as the short hole SHD-8. Weaker but significant alteration was also intersected in SHD-1 and SHD-13 as well as SHD-11. The alteration intersected in each hole and its significance to other occurrences, particularly HA7, HA8 and NC4, is elaborated upon in the following sections.

The intersections of strong sericite+silica±carbonate(±Mn)±Kspar±sulphides(pyrite±low Fe sphalerite+galena) alteration with elevated base metals±gold in DDH's SHD-1, SHD-13, HA7 and HA8 at the Lake Newton prospect are considered to define a highly prospective base metal massive sulphide target in a broadly stratabound zone ~300m - 350m below the Henty-Comstock horizon and above intense sericite+silica+sulphide± carbonate (±Mn) alteration with sulphide stringers intersected in SHD-2. This alteration has strong parallels with the replacement model for VHMS mineralisation favoured for Rosebery (Allen, 1994) and South Hercules (Khin Zaw and Large, 1992) and suggested for a number of VHMS deposits around the world (Allen, 1994; Allen *et al* 1997).

No significant alteration or evidence of any mineralisation was intersected on the Henty-Comstock horizon, however, in SHD-1 and SHD-13, as well as NC4, the rocks immediately below the Henty-Comstock horizon have undergone Na depleting weak sericite±chlorite±haematite±Kspar±Mn carbonate non sulphidic alteration. Similarly altered rocks are also seen in NC4.

SHD-2 is the only drill hole (including previous extensive drilling by Pasminco) to have intersected any alteration in the footwall to the (lower) spillway horizon. However, the sericite+silica±Mn carbonate±sulphides (pyrite+chalcopyrite+high Fe sphalerite+galena) alteration is more likely the product of the same hydrothermal fluids which altered the rocks above the basalt in SHD-2.

SHD-8's sericite+silica+Mn carbonate+pyrite alteration was considered at the time to favour a model of ponding of hydrothermal fluids beneath the coherent QFpD sill. Since an alternative explanation for the SHD-2 alteration could be in part the same model this occurrence is significant.

Wally Herrmann's work on alteration (described in section 4 of appendix A) defined four types of alteration with a possible genetic link between Type 1 sericite+pyrite±quartz and Type 2 sericite+$MnCO_3$+Kspar. The definition of alteration types has changed with

Table 5: Summary of alteration zonation, Lake Newton Alteration Zone

Upper peripheral alteration

Hole/depth	Lithology	Intersections	Alteration
SHD-1, 317 - 664m	dac>and pumx v/clastics with basalt dykes	low	**ser±chl±hmt±Kspar±cb, non-sulphidic**, mn zones ser+si+py (394-396m,460-490m,583-585m) ±qtz+sph+gn vnt'
SHD-13, 630 - 992m	dac>and pumx v/clastics with basalt dykes & mn intrusive FpD	low	**visually similar to SHD-1** (above) but **chl t/o**. i.e. chl±ser±cb±hmt±Kspar(?)
NC4	dac>and pumx v/clastics with basalt dykes & mn intrusive FpD	low	**ser±chl±hmt±Mn carbonate**+Kspar(?)
SHD-11	coherent QFpD	low	si+**chl**±py and later ser+si+Kspar±py

Sulphide Zone

SHD-1, 664-758m	and>dac>>felsic v/clastics, pumx	664-758m, @0.2% Zn & 0.15% Pb individual metres to ~1% Zn ±Pb	**ser**+si+**Mn cb+sd**(py+lowFe sph+gal)+Ba
SHD-13, 1006.5-1051m	FpD hyalo (juv.) bx ov. ARF q xtals in altd v/clastic	low tenor best 1 m @ 0.12% Zn	**Mn cb+ser**, only mn py±sph±gal no lithogeochem
HA7, 167-233m	coherent QFpd	3m @ 0.2% Zn, 2m @ 10g/t Ag	**ser**+si+sd**(py+low Fe sph+gal)+cb**
HA8, 27-252m	coherent QFpD also with ARF quartz crystal clastics (dacitic)	225m @ 0.2% Zn,3g/t Ag inc. 15m @ 0.105g/t Au	**ser**+si+sd**(py+low Fe sph+gal)+cb**

Footwall zone

SHD-2, 264-397m	dac pumx v/clastics	10m @ 0.3% Cu; 0.5m @ 12% Pb 18% Zn & 3.4g/t Au	**ser**+si+**sd**(py±cpy±high Fe sph±gal)±**cb** (±Mn)
SHD-2 lower, 487-~560m	felsic pumx bx & B, D>B±slt bx's	e.g.1m @ 0.34%Pb 0.51%Zn	**ser±chl**±si±sd(py, high Fe sph, gl)±cb(±Mn)
?SHD-8, 0- 55m	dac pumx v/clastics	3m @ 0.76g/t Au	**ser**+si+sd(py, sph, gl, cpy) above 39m chl+cb±ser blw

Nb: Lithcodes used are listed in Tables 4a and 4b. Bold alteration phases emphasise the visually more significant phase(s). NA=not available.

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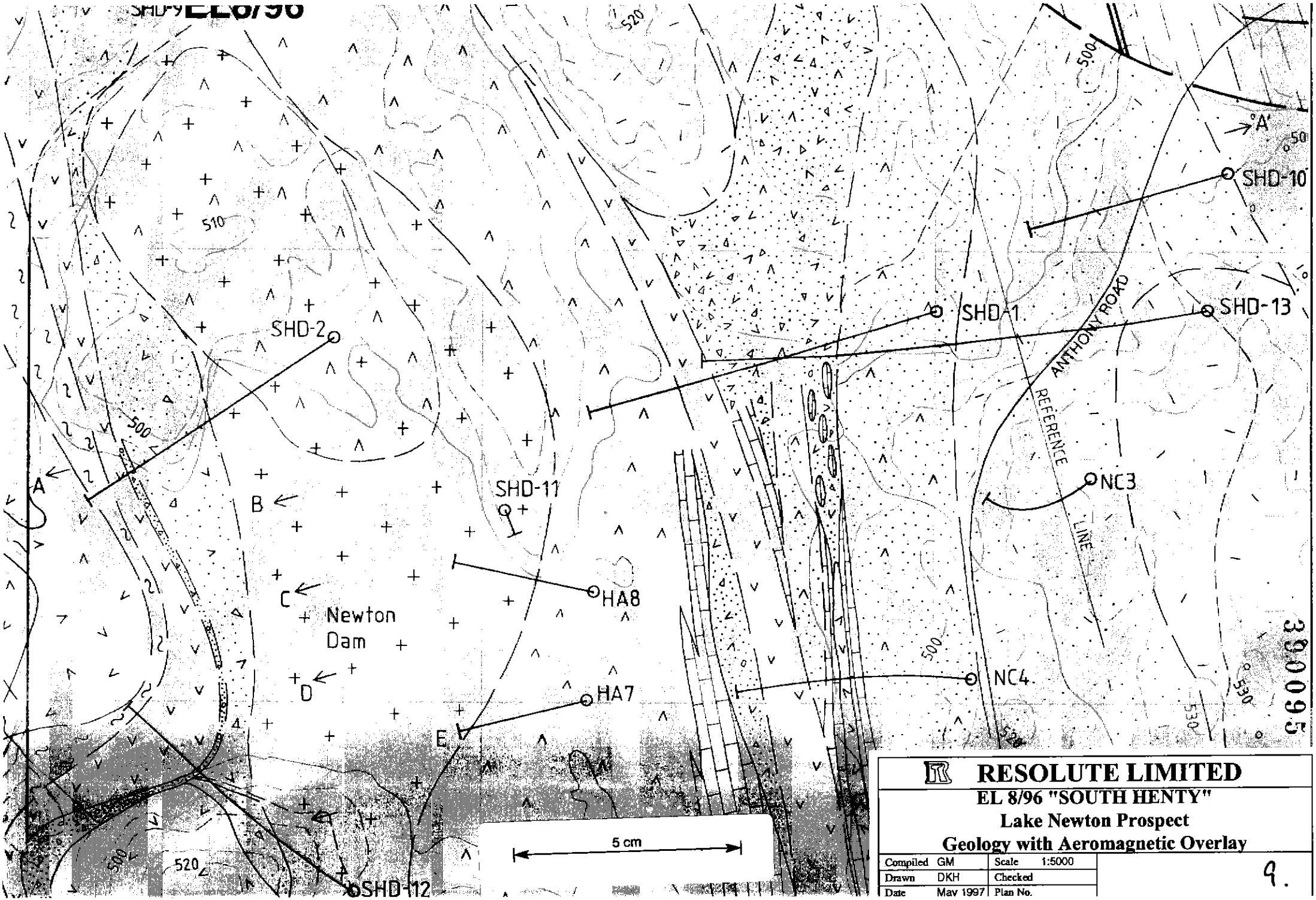
390094



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EL 8/96 "SOUTH HENTY"

Lake Newton Prospect

Geology with Aeromagnetic Overlay

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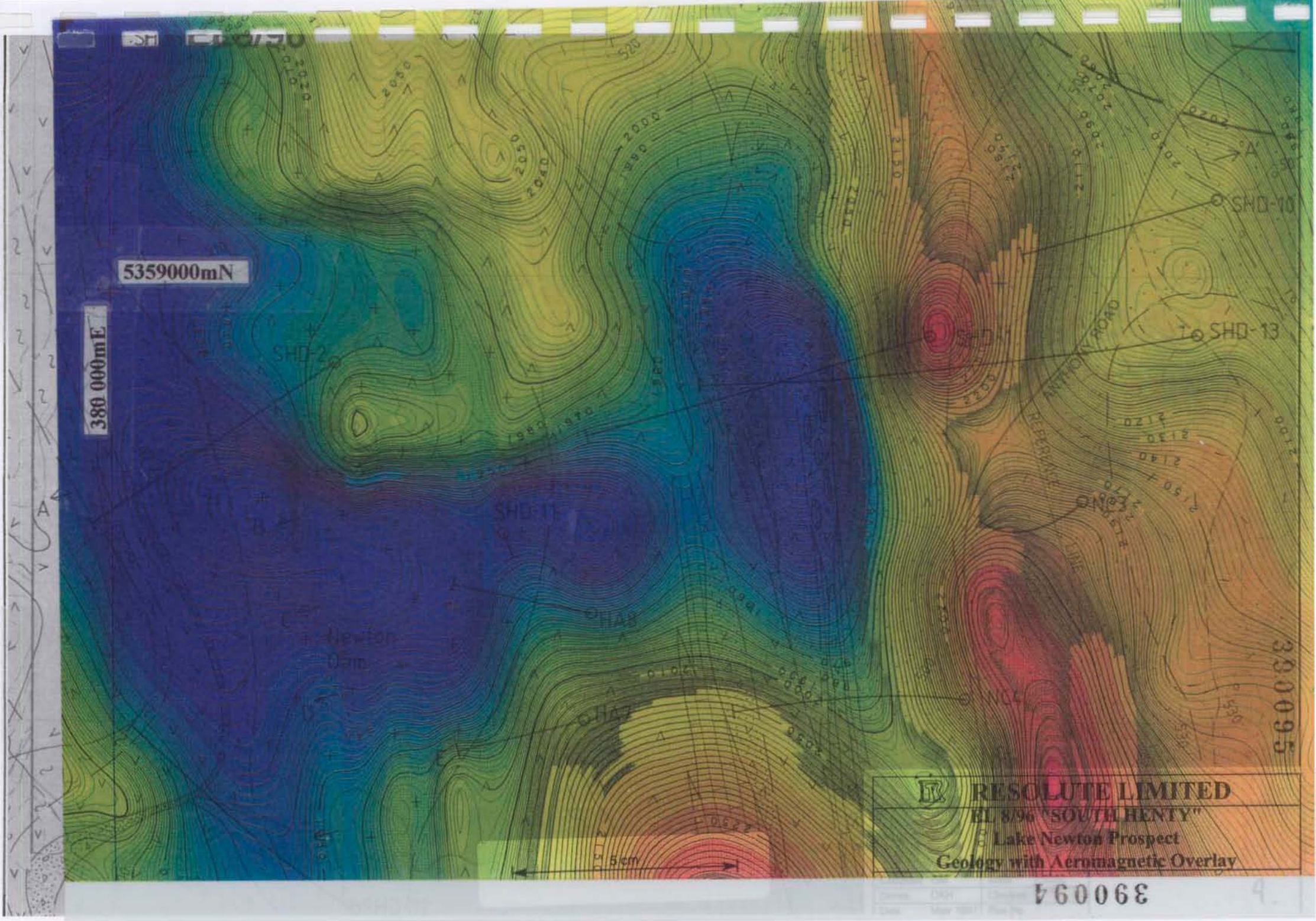
Date	May 1997	Plan No.	

9.


5359000mN
380 000mE
SHD-10
SHD-13
SHD-2
SHD-11
ONA8
ONA7
ONC1
ONB3
Newton
0m
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5cm
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Lake Newton Prospect
Geology with Aeromagnetic Overlay
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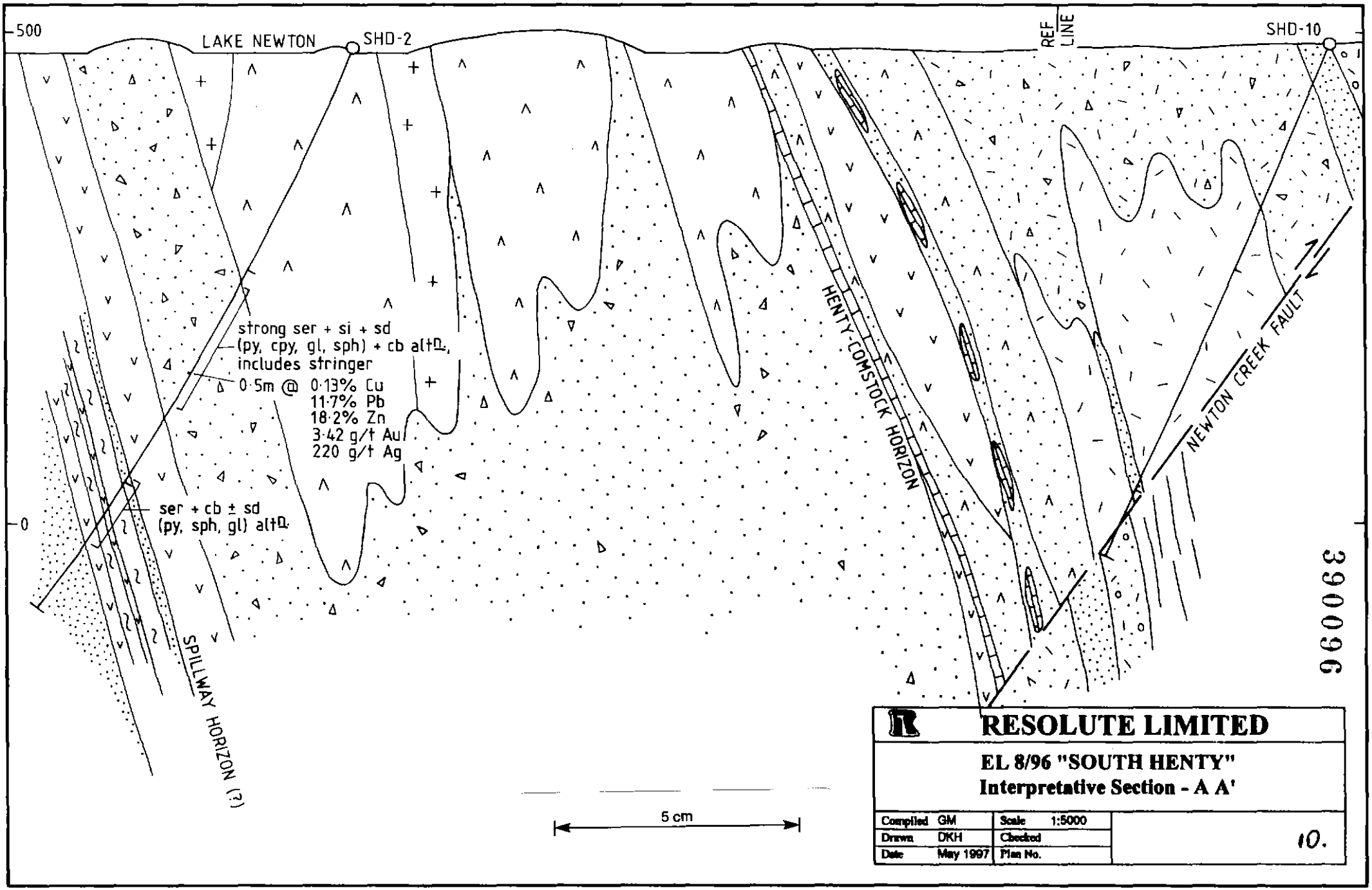
500
LAKE NEWTON
SHD-2
REF LINE
SHD-10
strong ser + si + sd
(py, cpy, gl, sph) + cb alt°,
includes stringer
0·5m @ 0·13% Cu
11·7% Pb
18·2% Zn
3·42 g/t Au
220 g/t Ag
ser + cb ± sd
(py, sph, gl) alt°
0
HENTY-COMSTOCK HORIZON
NEWTON CREEK FAULT
SPILLWAY HORIZON (?)
5 cm
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EL 8/96 "SOUTH HENTY"
Interpretative Section - A A'
Compiled GM
Drawn DKH
Date May 1997
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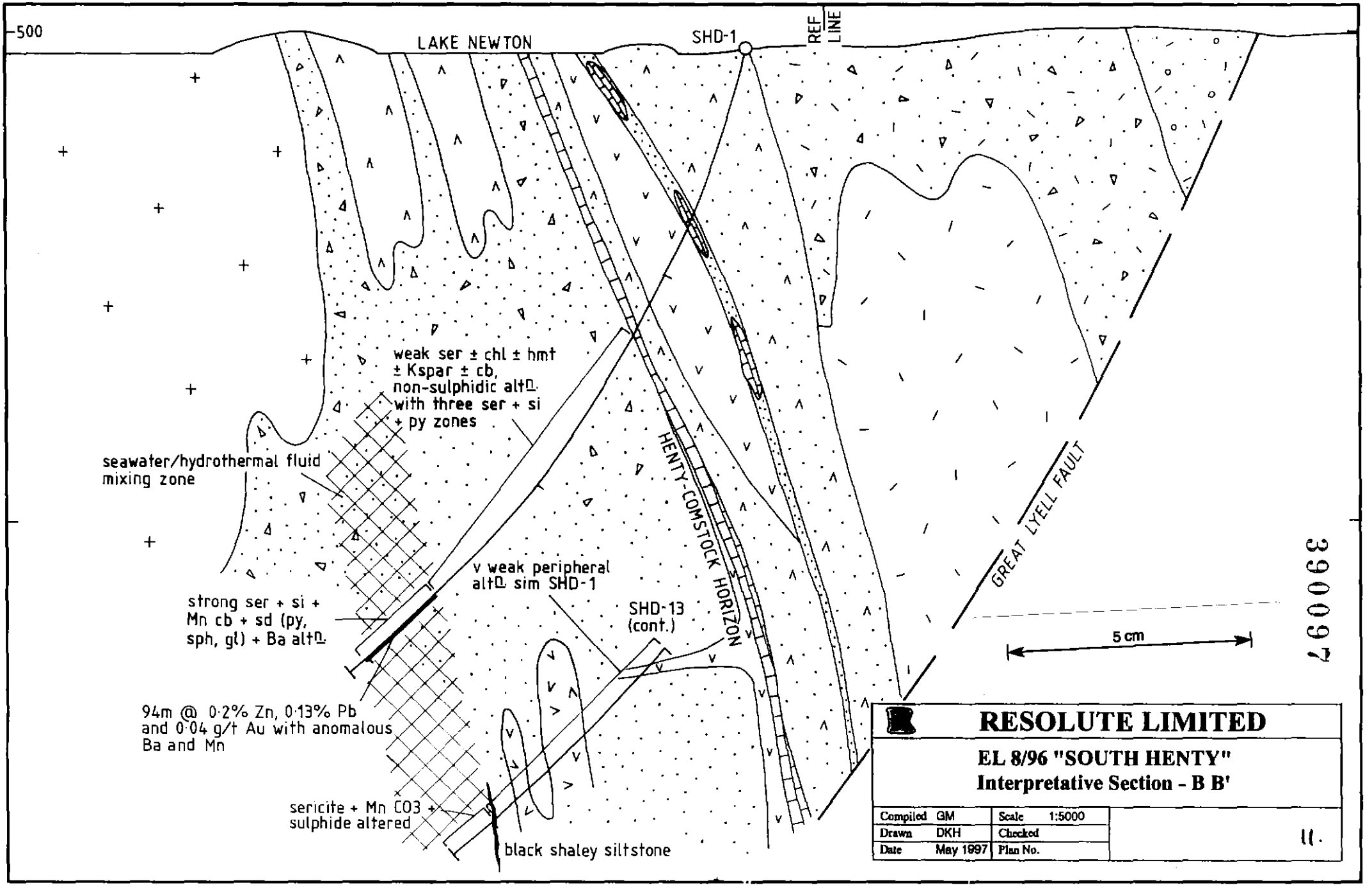
500
LAKE NEWTON
SHD-1
REF LINE
weak ser ± chl ± hmt ± Kspar ± cb, non-sulphidic alt⁰ with three ser + si + py zones
seawater/hydrothermal fluid mixing zone
HENTY-COMSTOCK HORIZON
GREAT LYELL FAULT
v weak peripheral alt⁰ sim SHD-1
strong ser + si + Mn cb + sd (py, sph, gl) + Ba alt⁰
SHD-13 (cont.)
5 cm
94m @ 0·2% Zn, 0·13% Pb and 0·04 g/t Au with anomalous Ba and Mn
sericite + Mn CO3 + sulphide altered
black shaley siltstone
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EL 8/96 "SOUTH HENTY"
Interpretative Section - B B'
Compiled GM
Drawn DKH
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Plan No.
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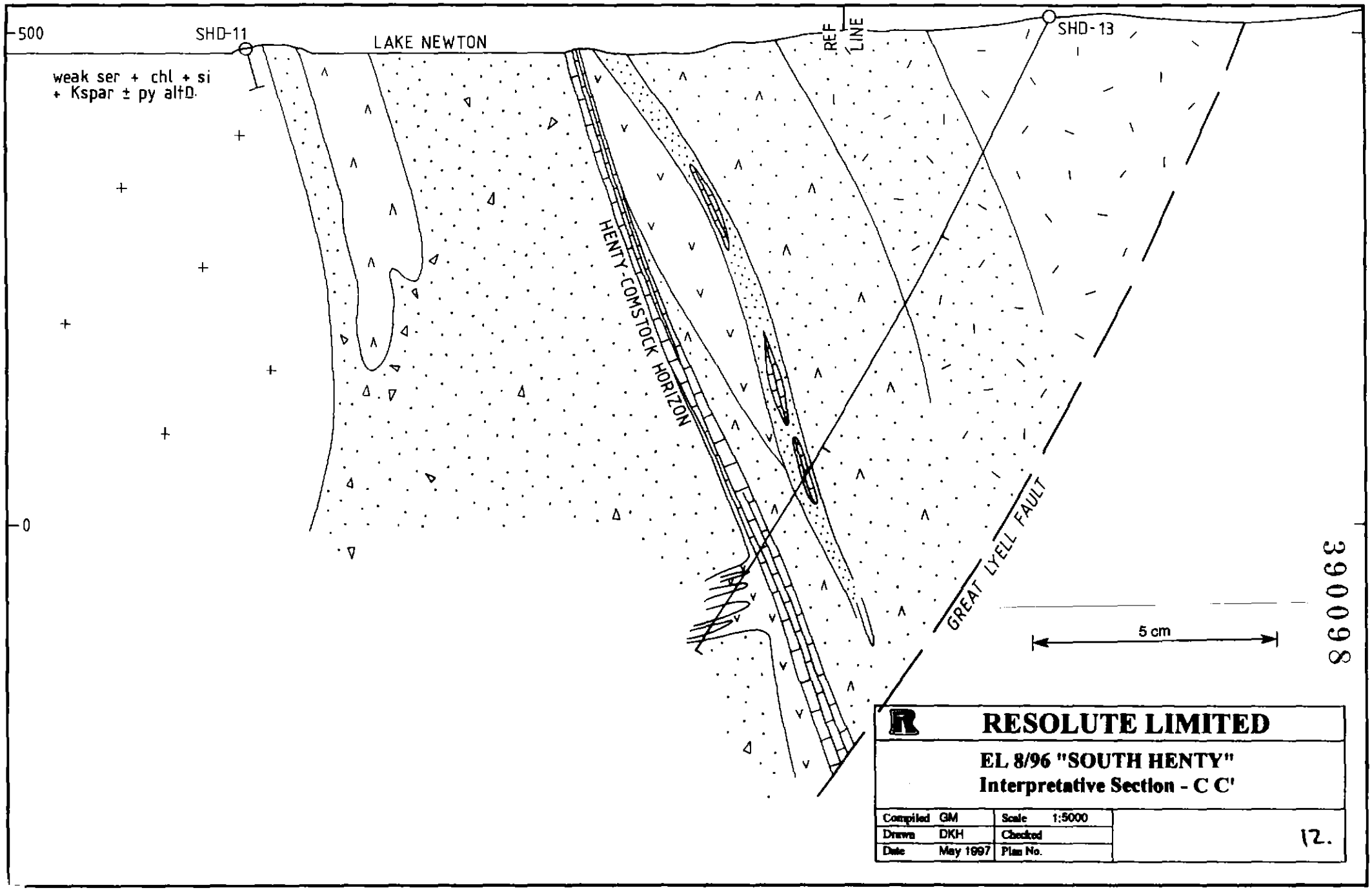
500
SHD-11
LAKE NEWTON
REF LINE
SHD-13
weak ser + chl + si + Kspar ± py alt D.
HENTY-COMSTOCK HORIZON
GREAT LYELL FAULT
0
5 cm
RESOLUTE LIMITED
EL 8/96 "SOUTH HENTY"
Interpretative Section - C C'
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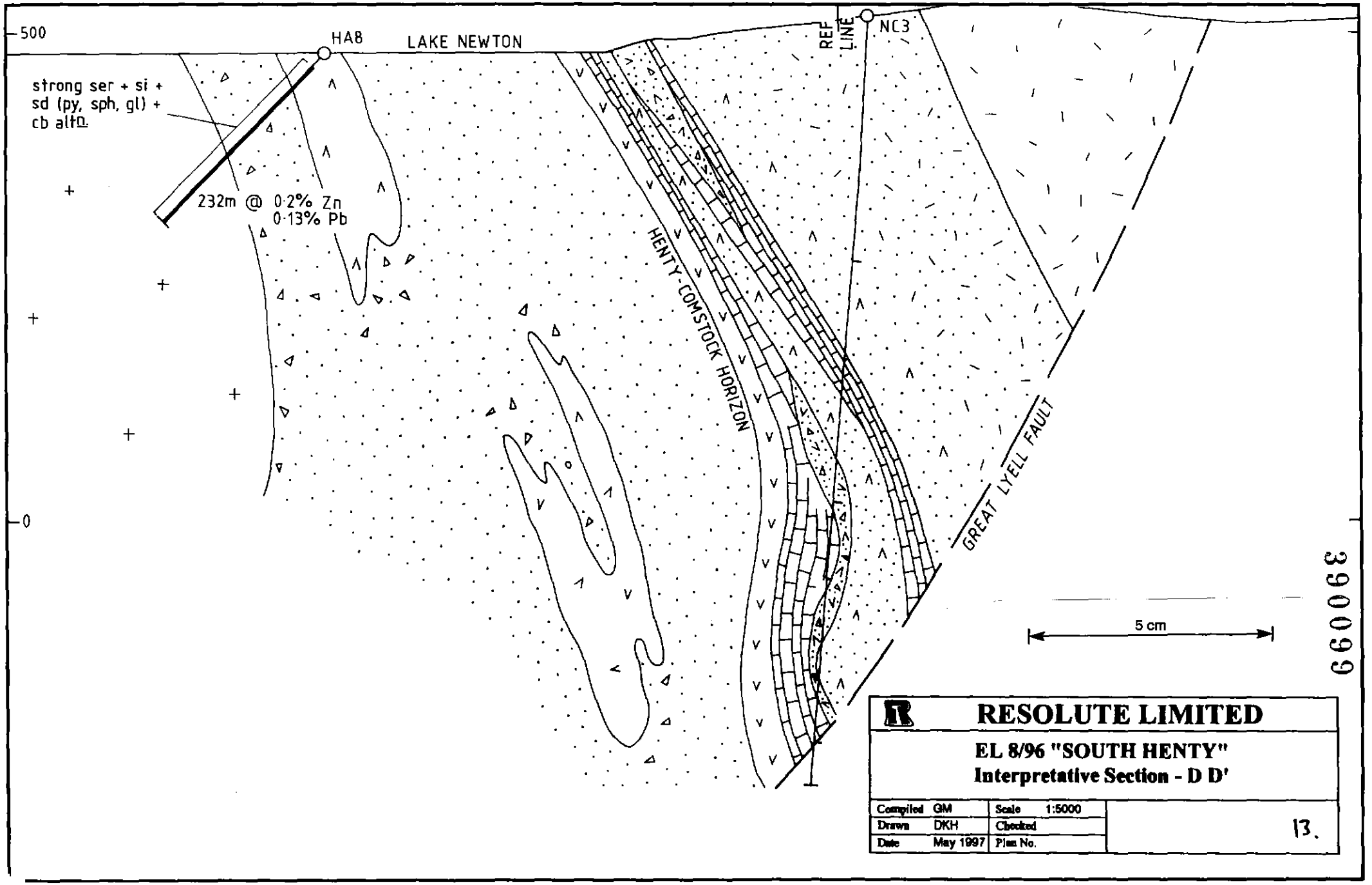
500
0
HA8
LAKE NEWTON
REF LINE
NC3
strong ser + si + sd (py, sph, gl) + cb alt n.
232m @ 0·2% Zn
0·13% Pb
HENTY-COMSTOCK HORIZON
GREAT LYELL FAULT
5 cm
RESOLUTE LIMITED
EL 8/96 "SOUTH HENTY"
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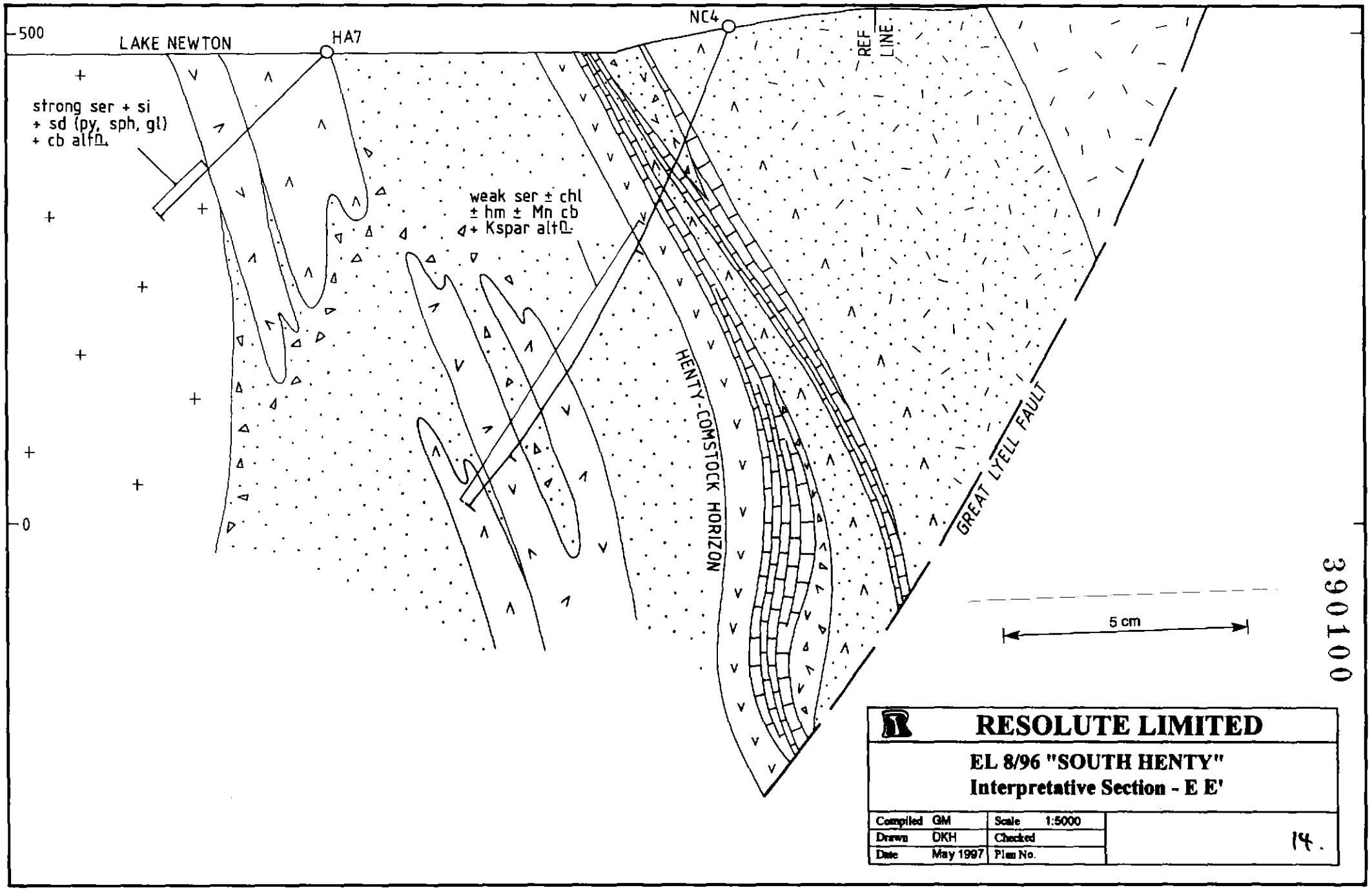

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EL 8/96 "SOUTH HENTY"
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Drawn	DKH	Checked	
Date	May 1997	Plan No.	14.

information from new drilling. Type 2 alteration (whose type example for the pervasive style is NC4) is now classified as the Na depleting, non-sulphidic **sericite±chlorite**±haematite±Mn carbonate±Kspar alteration intersected in SHD-11, SHD-13 (upper) and SHD-1 (upper) whilst Type 1 sericite+pyrite±silica (type example HA8) is now classified as **sericite**+silica±**carbonate** (±Mn)±Kspar±**sulphide**±Ba with the dominant phases in bold print. The principal difference between the two types is the lack of sulphide and the relative prominence of chlorite in Type 2 and the more sericitic, sulphidic, and variably more carbonate rich alteration typical of Type 1 Examples of Type 1 alteration are shown in plates 8 to 12, 15 to 17 and 25 as well as plates 5 in appendix A, with examples of Type 2 in plates 6, 7 and 24 as well as plates 6 in appendix A. It is still considered likely that these two alteration styles are related with either Type 2 in SHD-1, NC4 and SHD-13 (the latter yet to be proven lithogeochemically) more peripheral than the sulphidic Type 1 alteration intersected in HA7, HA8, SHD-1 and SHD-13, or alternatively that Type 1 alteration was an earlier more focusssed phase overprinted by a more extensive weaker phase Type 2 alteration.

In the light of the work done by Wally Herrmann in showing the applicability of whole rock mass changes in recognition of alteration styles similar calculations have been made where an unaltered precursor may be reasonably confidentally chosen.

Further work and increased knowledge of the geology of the licence and its setting regionally has suggested possibly greater significances for some other occurrences of alteration, in particular the Tyndall Creek barite, Howards Anomaly silver, Henty Canal alteration and sulphidic alteration intersected by YNC4, 5 and 10. Some discussion is also made of this alteration later.

7.3.2 SHD-1

SHD-1 intersected the Henty-Comstock horizon at 317 metres (see plate 5), passing into a sequence of dacitic>andesitic>>felsic pumiceous volcaniclastics/coherent dacite/minor basalt dykes in the footwall to the horizon (see plates 5, 6 and 7). From 317 - 664 metres the holes intersected visually only weak sericite±chlorite±Kspar±haematite±carbonate but non-pyritic alteration with three smaller zones, from 394 - 396 metres, 460 - 490 metres and 583 -585 metres, of pale yellowy grey pervasive sericite+silica+pyrite alteration with the two smallest zones having quartz+sphalerite+galena veinlets. This intersection is considered to help define the upper peripheral zone (see Table 5).

Chlorite alteration is more important in the upper peripheral zone from ~550 metres up to the Henty-Comstock horizon with haematite more prominent from ~350 metres up to this horizon. These phases are pervasive to blotchy (see plate 6) giving the rock a pseudoclastic appearance in parts (see sample 385637 in plate 6). Below ~550 metres sericite becomes more important and is associated with weak pervasive silicification in parts. Kspar is not recognisable in the fine grained groundmass but is suggested by high K2O levels (to >7% - see figure 7). The alteration is essentially non-sulphidic with only trace pyrite. Carbonate is described in thin section as being murky but is associated with

only weakly elevated MnO levels in this zone of weaker alteration in SHD-1. Similar alteration in NC4 is associated with elevated Mn levels.

This weaker alteration has been studied petrologically in samples 385633 (360.5m), 385646 (548.5m) and 385648 (574.5m) from SHD-1. Samples every ~10 metres from SHD-1 were also analysed for whole rock/trace element lithogeochemistry. The trend in Na, K and Mn in SHD-1 is shown in figure 7. The depletion in Na begins at ~400 metres and is associated with elevated K which peaks from ~500 to 650 metres. Elevated Mn is associated with sulphides in the main Sulphide Zone from ~650 to 750 metres.

The main problem in calculating mass changes due to the hydrothermal alteration is the difficulty in selecting an unaltered precursor, particularly since the rocks are clastics of variable composition. Insufficient data is available for unaltered andesitic volcaniclastics. The only units which may be useful are the dacitic volcaniclastics. Although there are no unaltered footwall dacitic volcaniclastics available which may be used as an unaltered precursor (except for similar rocks at the end of NC1 which may have been affected by type 3 alteration), unaltered NCD dacite is taken to be representative of the original gross composition of these volcaniclastics. If this is not the case the mass changes could still be used but in a relativistic sense rather than absolute.

Average mass changes for three samples with dacitic Ti/Zr ratios from this weaker sericite±chlorite±Kspar±haematite±carbonate alteration are somewhat variable with K2O ↑1.5 to ↑3.0g/100g, Na2O ↓2.4g/100g, MnO ↓0.1 to ↑0.35g/100g and SiO2↑8.8 to ↓12.7g/100g.

Interestingly this depletion in Na is fairly typical of depletion in all altered rocks and is probably due to broadly similar amounts of Feldspars in the precursor being altered. Increased K2O is greater than can be accounted for by sericite and is considered to be partly due to alteration of the groundmass to Kspar and generally increased MnO apparently in manganiferous carbonate.

The broader weaker sericite±chlorite±haematite±Kspar±carbonate alteration is very similar to that described by Herrmann (in appendix A) from NC4 ~350 metres south along strike as Type 2 sericite+Mn carbonate+Kspar, plagioclase destructive, pervasive to veiny, synvolcanic or deformation related alteration" with the NC4 occurrence described as being somewhat unique in that the assemblage is pervasive throughout the murky dacitic pumiceous volcaniclastics, rather than in discrete veins in more coherent units as in the Pasminco holes e.g. YNC4 and YNC5.

This alteration in NC4 and the same style of alteration in SHD-1 (lower Mn levels thus less manganiferous carbonate in SHD-1) appears to form a zone of weaker peripheral - in this case apparently overlying - style of alteration which lies between the Sulphide Zone described below with its sericite+silica±carbonate(±Mn)±Kspar±sd (pyrite, low Fe sphalerite, galena)+Ba alteration and the Henty-Comstock horizon. There is a consistent spatial relationship between the two styles of alteration and there are intermediate

overlapping forms of alteration, both suggesting that the two alteration styles are genetically related. This would imply that the main sulphidic alteration in SHD-1 (and SHD-13, HA7, HA8, NC4) took place when the Henty-Comstock horizon was the sea-floor.

The smaller upper zones of stronger sericite+silica+sulphide alteration were not analysed lithogeochemically, however, they appear broadly similar macroscopically to the lower, main zone of alteration. The zones are grey to pale yellow in colour. They may represent either the "wings" of a classic footwall alteration system, or more likely, evidence of instances of pulses of hotter ascending hydrothermal fluids.

At ~664 metres (see plate 8) the alteration intensity increases markedly with a sericite+silica+Mn carbonate+sulphide(pyrite+low Fe sphalerite+galena)+Ba±Kspar assemblage altering the footwall pumiceous dacitic>andesitic>>felsic volcaniclastics (see plates 9 to 12). Sericite and lesser silica is pervasive with sulphides in deformed blebs, stringers, or in later stage (late Cambrian?/Devonian?) quartz+calcite+sulphide "sweatout" veins which can be seen to be incorporating existing sulphides (see plates 9 to 12).

Elevated barite (Ba is ~0.4% from ~660 - 730 metres. inc. 1m @ 20% Ba from 667 - 677 metres, see plate 11, also 1m @ 6.4% from 440.3 - 441m from an upper sericite+silica+pyrite zone) is suggestive of seawater penetrating into the seafloor with similar evidence obtained from the elevated Mn levels. These levels are too high to be accounted for by sericite. Petrology confirms the presence of murky brown carbonate in samples with elevated Mn (see appendix F). The carbonate can be seen macroscopically as a yellow green colour (see plates 8, 9 and 12) and is described petrologically as overprinting the earlier sericite+quartz+sulphide alteration/mineralisation with the carbonate alteration a somewhat pervasive style of alteration which is pre-deformational and probably only a slightly later stage of alteration (waning fluids?).

As discussed earlier the alteration coresponds broadly to coherent QFpD with ARF type quartz crystals or ARF quartz crystal bearing volcaniclastics. In SHD-1 these are andesitic sandstones. The altered andesitic sandstones have a finer graded grey ashy top, however, there is no suggestion of exhalative mineralisation at the top of this unit. Rather the mineralisation/alteration in SHD-1 appears to be broadly stratabound (it continues into a lithogeochemically defined dacitic/rhyolitic pumiceous(?) volcaniclastic below 727 metres).

The same problem regarding choosing an unaltered precursor as discussed earlier applies again here. Looking at the volcaniclastics with Ti/Zr ratios typical of dacitic rocks, the main alteration zone in SHD-1 below 665m is characterised by Na2O ↓2.0 and 2.4g/100g, K2O ↑2.6 and 1.4g/100g and MnO ↑1.3 and 1.3g/100g. Absolute MnO values reach 2.5% and the carbonate is the location of the carbonate.

These mass changes illustrate the alteration style. Lithogeochemistry indicates that these carbonate in these altered samples have elevated MnO, with the only logical site for the

Mn being in the carbonate. Na depletion represents sericitisation of feldspars whilst K2O probably represents Kspar alteration of the groundmass.

Similar MnCO3 occurs at Rosebery and Hercules where it is broadly spatially associated with massive sulphide mineralisation (Allen, 1994; Reid, 1993). More specifically the MnCO3 lies above and at the perimeters of the massive sulphide lenses and is understood to represent cooler parts of the hydrothermal mixing system which is responsible for at least much of Rosebery-Hercules mineralisation. Grant Dixon's 1980 honours thesis (Uni of Tas) describes the carbonates in detail but his interpretations of genesis are hampered by the need for carbonates to be, at least partly, exhalative. Dixon concludes that the Fe/Mn ratio of microprobed carbonates may be used as a vector towards the main vents and thus mineralisation.

The low iron contents of sphalerite in samples from the main alteration zone in SHD-1 (as well as visually from SHD-13's) may also support a low temperature origin for alteration and mineralisation in both SHD-1 and SHD-13. Sphalerite from thin sections from SHD-1's MnCO3 alteration zone are described by Tony Crawford (Table 3 and appendix F) as pale yellow in colour.

The presence of MnCO3 and barite is thus explained as being a broadly stratabound zone ~300m - 350m below sea-level and is considered to be the product of mixing of upwelling hydrothermal fluids (carrying Mn and Ba) with downwelling seawater (carrying CO2 and SO4). This interpretation is discussed in section 7.3.9.

7.3.3 SHD-13

SHD-13 (also SHD-10, however this hole intersected a fault before the target position and was aborted at 574 metres) was initially targetted on the Henty-Comstock horizon stratigraphically above the alteration intersected in SHD-1 as the alteration in SHD-1 was considered to possibly represent the edge of a footwall stringer zone heading up to the Henty-Comstock horizon (see plates 23 and 24 and figure 11). No strong alteration was intersected in the rocks in the footwall to the Henty-Comstock horizon. Macroscopically, however, these footwall rocks look very similar to the weakly sericite±Kspar±chlorite ±haematite±carbonate altered rocks from 317 to 664 metres in SHD-1 with lithogeochemistry likely to prove this. Pervasive to blotchy chlorite±haematite alteration persists much deeper in the sequence in this hole than in SHD-1 with sericite only becoming dominant below the siltstone at 1006.5 metres.

SHD-13 was continued in order to cover the same ARF (coherent QFpD or clastic with ARF type quartz crystals) which is altered and mineralised in HA7, HA8 and SHD-1, and referred to previously as the Sulphide Zone. The first occurrence of these ARF type quartz crystals was at 1023 metres below a FpD hyaloclastic breccia from 1006.5 to 1023 metres and a black shaley siltstone from 992 to 1006.5 metres. Pervasive sericite+Mn carbonate alteration (see plate 25 and figures 11 and 12) begins at 1006.5 metres in the FpD hyaloclastic breccia continuing on beyond 1023 metres into the ARF quartz crystal bearing volcaniclastics. Thus the Sulphide Zone is not strictly stratabound within the ARF

unit in SHD-13. This alteration contains only minor base metals and pyrite and no obvious barite (assaying including whole rock MnO will help confirm these conclusions). Mn levels are up to 0.46% in both the FpDacite breccia and the ARF quartz crystal bearing volcaniclastic unit. This alteration is of a similar style but clearly lower tenor than SHD-1 as the base metal values indicate.

It was hoped that SHD-13's intersection would be of stronger mineralisation than intersected in SHD-1. This was principally based upon the notion that the Great Lyell Fault, known to pass at depth (and eventually down-faulting the target zone by ~500 metres but below economic depths for most deposits - see figures 11 to 14), may have acted as a conduit for fluids in the mid-Cambrian (the significance of the intersection between the Great Lyell Fault and the Henty-Comstock horizon and its footwall rocks is described in more detail in appendix A).

Macroscopically the alteration shows a similar zonation to that seen in SHD-1 but appears to be generally weaker, perhaps more peripheral ?, than SHD-1's. Chlorite±haematite persists deeper into the sequence in SHD-13 than SHD-1. Sulphide levels are lower in the Sulphide Zone below the siltstone in SHD-13 than in the Sulphide Zone in SHD-1 suggesting that SHD-13 is further from the (a?) main focus of hydrothermal fluid flow than SHD-1.

7.3.4 SHD-11

SHD-11 intersected a unit of coherent QFpD, macroscopically only weakly chlorite altered with minor pyrite only towards the end of the hole. Tony C refers to high K2O levels and low LOI as indicating that there must be Kspar alteration of the matrix. He summarises alteration of all SHD-11 QFpD samples as early silica+chlorite±pyrite with later sericite+silica+Kspar±pyrite.

Four samples of QFpD from SHD-11 were analysed for whole rock and trace elements including LREE. These were also shown to Tony Crawford who discusses their petrology and chemistry in appendix F and section 6.10.3. The rock has Ti/Zr between 13.0 and 14.3 indicating that it is dacitic. K2O levels are up to 10.2% (see Table 2), attributed by Tony to Kspar alteration of the matrix. MnO is up to 0.54 whilst Na2O ranges from 0.41 to 1.31% with levels decreasing downhole. The overall alteration vector determinable from the litho- geochemistry is weak but downhole towards HA8, ~75 metres away.

7.3.5 Previous Drilling - NC4, HA7 and HA8

NC4

Aberfoyle's deep drilling at "South Henty" was essentially following the same conceptual model looking for mineralisation on the Henty-Comstock horizon (their basal Tyndall Group?). NC3, drilled sub-vertically, did not quite cross the stratigraphy sufficiently to pass through the Henty-Comstock horizon, however NC4 did so passing though the Henty-Comstock horizon at ~190 metres into weakly sericite±chlorite±haematite±Ba±Mn carbonate altered Howards Basalt followed by sericite+Kspar+Mn carbonate altered

dacitic volcaniclastics before passing into hyaloclastic and coherent FQpA/D with distinctive ARF quartz crystals from ~532 - 566 metres.

Alteration in the Howards Basalt is typical "Howards Tuff" being very red/brown due to haematite, clastic with wispy, ragged, elongate clast shapes, and foliated (see plate 4a in appendix A). In the bottom half of the Howards Basalt sericite+Mn carbonate alteration dominates (see plate 4b in appendix A). The upper alteration of the volcaniclastics is described as Type 2 in appendix A. K2O can be seen to increase consistently downhole up to ~10% at ~520 metres. Na2O is depleted below ~210 metres and Mn is moderately elevated throughhout, particularlyin the lower part of the Howards Basalt.

Average mass changes for this broader zone of alteration in NC4 (described in section 4.2 of appendix A) are Na2O ↓2.4g/100g, K2O ↑4.2g/100g and Mn ↑0.6g/100g (a six-fold increase). The rock is described as a "pale pinky grey" (appendix A) colour. Previous petrology (Lewis, 1995a) has described variously carbonate+sericite altered groundmass; sericite+pyrite alteration; and sericitised plagioclase crystals (see plate 6 in appendix A).

The alteration in the ARF quartz crystal bearing volcaniclastic unit (inc. porphyritic andesite?) from towards the end of the hole is essentially indistinguishable from the upper peripheral zone alteration except for the presence of the quartz crystals. Mass changes here are not relevant as the host rocks are obviously polymict, however, absolute K2O, SiO2 and MnO levels are high with Na2O low. It is not clear that this lower zone is the stratigraphic equivalent of the ARF coherent QFpD or associated ARF quartz crystal bearing volcaniclastics intersected in SHD-1, SHD-13, HA7 and HA8 as the ARF quartz crystal bearing rocks in NC4 including units logged as coherent FQpA.

Interestingly the elements used by Tony C. to differentiate the dacitic QFp in SHD-11 from that in SHD-2 indicate some similarities between this QFpA intrusive in SHD-2 with the extrusive FQpA intersected in NC4.

In the three SHD-2 samples SiO2 ranges from 63.6 to 64.3%, Al2O3 from 15.5 to 16.2%, TiO2 from 0.46 to 0.5%, P2O5 from 0.13 to 0.15%. Absolute values from the single Aberfoyle side grind of a single coherent FQpA(?) unit (sample number 625461 from 541 to 544 metres) are 55.8% SiO2, 0.82% TiO2, 0.22% P2O5 and 15.3% Al2O3. This NC4 sample also has 2.11% Mn, 7.53% K2O, 3.52% CaO and 6.58% LOI suggesting that the NC4 sample is altered (inc. Mn carbonate+sericite+Kspar). In this case absolute values are unreliable, however, ratios of immobile elements can be useful. The three SHD-2 samples have Ti/Zr ranging from 21.5 to 24.3 and P2O5/TiO2 ~0.28. The NC4 side grind has Ti/Zr of 29.8 and P2O5/TiO2 of 0.27 suggesting some similarities lithogeochemically between the QFpA in SHD-2 and this FQpA in NC4.

NC4 has intersected a similar style of alteration to both SHD-1 and SHD-13. Host rocks in NC4 are generally more coherent FpD or FpDbx than in SHD-1 ans SHD-13. It is unlikely that NC4 has intersected the Sulphide Zone (see figure 14) as it does not appear to have penetrated deep enough, however, it remains a possibility. There is a similar

zonation of K2O and Na2O as in SHD-1. One significant difference is the sericite+Mn carbonate+Kspar(?) alteration in the base of the Howards Basalt. A general feeling is that this peripheral alteration (Type 2) is perhaps the strongest in NC4.

HA7 and HA8

HA7 and HA8 both intersected a zone of yellowy grey sericite+silica+sulphide(pyrite+low Fe sphalerite+galena) +carbonate altered ARF quartz crystal bearing volcaniclastics (and/or coherent QFpD). The alteration is a typical quartz sericite schist with sulphides in blebs, fine veinlets and deformed stringers, all strongly foliated. Carbonate appears to be a later overprinting phase but pre-deformational and perhaps only slightly later phase. It is easily seen in this old core on account of the carbonate weathering brown, suggesting perhaps a more sideritic composition (than manganiferous). Pale pinky grey patches may be fine grained Kspar alteration. K2O levels are high (see Table 2).

HA7 was one of a pair of holes targetted upon coincident IP and soil geochemistry with HA7 targetted on the better geochemistry and HA8 targetted on the better IP response.

Alteration in HA7 and HA8 is hosted within coherent and clastic ARF units below essentially unaltered (haematite) massive F(Hb)pA suggesting that alteration is stratabound. The alteration and mineralisation in HA7 and HA8 was the main source of information regarding the alteration at Lake Newton. This alteration and mineralisation is now included in the mixing or Sulphide Zone.

HA8 intersected 232 metres @ 0.2% Zn, 0.13% Pb including 15 metres of 0.105g/t Au in sericite+silica+carbonate+sulphide(pyrite+low Fe sphalerite+galena altered ARF quartz crystal volcaniclastics and coherent QFpD of essentially similar unit to that intersected in HA7, except that some of the ARF quartz crystal bearing unit in HA8 is clearly clastic (see plate 5 in appendix A). This alteration is of the same style as that intersected in HA7. The carbonate appears similar to the MnCO3 SHD-1 and appears to have a similar paragenetic relationship, being later but pre-deformational but the MnO levels for samples of altered coherent QFpD from HA8 are only 0.05, 0.25 and 0.25% (see below). The carbonate is thus probably more calcitic or perhaps sideritic and again weathers brown. K2O levels are again high suggesting Kspar alteration (see Table 2).

Type 1 alteration of the style seen in HA7 and HA8 (see section 4.1 in appendix A) is characterised by Wally as sericite+pyrite±quartz and plagioclase destructive. The same unaltered precursor used by Wally Herrmann in appendix IIIc in appendix A was used to determine mass changes in ARF samples. Alteration in the coherentARF unit in HA7 and HA8 is characterised by increased K2O (↑3.8 and 4.6g/100g in HA7; and ↑6.8 and ↑7.5g/100g in HA8) and decreased Na2O (↓5.8g and 6.1g/100g in HA7; and ↓6.3, 6.1 and 6.2g/100g). SiO2 levels are increased in some samples with ↑7.7g/100 in one HA7 sample and ↑11.3g/100g in one sample from HA8. MgO levels are sightly reduced in both holes (↓1.2 and 1.3g/100g in HA7; and ↓1.7, 1.8 and 2.1g/100g in HA8).

7.3.6 SHD-2

SHD-2 intersected two zones of alteration separated by the spillway basalt intersection. The upper zone is strongest with strongly foliated sericite+silica+sulphide (pyrite+chalcopyrite+high Fe sphalerite+galena)±carbonate(±Mn) alteration (see plates 15 and 16) pyrite and chalcopyrite stringers and a single large high Fe sphalerite+galena stringer (see plate 17). The dacitic pumiceous volcaniclastics adjacent to the QFpA are intensely sericite+silica+sulphide(pyrite+chalcopyrite±sphalerite±galena)±cb(±Mn) altered with sulphides in stringly deformed stringers now parallel to the regional foliation. The alteration intensifies and changes character somewhat around the base metal stringer (372.3 to 372.8 metres) where alteration is more Mn carbonate rich. Carbonate is blebby to pervasive with radial crystals in finer units (see plate 16). Similar carbonate styles are reported from Rosebery (Dixon, 1980; Reid, 1993) and South Hercules (Khin Zaw and Large, 1992).

Alteration in the upper zone in SHD-2 (between the QFpD/A and main basalt intersection is characterised by the following mass changes; K2O ↑0.4 to 1.3g/100g, Na2O ↓2.2 to 2.4g/100g, MnO from 0 to ↑1.0g/100g but generally ↑<0.6g/100g, Fe2O3 ↑0.7 to 10.6g/100g but generally ↑~4g/100g and S 0 to ↑10.8g/100g but generally ↑~4g/100g. The major differences between alteration in the Sulphide Zone mapped out by SHD-1, SHD-13, HA7 and HA8 and the alteration here are the significant additions of Fe and S largely as pyrite, and the more consistently elevated SiO2 levels. Changes in Na2O are comparable with those in Type 2 alteration from NC4 and SHD-1 whilst there is less addition of K2O in SHD-2's upper alteration zone than in NC4 and SHD-1. Changes in MnO are variable being greatest around the base metal stringer.

Sphalerite from the intersection between the QFpD and Spillway basalt in SHD-2 is a rich red colour, supporting evidence from elevated Cu and Au, that the alteration here is higher temperature.

The pumiceous volcaniclastics>basalt and polymict basalt>dacite units below the main spillway basalt intersection are sericite+silica+chlorite+carbonate+sulphide(pyrite+high Fe sphalerite+galena) altered with sulphides in pre-deformational stringers and blebs (see plates 18 and 19). This is the first occurrence of hydrothermal alteration in the footwall to the spillway horizon, a disappointing fact about this target, particularly since pumice breccias should display the effects of alteration well away from the main vent, however, there are still two explanations for the alteration:

(i) The two alteration zones may be the product of the same hydrothermal system, active at the time the Henty-Comstock Horizon was the seafloor position, with the two zones of alteration intersected in SHD-2, lying above and below the spillway basalt, representing different depths in the same alteration system in the footwall to this horizon. In this case variations in copper-gold between the two zones may be due to spatial variations in the temperature of the footwall.

(ii) The fact that the basalt is relatively unaltered (it is chloritic but not obviously hydrothermally altered) suggests that the two intersections of alteration are separate. This interpretation would see the upper zone a product of footwall hydrothermal alteration when the Henty-Comstock Horizon was the seafloor position with the lower zone the product of earlier hydrothermal alteration when the seafloor position was lower in the stratigraphy e.g. at the "spillway" horizon.

It is this latter interpretation which provides further encouragement for drill testing the "spillway" favourable horizon, however, it is considered more likely that the base metals below the spillway horizon fit the former model better.

Mass changes in the alteration below the main basalt intersection in SHD-2 are less reliable as the samples used are from the less mineralised zones. This alteration is considered to be related genetically to alteration higher in SHD-2. The lack of alteration in this position in SHD-12 was also disappointing with no obvious targets left for this horizon.

The alteration in SHD-2 is interpreted to lie in a stringer zone to the upper sulphide zone, represented by the "stalk" of the "mushroom" aeromagnetic low. An alternative explanation is that the alteration is due to ponding of fluids beneath the massive QFpA, or thirdly that alteration is genetically related to the QFpA intrusion.

The first explanation is that which is favoured. This could be tested by a single hole drilled roughly north-south through the "stalk" (see section 8.7). The second explanation is suggested by the fact that below the base of the "stalk" the magnetic low becomes concordant to stratigraphy. It is interpreted that the stringer zone considered to be responsible for the alteration in SHD-2 may extend deeper into these originally non-magnetic rocks, however, it is possible that the hole passed out of QFpA into underlying and not adjacent alteration with the alteration due to hydrothermal fluids ponding beneath this QFpA.

The third explanation that alteration is genetically related to an intrusive (the QFpA quartz diorite in SHD-2 ?) is supported by Kspar alteration with Tony pointing to the significance of this alteration to a porphyry model. Similar Kspar alteration is seen at Que River in the footwall alteration zone. McGoldrick and Large (1992) explain this alteration as being due to less acidic fluids. They suggest similarities between the Que River alteration and adularia+sericite (low sulphidation epithermal) mineralisation. Regarding the source of the fluids responsible for the Kspar alteration Table 5 in McGoldrick and Large (1992) shows fluids responsible to be "modified sea water (some magmatic?)".

7.3.7 SHD-8

DDH SHD-8 intersected sericite+silica+carbonate(±Mn)+pyrite altered dacitic pumiceous volcaniclastics from the collar to 39 metres. These rocks and alteration are very similar to that seen in SHD-2 adjacent to the QFpA with the rock a typical quartz sericite pyrite

schist with carbonate as a later phase. Below 39 metres the alteration is more chloritic with carbonate now more veiny.

No petrology was done on these rocks, however, whole rock analysis was carried out on three samples. Whole rock MnO is moderately elevated with 0.9, 0.01 and 0.77% respectively as MnO and up to 1.22, 1.18 and 1.15% as Mn, low Na2O with 0.14, 0.09 and 0.15% respectively, K2O elevated with 3.91, 2.83 and 4.03 respectively. Sample 386114 from 15 - 16m has 13.6% S (it assayed 65ppm Cu, 161ppm Pb, 38ppm Zn but 0.11g/t Au). This alteration is interpreted to be due to ponding of alteration beneath the QFp and is considered to be part a broadly stratabound zone of discontinuous and generally weaker alteration beneath the QFpD.

7.3.8 SHD-6 - Henty Canal alteration

The Henty Canal alteration zone is described in appendix A. In outcrop it is strongly sericite+silica+pyrite altered with anomalous Ba, Pb, As and Sb reported as described previously.

The alteration has been interpreted (previously by Aberfoyle in Lewis 1995b) and from the IP to lie on a somewhat discontinuous trend from 600080N (outcrop in the Canal) to line 59500N. SHD-6 was targetted on the strongest IP response on this discontinuous trend of coincident IP chargeability and spot soil geochemistry anomalies. The IP response appears to be due to some black shaley siltstones and no sulphidic alteration was intersected.

Limey pumiceous volcaniclastics are associated with limestone and are just a variation on the marly sandstones seen in other holes.

Intriguing pervasive white alteration occurs in a unit logged as dacitic(?) pumiceous volcaniclastic from 143 to 191 metres. The alteration has been logged as silica+albite(?) with similarities drawn with similar alteration at Henty stratigraphically higher than the mineralised zone. Whole rock lithogeochemistry (386103), however, has Ti/Zr of 8.4, rhyolitic rather than dacitic and more typical of MJR QFpR. Absolute SiO2 of 75.3% and Na2O of 5.8% are also typical of MJR suggesting that the alteration may not be as significant as originally thought and the rock may be an extension of the overlying QFpR..

The intersection of silica+albite (?) alteration in this setting is analogous with Henty's upper zone of mineralisation with Pb isotopes from outcropping sericite+silica+pyrite alteration having a Cambrian signature, supporting such a relationship.

7.3.9 Interpretation - Lake Newton Alteration Zone

The Lake Newton Alteration Zone (an apt name given that it essentially underlies the lake) is defined by the intersections of alteration in HA7, HA8, NC4, SHD-1, SHD-2, SHD-11 and SHD-13 and the non-intersection of alteration in HA3 and SHD-12 (defining southern extent) or in outcrop (defining northward extent). At depth the zone will be cut off by the Great Lyell Fault (see figures 11 to 14) whilst to the north at depth the Newton Creek

Fault may intersect this horizon (see figure 10). The alteration zone is also apparently mapped out by the lower part of the "mushroom" shaped aeromagnetic low, though there are alternative explanations. The prospect is summarised in figures 9, 22 and the interpretative sections AA' to EE' in figures 10 to 14 as well as being summarised in Table 5.

Intersections of similar sericite+silica±Mn carbonate±Kspar±sulphide(pyrite+low Fe sphalerite+ galena)+Ba towards the ends of SHD-1, SHD-13, HA7 and most of HA8 are interpreted to be the same zone of broadly stratabound zone of alteration, hosted predominantly within coherent QFpD of ARF type or clastics containing variable amounts of ARF type quartz crystals. This zone, which lies ~300 to 350 metres below the Henty-Comstock horizon which is thought to have been the sea floor at the time, has been referred to previously and is shown optimistically on figure 22 as the Sulphide Zone. The intersections are summarised on Table 5. Mineralisation and alteration is interpreted to have taken place by replacement of porous, permeable, pumiceous volcaniclastics by hydrothermal fluids which had just passed through the massive, coherent QFpD interpreted to underlie these volcaniclastics.

Stratigraphically overlying this Sulphide Zone is a zone of weakly sericite±chlorite±haematite±Kspar±Mn carbonate, non-sulphidic alteration intersected by SHD-1, SHD-13, NC4 and SHD-11 This alteration extends up to and into the base of Howards Basalt, ~300 metres higher and considered to mark the Henty-Comstock horizon.

Chlorite and haematite extend to varying depths from the Henty-Comstock horizon toward the Sulphide Zone. Sericite±Kspar alteration increases downhole as evidenced by K2O trend in figure 7. Manganiferous carbonate is seen in NC4 including in the base of Howards Basalt. Sericite is generally ubiquitous but becomes dominant closer to the Sulphide Zone.

SHD-2 and SHD-12 are the only two holes which have intersected the deeper part (below the broadly stratabound Sulphide Zone) of the sequence between the Henty-Comstock horizon and the Spillway horizon.

Strong sericite+silica+pyrite+sulphides(pyrite+chalcopyrite+sphalerite+galena)±Mn carbonate alteration with chalcopyrite, pyrite and high Fe sphalerite+galena stringers and a lower (below the spillway basalt) zone of sericite+carbonate±sulphide alteration intersected in SHD-2 are interpreted to represent the footwall stringers heading up to the Sulphde Zone.

This alteration coincides with the base of the "stalk" of the "mushroom" aeromagnetic low. It is considered that the "stalk" is due to magnetite destructive alteration by hydrothermal fluids exploiting a discrete zone of structural weakness in the massive QFpD. SHD-11 drilled into the "neck" of the "stalk" intersected the more peripheral sericite+silica±Kspar±pyrite overprinting an earlier quartz±chlorite±pyrite phase with

alteration vectors suggesting an increase with depth and it is likely that the main focii of these fluids is slightly deeper.

An third explanation is suggested by similar alteration in SHD-8 which suggests the sericite+silica+Mn carbonate alteration intersected by SHD-8 was due ponding beneath the massive QFpD sill. Alteration in SHD-2 may also be due to ponding of fluids up against the massive QFpA. This does not explain the alteration and mineralisation higher in the sequence, especially that above the QFpD.

An alternative explanation is that the alteration relates to the QFpA intrusive. It is possible that the "stalk" represents sericite+silica+pyrite alteration adjacent to the QFpD (ARF) quartz diorite. Elevated K2O suggests such a relationship though a magmatic contribution to the hydrothermal fluid does not provide arguments against the favoured model. Certainly there is a cessation of alteration up against the Henty-Comstock horizon.

The footwall alteration assemblage for the Que River massive sulphides in general is given as "pyrite+sericite+silica± carbonate±Kspar±base metal sulphides, with minor but locally abundant chlorite ... (with) ... the footwall alteration halo at Que River ... characterised by pronounced Na2O and some MgO and CaO depletion and K2O and SiO2 enrichment"(McGoldrick and Large, 1992). Kspar alteration is reported from the "gold-rich stringer mineralisation", particularly immdeiately below the main PQ lens, where it is associated with Ba anomalous (to 4.6%) silica+Kspar+carbonate (lowMn)+sericite+sulphides(pyrite+sphalerite+chalco-pyrite+galena)alteration, described as being the product of "modified sea water (some magmatic?)" in Table 5 in McGoldrick and Large (1992).

McGoldrick and Large (1992) draw comparisons between this alteration/mineralisation and adularia+sericite (low-sulphidation) epithermal deposits.

The second and third alternative explanations are less favoured than the first. The proposed programme will test both the first and third alternatives.

7.3.10 Henty-Comstock horizon (inc. Howards Anomaly)

The Henty-Comstock horizon itself has been intersected by HA3, HA4, HA5, HA6, NC1, NC4, YNC16, SHD-1 and SHD-13 as well as TC3 and TC5 at Tyndall Creek.

Exhalative or shallow sub-seafloor mineralisation (ignoring the fossiliferous limestones which must be at least partly if not completely sedimentary in origin) occurs on or near the Henty-Comstock horizon in the southern part of the EL 8/96 "South Henty" at Tyndall Creek (old Howards Anomaly) with barite+silica+sulphide+gold at Tyndall Creek itself and barite+silver mineralisation in old Howards Anomaly DDH's HA3, HA4 and HA6.

Tyndall Creek

"Barite-sulphide-gold mineralisation is exposed in Tyndall Creek immediately east of the Anthony Road bridge and in some shallow pits to the south on the Rio Tinto gossan which

was discovered in the late 1950s and led to initial exploration in the Howard's Anomaly area. It has also been intersected in a number of short diamond drill holes (TC1-5 drilled by Aberfoyle in 1994).

"The significance of the mineralisation arises from its almost economic grades and widths in some of the drill intersections (eg: 2.1metres @ 0.2%Cu, 5.4%Pb and 7.8%Zn) and the interpretation that it appears to be VHMS mineralisation on the Henty-Comstock favourable horizon. The downside is that there does not appear to be much room for an economically significant deposit in the immediate vicinity." (appendix A)

DDH's TC3 and TC5 provide cross-sections through the Tyndall Creek mineralisation to show a distinct zonation with mineralisation and alteration occurring within an apparently unit of massive feldspar crystal rich sandstones. The sandstones are green and contain occasional clasts of feldspar phyric dacite as well as detrital magnetite with occasional 2mm x 1mm chlorite patches, probably after detrital hornblende crystals, supporting the andesitic Ti/Zr ratios.

These are seen unaltered in TC3 and although the best intersection of 2.1 metres @ 0.2% Cu, 5.4% Pb and 7.8% Zn was in TC5, TC3 shows the zonation best. An ~eight metre thick interval of more moderately silica+sericite altered sandstones/breccia with sulphides+barite+silica (TC5 shows these veinlets to be symmetrically zoned with an inner silica+haematite+pyrite assemblage and an earlier silica+sulphide assemblage) in veinlets is overlain by ~1 metres of barite+silica, sericite and barite+sulphide±silica in anastomosing foliated bands. In TC3 the massive barite+sulphide is overlain by ~6 metres of strongly foliated, haematite+silica+chlorite+/-sericite+/-magnetite alteration, Aberfoyle's "Howards Tuff".

Petrologically (Kitto in Sharpe, 1993) the sulphides are described as lying in deformation bands between paragenetically earlier, more coherent bands of barite, with the sulphide assemblage consisting of galena+pyrite+sphalerite (cream, low Fe)+chalcopyrite+tetrahedrite-tennantite+chalcocite+electrum, a high-sulphidation assemblage. Kitto also describes two generations of pyrite with the earlier phase carrying 0.1% Au.

Howards Anomaly silver

Silver mineralisation (2m @ 410g/t Ag in HA4 within a 6m @ 7.5% Ba) in drill-holes at Howards Anomaly consists of silver-bearing tetrahedrite (freibergite) with minor pyrargyrite and native silver. The mineralisation occupies a number of styles being pervasive to veiny to blebby and is pre-or syn-deformational with this author leaning towards the mineralisation being an earlier phase of overprinting alteration not necessarily associated with subsequent movement on haematitic rocks at the base of the Tyndall Group. The best intersection, HA4's 35 metres @ 34g/t Ag lies within Howards Basalt Breccia.

Again this association is somewhat typical of a high sulphidation epithermal assemblage.

Henty-Comstock horizon and footwall to the north of Lake Newton

As described earlier the northern boundary of the Lake Newton Alteration Zone is defined by unaltered volcanics (QFpR) on Pumphouse Point. There is no information as to what the alteration zone is doing at depth below the extrusive submarine rhyolite dome. In fact there is no intersection of the Henty-Comstock for 1.3km's (SHD-6 is interpreted to have intersected a separate higher sliver of basalt though this is obviously open to re-interpretation). This is more prospective now that the significance of anomalous base metals+MnCO3 veins in Pasminco's DDH's in the rocks below (or on) the Henty-Comstock horizon (with no encouragement from the horizon itself) in the northern part of the E.L. is known.

YNC4 intersected 3.9m @ 0.7% Pb, 1.1% Zn, 0.5g/t Au, 6g/t Ag and 1.5% Ba in a zone of quartz+carbonate+sulphide veinlets; YNC10 intersected 1.5m @ 0.5% Pb, 0.3% Zn and 1.9% Mn, 1.2m @ 0.2% Zn and 1.3% Mn and 6.1m @ 0.1% Pb, 0.2% Zn and 32g/t Ag in a zone of pervasive sericite+carbonate+Kspar(?) alteration with elevated MnO (this is the broadest zone of carbonate alteration); YNC5 intersected 5.5m @ 0.2% Zn, 2.3% Ba and 3.1% Mn in veinlets ~100 metres below the base of the Mt Julia Rhyolite in which the hole was collared, as well as a broad zone of 17.8m @ 0.1% Pb, 0.2% Zn, 1.3% Mn followed by 10.8m @ 0.4% Pb, 0.46% Zn and 3% Mn (see plate 7 in appendix A) deeper downhole associated with carbonate alteration; whilst YNC6 has two zones of 1.3m @ ~0.25% Zn in veinlets in sediments at around the Henty-Comstock horizon. This type 2 alteration is considered to be similar to that more pervasive style seen in the Lake Newton alteration system, with the style of ther occurrences in YNC4, YNC5 and YNC10 being due to the area being more peripheral to the main fluid pathways.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

The exploration conducted by Resolute has helped define spatially a significant hydrothermal alteration system, the Lake Newton Alteration Zone, with both a favourable style of alteration and a favourable stratigraphic setting in the footwall to the Henty-Comstock horizon. Although in defining this system our drilling has partly tested this zone (i.e. SHD-1 and SHD-13), there is considerable potential with high priority targets in this zone untested.

Further mapping and research has recognised the similarities between the palaeoenvironmental setting of mineralisation at Tyndall Creek barite+massive sulphides, Howards Anomaly silver, Henty gold and Comstock massive sulphides and examples of deposits world wide which are transitional between high sulphidation epithermal deposits and VHMS deposits, the principal similarity being shallow water depth and perhaps a magmatic contribution to the hydrothermal fluids. This recognition considerably upgrades the potential of the Henty-Comstock horizon, particularly in the south around Howards Anomaly.

Drill testing of the Spillway horizon has been disappointing with the sulphide clasts something of a red herring. There is little information regarding the source of these clasts and their presence in the mass flow in the spillway to the Lake Newton dam is considered to indicate that VHMS mineralisation took place on this horizon somewhere within a few kilometres.

8.2 Lake Newton Alteration Zone

Resolute's exploration to date has defined an advanced polymetallic massive sulphide target with excellent potential for ~5Mt @ 6-12% Pb, 12-18% Zn, 2.7-3.4g/t Au in a relatively shallow (200m - 650m) target position requiring a modest drilling programme of ~1500 metres to test.

The two holes which tested the Henty-Comstock horizon (a known exhalative sulphide bearing horizon at Mt Lyell) i.e. SHD-1 and SHD-13, were extended into the stratigraphic footwall (porous, permeable, pumice rich clastics) for some distance and have intersected a zone of sulphidic alteration, referred to on figure 22 as the Sulphide Zone, ~300m - 350m below the Henty-Comstock horizon. The sulphide zone is defined by four widely spaced drill intersections, SHD-1, SHD-13 (at depth) and HA7 and HA8 (shallower).

The sulphide zone lies near the top of the package of ARF coherent QFpD and clastics with ARF type quartz crystals. This is believed to overlie a coherent dacite sill which has acted to focus ascending hydrothermal fluids through discrete extensional structures with associated magnetite desctructive hydrothermal alteration responsible for the "stalk", discordant to the stratigraphy including the QFpD sill(?), of the "mushroom". SHD-2

clipped (en route to test the spillway target) the edge of this "stalk" with assays including 10m @ 0.3% Cu and 0.5m @ 12% Pb, 18% Zn and 3.4g/t Au in intense sericite+silica+sulphide alteration.

The projection of these stringers (only 150m - 200m) up the "stalk" onto the sulphide zone defines an area of at least 600m x 600m with a central principal target zone of ~350m x 350m. The hydrothermal fluids responsible for high grade mineralisation in the "stalk" alteration pipe/stringer zone must have deposited their metal into this sulphide zone as there is negligible sulphide and only weak peripheral alteration above the sulphide zone.

Consideration of existing geophysical data (DHEM, helimag, DHMMR?) may help refine targetting but the target exists already. The principal target zone actually lies beyond the reach (shallower) of DHEM and DHMMR.

Apart from this central zone between SHD-1/SHD-13 and HA7/HA8, the Sulphide Zone remains untested to the immediate north at depth and to the immediate south below NC4.

The Lake Newton Alteration Zone occupies a similar stratigraphic setting to the Mt Lyell alteration zone (although as defined at present it is smaller). However, the zone of anomalous MnCO3±barite alteration in SHD-1 and SHD-13 is more similar to Rosebery and Hercules style mineralisation. Rosebery style mineralisation was an original, though considered to have lower potential, target style of mineralisation. This replacement style of alteration/mineralisation is compatible with the shallow sea-floor conditions prevalent at the time.

Mineralisation is expected to lie within this alteration zone in either broadly stratabound replacement mineralisation (i.e. a product of mixing of seawater and hydrothermal fluids below the sea floor) or in sub-vertical feeder structures. Stringer sulphides intersected in SHD-2 (e.g. 0.5 metres @ 0.3% Cu, 11.7% Pb, 18.2% Zn, 3.4g/t Au and 220g/t Ag; 10 metres @ 0.3% Cu) are carrying metal somewhere and in such a system such movement is generally stratigraphically upwards. The intersection of the stringer sulphides in SHD-2 with the Sulphide Zone is an obvious target.

8.3 Henty-Comstock horizon (inc. Howards Anomaly)

The Henty-Comstock horizon is more difficult to define in the southern part of the E.L. with the immediate footwall characterised (in HA3, HA4, HA5 and HA6) by coherent and brecciated andesite as well as intriguingly intercalated limestone (calcitic with pink banding due to haematite looking sedimentary in a number of instances - the limestone is considered to have formed as shallow reefs around the Anthony Road Andesite andesitic marine stratovolcano with considerable slumping of FHbpAndesite hyaloclastite remobilising much of the unconsolidated limey sediment) and F crystal rich sandstones with occasional chloritic hornblende crystals.

Mineralisation on or below the Henty-Comstock horizon in the southern part of the licence is expected to reflect this variation in the nature of the footwall rocks with more focussed fluid flow in more coherent andesites and diffuse percolation in the more porous and permeable dacitic>andesitic volcaniclastics which characterise the footwall in the "mushroom" area.

The Lake Newton alteration system was active when the Henty-Comstock horizon was the sea-floor (and possibly up to this time though this mere speculation). The depth of the sea was very likely shallow based upon fossiliferous carbonates intersected by drill holes. The author considers that Clive Calver's interpretation that most of the limestones he studied in hand specimen and thin section (and thus hampered) were clasts sourced from elsewhere is not supported by core logging of the broader sequence and that if the faunal assemblage typical of all fossiliferous carbonates is shallow marine (few ten's of metres) then so are the limestones. The near-shore shallow bank palaeoenvironment of Jago *et al* (1972) is favoured for the limestones at Comstock with White and McPhie (1996) also supporting this interpretation. RGC are thought to also consider a shallow environment likely for Henty.

This seawater depth has generally been considered to be unfavourable for V.H.M.S. mineralisation as the ascending hydrothermal fluids will boil with reducing pressure and drop out mineralisation before reaching the sea-floor. However, there are a number of examples of world class deposits which formed in similar palaeoenvironments a number of which are summarised in "High-sulphidation deposits in the volcanogenic massive sulphide environment" (Sillitoe *et al* 1996) with shallow sea-water depths for almost all examples including a number of world class deposits.

In particular the setting of the Eskay Creek deposits in British Columbia have considerable similarities to the Henty-Comstock horizon, both above the Lake Newton Alteration Zone as well as to the south and north (the former closer to the centre of the andesitic volcano, the latter further away and downfaulted).

The 21C deposit at Eskay Creek (1.08Mt @ 65.5g/t Au, 2930g/t Ag, 0.8% Cu, 2.9% Pb and 5.7% Zn, MacDonald *et al* 1996) has a stratiform character typical of V.H.M.S. deposits but with an epithermal mineral assemblage (including Pb sulphosalts and stibnite) and barite. Alteration in the footwall is described as quartz+sericite+pyrite±Kspar with gains in K and Mg and losses in Na and Ca. The 21B deposit has a more epithermal assemblage (including realgar, stibnite and cinnabar) and is 0.97Mt @ 9.6g/t Au and 127g/t Ag but a stratiform character. These deposits serve as excellent examples of the class of mineralisation which may form by V.H.M.S. style hydrothermal fluids in a shallow marine setting.

There is considerable evidence for similar processes being active along the length of the Henty-Comstock horizon. Henty is considered to have formed by the intense silicification of volcanics in the immediate footwall to the Henty-Comstock horizon. Its alteration is analogous (visually, stratigraphically and lithogeochemically) with with the 'chert' at

Comstock (see section 4.4 in appendix A). The Cu+Au mineralisation at Comstock is considered to be part of the whole Mt Lyell field and thus the whole Mt Lyell field is considered to be lying in the footwall to the Henty-Comstock horizon.

The Tyndall Creek barite and Howards Anomaly silver mineralisation are interpreted to represent Cambrian high-sulphidation epithermal/VHMS deposits which probably formed at the time the Henty-Comstock horizon was the sea-floor. This whole Howards Anomaly zone, whilst tested predominantly by HA3, HA4, HA5 and HA6 and shallow DDH's TC1-5, has considerable potential for mineralisation on or just beneath the Henty-Comstock horizon.

There are already many similarities between the shallow sea-water VHMS/epithermal style deposits, described in the above papers, with the volcanic setting and existing mineralisation at "South Henty". A shallow sea-water depth can thus be seen as favourable for the formation of world class polymetallic (high grade precious metals as well as significant base metals) deposits. However mineralisation in such settings is often hosted in the footwall alteration zone. Whilst there has often been criticism of previous exploration which has targetted geophysical and/or soil geochemical anomalies and remained within the footwall alteration system without ever testing the more geological concept of a favourable horizon above this alteration, in such settings such exploration is justified.

The extensive set of good quality IP survey data for the Howards Anomaly area should be re-considered in the light of a high sulphidation epithermal/VHMS model with mineralisation on or beneath the Henty-Comstock horizon. There is also generally good C-horizon soil geochemical coverage from both Aberfoyle's and Resolute's sampling.

The area has not been mapped in detail by Resolute this year (other than the core re-logging). There is considerable data available from Mt Lyell's mapping and trenching which should be incorporated into the existing knowledge of the geology. Drill targets should be defined by this geological work supported by IP and soil geochemistry.

8.4 Spillway horizon

Further groundwork is justified in the south-western corner of the E.L. in order to trace the spillway horizon southwards from YNC12. Shallow man-portable drilling may be justified if discrete targets (i.e. base of the spillway basalt) can be confidentally defined. The single line of dipole-dipole IP was very informative and it is suggested that an IP survey (gradient) be conducted in this corner to look for pyritic (chargeable) alteration in the footwall to the spillway horizon.

8.5 Pyritic shear hosted gold (Tyndall Creek and Access Road)

The Henty gold deposit is largely stratigraphically controlled and analogies cannot be drawn between this deposit and srtucturally hosted sericite+pyrite alteration at Access

Road or Tyndall Creek. Whilst low level gold mineralisation is associated with this alteration and there is potential for economic mineralisation in structures, particularly at Tyndall Creek, focus should not necessarily be placed on brittle (Devonian?) structures unless there is evidence of a Cambrian history. No further work is recommended on these two prospects except for any work arising out of targetting mineralisation in the footwall to the Henty-Comstock horizon.

8.6 Henty Canal alteration

The Henty Canal alteration is interesting because of its Cambrian Pb isotopic signature, elevated Ba, possibly Henty analogous silica+albite (?) alteration and position with respect to the sliver of basalt in SHD-6.

Further drilling is recommended in the area in order to test for a northerly plunging extension of the Lake Newton Alteration Zone. The results form this drilling should help establish the significance of this alteration style, particularly with regards to Henty style mineralisation.

8.7 Summary of Recommendations

The following work is recommended. At a minimum this should include at least one hole drilled into the Sulphide Zone, ideally above the projection of SHD-2's stringers and also passing through the Henty-Comstock horizon en-route to this target. A single hole collared just west of the Pump Station at 380880E 5358900N and drilled for 600 metres at -57° towards 250° (TN) should be sufficient.

A full exploration programme should be based around the following work:

Lake Newton Alteration Zone

- 3D model the "mushroom" aeromagnetic low.
- Drill one hole southwards through the "stalk" of the "mushroom" in order to test this potential target position with mineralisation in feeder structures to the Sulphide Zone. Such a hole will also provide considerable information reagarding the QFpA and its relationshgip to mineralisation. Should the Sulphide Zone replacement model hold the hole will also provide vectors for targetting holes into the Sulphide Zone as it will pass across the footwall to this zone, possibly mapping out focii of hydrothermal fluid flow. This hole should be collared just east of the collar of SHD-2 and drilled beneath the middle of HA8's alteration.
- Drill two (or more) holes into the Sulphide Zone. At least one hole will be similar in design to the minimal programe hole described above. The second hole will probably be defined by the results of the "stalk" hole which should be drilled first. A further hole should be drilled to test for a northerly extension of the Sulphide Zone at depth beneath the coherent FHbpA and QFpR outcropping on Pumphouse Point. This hole should be designed to also provide information about the alteration and stratigraphy in the SHD-6/Henty Canal area.

Henty-Comstock horizon (north)

- Consideration should be given to targetting a hole beneath base metal anomalous Mn carbonate alteration intersected in YNC4, YNC5 and YNC10 now that such alteration is apparently related to the Lake Newton Alteration Zone and thus considered a favourable style.

Henty-Comstock horizon (south)

- Remap with reference to Mt Lyell M & R Co.'s previous mapping (pre-lake).
- Assess previous drill intersections, IP and soil geochemistry with respect to the updated geology and the high sulphidation epithermal/VHMS model.
- Possible targets are likely to be:
  - HA4's intersection of 34 metres @ 35 g/t Ag
  - Untested IP anomalies
  - Tyndall Creek barite (to south)

Spillway Horizon

- Gradient IP in the south-west corner (south of YNC13) followed by C-horizon soil sampling and shallow diamond drilling as a first pass.

Henty Canal Alteration

- Reassess in the light of drill testing the northerly extension of the Lake Newton Alteration Zone at depth.

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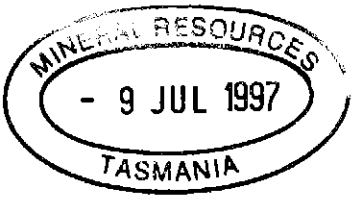
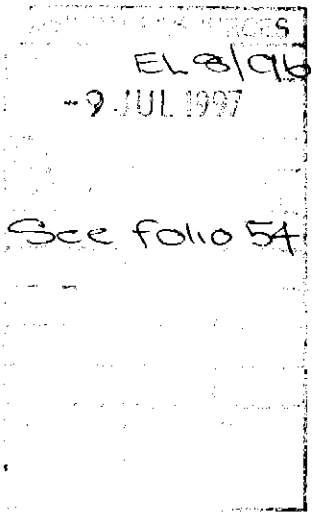


E.L. 8/96 "SOUTH HENTY"

Annual Report on Exploration
June '96 to June '97

Resolute Limited

Volume 2/5



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ANNUAL REPORT - VOL 2 OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Grant MacDonald BSc (Hons)
Project Geologist
July 1997

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Appendix A

Compilation Report

390128 97-4026A

Volcanic facies, Alteration and Exploration Targets

in EL 8/96 South Henty, Tasmania

Date November, 1996

By W. Herrmann
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II-g Pasminco - Newton Creek Wholerock Geochem Data, 47 surface samples

II-h Aberfoyle - Newton Creek Wholerock Geochem Data, 40 surface samples

APPENDICES (continued)

II-i Aberfoyle - Newton Creek Wholerock Geochem Data, 19 surface samples (which had petrographic descriptions by AJCrawford)

II-j Aberfoyle - Newton Creek Wholerock Geochem Data, 419 core grind samples

III Immobile elements in identification of altered rocks and mass change calculations
III-a Introduction to application of immobile trace elements
III-b Immobile element X-Y scatterplots (Figures 21& 22)
III-c Calculated mass changes in altered rocks

IV Light rare earth element graphs

V ANALABS Analytical Reports

List of Figures, Plans and Sections

		Scale 1:
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2	Schematic stratigraphic column for South Henty EL 8/96	not to scale
3	Surface geological plan	5,000
4a	Aeromagnetic TMI contour plan, northern sheet	5,000
4b	Aeromagnetic TMI contour plan, southern sheet	5,000
5	Schematic stratigraphic correlation chart, NC 2, 3, 4, and HA3	not to scale
6	Geological cross section 5358150N	5,000
7	Geological cross section 5358600N	5,000
8	Geological cross section YNC11 (9500N)	1,000
9	Geological cross section YNC7 (9750N)	1,000
10	Geological cross section YNC4 & YNC8 (10000N)	1,000
11	Geological cross section YNC10 (10150N)	1,000
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16	Geological cross section NC1, HA1 & HA2 (5357400N)	1,000
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20	Surface Geological Plan: Tyndall Creek area	1,000
21	TiO_2-Zr scatterplot of 104 core sample analyses (in App.III-b)	-
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1 SUMMARY

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EL 8/96 - South Henty, encompasses a complex polymodal, east facing sequence of Mt Read Volcanics bounded to the west and east by major, steep, reverse faults.

The lower part of the sequence comprises thick pumiceous mass flow units derived from explosive rhyolitic volcanism culminating in a thin but persistent sub aqueous fire fountain basalt-breccia unit and followed by abundant dacitic sills, emergent cryptodomes and associated volcaniclastic breccias. These are succeeded upwards, and partly intercalated with, geochemically distinct (Suite II) andesitic intrusives, lavas and volcaniclastic breccias interpreted to have formed, in a partly shallow submarine setting, on a broad stratovolcano centred to the south of EL 8/96. This is overlain by a transitional sequence of shallow marine limestones, mudstones and dacitic volcaniclastics punctuated by a second basalt-breccia unit with compositional and textural similarities to the lower fire fountain basalt. The transitional sequence is succeeded by a thick series of syn-eruptive, massive feldspar crystal rich andesitic and rhyolitic volcaniclastic sandstones and local massive rhyolite domes, conformably followed by post-eruptive resedimented volcaniclastics grading upward to siliciclastic sandstones and conglomerate deposited in an increasingly shallow water environment.

Two stratigraphic levels within the sequence are recognised to have high potential for volcanic hosted polymetallic massive sulphide (VHMS) deposits.

The lower horizon, known as the Spillway favourable horizon, is marked by the change from pumiceous rhyolitic to fire fountain basaltic volcanism; it may be a direct correlate of (or represent a similar volcanic environment to) the Rosebery-Hercules horizon and is overlain by a polymict breccia unit which contains rare massive sulphide clasts attesting to synvolcanic VHMS deposition at about this level.

The upper horizon, termed the Henty-Comstock favourable horizon, is a direct correlate of the stratigraphic interval which contains small massive sulphide lenses at Henty and Comstock (respectively, 3km north and 12km south of EL 8/96) and immediately overlies a very large VHMS footwall type pyritic alteration zone at Mt Lyell. This horizon contains minor massive barite-sulphide mineralisation at the southern end of the EL and overlies an incompletely tested large sericite-pyrite alteration zone, reflected by an aeromagnetic low anomaly, at Lake Newton, 2km to the north.

Secondary potential exists for analogues of the Henty gold deposit where major Middle Cambrian? faults intersect the Henty-Comstock favourable horizon.

Recommendations are presented for:

* Testing of the Henty-Comstock favourable horizon over the Lake Newton alteration-aeromagnetic anomaly by diamond drilling one or more holes.

* Further drill testing of the Henty-Comstock horizon away from the aeromagnetic anomaly.

* Diamond drilling the Spillway favourable horizon with at least one hole north of Newton Dam to test a possible source area for re-sedimented massive sulphide clasts and obtain information on volcanic facies and footwall alteration vectors.

* Further mapping, bedrock geochemical sampling and immobile element geochemistry, coupled with aeromagnetic interpretative modelling, to determine the location and strike extent of the Spillway favourable horizon south of Newton Dam, followed by initial shallow core drilling to elucidate volcanic facies and alteration vectors and develop conceptual targets for deeper testing.

2 INTRODUCTION

The area of EL 8/96 - South Henty has been semi continuously explored by modern methods for VHMS deposits over the last forty years. Systematic soil geochemical and IP geophysical surveys culminated in drilling of eight diamond core holes near the "Howard's Anomaly" horizon up to 1984.

Exploration was re-invigorated, in the early 1990s, by the discovery of several large clasts of high grade polymetallic massive sulphide in a coarse volcaniclastic breccia exposed in the spillway of Newton Dam and ore grade sulphide-barite mineralisation at Tyndall Creek. This led to comprehensive coverage by C-horizon (Wacker) geochemical sampling, fixed loop TEM and helicopter borne high resolution aeromagnetic geophysical surveys. In the last several years Pasminco drilled sixteen diamond core holes totalling 4,413m, mainly to test strike extensions of the unit containing the "Spillway" sulphide clasts. Aberfoyle drilled five short holes around the Tyndall Creek barite outcrop and four deep holes totalling 3,119m to test conceptual targets near the inferred intersection of the Lower Tyndall Group favourable horizon and the Great Lyell Fault.

These intensive exploration programmes were significantly impeded, between 1985 and 1995, by an EL boundary which ran north-south along AMG 380000E, through the Newton Dam spillway and oblique to favourable stratigraphy.
The essentially discouraging results of the extensive geochemical and TEM geophysical surveys suggest that large VHMS deposits do not exist close to the surface and that future exploration of this area will increasingly involve testing of deep conceptual models. Resolute Samantha Limited's acquisition of the South Henty area provided a new opportunity for geological interpretation of the undivided entity.

This report presents an interpretation of volcanic facies and hydrothermal alteration styles, and discussion and recommendations for testing of conceptual exploration targets, based on a programme of detailed diamond drill core re-logging and limited outcrop mapping during the winter of 1996. Geological interpretation has been greatly enhanced by the large existing database of major and immobile trace element ("whole rock") analyses of drill core and surface rock samples and immobile element analyses of (Aberfoyle's) C-horizon soil samples.

3 REGIONAL GEOLOGY and VOLCANIC FACIES

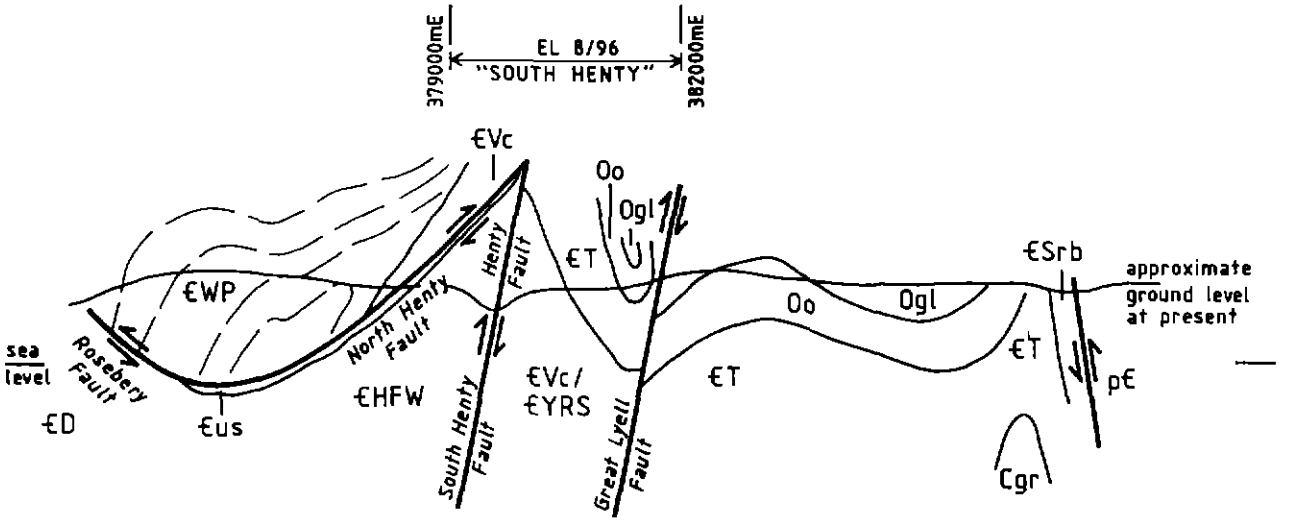
3.1 Stratigraphic and Structural Overview

The broad structural and volcano-stratigraphic setting of EL8/96 - South Henty as envisaged by Poltock (1992), is an east facing and dipping segment of Mount Read Volcanics (MRV), approximately 2km thick, bounded to the west and east by steep west dipping major reverse faults known as the South Henty Fault (SHF) and Great Lyell Fault (GLF). The volcano-sedimentary rocks between the faults are considered to comprise an essentially conformable sequence from Central Volcanic Complex (CVC) felsic volcanics in the western part, passing stratigraphically up through Tyndall Group (TG) to siliciclastic turbidites and conglomerates of the Newton Creek Sandstone (NCS) and Owen Conglomerate (OC) in the east, (Figure 1).

These subdivisions of the MRV and the overlying siliciclastic Denison Group (as summarised by Corbett, 1975 and 1992) consist of:

Top:	<u>Denison Group</u>	
	Owen Conglomerate	pink bedded pebbly-cobbly siliceous conglomerate and cross bedded shallow marine sandstone.
	Newton Creek Sandstone	thin bedded turbiditic marine siltstone and quartzwacke with minor interbedded grey quartzite conglomerate.

Ordovician	Ogl	Gordon Limestone
	Oo	Owen Conglomerate
Cambrian	€T	Tyndall Group
	€gr	Murchison Granite
	€Srb	Sticht Range Beds
	€WP	White Spur Formation
	€Vc	Central Volcanics
	€D	Dundas Group
	€HFW	Henty Fault Wedge
	€YRS	Yolande River Sequence
	€us	Ultramafics
	p€	Precambrian



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Interpretative Geological Section 5358500N showing relationships between Major Faults

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Date	Oct 1996	Plan No.	

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OWEN CONGLOMERATE
Siliciclastic sandstone + conglomerate

NEWTON CREEK SANDSTONE
Turbiditic sandstone + siltstone

ZIG ZAG HILL FORMATION
Post eruptive volcanolithic conglomerate + sandstone

MT JULIA MEMBER
Coherent autobrecciated QFp Rhyolite (MJR) and FQ crystal rich massive (rhyodacitic) volcaniclastic sandstone (MJX)

LYNCHFORD MEMBER
F crystal rich massive (andesitic) volcaniclastic sandstone (LMX), mixed felsic (rhyo-dacitic) volcaniclastics (LMS) and limestone, minor coherent dacite (= NCD)(LMD)

HOWARDS BASALT BRECCIA

"HENTY-COMSTOCK HORIZON"

ANTHONY RD ANDESITE (SUITE II)
Coherent FHb porphyritic (ARH), QF porphyritic intrusives? (ARF), F (Q-Hb) phyric lavas (ARA), breccias and sandstone (ARC), mixed with massive to clastic carbonates in upper parts
Interdigitates with Newton Creek Dacites

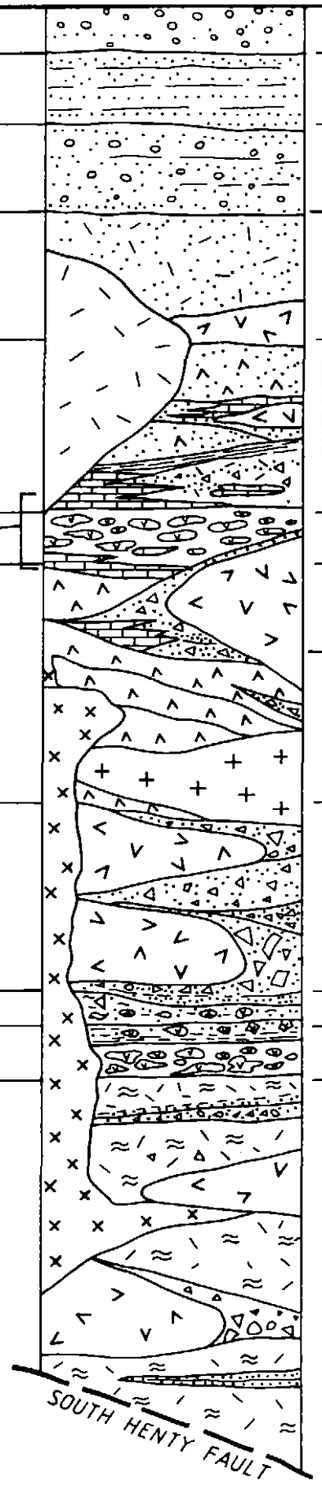
NEWTON CREEK DACITES
Coherent domes + sills (NCD), volcaniclastic breccias + sandstone, minor polymict breccia (NCC). Equivalents occur throughout sequence up to Mt Julia Member (e.g. LMD)

SPILLWAY POLYMICT BRECCIA (SPB)

SPILLWAY BASALT BRECCIA (SBB)

FOOTWALL PUMICE BRECCIA (FPB)

(incl. dacite sills/domes?
minor continental clastics
and polymict volcaniclastics)



RESOLUTE (1996)

ZIG ZAG HILL FORMATION

COMSTOCK FORMATION

Mt Julia Member

Lynchford Member

?

WHITE + McPHIE (1996) (CODES)

? ?

TYNDALL GROUP

HOWARDS ANOMALY
ANTHONY RD
ANDESITES ZONE

TYNDALL RHYOLITE SILL

NEWTON CREEK DACITES ZONE

SPILLWAY CONGLOMERATE
"Principal Target Horizon"
STRATIFIED MAFIC BRECCIA

NEWTON CREEK FOOTWALL PUMICE BRECCIA

QUAYLE (1995) (PASMINCO)

UPPER TYNDALL GROUP

MIDDLE TYNDALL GROUP

LOWER TYNDALL GROUP
(Howard's Tuff)

ANTHONY RD ANDESITES SUITE II

LEWIS (1995) (ABERFOYLE)

Owen Conglomerate

Newton Creek Sandstone

TYNDALL GROUP

CENTRAL VOLCANIC COMPLEX

POLTOCK (1992)

SUITE I

SUITE II
(high K calc. alteration
LREE, P, K enriched)

SUITE I
medium to high K
calcalkaline

CRAWFORD et al. (1992)

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EL 8/96 "SOUTH HENTY"
Schematic Stratigraphic Column

Compiled	WH	Scale	NTS
Drawn	DKH	Checked	
Date	Nov 1996	Plan No	Fig 2

	Mt Read Volcanics Tyndall Group	mainly shallow marine feldspar (+/- quartz, pyroxene) crystal rich volcaniclastic mass flow sandstones and breccias with fossiliferous limestone and rhyolitic lava in the lower part and volcanolithic conglomerate in the upper part.
Base:	Central Volcanic Complex	dominantly submarine feldspar phyric rhyolitic-dacitic lavas, lava domes and pumiceous volcaniclastics, interlayered with andesites and minor bedded sediments.

There have been several recent mega-structural interpretations of the South Henty area, based largely on regional magnetic and gravity interpretations (including: Leaman, 1992, 1993, 1994; Murphy, 1994, and Sharpe, 1993) which suggest faulted internal complexity, but the SHF and GLF appear to be the only mappable faults which are associated with major stratigraphic dislocations and the available facing evidence indicates a consistently east younging sequence .

The stratigraphic relationships as currently understood, and the various classifications used by previous workers, are schematically presented in Figure 2 and discussed in greater detail in Chapter 3.2.

Poltock (op cit.), supported by Pb-isotopic data, considered that the stratigraphic base of the Tyndall Group, including hornblende phyric andesites, was marked by the unit of polymictic volcaniclastic breccia exposed in the Newton Dam spillway.

This was modified by Quayle (1995, Fig. 12) who recognised a thick package of dacitic sills and breccias - the "Newton Creek Dacite Zone" - above the "Spillway Conglomerate" and overlain in turn by an assemblage of andesitic sills, volcaniclastics, limestone and minor black slate which he termed the "Howard's Anomaly - Anthony Road Andesites Zone". The Anthony Road Andesites (ARA) are a petrographically and chemically distinct group of hornblende phyric, intrusive and extrusive, high K andesites and dacites, designated *Suite II* by Crawford et al. (1992) and restricted to the upper parts of the CVC southeast of the South Henty Fault. In Quayle's scheme, the base of the Tyndall Group was represented by massive quartz phyric rhyolites stratigraphically above the limestone-slate units.

Meanwhile, Aberfoyle geologists working on EL 5/85 east of 380000E (eg: Lewis, 1995), targeted what they considered to be a VHMS favourable horizon at the base of the Tyndall Group and subdivided it as follows:

Upper TG	hematitic/polymictic volcanolithic conglomerate, sandstone and shale.
Middle TG	massive feldspar+/-quartz crystal rich volcaniclastic sandstone; siltstone and "silica-carbonate altered" polymictic volcaniclastic breccias.
Lower TG	banded to massive carbonate, siltstone, chert and sheared hematitic/chloritic/sericitic "andesitic" mafic volcanic breccia (="Howard's Tuff").[1]

More recently, the stratigraphy of the Tyndall Group has been formalised by White and McPhie (1996) according to the following classification:

Top:	Zig Zag Hill Formation	post eruptive polymictic volcanolithic conglomerate and sandstone; PreCambrian siliciclasts in upper parts.
	Comstock Formation	
	Mt Julia Member	syn eruptive qtz-feldspar crystal rich (rhyo-dacitic)

[1] Interbedded turbiditic siltstones and quartzwacke sandstones below a fault in the lower part of NC3 were also assigned to the "epiclastic" facies of the Lower Tyndall Group but these are now interpreted, on the basis of lithological similarities, to belong to the Newton Creek Sandstone member of Corbett, 1975.

volcaniclastic sandstone and sub aqueous rhyolitic domes.

Base: *Lynchford Member* — syn eruptive feldspar crystal rich (andesitic) volcaniclastic sandstone, lithic breccia, mudstone and limestone.

3.2 Lithotypes and Volcanic Facies

The following descriptions and facies interpretations are based largely on megascopic observations of diamond drill cores, augmented by A.J. Crawford's petrographic descriptions in previous Pasminco and Aberfoyle exploration progress reports, and major and trace element analyses.

Graphic core logs are presented in Appendix I, analyses in Appendix II and immobile element x-y scatterplots in Appendix III. The geological interpretations are graphically represented in Figure 3 (plan) and Figures 6 to 14 (cross sections).
Figure 3 is largely interpretative based on up dip projection of contacts identified in diamond drill cores, with some backup from limited (1996) surface reconnaissance mapping, previously reported mapping and previous immobile element bedrock (Wacker) geochemical data.

The lithofacies units are discussed more or less in stratigraphic sequence, from west to east.

Footwall Pumice Breccia (FPB)

A zone, upto about 600m wide immediately east of the SHF, but incompletely intersected by existing drill holes, appears to be largely occupied by massive feldspar phyric sericitic pumice breccia units with subordinate to minor beds? of felsic volcanolithic breccias, volcaniclastic sandstone and mixed provenance (volcaniclastic-metasedimentary) sandstone. They characteristically consist of ~5-10%, 2mm, fresh, pink feldspar crystals fairly evenly distributed in a pearly grey-green, wispy-foliated sericitic matrix, with common relicts of disoriented and/or compacted tube pumice texture (particularly evident on cleavage breaks), but in which original pumice clast boundaries are seldom preserved. In places there are sparse, <2%, sub rounded rigid lava clasts to ~50mm of pink, sparsely feldspar phyric, spherulitic? felsic volcanic, (eg: YNC 7 & 8). A minor proportion of these clasts are greyish, moderately silicified and contain upto 2% pyrite suggesting some pre emplacement alteration. (Plate 1)

Massive pumice breccias appear to exist in several units at least several tens of metres thick with indications of normally graded tops and variations in lithic clast contents, although a regular stratigraphic sequence has not been recognised.
They have uniform rhyolitic bulk chemistry, of MRV Suite I affinity (Crawford et al., 1992), with a narrow compositional range ~71% SiO_2 and Ti/Zr ratios 6.1 to 7.5, (Appendix II & III).

Their considerable compositional uniformity, massive form and abundant relict pumice suggests a source associated with large volume, explosive (plinian) eruption(s). The apparently interbedded, mass flow type to turbiditic volcaniclastic sandstones and lithic breccias (best exposed in the lower spillway and near the tunnel at the base of Newton Dam; also in YNC 1, 2, 3 & 12) indicate a sub aqueous environment and deposition either from repeated pumiceous eruptions or (more likely) repeated mass flows of syn-eruptive pyroclastic and volcaniclastic materials from adjacent shallower or sub aerial environments; laminated sediments in YNCs 1 and 12 contain some metapelitic sediment.

Allen (1993) considered the pumice breccia exposed at the base of the spillway to be "extremely similar to the Rosebery-Hercules footwall pumice breccia in appearance, mineralogical composition and type of lithic clasts, and could be the lateral equivalent of the Rosebery -Hercules footwall unit. .. If these units are the same, as they appear to be, this establishes the first correlation through the Central Volcanic Sequence [CVC] and across the Henty Fault."

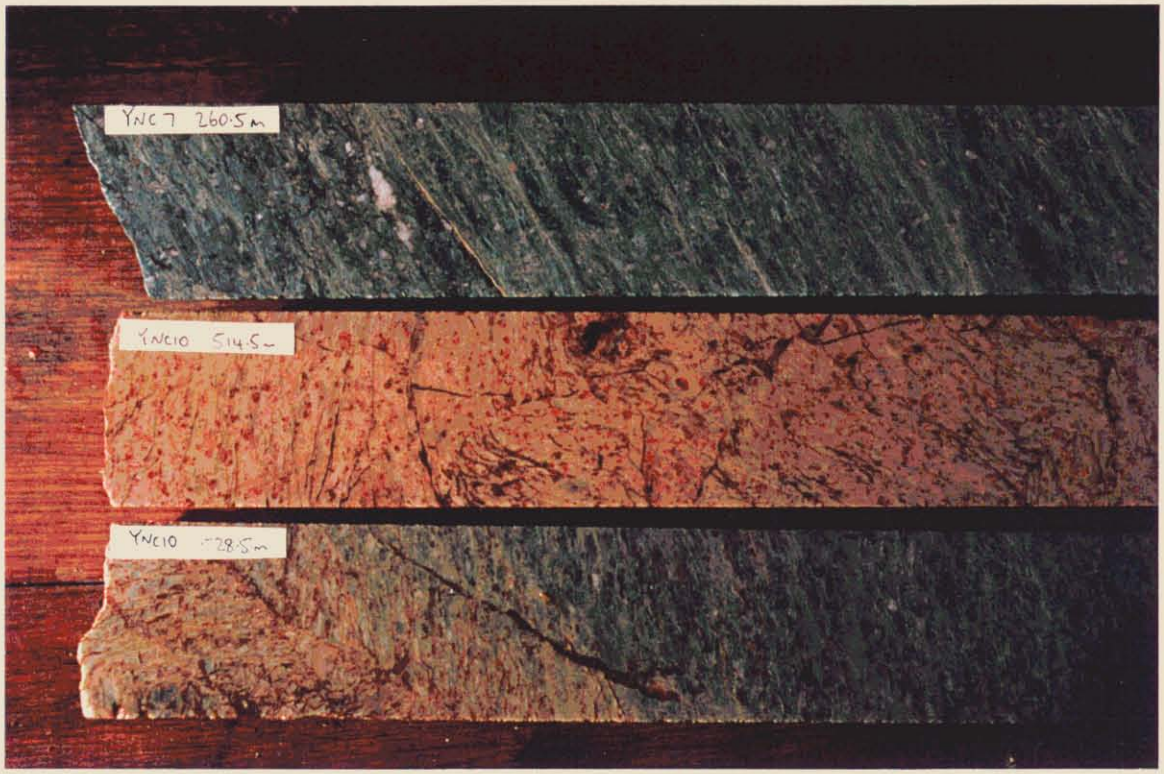


Plate 1: **Examples of footwall pumice breccia (FPB) showing typical green or pink colouration (there is no recognisable geochemical difference between the two colours).**

In the northern (YNC9, YNC16) and southern (YNC12, YNC13) drill holes, and outcrops just north of Newton Dam, there are massive coherent feldspar phyric dacites, identical in form, texture and composition to Newton Creek Dacites higher in the sequence, which indicate that this pumiceous lower stratigraphic zone also includes substantial volumes of dacitic lavas or shallow sills.

Spillway Basalt Breccia (SBB)

In the Newton Dam spillway and in several Pasminco drill holes (YNC 6,7,8,9,10,11,12) felsic pumice breccia is overlain by a chloritic mafic unit of variable thickness and texture ranging from coarse monomict basaltic breccia to laminated and graded fine grained mafic sandstone; (Plates 2a & 2b). The breccias typically consist of closely packed, lensoidal-flattened globular, unsorted and variably sized clasts (mostly 2-100mm, rarely upto 500mm) of dark green, fine grained chloritic basalt, presumably originally glassy and usually with distinctive darker, fine tear drop shaped amygdales. Exactly similar rocks have been identified (during 1996 reconnaissance mapping) in outcrops at 380065E / 5358900N, along the south shore of Lake Newton east of the dam to at least 380180E, and along the access track 130m NE of the collar of YNC13.

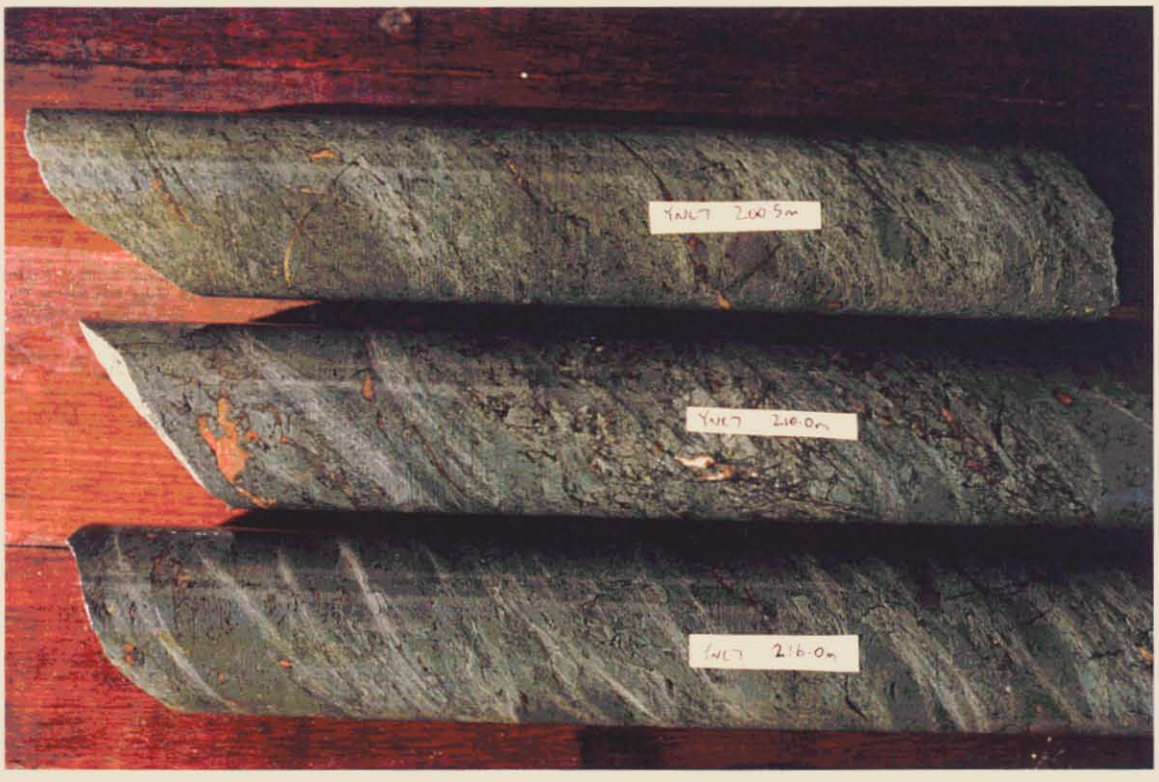
Most of the analysed samples (Appendix II) are basaltic with <54% SiO_2, Ti/Zr and P_2O_5/TiO_2 ratios in the ranges 29 - 54 and 0.1 - 0.3 respectively. They have high Fe_2O_3 at 7.5 - 11.7% but unusually low MgO at 2.4 - 5%. They are somewhat enigmatic in terms of MRV geochemical classification and there are no direct analogues in the analyses presented by Crawford et al. (1992) but could represent either the mafic end members of Suite I or the low P_2O_5/TiO_2 end of Suite III. The range of Ti/Zr ratios is significantly lower than that for Suites IV and V, (88-107 and 90-150 respectively).

The mafic breccias at the spillway and in YNC7 have been texturally interpreted by Allen (1993) as proximal to medial basaltic fire fountain deposits in which fragmentation was associated with high discharge rates and magma fountaining from sub aqueous vent(s), probably not more than ~2-3km distant. Allen (op cit.) observed an empirical and spatial association between such mafic fire fountain breccias and VHMS deposits at Benambra, Hokuroku and Skellefte and speculated that the extensional structural setting favouring high magma discharge rates from fault conduits was also conducive to synvolcanic mineralisation. Therein is an implication that the same faults served to focus hydrothermal and magma conduits, and that VHMS deposits may be expected close to fire fountain vents.

The vent areas of sub aqueous fire fountain basalts are characterised by thick piles of massive breccia intruded by coherent feeder dykes and sills, (Allen, op cit.). At South Henty the SBB mafic unit is, somewhat equivocally, thinner and contains a higher proportion of bedded, re-sedimented fine mafic sandstone to the north; particularly in YNCs 8, 9 & 10. Several of the northern drill holes intersected impure, somewhat polymictic but mafic dominated breccias - undoubtedly of mixed provenance and re-sedimented mass flow origin - notably in the upper parts of the mafic unit. The greatest known thickness of ~65m is 1km along strike north of the Newton Dam, in YNC11, where the unit is dominated by massive breccias and possible coherent lavas and is double the thickness of that in YNC7, the nearest hole 250m further north. In YNC12, 500m south of the spillway, basalts of similar composition are almost entirely coherent, and possibly intrusive, apart from 20cm of possible fine hyaloclastite at the base? of the unit above 35.9m, (Quayle, 1995). The exposures near YNC13 are also of dominantly coherent and minor hyaloclastite? facies. The skeletal information therefore suggests possible vents between YNC11 and the dam, and/or to the south near YNCs 12 & 13.

The SBB(and especially the trinity: FPB-SBB-SPB) is a persistent and distinctive stratigraphic marker. The outcrops along the lake shore east of the dam are consistent with local ENE bedding trends in the overlying polymict breccias and sandstones and strongly suggest that the apparent offset between the NNW trend north of the lake and the southward trend south of the spillway is due to an asymmetric fold.

2a



2b

Plate 2a & b: **Examples of spillway basalt breccia (SBB) from (a) outcrop in the spillway to the Lake Newton dam (large basalt clast is 10cm long); and (b) from YNC7.**

Spillway Polymictic Breccias (SPB)

In the spillway of Newton Dam, the SBB is conformably overlain by a series of polymict volcanolithic mass flow breccias and normally graded sandstones (SPB) with a combined thickness of ~40m. The clasts are dominated by feldspar phyric dacite (similar to NCD and dacites which exist amongst FPB rhyolitic pumice breccia lower in the sequence) with lesser amygdaloidal basalt (derived from SBB), fine grained siliceous, micro spherulitic and sparsely quartz phyric felsic lava (Plate 3b), and rare massive sulphide clasts of enigmatic origin (Plate 3a).

These were described in some detail by Allen (1993) who interpreted them as mass flows generated by collapse of an actively fragmenting dacite cryptodome, subjacent felsic pyroclastic and mafic volcaniclastic debris and a sea floor massive sulphide lens, in a proximal (volcanic centre) to medial facies association, probably within 5km of the spillway. Allen (op cit.) noted "several examples of planar to trough cross bedding .. in the graded sandy top" of the upper mass flow unit (containing the sulphide clasts) which suggested volcaniclastic transport "direction from NW to SE down the plunge of the local fold." This is not favourable for exploration for the source of the sulphide clasts (because it would be eroded away - above the present land surface) but Allen remained optimistic noting that "travel paths of mass flows can be complex" and, having identified a VHMS favourable horizon, there was a likelihood that there was more than one massive sulphide deposit on it.

The there is no mystery in the source of the abundant dacitic clasts - there are numerous dacitic domes of this composition scattered throughout the sequence in the South Henty area and the clasts in SPB could literally have come from anywhere. Likewise the basalt clasts which have an obvious source in the immediately underlying and extensive SBB.
However, the source of fine grained siliceous, micro spherulitic and sparsely quartz phyric felsic lava clasts remains obscure. Two analyses of such clasts from the SPB (31488 & 624443; Appendices II-g & II-h) have compositions fairly similar to the range of FPB (Appendix II-b), albeit with slightly higher Na_2O, and (hitherto unrecognised) coherent facies magmatically associated with the FPB pumiceous explosive eruptions are a possible source. As noted, both have fairly high Na_2O and low AI (alteration indices: Ishikawa et al., 1976) and 31488 was described by A.J.Crawford (Appendix 7 in: Quayle, 1993) as moderately silicified rhyolite containing albitised plagioclase. Albitisation is highly unlikely in the footwall alteration system of a VHMS deposit (more likely in the hanging wall sequence) and this slender evidence suggests that there is no particular exploration significance in determining the source of rhyolite clasts (ie: the rhyolitic source was not necessarily proximal to the re-sedimented massive sulphide deposit) although if it turned out to be unique it could indicate a general direction of transport.

Similar polymict breccias exist above the SBB intersected in YNCs 6, 7, 8, 9, 10 & 11, between one and two kilometres along strike to the north of the spillway, and also at higher stratigraphic levels amongst NCD units in YNCs 4, 5, 8 & 10. The composite maximum thickness appears to be in the order of ~50m - broadly comparable with that in the spillway - but individual units are in the range ~5-30m thick and the stratigraphy is dissected and inflated by NCD sills and domes. Accordingly it is difficult to make confident hole to hole correlation of individual polymictic mass flow units and to attempt analysis of transport directions based on thickness and maximum clast size. Probably the only sub-unit which can be reliably correlated is that immediately overlying the SBB. In YNC11, the nearest hole ~1km north of the spillway, the polymict unit immediately above SBB is dramatically thinned to two sub units totalling ~10m which are lithic sandstones with maximum clast size of 15mm, rather than coarse breccias observed in the spillway. This, very uncertain, evidence suggests south to north transport. However, in YNC7, 200m to the north, and other northern holes, the polymict breccias also contain clasts upto ~100mm size indicating either a multitude of sources or a problem in correlation due to lateral impersistence of SPB sub-units. Both are equally likely. It is considered that interpretations of mass flow transport directions based on thickness and maximum clast size variations in the SPB are likely to be highly inconclusive.

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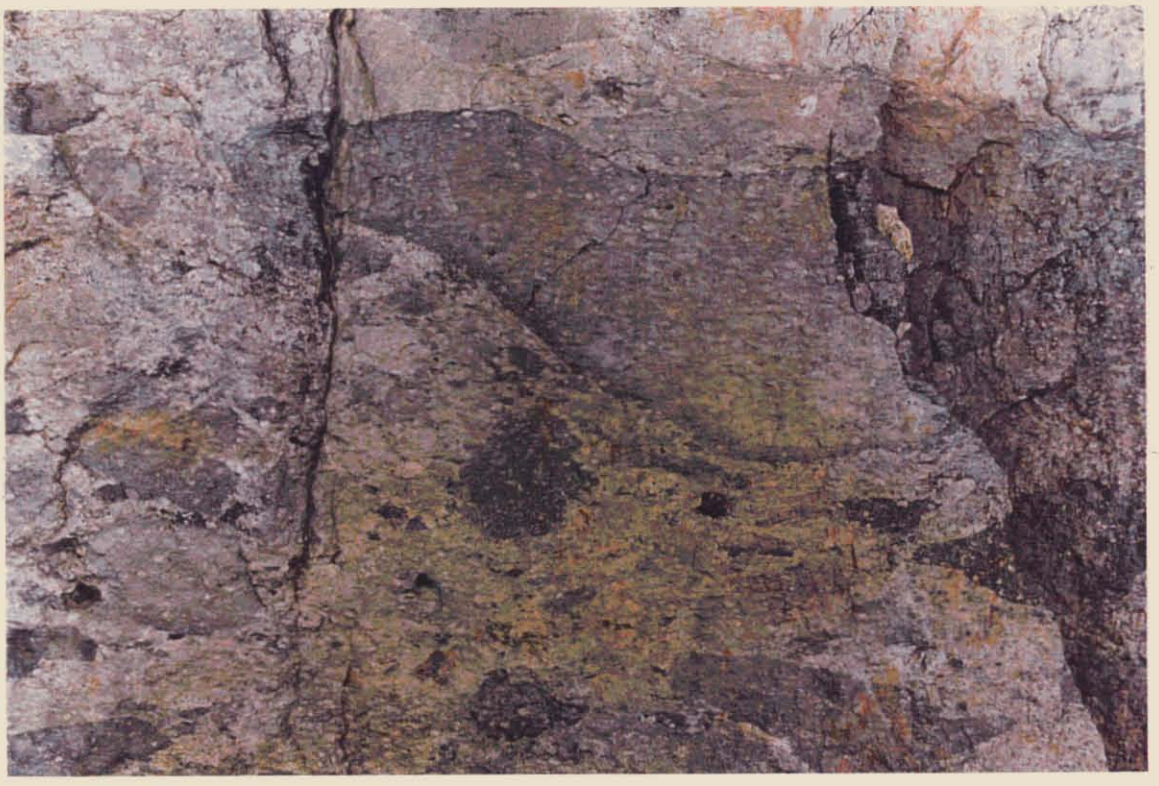
3a



3b

Plate 3a & 3b: **Spillway polymict breccia showing (a) an example of the football sized clasts of high grade massive sulphide; and (b) the polymict host showing dacite clasts, possibly basalt at very top-centre, from ~1m away from the above sulphide clast. (No scale but the large clasts in each plate are football sized.)**

Newton Creek Dacites (NCD)

Voluminous bodies of feldspar phyric to almost aphyric coherent dacite and associated monomict hyaloclastic breccias, cumulatively upto about 250m thick, exist in the zone stratigraphically above, and partly intercalated with, the Spillway Polymict Breccias. The coherent units range from <10m to >100m in thickness (eg: YNC 6 & 9) and in places have peperitic top (eastern) contacts indicating at least partial emplacement as sills. This is consistent with the existence of polymict breccias, similar to SPB, at stratigraphic levels well above the SBB (eg: YNC5) and the interpretation of Allen (1993) that intrusive dacite sills and cryptodomes greatly "inflated" the volcaniclastic stratigraphy. However there are significant units of monomict dacitic hyaloclastite breccias and lesser volcaniclastic sandstones which indicate that significant volumes of dacitic magma were also erupted and at least locally re-sedimented.

The coherent dacites are megascopically bland and typically have 2-15%, 1-2mm grey, tabular, slightly glomeroporphyritic plagioclase phenocrysts evenly distributed in a blurry, fine grained, variably sericitised or relict mircro-poikilitic devitrified matrix.
They have ordinary CVC-Suite I compositions with a fairly broad range of SiO_2 contents (59-69%) but a narrow range of Ti/Zr ratios (12-15) and are clearly distinguishable from Suite II rhyo-dacites (ARF) by P_2O_5/TiO_2 ratios and Zr contents (>180ppm).

Anthony Road Andesites - Suite II (ARH, ARA, ARF, ARC)

The NCD occupy a stratigraphic thickness of about 50-250m above the SBB and are succeeded upwards by a ≥3km long stratiform body of distinctive rhyo-dacitic, coarse quartz-feldspar porphyry (ARF) upto about 200m thick. It is typically coherent and massive consisting of 10-15%, 1-3mm tabular, somewhat glomeroporphyritic plagioclase, ~5%, 2-4mm rounded/resorbed quartz, and sparse chloritised relict skeletal/prismatic mafic phenocrysts in a fine grained dark brownish-grey glassy? or quartzo-feldspathic matrix with accessory granular magnetite. A large proportion of the quartz phenocrysts are crowded with unmistakable small (~0.1-0.2mm) spherical white and green (melt?) inclusions.

Several analyses of ARF (Appendix II-b and Figures 21 & 22) show a tight compositional range of ~67% SiO_2, 13 Ti/Zr and 0.5-0.6 P_2O_5/TiO_2 which clearly distinguishes it to be of MRV Suite II (Crawford et al., 1992).[2]

In most exposures (HA7, YNC4, YNC10 and outcrops north and south of Lake Newton) the ARF unit appears to be coherent and the upper contact in YNC10 (although confounded by carbonate-chlorite veining) is vaguely peperitic, suggesting emplacement as an intrusive sill although the gross morphology is equally consistent with an extrusive emplacement.
In HA8, however, there are unequivocal variations in proportions of the distinctive quartz crystals and relict bedding which, despite the strong alteration overprint, indicate that the ARF porphyry was at least partly erupted and volcaniclastically re-sedimented. (Plate 5)

Up sequence from the ARF unit, and particularly to the south (although the one kilometre of strike between HA7 and HAs 1 & 2 is not drilled and not well mapped) there are voluminous feldspar phyric coherent andesites and andesitic volcaniclastics (ARA and ARC) which also have high P_2O_5/TiO_2 and are of Suite II affinity. Volcaniclastics seem to be more prominent near the stratigraphic top of the sequence where they are intercalated with laterally impersistent massive to bedded limestone, limestone breccia and calcareous volcaniclastic sandstone-breccia.

In Newton Creek west of the Newton Dam spillway and in the road cutting just north of the dam, there are outcrops of massive feldspar-(hornblende-quartz) andesitic porphyry (ARH) which appear to extend as bulbous masses to the northwest and south (mapping by Poltock, 1992 and

2 The ARF intersections in YNCs 4 & 10 were interpreted by Quayle (1993, 1995; understandably on the basis of their quartz phyric nature) as sills related to rhyolitic lavas in the stratigraphically higher Mt Julia Member of the Tyndall Group. However, the quartz phenocrysts have different form to those in the Mt Julia Member and the P_2O_5/TiO_2 ratio is quite diagnostic.

aeromagnetic interpretation, Figures 4a & 4b). The contact in the spillway against FPB is sharp, steep and probably intrusive, (cf: Allen, 1993). Similarly coherent but narrower, apparently intrusive, bodies exist in YNCs 12 & 13. These also have high (≥0.35) P_2O_5/TiO_2 ratios similar to Suite II, (Figure 22) although their range of SiO_2 is at the low end of the Crawford et al. (1992) field. The mean compositions of ARA and ARH analyses (Appendix II-c) are virtually identical. Both the ARH and ARA lithotypes contain sparse quartz phenocrysts of the distinctive shape and inclusion rich character of those in ARF.

Their geochemical affinity and distinctive, durable quartz phenocrysts strongly suggest that these lithotypes (ARF, ARA, ARC and ARH) are magmatically related and they are here collectively referred to as Anthony Road Andesites although a range of compositions from basalt to dacite are represented.

The ARF and ARA-ARC units are the most laterally extensive of the Suite II volcanics, they include at least some eruptive lithofacies and are stratigraphically restricted to the zone between the SBB and HBB; no Suite II eruptive rocks have been recognised higher or lower in the sequence in this area. The ARH feldspar-hornblende porphyries, by contrast, appear to be entirely intrusive and are most abundant low in the stratigraphic sequence, amongst FPB and cutting across SBB in the vicinity of Newton Dam and southwards; they are likely to represent co-magmatic feeder stocks and dykes associated with the higher level andesites. Leaman (1993, p. 9-10) recognised reversely magnetised andesites low in the ARA pile near the southern boundary of EL 8/96 which he considered could indicate "true time" stratigraphic correlations.

The marked thinning of the Suite II assemblage northwards (from >750m at 5357500N to <50m at 5360500N; most dramatic at ~5359200N) is interpreted to be due to lateral thinning off the flanks of a broad submarine strato-volcano which may have been centred around the southern boundary of EL 8/96. This model is consistent with the lithofacies of the Suite II assemblage and could also account for the limestone units of variable thickness and persistence which may have formed in shallower marine settings around the shoulders of the volcano. An alternative model involving (NE trending and south side down displacement) synvolcanic growth fault(s) under Lake Newton, invoked by MacDonald (1995), could partly account for the thickening but it is not supported by the outcrop pattern of SBB just east of Newton Dam which implies that its apparent strike offset is due to folding rather than brittle extensional faulting.

The limestone, limestone breccias and calcareous andesitic volcaniclastic units associated with the upper zone of ARA etc. appear to be laterally impersistent and of variable thickness. They are most prominent, with a stratigraphic thickness of ≥100m, at shallow depth in HA3, yet are are absent in NC4 300m to the north and 150m down dip (Figure 5). They are fairly minor in YNCs 10, 5 & 6 about 2km further north (no data between) and again prominent, ~80m thick, in YNC16, another 500m to the north. These variations may be due to deposition from channelised mass flows originating on the inferred strato-volcano to the south; another andesitic eruptive centre to the north may be weakly inferred from YNC16.

The existence of thick coherent dacite and dacitic volcaniclastics in this stratigraphic position in NC4 indicates that NCD type lavas continued to erupt, and were intercalated with Suite II andesites, during the formation of the ARA strato-volcano; constructional dacitic cryptodomes may have exerted topographic controls on andesitic mass flow volcaniclastic and carbonate sedimentation.

Howard's Basalt Breccia (HBB)

Overlying the Suite II Anthony Road Andesites and etc. (and stratigraphically equivalent dacites in NC4) is a thin basaltic unit which is known to extend for at least 1.2km along the southeastern arm of Lake Newton (from NC1 to NC4) and is also present near the top of YNC4, 1.5km further northwest.

It is variably green-chloritic, purplish-hematitic and buff coloured-sericitic and is typically very strained with a semi mylonitic fabric which obscures original textures. In the best preserved examples (eg: NC2 469-474m & 478-491m) it consists of closely packed flattened-lensoidal,

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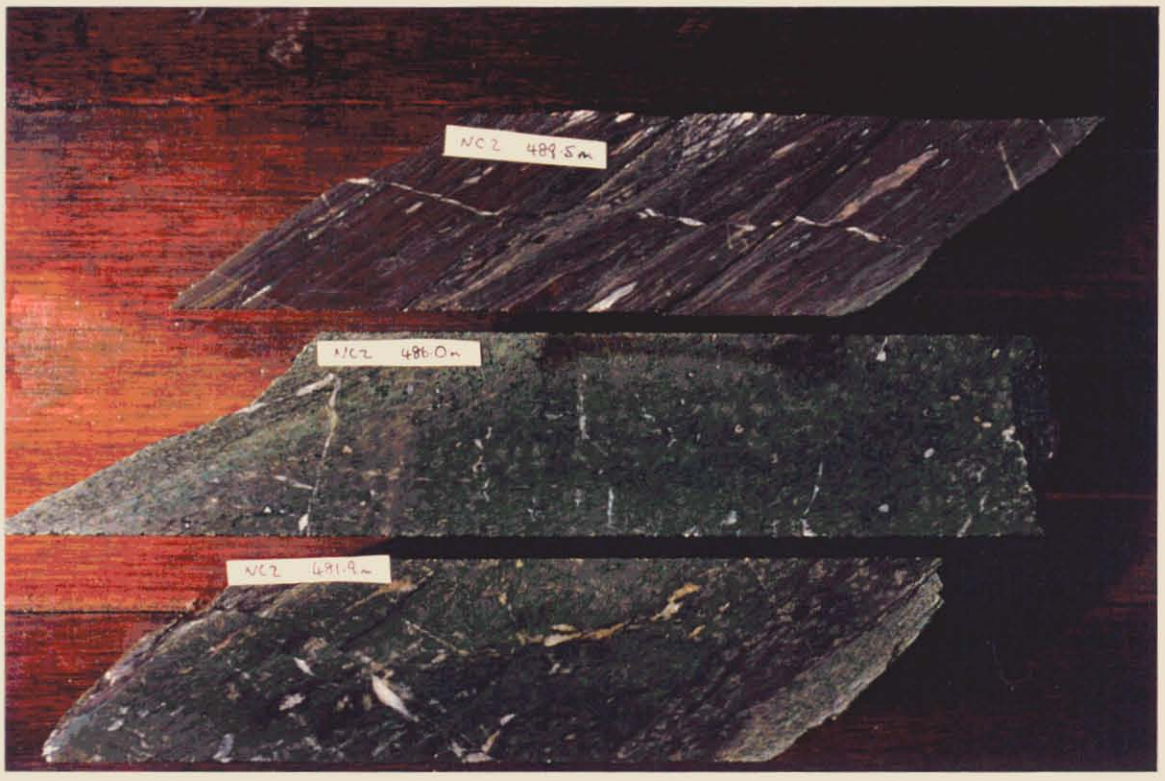


4a

4b

Plate 4a & 4b: **Howards basalt breccia (HBB) from (a) NC2 showing foliated, haematitic (upper) and coherent feldspar porphyritic texture (middle and lower); and (b) NC4 showing haematitic (upper) and sericitic (lower) types.**

globular and swallow-tailed, somewhat fluidal clasts of fine grained dark green chloritic basalt with small teardrop shaped dark chloritic? amygdales or altered mafic micro phenocrysts, (Plates 4a and 4b). The clast size is variable, mostly in the range 10-40mm and rarely upto ~50cm. The monomictic basalt breccias are in places associated with fine mafic volcaniclastic sandstone and in NC1 there are apparently coherent, possibly pillowed units, and probable small sill & dyke intrusives. Some of the volcaniclastic types have significant carbonate (calcite) in the matrix and there are impure variants which are generally sericitic and contain relict quartz crystals indicating mixed mafic-felsic provenances.

The flattened-fluidal basalt clast rich breccias have very similar textures to the Spillway Basalt Breccia (SBB) and are reasonably inferred to have been deposited from similar "fire fountain" eruptions. Like the SBB, the HBB is extremely stratigraphically restricted; it appears abruptly in the sequence and mafic materials derived from it are not represented to any significant degree in the overlying volcaniclastics. The SBB and HBB share similar ranges for major and immobile trace element compositions (Appendix II-f and Figures 21 & 22), they have similar low MgO, are similarly enigmatic in terms of the MRV geochemical classification of Crawford et al., 1992 and have low magnetic susceptibilities. Despite these similarities in SBB and HBB, there is no stratigraphic symmetry to suggest repetition of a single fire fountain basalt unit by folding; they occupy quite separate stratigraphic settings and, as stated elsewhere, the facing evidence points to a consistently east younging sequence. The base of HBB marks the stratigraphically uppermost limit of Suite II volcanics.

Previous explorers have variously referred to HBB as "strongly hematitic chloritised tuffaceous sediments" (Purvis et al., 1983), "Howard's Anomaly Alteration: intense pervasive hematite-calcite and/or chlorite alteration..... of felsic host rocks" (Sharpe, 1992), "Howard's Tuff: a mixed sequence of strongly sheared and altered felsic lavas, polymict coarse lapilli volcaniclastics and andesitic lava breccias" (Lewis, 1995) and "Howard's Fault" (Lewis, 1995, Plate LMarg51).

HBB has undoubtedly been a focus for strain and incipient mylonitisation which has partly obscured primary fabrics (and was probably associated with patchy hematite alteration) but it is a compositionally distinctive and fairly persistent eruptive volcanic unit. Its present recognition as a probable fire fountain basaltic marker unit has implications (discussed by Allen, 1993) for the VHMS prospectivity at this stratigraphic level.

If, as Allen (op cit.) suggests, VHMS deposits exist near the vent facies of fire fountain basalts it is worth considering where the HBB vent(s) may have been. HBB appears to thicken from ~40m in NC4 to ~80m in HA3, 400m to the south; in HA6, 500m further south it is at least 30m thick but the top contact is faulted and true thickness may be greater. In NC1, at the southern extreme, logging by G.MacDonald infers a thickness totalling ~300m in at least two basaltic units (which is probably exaggerated by the hole drilling nearly down the dip) but which include significant coherent basaltic intrusive phases and possible pillowed lavas. HBB appears to be terminated by a fault? at Tyndall Creek and is not present at shallow depth in HA5. The information is rather scant but can be construed to indicate thickening southwards to a proximal vent facies near the deep intercept in NC1.

Lynchford Member
Limestones, Mudstones and Felsic volcaniclastics (LML, LMS & LMD)

White and McPhie (1996, Fig. 3) did not differentiate HBB from the underlying Suite II Anthony Road Andesites but placed the base of the Lynchford Member in the Anthony Road area at the base of carbonates "also interbedded with the underlying andesitic rocks". This created a bit of a quandary because otherwise indistinguishable carbonates exist both below and above HBB, as shown in Figures 2 & 5, and those below are interlayered with Suite II andesites. Limestones, mudstones and dacitic volcaniclastics essentially form a sedimentation continuum between the waning Suite II ARA eruptions and the onset of massive, crystal rich resedimented volcaniclastic sandstones which characterise the Comstock Formation of the (lower) Tyndall Group. The HBB essentially lies amidst this limestone-mudstone-dacitic volcaniclastic continuum. The Lynchford Member thus includes a very mixed bag of normal sediments, fire fountain basalt, dacitic volcaniclastics and andesitic (Suite I) feldspar crystal rich sandstones. For the purposes of this

report, the base of the Lynchford Member is arbitrarily taken to be the top of Suite II ARA volcanics or (where they are not present) the base of normal clastic limestone-mudstone sediments.

South of Newton Creek, in drill holes NC2, NC4 and HA3, lithologies immediately above HBB are diverse massive to sandy limestone or dacitic volcaniclastic breccia, sandstone and minor siltstone totalling about 10m to 40m thickness. Similar lithologies exist at this level in NC3 which just missed intersecting HBB (Figure 7). No limestones are evident in NC2 but they are very prominent at about this level in NC1 800m further south. North of Newton Creek, limestones and mudstones are present in YNCs 10, 5, & 16 but in nearby YNC4 the HBB lies directly on Suite II type ARF porphyry.

A considerable variety of carbonate rocks exist in the Lynchford Member. They include grey, white and pink (hematitic) massive to foliated marble and dolomitic marble, limestone, limestone breccias (some with fossiliferous limestone clasts), limy sandstones and volcaniclastic sediments with carbonate in the matrix or commonly remobilised into cleavage parallel veins and bands. The massive limestones locally contain fragmentary trilobite and echinoid fossils suggesting deposition in, or re-sedimentation from, shallow marine environments, (Calver, 1996).

The mixed carbonate-volcaniclastic sediments have at times been previously interpreted as hematite-calcite and/or chlorite altered volcanics (eg: Sharpe, 1992). However, in consideration of their fossil content, the laterally wide spread of calcareous lithologies (potentially over 19km of strike between Comstock and Henty Mine) and the association with volcaniclastically starved laminated mudstones in a sequence which appears to represent the waning stages of Suite I CVC and Suite II ARA volcanism deposited during the transition to a relatively shallow near shore environment and Tyndall Group syn-eruptive volcaniclastic sedimentation (White & McPhie, 1996), there is no strong evidence to regard the carbonate-volcanic rocks as anything other than part of the spectrum of normal biogenic sedimentary limestones and volcaniclastics, with some structural modifications.

In NC3 and NC4 there are two major units of limestone-mudstone-felsic volcaniclastics, above HBB, separated by a 15-35m thick feldspar crystal rich volcaniclastic sandstone (described below). The upper unit includes monomict dacitic breccias and possible peperitic hyaloclastite of similar composition to NCD; which indicate that dacites of this type continued to erupt at least up to the middle part of the Lynchford Member beyond which they appear to have been swamped by Tyndall Group syn-eruptive mass flow sedimentation.

The presence of polymictic lithic breccias with broadly rhyolitic composition and distinct relict tube pumice clasts (NC3, 628-653m) also indicates some reworking of volcaniclastic deposits from a provenance similar to that of the FPB and SPB lower in the sequence. The possibility that these are derived from early Mt Julia Member type explosive eruptions is not discounted but considered less likely as such eruptions are usually of large volume and generate thick volcaniclastic deposits. This interpretation is faintly supported by the limited geochemical data from rhyolitic pumice breccia in the Lynchford Member (eg: analyses 628107, 628114; Appendix II-j) indicating Zr levels >300ppm which are similar to those in FPB but higher than the range for coherent MJR (cf: Figure 21).

Crystal rich volcaniclastics (LMX)

Massive to diffusely bedded feldspar crystal rich andesitic volcaniclastic sandstones with 1-15%, 2-50mm, matrix supported lithic clasts (of quartz-feldspar phyric rhyolite, cherty siltstone and dark feldspar phyric andesite) form the bulk of the Lynchford Member in the South Henty area (White & McPhie, 1996).
They are of Suite I type andesitic composition and were deposited in shallow to moderate depths (below storm wave base) from subaqueous mass flows derived from unidentified shallow marine or subaerial explosive volcanic eruptions. They characteristically have blotchy to banded pink and green colour, contain upto a few percent magnetite and have relatively high magnetic susceptibilities (bulk susceptibility upto 0.0025 cgs.; Leaman, 1994).

In NC3 and NC4 there are two units of similar appearance separated by mixed limestone and felsic volcaniclastics: the lower unit is 15-35m thick (with Ti/Zr 22-39 and Zr <200ppm); the upper unit

is ~60m thick (and possibly distinguishable by a lower range of Ti/Zr 21-30 and Zr >200ppm). The lower unit appears to pinch out southwards and is not recognised in NCs 1 & 2.

Mt Julia Member (MJX and MJR)

Conformably overlying the feldspar crystal rich (upper) LMX in the NC 1-4 drill holes is a sequence, at least 120m thick, of quartz+feldspar crystal rich volcaniclastic massive sandstone and lithic sandstone with minor graded-bedded fine sandstone-siltstone in the upper part (MJX). These rocks have Ti/Zr ratio of <15 and represent the upward change from andesitic to rhyolitic volcanism within the Comstock Formation, (White & McPhie, 1996). The mode and environment of deposition were similar to LMX crystal rich volcaniclastics.

North of Newton Creek, the stratigraphic level above HBB (elsewhere occupied by LMX etc.) contains a large body of pinkish brown to grey quartz-feldspar phyric spherulitic rhyolite (MJR) which is well exposed in outcrops along the dam access road, in the Henty Canal near 5360000N and in the upper parts of YNCs 5 & 16. Samples from this unit have very high SiO_2 (>73%) and low P_2O_5/TiO_2 characteristic of Suite I lavas which, together with different form of quartz phenocrysts, clearly distinguishes it from the ARF quartz-feldspar porphyry of Suite II affinity.

It mainly appears to be massive and coherent but there are some associated autoclastic and hyaloclastic coarse to fine breccias of similar composition which unequivocally indicate that it was at least partly eruptive, not entirely intrusive. The dominantly coherent facies, generally stratabound form and the abrupt termination just north of the Newton Creek Pump Station, suggest emplacement as a constructional subaqueous? dome complex. A thin intercept of LMX type crystal rich sandstone exists in the upper part of YNC6, presumably under MJR, but it generally appears that the rhyolite domes have exerted topographic control on the thickness of LMX units. This suggests that MJR rhyolitic eruptions were partly coeval with LMX syn-eruptive andesitic volcaniclastic sedimentation.

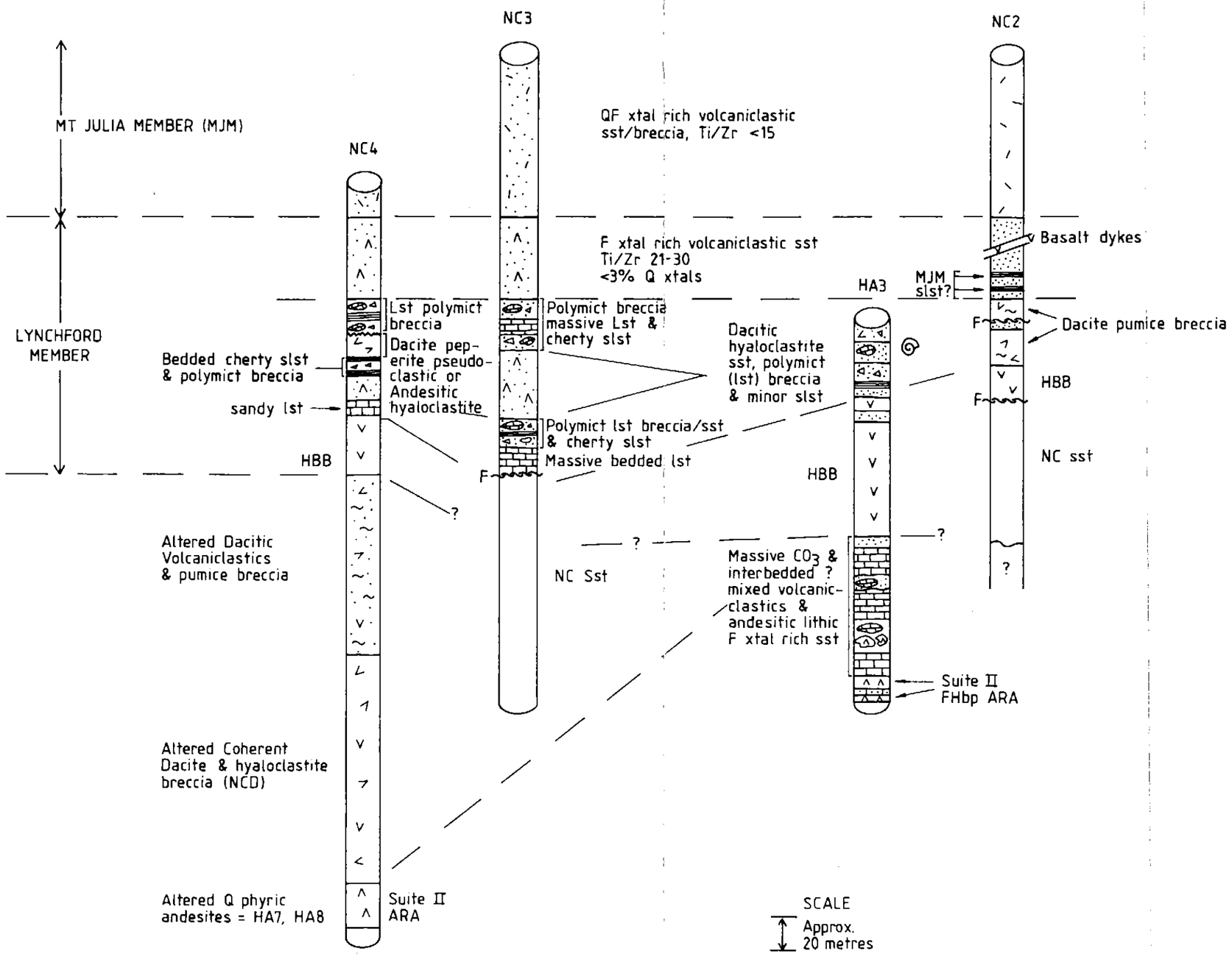
Zig Zag Hill Formation, Newton Creek Sandstone and Owen Conglomerate

These geological formations make up an essentially conformable sequence of post eruptive sediments deposited in shallow marine to subaerial environments following the cessation of large volume explosive volcanic eruptions associated with the Lynchford and Mt Julia Members in the Tyndall Group. The Zig Zag Hill formation consists mainly of re-worked, well rounded volcanolithic conglomerate and sandstone with an increasing proportion of siliciclastic, PreCambrian continentally derived materials toward the top (White and McPhie, 1996). The Newton Creek Sandstone and Owen Conglomerate are virtually entirely of continental provenance reflecting continued uplift of PreCambrian basement during the late Cambrian period.

This post eruptive sequence is generally regarded as having low potential for synvolcanic massive sulphide mineralisation. Parts of the Newton Creek Sandstone member were intersected in the lower parts of NCs 2 & 3, which inadvertently? drilled through the Great Lyell Fault (or related structure/s), but have not been examined in detail.

3.3 Synthesis of Volcanic Lithofacies and Palaeo volcanology

The earliest eruptions recorded in the volcanic sequence at South Henty were explosive rhyolitic eruptions, from as yet unknown but relatively shallow water (<1000m, McPhie and Allen, 1992) or sub-aerial vents, which generated large volumes of pumiceous pyroclastics deposited in thick massive to graded units by sub-aqueous mass flows. These were intercalated with minor massive to bedded volcaniclastic sandstones and lithic breccias partly derived from intrabasinal dacitic to rhyolitic sources with minor extrabasinal pelitic metamorphic input. Water depth of the depositional environment is not well constrained.
Rhyolitic explosive volcanism was succeeded by subaqueous basaltic fire fountain eruptions which deposited a thin but laterally extensive unit of mainly monomict basaltic breccia and mafic volcaniclastic sandstone.



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EL 8/96 "SOUTH HENTY"

Schematic Stratigraphic Correlation Chart for NC2, NC3, NC4 and HA3

Compiled	WH	Scale	NTS
Drawn	DKH	Checked	
Date	Aug 1996	Plan No.	FIG. 5

Volcanism continued with intrusion and eruption of dacitic sills and cryptodomes which developed constructional features in sea floor palaeo topography, generated large volumes of unstable dacitic hyaloclastic debris and activated submarine mass flows to deposit polymictic volcaniclastic breccias and sandstones including pumiceous, rhyolitic, basaltic and rare massive sulphide clasts from the underlying stratigraphy. The resulting sequence of dacitic sills, domes, dacitic breccias and polymictic volcaniclastics attained a thickness of ~400m, dominated by intrusive coherent facies.

Intrusion of a distinctive group of high P_2O_5 andesitic to rhyo-dacitic (Suite II) magmas led to construction of a broad strato-volcano in a shallow? marine setting centred south of (the present location of) Newton Creek. Limestones formed on the shallower shoulders of the strato-volcano and contributed carbonate detritus to mixed andesitic volcaniclastic sediments deposited off the northern flanks and locally intercalated with or overlain by volcaniclastics and sills associated with continuing dacitic volcanism.

There followed another phase of basaltic volcanism which had compositional and eruptive similarities to the lower fire fountain basalt and marked the cessation of Suite II eruptions. Continuing local, shallow marine? limestone-mudstone-dacitic volcaniclastic sedimentation was abruptly overwhelmed by the inception of thick, crystal rich, syn-eruptive mass flow type volcaniclastic deposits derived from extra basinal andesitic to rhyolitic explosive eruptions and formation of an intrabasinal rhyolitic dome complex. Cessation of volcanism was followed by a period of post eruptive re-sedimentation of volcanolithic detritus in shallow marine to subaerial alluvial fan environments which gradually became dominated by siliciclastic sedimentation from progressive uplift of PreCambrian continental basement.

4 ALTERATION

Hydrothermal alteration is, metaphorically, the footprint left by hydrothermal fluid in its passage through rock. Large synvolcanic sulphide deposits involve large volumes of hydrothermal fluid and the potential for tracing alteration trails through the rock sequence is a fundamental technique in exploration for VHMS deposits, (Large, 1992a and 1992b). It is important to map alteration zonation and discriminate spatially and temporally overlapping alteration systems, to recognise the large and potentially productive hydrothermal systems and to enable prioritisation of exploration. That task is rarely simple, in ancient volcanic sequences, where the overprinting effects of synvolcanic hydrothermal, diagenetic and metamorphic alteration generally confound the pattern.

In the South Henty area, three possibly significant types of alteration have been recognised but only partly delineated.
They are summarised as:

Type 1 *Sericite+pyrite(+/-quartz) plagioclase destructive, pervasive, synvolcanic? alteration.*
Type 2 *Sericite+Mn carbonate+Kspar, plagioclase destructive, pervasive to veiny, synvolcanic or deformation related alteration.*
Type 3 *Quartz+sericite+pyrite, not plagioclase destructive veiny to semi pervasive, structurally controlled (fault associated) alteration.*

A fourth alteration style (Type 4) has not been observed in situ at South Henty but is worth looking for, given the proximity of gold deposits associated with this style of silicification at Henty and (presumably) Mt Julia prospects, respectively 2km and 0.5km to the north.

Type 4 *Pervasive silicification associated with Henty MQ mineralisation and Comstock Chert*

These styles of alteration and their possible significance in relation to mineral deposits are discussed below. The approach to interpretation is largely empirical, based on megascopic examination of drill core supported by wholerock analyses with a focus on immobile elements to identify the precursors and estimate chemical changes of altered volcanic host rocks. There are manifold references to rock samples, analyses, scatterplots and mass change calculations presented in Appendices II and III. Appendix II-b also lists the hole number and depth of drill core samples.

4.1 Type 1 Sericite+pyrite (+/-quartz), plagioclase destructive, pervasive, synvolcanic? alteration.

This type of alteration exists in association with the Suite II ARF quartz feldspar porphyry with its best development in drill holes HA 7 and 8 (Plate 5), under the middle of Lake Newton and and sparse exposures at the western contact of the porphyry on the lake shore near 380200E 5358850N (Figure 3). A possibly related type of sericite alteration which is feldspar destructive but not pyritic exists at the margins of the quartz feldspar porphyry at its northern extreme in holes YNC 4 and 10 suggesting that this (sub)type of alteration may be fairly extensive around the boundary of the porphyry.

The Type 1 altered rocks in HAs 7 & 8 consist of well preserved distinctive rounded quartz crystals in a variably massive to foliated light grey, fine grained quartz-sericite ground mass dusted with 2-5% disseminated fine pyrite. Formerly abundant plagioclase phenocrysts were virtually totally destroyed; only in the best preserved examples (384039, App. II-b) are they represented by relict blurry greenish patches of sericite. In these cases, the matrix has a bland pinkish grey colour and amorphous-unfoliated appearance suggesting presence of some fine grained K-feldspar. This is supported by analyses showing high K/Al ratios (eg: 384038, 384039) which suggest that sericite alone could not account for the K_2O levels. This type of alteration in ARF is magnetite destructive and associated with marked reduction of magnetic susceptibility.

The distinctive quartz phenocrysts (see also: Ch.3.2, ARF), the tight range of Ti/Zr ratios (App. II-b and Figure 21, App. III-b) and the spatial distribution of Type 1 alteration permits confident selection of a "least altered" precursor from the unaltered intercept in YNC10 and outcrops south of Lake Newton (384090 & 623056) for comparison with the altered examples. Average compositions of available analyses for litho-geochemical groups H and H1 (unaltered and Type 1 altered ARF porphyries; cf: App.II-d) are tabulated in Appendix II-c.

Mass change calculations comparing groups H and H1 (see Appendix III-a for explanatory notes) indicate that Type 1 alteration (in HAs 7 and 8) involved slight gain in SiO_2 and S, and relatively major gain of 6g/100g K_2O exactly offset by loss of Na_2O and slight loss of MgO, for a nett mass gain of ~5g/100g; other components including Fe_2O_3 were not significantly changed.

Strong Na_2O depletion and SiO_2 gain is characteristic of the footwall alteration zones of several Australian VHMS deposits including Hellyer (Gemmel and Large, 1992) and Thalanga (Herrmann, 1994). Both of these systems appear to have been associated with very high SiO_2 gains in the proximal alteration zones (upto 95g/100g at Hellyer and 40g/100g at Thalanga. The mass changes at Lake Newton seem modest by comparison but nevertheless are almost directly equivalent to those of the peripheral "stringer envelope zone" beneath the Hellyer deposit (Gemmel and Large, 1992 *Fig: 11B*).

The alteration zone at Lake Newton has significant but open ended extent (≥200m strike, ≥150m width and ≥200m depth ≈ 15Mt) and contains widespread anomalous traces of base metals and gold (eg: HA8: 250m @ 0.2%Zn including 82m @ 0.04g/tAu, HA7: 60m @ 0.06%Zn). The quantity of Na_2O apparently removed from the known extent of this system is estimated at ~1Mt. This obviously required a fairly energetic system and a large volume of fluid. Furthermore, the Lake Newton alteration zone, as far as it is known, is associated with a larger mushroom shaped aeromagnetic "low" anomaly which appears to cut across otherwise magnetic rock units and terminate to the east at about the level of the Howard's Basalt Breccia in the Lynchford Member.

This set up bears some of the hallmarks of footwall alteration systems associated with VHMS deposits.

The low Cu/Zn ratio and widely disseminated trace zinc mineralisation suggest it may represent the peripheral, low temperature part of a zoned system or, alternatively, a relatively weak system which may not have had the power to produce a significant deposit. However, in terms of alteration vectors, the increase in pyrite and (more subtly) degree of Na_2O depletion from HA7 to HA8 indicate increasing alteration intensity northwards. HA8 passed along the southern edge of the crosscutting "stem" of the mushroom shaped aeromagnetic low - it is reasonable to speculate that it just missed the most intense core of the alteration zone.

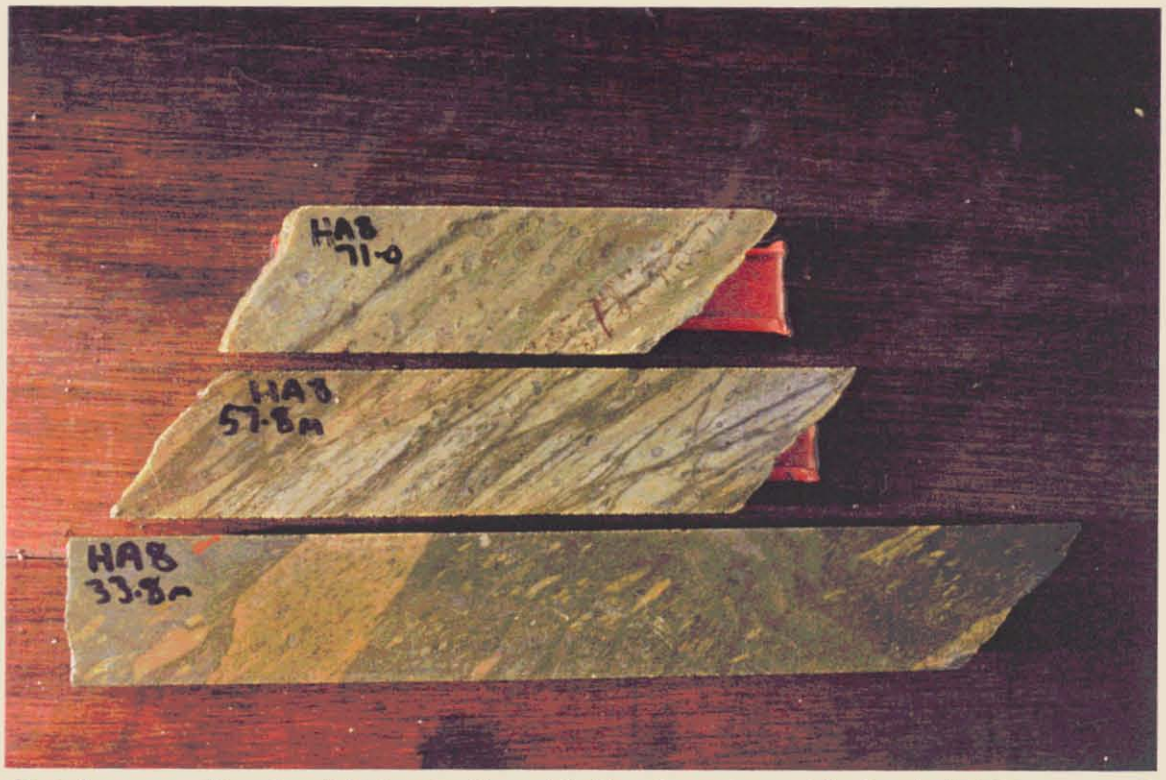

Plate 5: **Type 1 sericite+pyrite (±quartz) altered quartz crystal volcanic (ARF type quartz) from HA8. Examples shown are from rocks logged by W.H. as volcaniclastics.**

Plate 6: **Type 2 sericite+Mn carbonate+Kspar, plagioclase (Na depleting) destructive alteration (of dacitic volcaniclastics) from NC4.**

Although much of the altered porphyry in HAs 7 & 8 was coherent, there are unequivocal relict clastic fabrics in HA8 which suggest that fluid flow may have been partly focussed in permeable volcaniclastic units. Otherwise, there is no obvious facies or structural feature to suggest a reason for the location of this alteration zone.

By comparison, the alteration at the lower margin of ARF in YNC10 (384090 cf. 384091) involved significant loss of SiO_2 (-11g/100g) and total loss of Na_2O offset by gains ~5g/100g of both CaO and K_2O for a nett loss ~8g/100g. This is a rather different pattern of mass changes to that in HA7 and HA8, essentially reflecting sericitisation of feldspars and resultant loss of silica without significant pyritisation. The full lateral extent is unknown but in YNCs 4 and 10 it appears to be restricted to within 5-20m of the margin of coherent porphyry although the adjacent volcaniclastics (at least in YNC10) do not seem to be particularly altered.

It is tentatively interpreted that these marginal sericitisation zones could be due to interactions between cold, silica under saturated, sea water and a (slowly) conductively cooling coherent intrusive-extrusive volcanic unit. Although the intense Na_2O depletion is typical of VHMS footwall systems the absence of pyrite is not. The "chlorite zone" surrounding the "siliceous core" at Hellyer (Gemmell and Large, 1992) is associated with ~12g/100g loss of SiO_2 which is offset by major MgO, Fe_2O_3 and S gains (in chlorite and pyrite) and the net change is still positive.

These differences, particularly the absence of pyrite, suggest that this porphyry margin subtype of sodium depleting, pervasive alteration was not closely related to a VHMS forming hydrothermal system.

4.2 Type 2 Sericite+Mn carbonate+Kspar, plagioclase destructive, pervasive to veiny, synvolcanic or deformation related alteration.

Type 2 alteration is best represented in the lower part of NC4, below HBB(Plate 6), where both massive coherent and volcaniclastic facies of Newton Creek Dacite (NCD) and thin intercalated Suite II andesitic lavas and breccias are pervasively and comprehensively sodium depleted. Core grind analyses (of sample lengths upto 10m, App. II-j) indicate that Na_2O values do not exceed 0.5%, and are frequently below 0.1% over a down hole depth of 327m persisting to the end of the hole (250-577m).

This alteration is totally pervasive but subtle, sometimes with a pale pinkish grey colour which does not obliterate primary volcaniclastic fabrics; it is rarely associated with more than 0.5% pyrite and apart from the foliated sericitic altered volcaniclastics in the interval 250-373m the rocks are not particularly phyllosilicate rich. It would be easy to miss in megascopic logging and justifies the expense of systematic (if not continuous!) wholerock analyses. Petrographic descriptions by A.J.Crawford (in: Lewis, 1995) mention very fine, quartzo-feldspathic, devitrified groundmasses overprinted by carbonate and sericite with blebby patches of secondary quartz; fine disseminated pyrite in sericite; and sericitised sparse former plagioclase phenocrysts.

Comparison of the mean compositions of (n=20) least altered precursor NCs with (n=22) analyses of Type 2 altered coherent dacite samples from hole NC4 (Appendix III-c) shows remarkably small mass changes in most mobile components: there is an apparent loss of -2.4g/100g Na_2O with smaller losses in MgO, CaO and SiO_2, partly offset by significant gains of 4.2g/100g K_2O and 0.6g/100g of MnO for a net loss of ~3g/100g. Whatever the carbonate mineralogy is, it does not appear to involve addition of (the most likely suspects) Fe, Mg or Ca. The MnO gain seems small in absolute terms but is large in relative terms, representing a six fold increase over the precursor concentration; the additional MnO is probably in carbonate. Likewise the Na_2O loss is small by comparison with absolute Na_2O losses in Type 1 alteration but in relative terms is almost complete.

There are some doubts about the choice of precursor composition here; because the dacites in NC4 are not directly correlatable with any nearby unaltered dacites at that stratigraphic level (dacites near the end of NC1 are the most likely candidates but are themselves altered and affected by Type 3 alteration) it is necessary to use the average of least altered NCD samples from the YNC drill cores which mainly intersected the sequence below the Suite II ARA etc. volcanics. Nevertheless, the

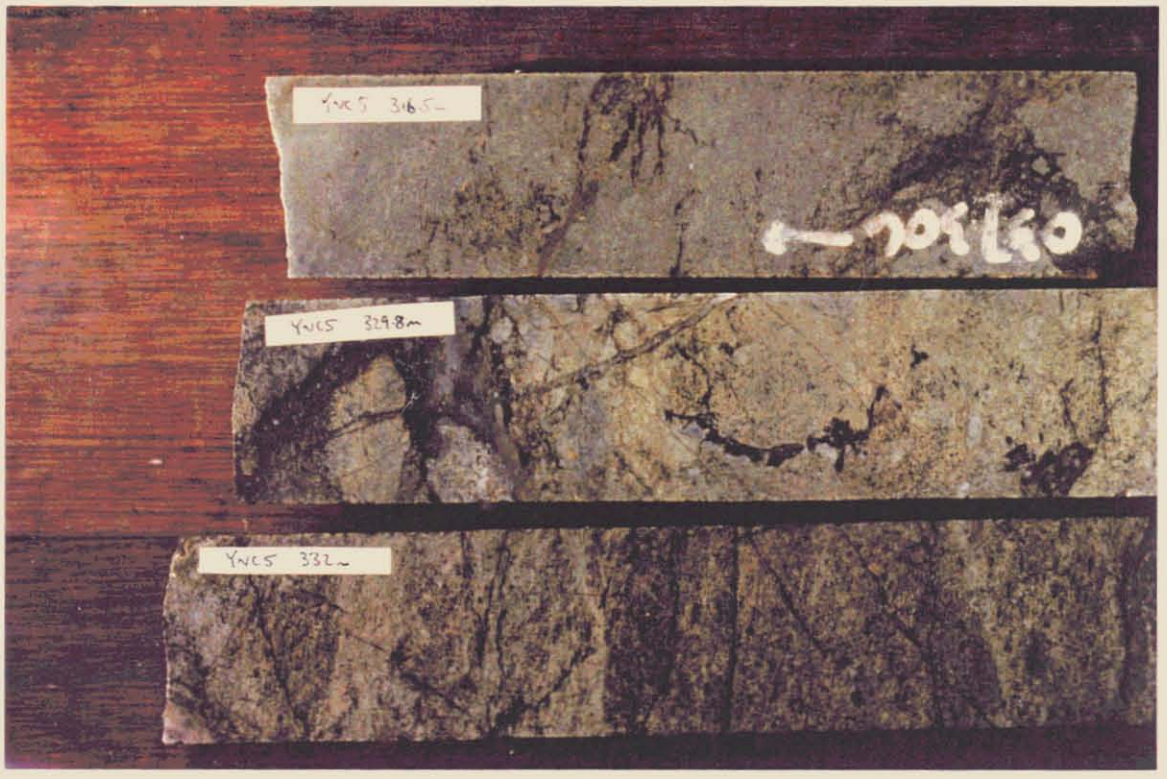

Plate 7: **Type 2 sericite+Mn carbonate+Kspar, plagioclase (Na depleting) destructive, veiny to pervasive alteration associated with base metal mineralisation from YNC5. Upper sample is from 18m @ 0.1% Pb, 0.2% Zn and 1.3% Mn; lower two samples are from 11m @ 0.4% Pb, 0.5% Zn and 3% Mn.**

compositions appear comparable, especially in relation to TiO_2 and Zr contents and ratios.

Similar pervasive alteration exists, also mainly in coherent dacite units but in association with stockworks of fine, straw coloured carbonate veinlets, in several of the Pasminco drill holes 1-2km north of Lake Newton; notably in YNCs 7, 8, 10, 5, 6 and 16. The problem of recognition and delineation recurs (here exacerbated by lack of systematic analyses and patches of pervasive pinkish buff colouration which are demonstrably not associated with Na_2O depletion) but the alteration style is unequivocally identified in several analyses from YNCs 5 and 10, (Group D2 in Appendix II-b).

In this area, Type 2 alteration seems pervasive but patchy; possibly broadly stratabound but I am unable to correlate it from hole to hole with any confidence. Comparison of average compositions of Groups D (least altered, n=20) and D2 (Type 2 altered, n=3) indicates more significant, -11g/100g SiO_2 and nett loss (than in NC4) but an otherwise very similar pattern of component mass changes with more pronounced MnO gain (1.5g/100g), subdued K_2O gain (2.3g/100g) and near total Na_2O loss.

A possible subtype (designated D2a in Appendix II-b) is represented by patchy pale buff pervasive alteration, with or without stockwork carbonate veining, in which limited analyses (n=2) indicate strong Na_2O depletion (-2.4g/100g) but otherwise barely significant mass changes; most notably a lack of MnO and K_2O gains.

Type 2 alteration though not generally carrying significant pyrite, is in places associated with anomalous Pb, Zn levels. This is most notable in YNC5 (Plate 7) with ~18m @ 0.1%Pb, 0.2%Zn, 1.3%Mn associated with splashy blebs of galena and sphalerite in some carbonate veinlets in coherent pervasively altered dacite (~310-328m) and followed down hole by ~11m @ 0.4%Pb, 0.5%Zn, 3%Mn in a patchy-pervasive carbonate altered thin polymict breccia unit overlying dacitic hyaloclastite with diminishing carbonate veinlets and blebby galena-sphalerite (~328-339m).

In the latter case it seems that the mineralising fluid has been focussed along a permeable polymict breccia unit between coherent dacitic units but it is perplexing that Type 2 alteration generally seems most strongly developed in coherent facies. This observation leads to a suspicion that Type 2 alteration is structurally controlled, possibly post volcanic and related to later deformation. There is a spatial association with (presumably late tectonic) brittle bucky quartz-carbonate veins in YNC10 but these clearly cut across the fine carbonate stockwork associated with pervasive alteration and the genetic connection is doubtful.

The exploration significance of Type 2 alteration is not clear.
Massive carbonate and cherty silica-carbonate alteration has been described at South Hercules (Khin Zaw and Large, 1992) in zones overlying and laterally interfingering with a stratabound, zoned, low grade Pb-Zn sulphide deposit. The cherty carbonates appear to be lateral equivalents of massive pyrite-barite lenses and distinctive blebby carbonate-chlorite lenses occur near the top of the system and in the overlying siltstones. Wholerock compositional data is not available but the carbonates are reportedly consistently Mn rich. Carbonate associated with chlorite also exists in limited upper peripheral alteration zones at the "Area of Active Venting" (AAV) at Middle Valley on Juan de Fuca Ridge (Goodfellow et al., 1993) and Hellyer (Gemmel and Large, 1992). In all these cases it appears that carbonate was deposited in the cooler, upper and outer parts of alteration systems from evolved fluids interacting with sea water.

The high K_2O levels and probable K-feldspar in Type 2 alteration suggests a possible analogy with the Que River "footwall stringer zone" (McGoldrick and Large, 1992). It reportedly contains "a pyrite-sericite-silica+/-carbonate+/-potash feldspar+/-basemetal sulphide assemblage with minor but locally abundant chlorite" interpreted to have formed in the distal zones of the system, upto 200m laterally from massive sulphides, in permeable coarse volcaniclastics from fluids oxidised and cooled by mixing with sea water. I have not seen these rocks but the analyses tabulated by McGoldrick and Large (op cit., Table 2) indicate very high sulphide and low MnO contents and despite the K-feldspar analogy, there seems to be little chemical similarity to Type 2.

There is a possible spatial connection between alteration types 1 and 2 on section 5358600N, in

HA8 and NC4 respectively, (Figure 7) and it is a reasonable speculation that Type 2 could represent a broad outer alteration halo around the more intensely altered Type 1 core. However, the holes are 400m apart and intersect substantially different stratigraphy; more information would be required to confirm a genetic link.

Quayle (1995), who would have had access to Pasminco's unpublished information on Rosebery and South Hercules alteration characteristics, regarded the Type 2 alteration and traces of Pb-Zn mineralisation, increasing in intensity with depth in YNCs 5 & 10 as "favourable signs" but did not consider deeper drilling (>400m below surface) to be justified.

Type 2 alteration remains enigmatic. It could represent a weak outer zone of a VHMS associated footwall alteration system or, alternatively, a superimposed stockwork-alteration system related to post volcanic brittle deformation. The latter could account for the propensity of Type 2 alteration to exist in impermeable coherent volcanic facies.

4.3 Type 3 Quartz+sericite+pyrite, not plagioclase destructive, veiny to semi pervasive, structurally controlled (fault associated) alteration.

The type locality for Type 3 alteration is in the South Henty Fault (SHF) zone near 5360800N where it is well exposed in the Henty Canal and YNC14. Mapping by R.Poltock (1992) indicates that this style of alteration extends for at least 1.5km southwards along the SHF and it is weakly to moderately developed in YNC13 (Quayle, 1995). Probably similar alteration exists in dacites at the "Henty Canal Alteration Zone" near 380300E and near the "HEC gate" on the Newton Dam access road at 380050E 5359150N (Sharpe, 1992) in dacites and basalts at depth in NC1, and in Suite II andesites intersected in HAs 1 & 2.

The altered rocks are variably light grey to pink with a moderately sericitised siliceous matrix dusted with upto a few percent disseminated pyrite and occasional pyritic veinlets; plagioclase phenocrysts are typically well preserved and have a pinkish colour. In most examples there is a close spatial association between Type 3 alteration and brittle fault structures although the timing relationships may be ambiguous.

Comparison of average compositions of least altered (D, n=20) and Type 3 altered (D3, n=4) dacites (App. III-c) indicates very minor mass changes in most mobile components apart from Sulphur (+2g/100g) reflecting the addition of pyrite.

Similar mass change patterns are evident from comparisons of individual altered and least altered semi adjacent sample pairs in YNCs 13 & 14 (eg: 384046, 384047 & 384048, 384050). The latter has significant mass loss mainly in SiO_2 (-9g/100g) but, most notably, all cases have insubstantial Na_2O depletion and the most significant mass gain is in S (~2-3g/100g) but (surprisingly) Fe_2O_3 shows negligible gains or small losses.

The shear associated pyritic alteration zones in both HBB and NCD lithotypes in NC1 are also compared in Appendix III-c (sample pairs: 384040, 041 & 384042, 043). In these examples there are very significant nett mass losses attributable to 20-40g/100g losses of SiO_2, significant losses of CaO and incipient losses of Na_2O partly offset by K_2O gains but the Fe_2O_3 and S pattern remains as in the previous examples.

The general pattern of:	Nett mass	negligible gain or major loss
	SiO_2	negligible gain or major loss
	Na_2O	negligible loss to slight loss
	S	minor (but the most significant) gain

is not characteristic of Australian VHMS footwall alteration systems.

There is a variation on this pattern in the fault cataclasite associated pyritic alteration zones in Suite II andesites in HA2 where comparison of average compositions for least altered and altered sample groups (G and G3) indicates moderate nett mass gains due to addition of ~14g/100g of TiO_2-Zr and increasingly significant loss of Na_2O at ~2g/100g but still representing less than half of the

primary Na_2O content.
Type 3 alteration in places is associated with faintly anomalous gold traces (eg: upto 2m @ 0.05g/tAu in YNC14) but base metal values are generally at background levels.
The "Henty Canal Alteration Zone" and "HEC gate" zones contain patchy anomalous metals; in outcrop rock chip/channel samples up to 870ppm Zn at Henty Canal and 660ppm Pb, 1550ppm Zn, 0.07g/tAu at HEC gate. Surface samples from these localities have consistently low Na_2O which suggests that they may be other than Type 3 alteration. However, given the mobility of Na_2O in weathering, these apparent low Na_2O zones may be spurious. For this reason I have not attempted mass change calculations on the Henty Canal and HEC gate zones. They probably require further mapping and wholerock analyses of reliably unweathered samples; if the Na_2O depletion is substantiated then these examples may be re-classifiable to the more VHMS significant Type 1 (or Type 2?) alteration. Since they exist at surface and should contain some pyrite if they are to be considered significant, IP should be a useful method for tracking them and obtaining an estimate of their size and exploration significance.

The association of Type 3 alteration with brittle faults is consistent with the interpretation that fluids moving along permeable structural zones leached SiO_2 and introduced minor sulphur, leading to pyritisation of some pre-existing iron in the rocks. In contrast to Types 1 & 2, this style of alteration is volumetrically small and tends to be patchy and fracture controlled rather than pervasive, with the implication that relatively small volumes of hydrothermal fluids were involved.

These zones do not have major significance to exploration for synvolcanic VHMS deposits. They may be associated with small structurally controlled gold deposits.

4.4 Type 4 Pervasive silicification associated with Henty MQ mineralisation and Comstock Chert

This style of mineralisation has not been recognised in situ at South Henty (although there is a substantial amount of similar looking rip-rap stone, of uncertain source, on the downstream face of Newton Dam). However, in consideration of the association of gold ore and strong silicification at Henty Mine it is worth investigating and is of general interest to the discussion of Henty metallogenesis - synvolcanic or structurally controlled?

Several samples (provided by G. MacDonald) of Henty MQ (massive quartz ore) , MZ (quartz-sericite pyrite) and MV (sericite) and two samples of "chert " and quartz-sericite-pyrite alteration from Comstock (Plate 10) were analysed for the wholerock and immobile trace element suite; results are in Appendix II-e .

The TiO_2 and Zr values (Figure 21) readily identify the precursors of Henty samples as dacitic and of the Comstock samples as andesitic. The andesites in the Comstock area are probably related to the "Crown Hill" andesites which Crawford et al. (1992) identified as belonging to Suite II. However, the two altered sample analyses presented in App. II-e do not have the high P_2O_5 characteristic of Suite II; this could be due to mobility of P_2O_5 in this strong alteration system.

The Henty samples provide a useful data set, although their exact relative locations are not known. They are almost perfectly correlated, on the TiO_2-Zr plot (Figure 21) to a regression line running through the origin, and through the field of NCD dacites analysed from South Henty. This is entirely consistent with the assumption that TiO_2 and Zr were immobile during alteration and that the four altered samples had similar precursors, very possibly with compositions like NCD.

Exploring this assumption a little further, I have calculated mass changes for the Henty rocks using the average NCD composition for a precursor (Group D, n=20). The two MQ samples suggest significant gains in SiO_2 of 60g/100g and major losses of Al_2O_3 (-14g/100g), Fe_2O_3 (-4g/100g), Na_2O and K_2O (-3g/100g each) for a nett gain of 35g/100g. A similar pattern is evident for mass changes calculated for the Comstock chert sample (relative to an assumed ARA precursor). The implied mobility of Al_2O_3 is radical; it is typically immobile in VHMS footwall alteration systems.

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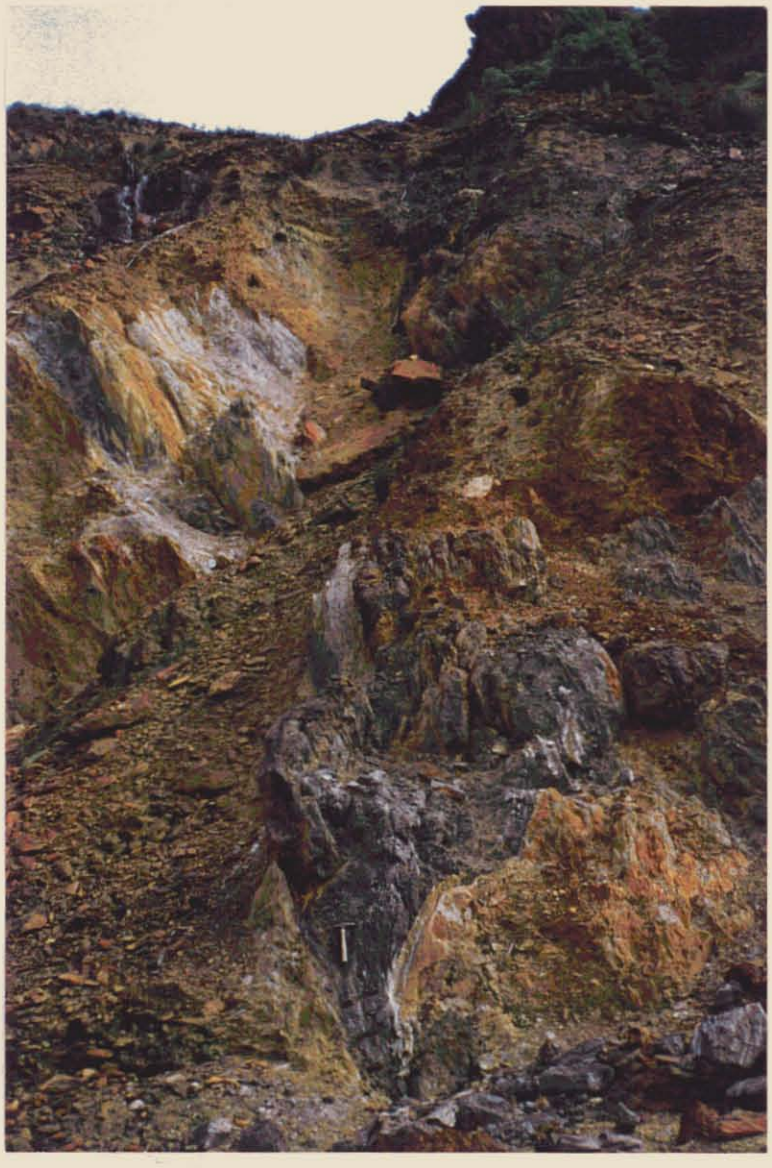

Plate 8: **Outcropping massive sulphide lens (tightly anticlinally folded) at Comstock (Mt Lyell).**

Mass change calculations for the Henty MZ quartz-sericite-pyrite alteration sample, show even stronger SiO_2 gain with major gains in Fe and S (in pyrite) but Al_2O_3 remained relatively immobile. The MV sericite sample presents a sharp contrast with -38g/100g SiO_2 loss and Al_2O_3 immobile.

Two conclusions can be drawn (on a long bow) from this scanty data:

* Henty MV and MZ sericite and quartz-sericite-pyrite alteration have mass change characteristics which are similar to those found in VHMS footwall alteration systems. The high net mass gain due to silica and pyrite addition in MZ would be typical of proximal footwall alteration in the stringer zone beneath a massive sulphide deposit. The mass loss and low sulphide content of MV sericite alteration suggests a sea water "recharge" zone, perhaps in a more distal setting in the synvolcanic environment, or some post volcanic, localised, silica leaching fault zone.

* Henty MQ could be derived from altered dacite but the almost complete loss of Al_2O_3 is absolutely unlike the mass changes typically found in VHMS alteration systems.

The implications for Henty metallogenetic models are that either Henty gold mineralisation (intimately associated with MQ) was not precipitated from a VHMS type hydrothermal system, or that it was a gold rich VHMS system with most unusual alteration characteristics.

It appears that the MacLean and Barrett (1993) style of alteration studies, based on immobile elements, could be usefully applied in genetic research on Henty & Comstock type gold deposits, (if they have not already been applied).

5 MINERALISATION TYPES

5.1 Stratabound massive sulphide-gold

5.1.1 Spillway favourable horizon

Massive sulphide clasts were discovered in a volcaniclastic mass flow exposed in the spillway of the Newton Dam by a University of Tasmania honours student in 1990, shortly after the spillway was excavated by the Hydro Electric Commission (Gibson, 1991).

Unfortunately they lie within a few tens of metres of the former EL boundary along 380000E, between licences held by Pasminco-Arimco and Aberfoyle-CRAE JVs. The proximity of the boundary inhibited exploration of the area. Although Pasminco drilled seven holes into the favourable horizon to the north and two holes to the south of the spillway, the favourable horizon remains untested for 1km to the north and to the south of YNC13, about 1km south of, the spillway outcrop.

The sulphide clasts are well rounded and up to about one metre in diameter and consist of massive galena and sphalerite with minor pyrite and chalcopyrite with an average grade of 27.0% Pb, 31.7% Zn, 700 g/t Ag and 0.92 g/t Au. The sphalerite is a reddish brown Fe rich? variety. Gangue minerals include quartz and calcite but no barite. Lead isotope data clearly indicates that the sulphide clasts are Cambrian in age (Sharpe, 1992). The clasts are (almost) undoubtedly fragments from a synvolcanic massive sulphide deposit formed at, or not far below, the stratigraphic horizon in which they now exist.

Given the possibility that the source VHMS deposit may still exist, either in situ or in re-sedimented volcaniclastic breccias with economic grades (cf: Buchans, Newfoundland), and the tendency for VHMS deposits to form clusters at a particular volcano-stratigraphic level, the "Spillway horizon" represents a very favourable horizon for base metal exploration.

A recent detailed interpretation of the spillway exposures and volcanic environment (Allen,1993) found that about ten massive sulphide clasts exist in a single mass flow polymictic breccia unit (SPB) mainly composed of feldspar phyric dacite and lesser basalt clasts, supported in a sandy pumiceous matrix (Plates 3a and 3b). Many of the dacite clasts are angular, and some occur in jigsaw fit clusters, indicating in-situ hyaloclastic fragmentation. The mass flow has a graded sandy feldspar crystal rich top. The sulphide clasts exist within the upper 2m of the unit, which is unexpected of such high density clasts.

Allen (op. cit.) suggested that the mineralogical similarity of the clasts and their position near the top of a flow unit implied that the clasts are "the remnants of a much larger massive sulphide block that was rafted along in the mass flow and dismembered during transport due to stresses and clast collisions..... Due to high clast concentration in the mass flow, the massive sulphide clasts were not thoroughly mixed into the flow but were simply strung out at the level in the flow of the original sulphide raft."
In pursuit the sulphide raft concept, Allen (op. cit.) suggested that a "sulphide block of this size [at least several metres across] is unlikely to have been picked up off the sea floor by the mass flow during transport" and consequently must have originated as a synvolcanic lens at or near the sea floor, in the same source area as the mass flow.

The textures and compositions of dacitic volcanic clasts in the host mass flow and their similarity to intrusive sills in the vicinity indicate that:

* the source area of the mass flow was a proximal (volcanic centre) facies association with dacite cryptodomes in an active state of hyaloclastic fragmentation,
* that the mass flow breccia is a proximal to medial deposit,
* that the proximal volcanic-massive sulphide source exists, or once existed, within an estimated 5km of the sulphide clasts in the Newton Dam spill way.

Cross bedding in the graded sandy top of the mass flow breccia tentatively indicated a down dip & southeast transport direction which is not favourable for exploration (inferring that the source was above the present erosion surface) but Allen (op. cit.) concluded that this should not be a deterrent because of possible complexity in mass flow transport and, having identified a VHMS favourable horizon/lithofacies, there was a likelihood that more than one VHMS deposit existed along it.

On the bases that the sulphide clast bearing polymict breccia also contains basalt clasts (derived from SBB), Allen's (1993) empirical recognition elsewhere of a spatial relationship between VHMS deposits and SBB type submarine fire fountain basalts (which typically directly overlie, or less commonly underlie the mineralised horizons) and the observation that massive sulphide deposits are generally located near the base of polymodal volcano-sedimentary sequences or at the top contact of basal rhyolites in bimodal volcanic sequences (Large, 1992) it is reasonable to infer that the Spillway favourable horizon (ie: the stratigraphic level at which the source VHMS deposit was formed) lies at the base of SBB, (= the top of the rhyolitic FPB).

Allen (1993) considered the pumice breccia exposed at the base of the spillway to be "extremely similar to the Rosebery-Hercules footwall pumice breccia in appearance, mineralogical composition and type of lithic clasts, and could be the lateral equivalent of the Rosebery -Hercules footwall unit. .. If these units are the same, as they appear to be, this establishes the first correlation through the Central Volcanic Sequence [CVC] and across the Henty Fault."
This correlation is unproven (and as far as is known there is no equivalent of SBB at Rosebery) but is at least consistent with the concept that the South Henty footwall pumice breccia was deposited in a similar, potentially VHMS producing, environment to Rosebery-Hercules, if not at the same time and volcano-stratigraphic horizon.

The FPB, in its pre deformation state, would have presented a very permeable, porous, glassy-reactive substrate to the favourable Spillway horizon and would retain obvious effects of alteration if it had experienced the passage of proximal VHMS type hydrothermal fluids. Sericitisation of plagioclase, strong Na_2O depletion, SiO_2 mass gains and disseminated pyrite would be expected; probably in broad stratabound zones, rather than tightly focussed alteration pipes, due to the primary permeability of pumiceous volcaniclastics. This style of extensive diffuse alteration and pyrite dissemination should be readily detectable and traceable by IP geophysical surveys; any zone where a broad chargeability anomaly lies close to the favourable horizon would be a prime

target.
The possible analogy with Rosebery, and the inference from the massive sulphide clasts that the South Henty environment did produce a VHMS deposit, confirms the local (and indeed regional) prospectivity of the Spillway favourable horizon.

In view of the uninspiring existing bedrock geochemical and TEM geophysical results, further exploration of the Spillway favourable horizon comes down to tracing the horizon and obtaining subsurface volcanic facies and alteration information by (initially shallow) exploratory drilling and developing conceptual targets for testing by deeper drilling and down hole TEM.

The 1.2km of strike of the favourable horizon, between YNC11 and where it is terminated by the South Henty Fault, has been intensively tested by Pasminco's drill holes, on 100-250m spaced sections to depths of about 100-350m. None of these holes intersected in situ massive sulphide mineralisation at or about the favourable horizon and, most especially, none indicated the presence of significant alteration in the footwall pumice breccias. Likewise, the surface exposure in the end of the spillway and the intercept of FPB below SBB in YNC12, ~500m south of the spillway, show no signs of hydrothermal alteration.

These are significant negative factors for the near surface prospectivity of the horizon in those areas. The implication is that there was no hydrothermal system operating within a few hundred metres of the present surface and, therefore, a low potential for near surface in situ massive sulphide deposits. This is consistent with the unfavourable TEM survey results. The possibility of medium depth, clastic sulphide deposits, re-sedimented away from their footwall altered-primary depositional sites, is not precluded. However, this style of deposit would be less likely to be of economic grade and difficult to explore for, by geophysical and alteration study techniques.

A significant gap in alteration and volcanic facies information exists in the 1km of strike length of the favourable horizon between the spillway and YNC11. This is just big enough to fit in an economic VHMS deposit. In consideration of the dramatic thickening of SBB in YNC11 and the implications that VHMS deposits are spatially associated with fire fountain basalt vents (cf: Ch. 3.2) and Allen, 1993) this gap is worthy of further investigation by at least one facies/alteration exploratory drill hole.

Immediately south of the spillway the favourable horizon is occupied by a cross cutting andesitic feldspar-hornblende porphyry intrusive body (ARH); crude interpretation of aeromagnetic TMI contour data suggests this body is at least 200m wide but its vertical dimension is unknown. As noted above, the lack of footwall alteration in YNC12 is discouraging for this area and there is barely enough space for an economic deposit between YNC12 and the spillway. Nevertheless, on the chance that the intrusive may have been emplaced into a favourable structural setting previously exploited by a hydrothermal system, there is scope for detailed modelling of the magnetic data to get an improved interpretation of the extent and depth of the intrusive body and an idea of the space remaining on the favourable horizon.

Further south, there is virtually no subsurface information on the degree of footwall alteration. The SBB has been recognised in outcrop just east of the collar of YNC13 which intersected an unhelpful series of coherent dacites and andesitic intrusives suggesting that these may also be prominent to the south despite the low magnetic relief. Interpretation of the SBB facies in YNC12 and east of YNC13 tentatively indicates this area may have been proximal to a fire fountain basalt vent, with implications for VHMS exploration.

The extent to which the favourable horizon is preserved between both dacitic and andesitic intrusive bodies in this area, and its overall strike extent to the south, can only be guessed at this stage. It is, however, a litho geochemically distinct horizon (rhyolite-basalt) and Aberfoyle's existing bedrock immobile element data, from north of Lake Newton, indicates that Wacker sampling could be reliably used to map out the horizon, and the extent to which it remains between intrusives, where glacial cover is not impenetrable.

5.1.2 Henty-Comstock favourable horizon

The Henty-Comstock horizon refers to a relatively short stratigraphic interval within the lower part of the Lynchford Member of the Comstock Formation which contains probable exhalative base metal and/or pyrite mineralisation at both Henty and at Comstock, on the northern end of the Mt Lyell alteration system.

The correlation between the two locations, ~20 kilometres apart, is based upon limited published data on Henty in R.G.C. technical reports (especially Roberts, 1990) and generalised descriptions in industry and company quarterly reports (notably December, 1995). The Comstock area was described previously by MacDonald (1990) and inspected on a half day field trip in August, 1996. A brief visit to Henty in November 1995, prior to the South Henty licence becoming vacant, provided an opportunity to examine mineralised and altered core and obtain samples of mineralisation and associated alteration from the Sill Drive area.

The RGC reports suggest that the Henty deposit is stratabound on the "Henty Horizon" (shown on a figure in the December, 1995 quarterly report) with gold mineralisation located where this horizon comes near to the Henty Fault. It is interpreted from previous company and regional mapping, and the strike projection of the Henty Horizon at RGC's Mt. Julia prospect (~500 metres north west of the boundary of E.L. 8/96) that the Henty Horizon coincides with the Lynchford Member of the Comstock Formation (White and McPhie, 1996).

Massive pyrite and base metal sulphide mineralisation is spatially closely associated with gold mineralisation at Henty although a genetic relationship is not established, given the paucity of information. One model for the mineralisation (Yeates, 1989) is that the gold mineralisation is hosted in the footwall alteration system to the massive sulphides. Lead isotopes with ratios consistent with Cambrian VHMS deposits elsewhere in the Mt. Read Volcanics support this syngenetic model.

Attempts to better understand the stratigraphy at Henty are unsatisfying, even with drill logs and interpretative sections, as the geological descriptions are ambiguous at best.

Small but high grade base metal lenses are interpreted to lie within the Lynchford Member at Comstock on the northern end of the Mt. Lyell lease. A number of thin massive sulphide lenses occur within a package of marly sandstones, pink fossiliferous limestones, sandstones and siltstones and polymict mass flows containing clasts of andesite with occasional clasts of pink fossiliferous limestone, jasper, chert, massive pyrite and massive base metals, stratigraphically above massive andesites and below crystal rich sandstones of the upper part of the Lynchford Member (or the Mt Julia Member; White and McPhie 1996) .

This package overlies a body of intense silicification, which has an inverted carrot shape, and is surrounded by strongly foliated sericite-pyrite-silica alteration or schist. The silicification cross-cuts an apparently continuous unit of massive andesite. This is supported by trace element analysis of a sample of massive silica ("Comstock Chert") from drill hole C70 and a sample of quartz-sericite-pyrite schist exposed ~25 metres south west of a small high grade massive base metal lens which crops out in the mullock quarry at Comstock (384052, 384053 in App II-e). The Ti/Zr ratios are typical of Suite II andesites in this stratigraphic position (i.e. below the Comstock Formation) at Anthony Road ~15 kilometres to the north. The silica is interpreted to be the result of intense silicification of the andesites by hydrothermal fluids, possibly the same fluids responsible for the massive sulphide lenses and possibly part of the vast hydrothermal alteration system of the Mt. Lyell field.

The Mt Lyell quartz-sericite-pyrite alteration zone has a strike extent of ~5 kilometres and a width of ~1.5 kilometres, terminated to the east (up sequence) by the complex Great Lyell Fault zone. The mining field contained ~20 deposits totalling ~120Mt at 1.3%Cu and 0.4g/t Au. Most of the resource was in pyrite-chalcopyrite stockworks and disseminated zones - essentially of a sub sea floor volcanic hosted style (Large, 1992). The alteration and mineralisation type is similar to that of proximal "footwall stringer" zones beneath some stratiform volcanic hosted massive polymetallic sulphide deposits. In consideration of the extent of footwall type alteration, it is reasonable to speculate that the system may have produced a very large stratiform V.H.M.S.

9a

9b

Plate 9a & 9b: **Henty-Comstock horizon interpreted to lie either (a) on or near the upper contact of the Howards basalt (marked by the limestone on the right side of the picture in this instance); or (b) at the base of the Howards basalt, where it immediately overlies Na depleting Type 2 (peripheral V.H.M.S. footwall type). The base of the basalt is interpreted to be ~ the core block in mid-picture (with basalt to the right and footwall volcaniclastics to the left).**

deposit at the favourable horizon where hydrothermal fluids exhaled onto the sea floor.

At Mt Lyell this favourable horizon is obscured (or removed) at surface by the Great Lyell Fault - except at the northern extreme of the system at Comstock where there are several small lenses of high grade polymetallic massive sulphide (~40% combined Pb and Zn). It is highly significant that the alteration zone at Comstock (representing the northern fringe of the Mt Lyell system) does not extend up sequence into the crystal rich sandstone facies of the Comstock Formation.

The existence of the large Mt Lyell alteration zone below this favourable horizon establishes its "pedigree" as having potential for world class sulphide deposits along strike.
Similar hydrothermal alteration exists at the same stratigraphic level at the Henty deposit and further enhances the prospectivity of the Henty-Comstock horizon.

Although the Henty-Comstock horizon can be seen from the available geological data at Henty and Comstock to lie within the lower part of the Lynchford Member of the Comstock Formation, it is only within E.L. 8/96 South Henty that we are able to more precisely define the horizon.

The precise location of the Henty-Comstock horizon within the lower part of the Lynchford Member at South Henty is at the base of the Howard's Basalt Breccia (HBB) or less likely the top; (Plates 9a & 9b). The evidence for this comes largely from the observation that strong sodium depleting alteration intersected in drill holes HA 7 & 8 and NC4 is confined to below the HBB. This is supported, perhaps circumstantially, by the interpretation that an aeromagnetic low (described below) which terminates abruptly at around the lower part of the Lynchford Member, is due in part at least to strong VHMS hydrothermal alteration of the type intersected in HA7 & 8, with NC4 in a more distal part of the system.
Less certain, but potentially significant evidence, comes from the interpretation that massive barite-silica-base metal-gold mineralisation at Tyndall Creek lies at the equivalent horizon to the HBB but that the HBB has pinched out southwards.

This precise definition of the horizon may be specific to South Henty alone, and there may well be other horizons within the broader favourable stratigraphic interval. However, the relative thinness of this favourable interval means that future exploration focussed on this horizon within South Henty will not miss mineralisation on any other such horizons.

The Henty-Comstock horizon strikes through South Henty for 4.2 kilometres. Along this horizon are a number of significant occurrences of alteration and/or mineralisation.

Lake Newton Anomaly

The Lake Newton anomaly is the place where a pronounced mushroom shaped aeromagnetic low, discordant to the stratigraphy and due in part at least to hydrothermal alteration, meets Howard's Basalt Breccia representing the Henty-Comstock horizon.

The target horizon lies beneath Lake Newton, a recently filled hydro electric impoundment (NB: a report commissioned by the Hydro Electric Commission in 1983 recommended that the lake be designed so that it could be drained if a mineral deposit was located under the lake) and has not been effectively soil or rock geochemically sampled. A part of the area corresponding to the aeromagnetic low (ie. in the footwall to the target horizon) which is not flooded by the lake, has anomalous base metals in C-horizon soils.

The target zone has not been intersected by previous drilling. The HBB has been intersected to the south (away from the aeromagnetic low) by previous DDHs NC4, HA3 and HA6. DDHs HA7 and HA8 were drilled in the footwall approximately 200 metres stratigraphically below the favourable horizon.

Geophysical surveys were conducted in the area prior to the filling of Lake Newton. A 400m spaced UTEM survey conducted in 1985 by CRAE located no responses attributable to massive sulphides. The target area was crossed by a single dipole-dipole IP survey line (100m dipole spread) in 1967. There was no chargeability response associated with the target horizon.

However, there is an anomalous resistivity high which may represent silicification. A DHEM survey in NC3 has only covered a small area on the very southern edge of the target zone at ~ 500m depth recorded no responses due to massive sulphides. A similar survey in NC4 did not extend into the target zone. EM surveys may have missed poorly conductive deposits and both the EM and IP surveys are depth limited.

The pronounced aeromagnetic low, discordant to the stratigraphy, is interpreted to be due to sericite-pyrite hydrothermal alteration. The "stalk" of the mushroom shaped anomaly appears to cut across stratigraphy in an ENE direction under Lake Newton and it's "head" is coincident with the projected position of HBB.

This aeromagnetic low has only been intersected by two existing DDHs and outcrop is limited. Existing drill holes HA7 and HA8 intersected a broad zone of pervasive sericite (± pyrite, Kspar?) Type I alteration (characterised by strong Na depletion, strong K enrichment and modest Si enrichment which is consistent with the mass change pattern expected in the footwall alteration zones associated with VHMS deposits). HA7 and HA8 are geochemically anomalous with HA8 containing 232.2m @ 0.2%Zn including 15m @ 0.105g/tAu. NC4 intersected both the favourable horizon and part of the footwall along strike to the south of the aeromagnetic low. Alteration in NC4 is visually more subtle but geochemically recognisable by strong Na depletion. NC4 is likely to represent the more peripheral parts to the system while HA8 lies much closer to the focus of hydrothermal fluid flow, and deeper in the footwall than NC4.

The "stalk" of the anomaly is attributed to magnetite destructive sericite-pyrite alteration cutting through moderately magnetic Suite II type Anthony Road andesites and dacites (ARA) which have been identified in HA7 and HA8 and extend to the north of the lake. The "head" of the mushroom may also be due to alteration but (considering the geochemical similarity of altered dacites in NC4 to non-magnetic dacites lower in the stratigraphic pile) an alternative explanation involving a dacite dome or intrusive facies could be reasonably be invoked. The latter explanation is considered to be less likely.

The known extent of the alteration zone is largely unconstrained by present drilling but is known to extend for at least ~ 200m strike length and ~ 500m stratigraphic thickness below the Howard's Basalt Breccia which is locally weakly altered (in NC4) and is overlain by unaltered felsic volcaniclastic-limestone assemblages and massive feldspar crystal rich sandstones comprising the Lynchford Member of the Comstock Formation (the hangingwall sequence).

The coincidence of this observed extensive pervasive plagioclase destructive alteration which is stratigraphically upwardly limited by a fire fountain basalt breccia (see R. Allen, 1993) marks the Henty-Comstock horizon immediately above the aeromagnetic low as a potential VHMS favourable horizon.

Tyndall Creek Barite

Barite-sulphide-gold mineralisation is exposed in Tyndall Creek immediately east of the Anthony Road bridge and in some shallow pits to the south on the Rio Tinto gossan which was discovered in the late 1950s and led to initial exploration in the Howard's Anomaly area. It has also been intersected in a number of short diamond drill holes (TC1-5 drilled by Aberfoyle in 1994).

The significance of the mineralisation arises from its almost economic grades and widths in some of the drill intersections (eg: 2.1metres @ 0.2%Cu, 5.4%Pb and 7.8%Zn) and the interpretation that it appears to be VHMS mineralisation on the Henty-Comstock favourable horizon. The downside is that there does not appear to be much room for an economically significant deposit in the immediate vicinity.

The stratigraphic/structural setting of the mineralisation is not obvious as outcrop is scattered and discontinuous (Figure 20) and the only drill testing has been by shallow (≤50m) diamond drill holes. Three of the five short drill holes intersected massive barite-sulphide (TC1, 3 & 5); only one (TC3) passed through unaltered rock on both sides of the mineralisation with the other two collared in either mineralised or altered rock.

The intersections indicate a strike to the massive mineralisation of ~340° and dip to the east. This is the same trend as bedding in outcropping volcaniclastic sandstones and siltstones ~150m south on the Anthony Road. It is also parallel to the foliation seen in altered and mineralised outcrop in Tyndall Creek.

At least one, probably two and possibly more, pyritic shears (Type 3 alteration) are known in the vicinity of the mineralisation. One such pyritic shear crops out on the Anthony Road ~120m north of the collar to HA5. Another crops out along the first 100m of the rehabilitated access track to DDHs YNC12 and YNC13. It is quite possibly this latter shear which is intersected in DDHs HA 1 & 2 and a similar (or the same) shear(s) is intersected in NC1. In all instances except HA1 and HA2 these can be shown to strike north-westerly and be sub-vertical. Aberfoyle (Lewis, 1994) suggested that the barite-base metal mineralisation may be hosted in these shears with the shears representing splays off the Tyndall Creek Fault, the existence of which is not well supported by mapping.

DDH HA5, drilled by Mt. Lyell M&R Co. in 1981, passes 60 to 80m to the north of the mineralised holes and ~50m deeper than the short holes, at the point where the massive barite-sulphide mineralisation projects. HA5 was drilled 40m north of TC4 (Figure 17) which did not intersect altered or mineralised rock. Although no clear facing evidence is found in the short drill holes, HA5 contains graded units which indicate an east facing and thus the sequence 60 to 80m south is considered to face the same way.

The mineralisation and alteration intersected in the short drill holes shows some zonation. The upper part of the zonation is best seen in TC3. Here the massive barite-silica-base metal sulphide is overlain by a ~1m thick zone of moderately barite-silica altered breccia (with lesser pyrite and generally lower base metal grades) consisting of volcanic quartz, feldspar and quartz feldspar phyric rhyolite. This is in turn overlain by very strongly foliated hematite-silica-chlorite/sericite altered rock with magnetite (detrital or alteration). The original rock is difficult to recognise but contains no obvious quartz grains.

The barite-silica-base metal massive sulphide appears to be the product of alteration. In TC5 kernels of silica-base metal sulphide are wrapped around by barite-sericite-silica-base metal sulphide defining the foliation. In TC2 the silicified kernels can be seen in a few instances to be feldspar phyric dacite clasts with murky feldspars. Here the kernels contain some base metal sulphides but most base metal sulphide and barite are wrapping around the kernels.

The massive barite-silica-base metal sulphide rocks in core, outcrop and float have received much attention with thin section petrology and isotopic analysis. This work is discussed below.

The lower part of the zonation is seen in TC2, 3 and 5. Here massive barite-base metal sulphide is underlain by a zone of moderate to strong silica-sericite-pyrite±barite alteration. In parts the alteration has obscured the original rocks whilst in others the rock can be seen to be a feldspar crystal rich sandstone/breccia, the clasts being feldspar phyric dacite. In TC5 this alteration is cut by deformed silica-sulphide-hematite stringers to ~20mm thick. These stringers are zoned with silica-base metal sulphide selvedges and silica-hematite-pyrite cores.

Further west (down sequence) the rocks are less altered and can be clearly recognised as feldspar crystal rich sandstones with detrital magnetite, occasional feldspar phyric dacite clasts and (significantly) no quartz feldspar phyric rhyolite clasts. The change from intense alteration to fresh rock occurs over a stratigraphic thickness of <10m in TC3.

Given the strike of mineralisation TC4 is interpreted to have also intersected the unaltered rocks west of the mineralised trend. Here again the rocks are feldspar crystal rich sandstones with very occasional feldspar phyric dacite clasts and detrital magnetite.

HA5 (drilled to the west, Figure 17) appears to have intersected the same rocks as TC4 as well as passing through the projected trend of the massive barite-silica-base metal sulphide mineralisation intersected in the short DDHs 80 to 100m to the south. This intersection would be expected to be ~50m downhole in HA5. At this depth HA5 passed through a zone of dry clay (after a fault) into massive hematite-silica (~5cm in broken core), followed by ~3m of chlorite-hematite alteration

with a very strong foliation similar in appearance to strongly foliated sections in the short DDHs (eg: TC1 ~9-12m and TC3 ~10-15m), followed in turn by ~3m of strong silica-sericite-pyrite alteration. The only significant barite, ~1%, occurs at ~70m, in veins.

The rocks above the clayey zone are feldspar>quartz crystal rich sandstones and breccias with pale quartz feldspar phyric rhyolite clasts, and minor pale grey shaley siltstones. Similar rocks crop out along the Anthony Road at 5357305N 381055E. Feldspar>quartz crystal sandstones and breccias with quartz feldspar phyric rhyolite clasts were also intersected in NC1 from 110 to 285m and in HA6 immediately above the Howard's Basalt (HBB). Quartz feldspar phyric rhyolite clasts are characteristic of the Comstock Formation (above the Henty-Comstock horizon) and are not otherwise present in the sequence above the polymict breccia in the Newton Dam spillway.

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Below the clayey zone in HA5 to ~195m downhole the rocks are feldspar>>quartz crystal rich sandstones and breccias with feldspar phyric dacite (or andesite) clasts, and minor interbedded cherty green siltstones. These rocks are not distinctive and are similar in appearance to some rocks in the Comstock Formation (above the Henty-Comstock horizon). However, HA4, collared ~350m north of HA5 and to the west of the well constrained projected outcrop of the HBB (now largely under the lake) and drilled to the east, intersected a sequence of very similar feldspar>>quartz crystal rich sandstones and breccias with feldspar phyric andesite clasts. HA6, drilled 180m north of HA4 and towards the west, passed through the same ground covered by HA4 (as a scissor hole) and intersected the HBB before passing through massive feldspar hornblende phyric andesites, andesite breccias, carbonates and minor siltstones, indicating that the Anthony Road Andesite lies stratigraphically below HBB. It is surprising that there are no feldspar>> quartz crystal sandstones in HA6 given its proximity to HA4, however, this can be explained reasonably confidently by palaeo topographic control on deposition of sandstones around constructional andesitic volcanic facies.

The rocks intersected in HA5 and TC4 and in TCs 1, 2 and 3 below the mineralised/altered zone, could be correlates of this lower feldspar crystal rich sandstone unit implying that the mineralised zone lies at the base of the Comstock Formation, i.e. at the Henty-Comstock horizon.

At ~195m in HA5 is a fault below which the hole passed through massive feldspar hornblende±quartz phyric andesite (ARA) and a lithic (andesite derived?) breccia as well as a further zone (~20m) of silica-sericite-pyrite alteration (Type 3?). If this fault has not had a major displacement then the feldspar>>quartz sandstones with occasional feldspar phyric dacite/andesite clasts are from this lower sequence, i.e. below the Comstock Formation.

Lithogeochemical evidence provides some support to this correlation. Twelve samples of core were taken from the crystal sandstones interpreted to lie in the footwall to the mineralised horizon in DDHs HA5 and TC1, 3, 4 and 5 with analyses for Ti and Zr. Results are in Appendix V. The Ti/Zr ratios range from 19.3 to 47.4. Ti ranges from 2158ppm to 6822ppm (TiO2 0.36% to 1.14%) with one sample (384061) of altered crystal sandstone with 611ppm Ti. Zr ranges from 95ppm to 185ppm with 384061 with 25ppm Zr.

Side grinds of Comstock Formation in NC1 have Ti/Zr ratios which range from 7.4 to 27.0 with Ti from 2578ppm to 6055 (TiO2 from 0.43% to 1.01%) and Zr from 218ppm to 412ppm.

Anthony Road Andesite volcaniclastics (ARC) (of which there are only four lithologically varied core samples including hyaloclastic breccias, siltstones and calcareous volcaniclastics) have Ti/Zr ratios which range from 15.1 to 22.9 with Ti from 2278ppm to 6115 (TiO2 0.38% to 1.02%) and Zr from 110 to 310.

Of the two possible correlations, the Anthony Road Andesite volcaniclastics have a greater immobile element similarity with the "footwall" sandstones in HA5 and the TC holes, particularly given the very low number of samples in the ARC category.

The only hangingwall sample of crystal sandstone, 384066 from 28.9m in HA5, has a Ti/Zr ration of 21.4 with Ti 4173ppm (TiO2 0.70%) and Zr of 195ppm which could correlate with either, however, the quartz feldspar phyric rhyolite clasts are characteristic of the crystal sandstone/breccias of the upper Lynchford and Mt Julia Members of the Comstock Formation.

Two samples of core were analysed for Ti and Zr from the HBB. Ti/Zr ratios were 34.5 for 384067 (HA6 77.5m) with a Zr of 99ppm and Ti of 3418ppm (0.57 TiO2), and 32.6 for 384068 (HA6 76.0m) with a Zr of 85ppm and Ti of 2773ppm (0.46 TiO2). These ratios are at the lower end of the HBB scale due largely to the lower Ti, however, visually they appear very similar to HBB intersected elsewhere.

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This interpretation is supported by enhanced aeromagnetics (Figures 4a and 4b) where two ridges of magnetic high, one (eastern) due to detrital magnetite in the Lynchford Member of the Comstock Formation and the other (western) due either detrital magnetite in the crystal sandstones under the HBB and/or magnetic andesite, appear to change their trend from north-south to ~340° south of around 5357500N.

This change in trend, although supported by similar change in bedding in outcrop, is partly obscured by saddles in the magnetic ridges and the following alternative explanation is plausible. The magnetic high centred at 380950E 5357000N may be due to the Lynchford Member sandstones with a dextral offset of ~400m on a ~330° trending wrench fault (or apparent wrench movement on an oblique slip fault). This explanation, which results in a structural thickening of the sequence, would imply that the feldspar>>quartz crystal sandstones below ~50m in HA5 are part of the Lynchford Member. However, it is necessary to remove that part of the sequence centred on the HBB as it was not intersected between the feldspar>>quartz crystal sandstones and the ARA in HA5. The fault at ~195m is in the right place and normal dip slip movement should be sufficient to remove the HBB prior to the dextral wrench faulting. However, this structurally involved interpretation is equivocal and the former model is favoured.

The major problem with the favoured model is the lack of HBB in HA5 when significant thicknesses of HBB were intersected in HA6 (~40m) and NC1 (where the thickness is uncertain due to the angle of hole with respect to the dip but could be in excess of 200m), both 300 to 350m away. The occurrence of massive andesitic intrusives/extrusives in HA6 and a thick(?) sequence of HBB including massive basalt in NC1 suggest that these two holes intersected proximal facies volcanics, i.e. near the vent. Therefore it is concluded that the massive barite-silica-base metal sulphide mineralisation lies along the Henty-Comstock horizon and that the HBB is pinched out.

Thin sections of eight hand specimens showed the baritic rocks to be intensely sheared with sulphides (galena, pyrite, sphalerite, chalcopyrite, tetrahedrite-tennantite, chalcocite and electrum) in deformation bands between more coherent bands of barite (P.Kitto in Sharpe, 1993). The sulphides were interpreted to be syn-deformational with paragenesis post dating that of barite. Two phases of pyrite were recognised with the earlier brittle deformed pyrite containing electrum along fractures and being partly replaced by other sulphides. Sphalerite is very pale cream to straw coloured (Fe poor) and has suffered deformation.

Microprobe analysis of the electrum showed the fineness to be 550-650 with elevated mercury levels. Undeformed early phase pyrite contains up to 0.1%Au and 0.05%Ag in the lattice which would account for the gold found remobilised into the fractures.

Sulphur isotope analyses conducted on samples of barite and sulphide mineralisation suffered from "difficulty in obtaining pure mineral separates" (Sharpe, 1993) calling into doubt conclusions that "sulphur isotopic signatures indicate a number of sources".

The lead isotope data clearly shows the lead to be of a similar age to Cambrian mineralisation in the Mt. Read Volcanics. However, the possibility exists that the lead is Cambrian lead remobilised in a later event.

Three samples of massive barite-silica-base metal mineralisation from drill core were analysed for light rare earth elements (LREE). There has been some discussion in the scientific literature (eg: Whitford and Ashley, 1992) about the use of LREE, particularly Eu, to help in the recognition of footwall alteration (Eu low) and exhalative mineralisation (Eu high). The theory is that plagioclase destructive hydrothermal alteration liberates Eu from plagioclase feldspars (where it resides in the lattice) and carries it to the seafloor where the Eu is precipitated with exhalites.

The results are plotted in Appendix IV. The sample of massive barite-silica-hematite from 3.5m in

TC5 is weakly elevated Eu and a sample of banded massive barite-silica-base metal sulphide from 17.6m in TC3 has a weaker Eu high. The sample of massive barite-silica-base metal sulphide from 4.4m in TC5 has a weak Eu low. Interestingly, the first two samples have low Zr (<5 and 34ppm respectively) whilst the latter sample has a Zr of 156ppm. These results are considered to be interesting but not particularly significant. Although strong Eu highs may have supported an exhalative origin for massive barite-silica-base metal mineralisation, the lack of such anomalism does not argue against a partly exhalative origin.

390169

The conclusion that the massive barite-silica-base metal sulphide mineralisation at Tyndall Creek is Cambrian and lies on the Henty-Comstock horizon considerably enhances the potential for this horizon within South Henty. Unfortunately there is very limited space for a large economic deposit in the immediate vicinity of Tyndall Creek .

The footwall alteration extends for only a short distance into the footwall as shown by TC1 below TC5 on section 57100N and TC2 on section 57120N. This limited extent may be due to the mineralisation/alteration at Tyndall Creek being the product of only a small hydrothermal system. Alternatively the mineralisation/alteration may lie at the periphery of a larger system.

Section 57100N in particular suggests that the focus of alteration lay above the present ground surface. The alteration has only limited depth in HA5, ~60m to the north, and does not extend to NC1, ~300m down dip. The only potential would appear to lie to the south but is limited by the EL 8/96 boundary only 100m to the south. Consideration should be given to acquiring the ground to the south when it becomes vacant in 1997 as the favourable horizon does not appear to have been intersected in drilling south of the E.L. boundary.

Tyndall Mine

To the north of the lake near AMG 5359300N 380500E there is an old water filled shaft and an apparent overgrown adit on a quartz-galena vein. Although the vein is interpreted to lie on the Henty-Comstock horizon, lead isotopic ratios from one sample submitted for analysis by Aberfoyle (another has too low a lead content to be considered reliable), clearly indicate that mineralisation is considerably younger Cambrian and is interpreted to be Devonian in age.

Howard's Anomaly

The original discovery of the Rio Tinto gossan in the late 1950s led to geophysical surveys, particularly IP, in the area. The IP surveys defined a number of good chargeability anomalies associated with anomalous barite, manganese and sulphides in A-horizon soils. The better of these coincident anomalies were drill tested by the early diamond drill holes HA1, 2, 3 and 4 with limited success. Routine assaying of core in HA4 revealed anomalous silver (35m at 34 g/t including 2m at 93 g/t and 2m at 410g/t) towards the end of the hole and the hole was extended another 185.9m but did not intersect further anomalous silver.

Polished section petrology and microprobe analysis indicated that most of the silver occurs in silver bearing tetrahedrite (freibergite) with minor amounts of pyrargyrite and native silver. No other sulphide minerals occur in the analysed samples other than trace galena and sphalerite in one sample. The silver minerals are associated with late stage barite-calcite veins in a very hematitic, strongly foliated rock which appears to be HBB (this latter interpretation is yet to be tested by litho-geochemical analysis).

DDH HA3 was re-assayed for silver and found to contain 49m at 8 g/t silver including 1.5m at 35 g/t silver which, along with the intersection in HA4, was sufficient encouragement for drilling DDHs HA5 and HA6 to the north and south.
HA5 intersected 8.6m at 11 g/t silver (66-74.6m) in unaltered to very weakly altered feldspar crystal rich sandstones considered to lie beneath the Henty-Comstock horizon. Again the silver is associated with late stage barite-calcite veins. HA6 intersected 4.1m at 6.3 g/t silver.
The silver mineralisation is patchy with no obvious stratigraphic or structural control.

There is an association between gold and silver (and copper and bismuth) at Henty (Yeates, 1989) and the silver bearing minerals were described in a petrological report as native silver, proustite, gold, and possibly tetrahedrite-tennantite. At Mt Lyell the Iron Blow (original discovery lode) contained a bonanza shoot of silver-copper within massive pyrite-chalcopyrite containing the silver mineral stromeyerite.

At this stage it can only be said that the genesis of the silver mineralisation is enigmatic.

390170

5.2 Henty type, structurally controlled? stratabound gold

There is little published scientific literature on the style or genesis of the high grade Henty gold deposit due to RGC's tight lip policy. An effort has been made to obtain all available reported descriptions of the deposit and a short field visit was made by both authors prior to South Henty becoming available. However, the nature of the deposit makes it difficult to gain an understanding of the mineralisation from a short field visit and the limited reported descriptions are ambiguous at best.

The Henty deposit is located within a package of intensely deformed and hydrothermally altered volcanics in the immediate footwall to the most structurally significant fault in the Mt Read Volcanics. The gross orientation of the stratigraphy is steeply overturned and broadly parallels the orientation of the Henty Fault. Gold mineralisation exists within the most intensely silicified alteration zone. It makes the deposit difficult to interpret, especially since the conflicting models place emphasis on either the structural setting, the stratigraphic setting or both.

The most interesting piece of information to come out of Henty is contained in RGC's December, 1995 quarterly report announcing further intersections of Henty type gold rich massive quartz mineralisation (44m at 2.4 g/t Au including "a 4.5m thick zone of massive quartz which assayed 7.5 grams gold per tonne"), at the Mt Julia prospect, 1300m north along strike of the Henty-Comstock horizon from South Henty. In particular the long section (Figure 23), showing the location of drill holes at the Mt Julia prospect and their relationship to the Henty deposit to the north, are considered to summarise RGC's working hypothesis.

The long section shows the three high grade gold zones which constitute the Henty deposit running down the footwall to a dashed line referred to in the box as "Intersection of Henty horizon with Henty Fault" (the mineable resource of 506 000 tonnes at 26.9 g/t Au is based upon Zone 96). The dashed line describes a concave upwards shape with the Mt Julia mineralisation existing where the curve turns to come back up to the surface. The shape of the intersection is a product of the orientations of both the Henty horizon: very steeply west dipping with a broad flexure concave to the east, and the Henty fault: slightly less steeply west dipping with a broad arcuate shape in plan in the opposite sense to the flexure on the Henty horizon.

The five drill holes are numbered, presumably in order of drilling. They clearly indicate RGC's focus on the intersection between the Henty horizon and Henty fault. The exploration is apparently purely geologically driven with the intersection in MJ005 made between 928m and 972m downhole.

It seems that RGC believe that the Henty deposit has both structural and stratigraphic controls.

Unfortunately the potential for a direct Henty analogue does not appear to exist in South Henty. The southernmost intersection of the Henty horizon and the South Henty Fault (SHF, the major southern splay of the Henty Fault) is ~800m north of EL 8/96 (Figure 23). South of this the Henty horizon trends south southeast and dips easterly whilst the SHF trends south southwest and dips westerly. Although geological data is limited in the western part of the licence near the SHF, it would require quite radical structures to bring the two together.

In order to find indirect Henty analogues, it is necessary to consider the particular characteristics of the two apparent controls on Henty mineralisation.

The Henty Fault is the major fault in the Mt Read Volcanics; it is a broad zone of intense deformation, often associated with quartz-sericite-pyrite alteration (Type 3 in Ch. 4.3). The fault is interpreted to have undergone at least three phases of movement (Berry, 1994). The earliest phase, during the middle Middle Cambrian, was extensional and associated with the eruption of the Mt Read Volcanics: "extension stresses are recorded in the hydrothermal activity and in the presence of the Henty dyke swarm" (Berry, op cit.). This movement was followed during the Late Cambrian by reverse movement. The fault was reactivated as a sinistral wrench fault in the Middle Devonian.

3901721

The only other example of significant gold mineralisation on the Henty Fault is at Lakeside ~12km north of Henty where sub-economic tin-gold mineralisation appears to be related to the (Devonian) Granite Tor Granite, (Taheri and Green, 1990).

The characteristics of the Henty horizon are less clear. As stated in Ch. 5.1.2 the horizon lies in the lower part of the Lynchford Member. At Henty the highly altered host rocks to the quartz-gold mineralisation on the Henty horizon were described as "Volcaniclastics and Lavas; mixed sequence consisting predominantly of quartz-feldspar phyric volcaniclastics and lavas, with minor epiclastics" by Roberts (1990). However, petrological reports and Yeates (1989) referred to dacitic and/or andesitic volcanics including lavas and Pease (1985, based upon less drill information but perhaps more careful study) referred to minor very thin shale lenses and described the lavas and volcaniclastics as being largely dacitic or dacitic-rhyolitic.

The most chemically reactive rocks on the Henty horizon are likely to be the lenses of carbonate and small lenses of massive sulphides intersected in a number of holes at Henty (and at Comstock).

Observations based on a limited number of short pieces of Henty drill core (from the University of Tasmania rock store) indicate that these carbonates have not been significantly affected by hydrothermal fluids yet they are shown on some drill sections as lying amongst strong silica-sericite-pyrite alteration. The carbonate is described (in bar-code logged drill logs) as alteration, however, at this stage the significance of this carbonate is uncertain. Certainly there are carbonates in the vicinity of the Henty-Comstock horizon for most of its strike in South Henty as well as at Comstock, however, as discussed earlier these carbonates are mainly sedimentary in origin.

The massive pyrite and/or base metal lenses are generally quite thin and strongly deformed. Banding in these could equally well be tectonic and it is only the Cambrian lead isotopes which provide support for a VHMS style origin. Limited samples (also from the University rock store) suggest that some of the base metal mineralisation is associated with silicification as veining.

From an empirical perspective, it may be concluded that Henty style gold deposits form where the Henty horizon is intersected by by faults associated with Type 3 alteration. Within South Henty there are a number of pyritic shears. The most significant is exposed in the Henty Canal. It is associated with an alteration zone which trends roughly parallel to the Henty-Comstock horizon, is weakly anomalous in gold (<0.1 g/t Au) and probably intersects the Henty-Comstock horizon at depth. A number of additional pyritic shears, trending northwest, crop out or were intersected by a number of drill holes in the southern part of the licence.
The problem with this empirical model is that there appears to be no particular lithology about the Henty-Comstock horizon, other than the carbonates and massive sulphides discussed above, which could act as a chemical "trap" for auriferous hydrothermal fluids.

Petrologically, the gold at Henty has been described as being "in association with pyritic-sericitic to siliceous stringer-type veinlets...with an apparent concentration in siliceous bismuth-bearing types" which post-dated barren quartz±carbonate veinlets with accessory sulphides and pre-dated carbonate veinlets (D. Cowan in CMS report 86/5/32). This petrology was conducted on samples taken from drill holes into the Sill Zone (see Figure 23) but it is considered that the fairly detailed descriptions are relevant.

The impression gained from the short field visit, which involved inspection of a single mineralised hole as well as a short visit to the drive into the Sill Zone, was that the sulphide veinlets, which presumably are those which host gold mineralisation, postdate the massive silicification though

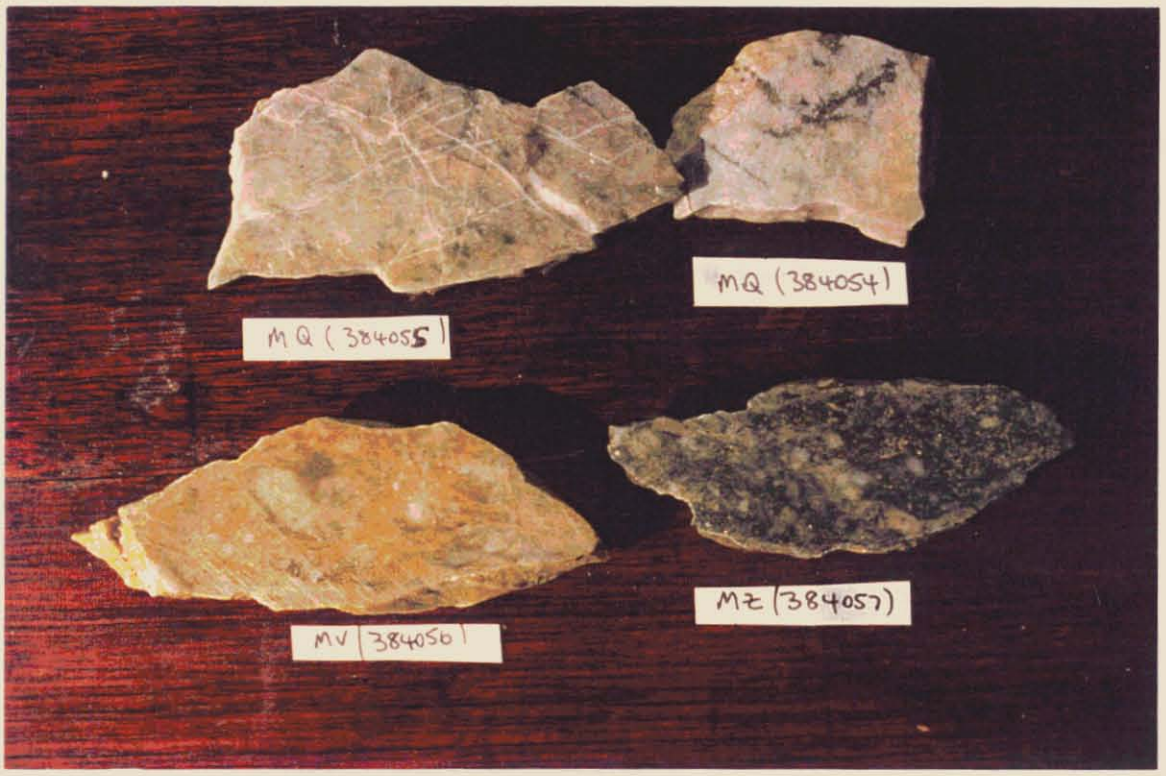


Plate 10: **Samples of Henty ore and associated alteration. 384054 assayed 48.3 and 4.3 g/t Au (different labs) whilst 384055 assayed 71.1 and 13.7 g/t Au (different labs). These samples are further discussed in sections 4.4 and 5.2.**

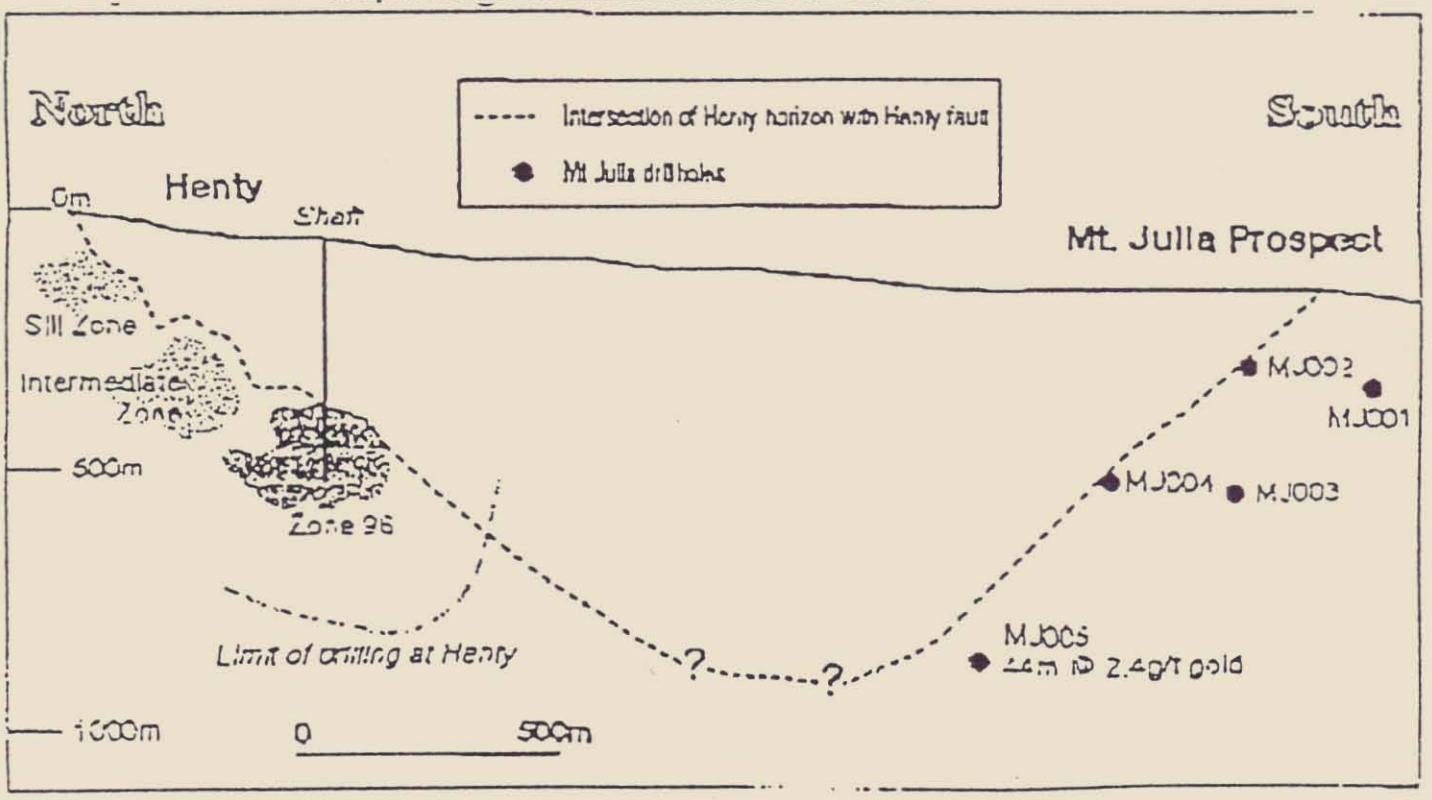
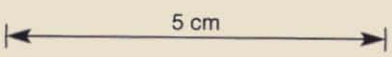


Figure 23: **Longtitudonal section; Henty-Mt. Julia (from Goldfields Limited Dec'96 quarterly report to the Australian Stock Exchange)**



such paragenesis may have occurred within essentially the one mineralising/alteration event.

A purely structural model for gold mineralisation is suggested by the cross-cutting nature of the veins seen in the single drill hole with previously silicified rocks deforming in a brittle manner. The main problem with this model is that it provides no explanation why massive siliceous lavas in the area did not deform in a similar way.

Further complicating the picture is the fact that gold mineralisation in massive quartz at Henty is found in two zones referred to as the A and B zones separated by a stratigraphic interval of up to 25m (the two zones are interpreted to meet at depth. At least some (possibly all but information is not available) massive sulphide lenses lie between these two zones. The Sill Zone is apparently in the B zone (stratigraphically higher) whilst the larger Zone 96 is in the A zone (See Figure 24)

Four samples (two of high grade ore, 384054,384 055 and two of associated alteration, 384056, 384057; Plate 10) were analysed for a wide range of elements (Appendix V). The massive quartz samples assayed by ANALABS returned 13.7 and 4.3 g/t Au. Pieces taken from the same rocks were assayed previously by MINLAB for 71.1 and 48.3 g/t Au respectively, indicating the extremely nuggety nature of mineralisation at Henty. The significance of the whole rock data, and particularly the elements removed or introduced during alteration were discussed in Ch. 4.4. The dacitic Ti/Zr ratios obtained from the four samples supports the descriptions of the altered volcanics by Pease (1986). It is significant that the massive quartz samples have 0.40% and 0.36% TiO2, and 172 and 169ppm Zr respectively. This clearly shows that the quartz is not an exhalite or cavity filling but is the product of alteration of dacitic volcanics. This has quite considerable stratigraphic significance for Henty style gold mineralisation in South Henty discussed below.

The massive quartz gold rich (13.7 and 4.3 g/t Au) samples have relatively low levels of Cu (1111 and 865ppm), Pb (261 and 587ppm), Zn (113 and 16ppm), As (10 and 4.5ppm), Mn (392 and 506ppm), Mo (6 and 7ppm), V (7 and 5ppm), Sn (6 and 7ppm), Sb (13 and <3ppm), Ba (38 and 32ppm), W (<5 and 5ppm) and surprisingly Bi (<1 and <1ppm) respectively. The only elements to be elevated are Ag (18 and 7ppm) and Te (16.8 and 5.5ppm) respectively. Similar patterns are seen in the two samples of alteration except that the sample of quartz-sericite-pyrite has anomalous Cu and Pb. The light rare earth elements were also analysed. The plot in appendix IV shows a relatively smooth profile with no Eu anomalism.

In conclusion, the Henty deposit contains small lenses of massive pyrite and/or base metals with Cambrian lead isotopes. These lenses are spatially closely associated with high grade gold mineralisation hosted in massive silicified dacitic volcanics. The host rocks lie on the Henty horizon which is in (or possibly immediately below) the lower part of the Lynchford Member of the Comstock Formation. The alumina depleting hydrothermal alteration style is quite unusual and distinct and also exists at Comstock.

The zone of silicification at Comstock, in the form of a thick carrot, lies immediately beneath the lower part of the Lynchford Member (with silicification extending down into the underlying andesites) which contains a number of small massive pyrite and/or base metal lenses with Cambrian lead isotopes and fossiliferous shallow marine carbonates. Silicification at Comstock grades out into sericite-pyrite-silica alteration (similar to that surrounding the silicification at Henty. This alteration hosts disseminated pyrite-chalcopyrite mineralisation (Lyell Comstock orebodies) and extends around the Cape Horn corner into the vast Mt Lyell alteration system.

The zone of silicification at Comstock carries anomalous gold grades (to ~1g/t Au) on its edges (but may not have been thoroughly tested) whereas the Henty deposit contains high gold grades in relatively narrow shoots of massive quartz (Zone 96 averages 3.5m in width and the Sill Zone averages 1.5m). The difference may be due to the proximity of the Henty deposit to the Henty fault.

The silicification and gold mineralisation at Henty is considered to have formed by the hydrothermal alteration of rocks in the footwall to the seafloor, probably at the time that the massive sulphide deposits were deposited. This hydrothermal fluid activity is probably analogous to the alteration at Mt Lyell which exists at the same stratigraphic level. The initial significance of

the Henty Fault may be in its earliest incarnation as an extensional structure focussing the hydrothermal fluids at the time that the Henty horizon was the seafloor. High grading of the deposit may have occurred during either of the later movements on the fault which produced attenuation of the sequence and remobilisation of gold into veinlets.

The significance of this model to South Henty is that the initial introduction of gold may have taken place syn-genetically along the Henty-Comstock horizon with fluids passing up zones of lower stress (and not necessarily only the Henty Fault). If later high grading is necessary to produce economic grades then this may not have occurred along the Henty-Comstock horizon in South Henty (except perhaps along the intersection with the Great Lyell Fault), however, it is not certain that such high grading took place. Further, the alteration and mineralisation associated with this type of gold mineralisation is essentially of a VHMS style.

The shallow marine conditions indicated by fossil assemblages in carbonates on the Henty-Comstock horizon at Comstock and South Henty, and by inference Henty, may result in some differences with classic VHMS deposits. However, the existence of high grade base metal massive sulphide deposits (small, but potentially along strike from the Mt Lyell "elephant") on this horizon at Comstock indicates that both gold or VHMS deposits may be expected on the Henty-Comstock horizon. Drill testing VHMS targets may actually intersect high grade gold mineralisation and vice-versa.

Gold deposits of Henty type may be found on or beneath the Henty-Comstock horizon amongst hydrothermal alteration focussed on this horizon. The most obvious target is the Lake Newton aeromagnetic low associated with strong footwall alteration intersected in HA8. Although economic gold mineralisation is more likely in the upper part of the system, ie. at or immediately below the Henty-Comstock horizon, there may be potential for gold mineralisation deeper in the system. The other known location of hydrothermal alteration below the Henty-Comstock horizon in South Henty is at Tyndall Creek where small intersections of barite-silica-base metal sulphide contains anomalous gold up to 12g/t Au (in float). As stated in Ch. 5.1.2, the alteration system is relatively small or, perhaps more likely, formed on the periphery of a larger eroded system. Any further occurrences of hydrothermal alteration on or below the Henty-Comstock horizon should be considered to have potential for gold mineralisation.

5.3 Structurally controlled gold

In the initial appraisal of the potential of the "South Henty" area (MacDonald, 1995) some emphasis was given to the potential for purely structurally controlled gold mineralisation. This was based upon two lines of thought.

Firstly, the possibility that Henty's location and/or high grade may be related to the Henty Fault. Limited field inspection of core agrees with the opinion of Gary Arnold, expressed in Yeates (1990), that "mineralisation is partly related and partly unrelated to the Henty Fault ... [with a] ... syngenetic or near syn-genetic phase being overprinted by a later phase, possibly gold bearing" That is: there is a reasonable possibility that gold mineralisation (or at least high grading) occurred during a later (post-extensional) movement on the Henty Fault and thus may be unrelated to the stratigraphic location.

Given the current level of knowledge of movement on the Henty Fault (extensional in Mid Cambrian, reverse in Late Cambrian/Early Ordovician, sinistral strike slip in Mid Devonian) it was considered that the latest strike slip phase may have been the structural event associated with mineralisation. Initial appraisal of the geology of "South Henty" suggested the existence of structurally favourable settings analogous to Henty.

Previous mapping at "South Henty" has mapped or interpreted a number of roughly north-west to north-north-west trending faults with sinistral strike slip displacements recorded in the Ordovician rocks (i.e. Mid Devonian movements). In the stress regime, under which the Henty Fault moved sinistrally, these faults would have been partly dilational with traps for gold bearing fluids.

Secondly, the existence of gold anomalous values (obtained by previous explorers) in soils, rocks and drill core in and over zones of pyritic alteration (with sericite or chlorite, variable silica) in such structurally favourable settings. Of these the most significant was the intersection of ore grade base metal-gold mineralisation in massive barite in the Tyndall Creek short DDH's which was interpreted by Lewis (1995) to be structurally hosted and controlled by the Tyndall Creek Fault. In particular three such zones were recognised: South Henty Fault, Tyndall Creek Fault and Henty Canal Alteration. Initial work on this compilation recognised a fourth: Access Road Alteration, which should be included in this group for appraisal. Several additional structurally favourable settings with no (or limited) geochemical data, were also recognised.

These alteration zones are included in the Type 3 alteration category (with varying levels of confidence) as described in Section 4.3.

It must be stated that the present review-compilation work has led to the downgrading of the perceived potential for this style of mineralisation at South Henty. In particular, the improvement in the understanding of the Henty deposit, field work in the four areas and a more detailed consideration of previous exploration in the light of each of the former, has resulted in the South Henty Fault area being downgraded. Furthermore, although work is recommended on the other three areas, the potential is considered to be moderate at best, in comparison to the excellent potential for a major discovery on the Lake Newton (aeromagnetic low/footwall alteration) anomaly on the Henty-Comstock horizon. Structurally controlled gold deposits have lower findability factors and tonnage-grade characteristics and hence are assigned lower exploration priority than the other targets.

Tyndall Creek Fault

A number of conclusions can be made about the Tyndall Creek Fault zone. As stated earlier, the evidence leans towards the massive barite-base metal-gold mineralisation intersected in the shallow holes as being syn-genetic on the Henty-Comstock horizon thus cancelling one of the main factors for the perceived potential.

On the surface the Tyndall Creek Fault does not have any significant expression; it is represented by a number of narrow (~0.1 to 2 metres) pyritic shears with associated chlorite±silica>sericite alteration. These can be seen in the road cutting north of the Tyndall Creek bridge, along the first length of the (rehabilitated) access track to old DDH's YNC12 and 13, and possibly in outcrop in Tyndall Creek (although Aberfoyle's interpretation of a major structure/fault zone through the creek must be based upon their interpretation of holes TC 1-5, as the outcropping rocks don't appear to be within such a fault zone). The drill core for the TCs 1-5 in Tyndall Creek has been cut for assay (by Aberfoyle) and the schistose core is now in small broken pieces and hence difficult to log/interpret. Furthermore, the core does not appear to support Aberfoyle's structural interpretation. A better model is that an asymmetric (syngenetic) body of (soft barite-galena-sphalerite) mineralisation/alteration preferentially focussed strain in a later structural event.

The best evidence for the existence of a relatively broader zone of gold anomalous pyritic alteration within a significant fault comes from DDH's NC-1 and HA1&2 (HA1 was stopped at 137.2 metres due to over lifting and redrilled as HA2 for 259.1 metres. Both holes intersected the same pyritic fault.). Core grind re-assaying for gold by Aberfoyle returned best results of HA1, 86-97m: 13m @ 0.075 g/t Au, and 102-117m: 15m @ 0.123 g/t Au. Recutting of HA2 and analysis for a wider range of elements, by Resolute, gave a best of 106-112m: 6m @ 0.2 g/t Au including 109-111m: 2 metres @ 0.34 g/t Au. (Relationships between these gold results and other pathfinder elements are discussed below).

NC-1 intersected two main zones of pyritic alteration/shearing with the upper zone from ~615 to 677m (with a stronger zone from 615 to 633m) and the lower, weaker, zone from 770 to 805m. These could conceivably be the same structure, or at least parallel structures (oriented structural readings indicated both strike ~315° (TN). Cut core (nominally 1 metre) sampling of the upper zone by Aberfoyle returned only three above detection limit results with the best 1 metre @ 0.2g/t (613m - 614m) with next best 0.031g/t Au (0.033 and 0.014) over 1.62m (623m - 623.62m). The rest of this upper zone contains <0.008 g/t Au as does the whole of the lower zone. These lower zone results are from core grind sampling so Resolute cut and re assayed the pyritic zone again. Best results were 2 metres @ 0.029 g/t Au (776m - 779m) with all other intervals below

detection limit.

Outcropping chloritic pyritic schist along the first length of the rehabilitated access track to DDHs YNC12 and 13 is gold anomalous (0.062 and 0.016 g/t Au). The schistosity is sub vertical and strikes WNW. Chlorite-silica-pyrite alteration in the road cut north of the Tyndall Creek bridge (not sampled) is associated with a pair of minor WNW trending faults. The alignment of the structures in HA1 and 2 is equivocal. The observations possibly support a north-south structure better than a westerly trend.

Aberfoyle defined their Tyndall Creek structure as "a major west-north-west trending and steeply north dipping zone (5-15m wide) intersected near the surface in TCs 1-5, at ~240m in HA5 and 640m in NC-1" (Lewis, 1995). The HA5 intersection is in a zone of very poor core recovery and has only weak gold responses (0.20, 0.015. 0.012 g/t Au).

As discussed here, in terms of its exploration potential we would prefer if the fault were considered to be defined by the apparent dislocation of Ordovician rocks on the Tyndall Range, and associated structures in outcrop and DDH NC-1 and possibly HA1/2 (i.e. excluding the TCs 1-5 intersections). This fault strikes ??? and dips ??? and would have opened under the Mid Devonian when sinistral displacement occurred along the South Henty Fault.

Several of the gold anomalous zones/outcrops were sampled in order to help recognise possible pathfinders to this gold mineralisation. The gold anomalous (Aberfoyle) intervals in NC-1 from the upper zone generally show no relationship to Cu, Pb, Zn, Ag & As. The only anomalous sample, however, was of 0.15 metres of semi-massive pyrite. It assayed 0.014 g/tAu, 713ppm Cu, 258ppm Pb, 175ppm Zn, <2ppm Ag and 153ppm As. Resolute samples from the lower pyritic zone in NC-1 showed no relationship between weak gold mineralisation and Cu, Pb, Zn, Ag, Bi & As.

HA2 which was recut did show some interesting zonation with a central gold zone (6m @ 0.2g/t Au) anomalous in copper (6m @ 772ppm) but not Pb (6m @ 69ppm) and Zn (6m @ 240ppm) surrounded by a halo of Pb (3m @ 287ppm and 2m @ 951ppm))and Zn (3m @ 1639ppm and 2m @ 2942ppm). Three samples of outcropping chloritic pyritic schist and associated quartz sulphide veining and seven outcrops of limonitic ironstone (384160 - 384169) were sampled along the first length of the rehabilitatedaccess track to DDHs YNC12 & 13. Two very schistose samples assayed 0.062 and 0.016 g/t Au, 1423 and 287 ppm Cu, 355 and 2383 ppm Pb and 1197 and 8600 ppm Zn, respectively. The veined sample assayed 0.117 g/t Au, 127 ppm Cu, 2488 ppm Pb and 1660 ppm Zn. The ferruginous samples assayed poorly with the best at 0.22 and 0.20 g/t Au (and the rest below detection). All samples were anomalous in Zn (544 to 1945 ppm). It is generally the case that gold anomalism is associated with base metals, variably arsenic, and not silver.

Exploration for these narrow sulphidic deposits with limited wall rock alteration will be best achieved by short dipole spacing dipole-dipole IP surveys. Soil sampling will be of dubious benefit due to the lack of dispersion in the highly acidic peaty soils whilst Wacker C-horizon sampling suffers from the lack of a broader zone of wall rock dispersion.

Henty Canal Alteration

This zone of alteration is that which Lewis (1995) described as a "gold anomalous silica-sericite-pyrite alteration zone above Middle Tyndall Group rhyolites ... semi-conformable ... [with a] ... probable strike length of over 800m".

The zone is defined by three separate outcrops of sericite-silica-pyrite alteration exposed during the construction work of the HEC.

The northernmost is along the edge of the Henty Canal where the alteration zone extends as a number of outcrops over a total width of 75 metres. Ti/Zr analysis of altered samples indicates that the rocks are dacitic along the canal (Ti/Zr from 9.4 to 14.5) which is supported by petrology done by Aberfoyle. Ten samples submitted by Resolute all contained <0.008g/t Au, with As to 1574, 54 and 51ppm, Cu to 33, 13 and 9ppm, Pb to 160, 122 and 49ppm and Zn to 132, 114 and 73ppm.

The middle zone, in a small creek, is quite sulphidic (to ~10% pyrite) and barite veins were reported by Aberfoyle. Their best results were 0.046 g/t Au.
The southern zone is defined by a few overgrown mounds in a swampy area. Aberfoyle's best results were 0.079 and 0.056g/t Au. There was no trace element litho-geochemistry or petrology done on rocks from these two areas, however, they look to be the same rock as that in the canal.

The volcanic facies of the dacitic unit is uncertain. At least some of the outcrop looks porphyritic in hand specimen and thin section. The altered dacite in the canal is strongly foliated (roughly north-south striking, sub-vertical) whilst adjacent rhyolite and sandstones are relatively undeformed. One possibility is that the dacite unit has been preferentially deformed, altered and mineralised between massive MJR rhyolite and overlying MJX quartz crystal rich sandstones. This is not supported by the lack of foliation in outcrop at the middle zone. This fault may be that which passes along Newton Creek under the Anthony Road and appears to have had a grossly sinistral, post-Ordovician displacement. The curve of the fault (as mapped by the Government regional mappers) passes quite neatly into the trend defined by the location of the three outcrops of altered dacite.

Exploration should be based upon trialling a dipole-dipole I.P. survey over known alteration and tracing the trend north and south. Wacker bedrock C-horizon soil geochemistry may be of some use.

South Henty Fault

The South Henty Fault was highlighted by MacDonald (1995) as having "potential for a shear hosted gold deposit based upon the structural model for Henty". The downgrading of this purely structural model downgrades the potential of the South Henty Fault. Previous exploration has done much of the easy work to the extent of drilling DDHs YNC14 and 15 into the best chargeability anomaly defined by a 50m dipole-dipole IP survey. Although strong (Type 3) silica-sericite-pyrite alteration was intersected in the fault, gold values were only weakly anomalous (e.g. 2m @ 0.05 g/t Au in YNC14).

The cost and difficulty of carrying out further exploration on this fault means that is necessary to decide whether any exploration is warranted at all. The likely exploration programme would involve extending the IP survey to cover the rest (southern end) of the South Henty Fault. Any drill targets would be solely IP anomalies along the steeply incised valley of the Henty River (sides ~300 metres), with no relevant soil geochemical data. Drilling would require helicopter support, considerable site preparation and relatively long (or not optimally located) holes to test relatively shallow targets. This target area should not be actively explored until new evidence is found to enhance its prospectivity.

Access Road Alteration

This zone outcrops on the road to the Newton Dam (hence: "access road") just east of the 380000mE baseline and is characterised by silica-sericite-pyrite alteration. Aberfoyle's sampling returned up to 0.105, 0.083 and 0.069 g/t Au (again the rocks have predominantly dacitic Ti/Zr ratios!). The zone appears to pass northwards to the immediate east of the collar of YNC11.

It is unclear as to the structural significance of this alteration/schistosity and if it relates to the other alteration zones discussed above.
This zone should be recognisable by dipole-dipole IP and traced north and south. Wacker bedrock C-horizon soil geochemistry may be of some use.

Other Possible Structures

The UTEM surveys have defined two linear trends of early time responses in the south western corner of the licence (south-west of Newton Dam wall). These two trends strike roughly north-north-west and could conceivably be related to splays of the South Henty Fault.

6 EXPLORATION TARGETS

EL 8/96 - South Henty is prospective for volcanic hosted polymetallic massive sulphide deposits, Henty type gold deposits and small structurally controlled gold deposits, as discussed in the preceding chapter.

Targets with recommendations for further exploration in EL 8/96 are listed below, in order of decreasing priority, on the bases of their empirical-economic rating and the results of previous exploration programmes.

1 Lake Newton Anomaly

The target lies on (or immediately below) the Henty-Comstock horizon and is the highest priority target on that horizon. Further targets on the horizon are detailed in 3.
This target is based on an extensive Type 1 (= VHMS footwall?) alteration zone, which is incompletely tested but partly delineated by an aeromagnetic low anomaly, situated stratigraphically below the Henty-Comstock favourable horizon (HCFH). It has potential for both VHMS and Henty gold type deposits.

It should be tested by core drilling a hole inclined to the west on about 5358900N to intersect the favourable horizon adjacent to the axis of the magnetic anomaly between 250m and 400m below surface; the hole should penetrate at least 50m into the footwall of the favourable horizon to optimise DHEM survey, and provide information on type and intensity of alteration which could provide vectors for follow up drilling (see also 3).

2 Spillway (VHMS) favourable horizon to north of Lake Newton

This horizon has been intensively tested at shallow to moderate depths north of YNC11 and there are equivocal indications that the northern section was deposited in a more distal setting, but the horizon remains untested in the 1km of strike length between the spillway and YNC11. Although there is no significant footwall alteration in the spillway and YNC11 there is a dramatic thickening of SBB in YNC11 suggesting proximity to a basaltic fire fountain vent (with implications for spatial associations for VHMS deposits) and this gap is worthy of further investigation by at least one facies/alteration exploratory diamond drill hole to continue the conceptual programme vigorously pursued by Pasminco.
The favourable horizon, at the base of SBB, should be intersected ≥200m below surface by a hole inclined to the west on about 5358900N, midway between the spillway and YNC11; the hole should penetrate at least 50m into the FPB below the favourable horizon to optimise a DHEM survey and permit assessment of alteration intensity.

An alternative hole could be collared south of the lake and designed to intersect the spillway horizon in the hinge zone of the enigmatic anticline, just east of the dam wall.

3 VHMS/gold potential on Henty-Comstock horizon

The proposed hole into the Lake Newton Anomaly (detailed in 1) is the most obvious target on this highly favourable horizon. Further drilling in this area will depend upon the results of that hole; there are, however, already a number of targets elsewhere on the Henty-Comstock horizon which require drilling:

* The shallow UTEM response corresponding to this horizon halfway between YNC4 and the pump station may be due to a shale but warrants a short hole.
* The anomalous silver intersected in HA4 (2m @ 410g/t Ag) warrants further drilling in order to help understand this mineralisation.
* The massive barite-sulphide at Tyndall Creek warrants an additional hole (this is detailed as 5).

It is very likely that further drilling will be recommended both to the north and south of the hole proposed in 1. This drilling may be of higher priority than the above three targets detailed.

Indirectly related, it would be very interesting to drill a hole into the "stalk" of the "mushroom" shaped aeromagnetic anomaly in order to help explain the magnetic feature and the nature of its strongly suspected relationship with alteration.

All such drilling will, as well as testing the more interesting parts of this prospective time horizon, provide information regarding alteration, mineralisation and volcanic facies in order for vectors to be drawn for follow-up drilling. No reasonable expense should be spared to improve interpretation of this alteration as it may well lead to an ore body. Future discoveries at depths beyond the reach of surface geophysics, will require confidence in geological concepts and persistence in testing them.

4 Spillway (VHMS) favourable horizon to south of Lake Newton

The lack of significant Type 1 alteration in FPB in YNC12 and the apparent profusion of NCD and Suite II intrusive units are discouraging factors for prospectivity in the 1km of strike length between the spillway and YNC13. Nevertheless, the possibility that the intrusives occupy a favourable structural setting previously exploited by a footwall hydrothermal system and now partly obscure the alteration picture, at least requires that the magnetic data should be modelled to get an improved interpretation of the extent and depth of the intrusive body and an idea of the space remaining on the favourable horizon.
South of YNC13 there is no subsurface data on the continuation of the SBB and favourable horizon, or the degree of alteration in the footwall, but it is tentatively interpreted that this southern area was proximal to a basaltic fire fountain vent which has favourable implications for VHMS exploration. The abundance of dacitic and andesitic coherent facies in YNC13 (which, unlike the andesite body near the spillway, do not seem to have positive magnetic relief) is less encouraging; it suggests that younger intrusives may have disrupted the favourable horizon.

The surface trace, strike extent and degree to which the favourable horizon is preserved between younger intrusive bodies should be determined by further detailed mapping, close spaced Wacker bedrock sampling and immobile element geochemistry.
Any sections of significant strike length of the favourable horizon (between intrusives) should be tested, for volcanic facies and alteration information; initially by shallow diamond drilling. Wacker sampling is useful to identify the bedrock litho-geochemistry but, due to the mobility of some critical components (eg. SiO_2, Na_2O, S, Fe_2O_3) is not applicable to alteration mapping in areas of poor outcrop.

5 Tyndall Creek Barite Prospect

Results of previous drill holes HA5 and HA6 do not support an extension of the postulated VHMS type footwall alteration zone at shallow-moderate depths northwards from the sulphide-barite mineralisation at Tyndall Creek. Existing drill holes at the prospect (TCs 1-5) have all been shallow and in broken ground with accompanying poor core recovery leading to significant uncertainty in geological interpretation of what may be a structurally complicated area.

Although there is no geophysical target at the prospect and the EL boundary is disconcertingly close, a medium depth diamond drill hole to intersect ~150-200m below the mineralised outcrop, more detailed surface mapping and immobile element litho geochemistry, would considerably tighten up the essential interpretation of the style of mineralisation - structurally controlled, remobilised or syn-volcanic? Any future core drilling in this area should be designed to cope with broken ground for maximum core recovery.

6 Henty Au type potential on the Henty-Comstock horizon near intersections with faults associated with Type 3 alteration.

Although the metallogenesis of the Henty gold deposit remains poorly understood, an empirical exploration model can be construed from its location near the intersection of the Henty-Comstock favourable horizon and the Henty Fault, the style of alteration along the fault and around the deposit, and (more tentatively) the observation that Henty and Mt Julia deposits exist close to the junction of the North and South Henty Faults. Empirically then: any areas where major faults with extensive Type 3 quartz+sericite+pyrite alteration intersect the HCFH would have potential.

Likely contenders in the major fault class are the Great Lyell Fault (GLF) and possibly the Tyndall Creek Fault (TCF). If the NFH-SFH junction is significant, then the inferred intersection of HCFH and GLF near its offsets by TCF (probably at great depth and south of the EL 8/96 boundary) and the southeast trending fault near the Anthony Road-Howard's Road corner, may be favourable structural settings. This concept has been seriously pursued, perhaps indirectly, by Aberfoyle's deep holes (NCs 1 to 4) which, however, indicated that the the GLF (or related splays?) in NCs 2 & 3 is not associated with significant Type 3 alteration.

The "Henty Canal Alteration Zone" near 380300E may be fault related and could present a target of this type if it intersects the HCFH along strike (to the south?) or down dip.

This empirical model is difficult to explore at depth. The Henty type alteration and mineralisation is likely to be chargeable but in narrow zones probably not detectable at >50m depth by surface IP surveys; it is not conductive and DHEM is precluded. It is notoriously patchy, near misses and low grade intercepts are likely, and considerable persistence would be required in exploratory drilling.

7 Type 2 alteration in YNC5 & YNC10 area.

Broadly stratiform, pervasive but patchy, plagioclase destructive sericite+Mn carbonate+Kspar alteration exists in several of the Pasminco drill holes north of Lake Newton. It exists in dacites stratigraphically above the Spillway favourable horizon and appears to increase in extent and intensity down dip between YNCs 5 & 10.

In view of the ambiguity of Type 2 alteration in relation to VHMS systems, this apparent alteration vector does not justify deeper (>400m) drilling at this stage. It represents a low priority target which should be earmarked for possible future investigation if the possible link between Types 1 & 2 alteration and VHMS mineralisation is substantiated by results elsewhere.

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GRAPHIC CORE LOG		Hole No. HA1	Depth 137.3 m
Scale 1: 1000		Project South Kenty EL 8/96	
By W.HERRMANN		Section	
Date 25 JULY 1996		Collar co-ords E	N RL
Page 1 of 1		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
0		& ALTERATION INTENSITY	(CHLORITIC) Fs (Q,Hbl) Phyric ANDESITE, weak chl-ser altn, matrix
		①	As above ± semi pervasive mod-strong ② buff-grey Q-ser-Py alt of matrix but pink Fs pats well
		1% Py	preserved semi fresh?
20		Broken Z	As above ± intermittent zones of completely delatined -
		~3-5% Py	sylonitic or dusty siliceous f.g. - Q-ser-Py altn? ±
		(2-3) 40°	locally upto 20% str Py. Sharp boundaries typical eg: 23.3m
40		②	PERVASIVE MODERATE Q-SER-(Py-CHL) alteration of matrix. Fs pats semi preserved. ②
			Pinkish buff-grey pervasively Q-ser (chl) ② altd
		1-3% Py	Fs phyric with patchy anastomosing stockwork irregular
60		②	Q-ser-Py stringers in places forming in situ breccia
			overprinted by late irregular brittle Calcite veins (~1% vol)
			CHLORITIC Fs (Q Hbl) phyric ANDESITE similar to 0-5m.
80			Weakly magnetic, pink Fs pats well preserved.
		2-5% Py	F-m grained ? or rather sheared PERVASIVELY Q-SER-Py altered
0.08 g/t Au	(55-60°)	③	veins clastic? ± sparse xelint Qtz xets, No xelint Fs!
			Pervasive Q-ser (matrix) altered Fs (Q, Hbl) phyric ANDESITE, pink-grey
100		0.5-1% Py	alteration becoming patchy + chloritic below ~99m.
		②	
		<0.2% Py	(CHLORITIC) MASSIVE Fs (Q, Hbl) phyric ANDESITE
		ANDESITIC V/C SET?	Fs pats weakly Epidote-CO_3 altered
120			Patchy minor calcite veining <1% volume.
		0% Py	weakly magnetic ± accessory granular Mt
		①	
137.3 EOH			

390184

GRAPHIC CORE LOG

Scale	1: 1000	Hole No.	HA2 Depth 259.3 m
By	W. HERRMANN	Project	SOUTH HENTY EL 5/96
Date	23/7/96	Section	
Page	1 of 1	Collar co-ords	E N RL
		Az. °G °M	Incl. °

3901857

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
0		coherent	Chloritic Sericitic ① massive Fs phyric (1-3mm, 5%) ANDESITE,
	weakly pseudo-clastic alt in parts.	0.5% dissPy	pervasive chl-ser matrix alt, but fs plagts semi preserved.
		2-10%, Py	Zone of strong (2-3) Q-Ser-Py alt'n of matrix & some weary stringer
18.9	30° fract.	contacts Transitional	Py but fs xtls surprisingly well preserved + pink, assoc MVL @ 19 m.
ASC 623061			
	Vuggy Qtz vein near contact	0.5% Py	Semi pervasive Ser alt'n of matrix ①, Fs phyts fresh.
		2-5% Py	Stkwk fine Py vnlts in pervasive Q-Ser-Py (2-3) variably downhole.
36.6		10% Py	MONOMICT (FspAnd) BRECCIA or CATACLASITE ? with variable
	1m @ 0.033 Au	2-5% Py	pervasive pink/grey/green Q-Ser-Chl-Alb?-Py alt'n (2-3)
40	35-40°	1-2% Py	and intermittent v. Pyritic shear/cataclasite bands (SEE VEP)
		<1% Py	CHLORITIC-CO_3 veined MASSIVE TO (PSEUDO?) FRAGMENTAL
60		2% Py	Fs phyric ANDESITE. Similar relict Fs phts to above & perv.
68.0		transitional contacts	matrix chl alt'n; patchy fine ser-Py giving pseudo frag fabric.
			SERICITIC FSP ANDESITE with pseudobreccia formed by avant Q-Ser-Py veins/stkwk
78.4		0.5-1% Py	CHLORITIC MASSIVE - PSEUDO BX FSP ANDESITE ①
80			Similar to 52-65m: chl rubbly pyritic FspAnd overprinted
ASC 623064		0.5% Py	by Q-Ser-Py alt'n pseudobx (in patches <10%) overprinted by CO_3 vns
		2% CO_3 vns.	Chloritic (least altered) andesite locally weakly magnetic
100			Patchy Q-Ser-Py pseudobx alt'n decreasing
	minor planar 35-40°	1-2% Py	downhole <5% below 90m. (1-2)
0.125 Au			FERRITIC MIXTITE of Fs, Andesite and fg-M g. cherty-sericitic
623065		as% Py	(sparsely qtz xtl) siltstone-sst. Clastic component has ~1-2% elon
117.9 110.4			Py and fairly strong pervasive chl-ser alt'n. (2)
120		2% Py ± Cpy Sph Vns	similar to 86-102m). CHLORITIC Fs(Hbl?)p Andesite.
			± Splashy Cpy-Sp.
		0.5% Py	CHLORITIC MASSIVE to PSEUDOFRAGMENTAL Fs(Hbl, Q?) phyric
	② = (chl)		ANDESITE. Very chloritic (minor sericite) matrix ± Fs phts
140		Q-Cc-Epd V	often very indistinct, sparse Q pcts <0.5%, 2mm. Pseudo
			Hydroclastic Bx fabric below ... imposed by variable matrix alt'n.
	40°	0.5% Py	Andesitic Hydroclastite Bx and fg VC sst, weak chl-ser alt'n
			①
153 m.o			CHLORITIC MASSIVE (-PSEUDOFRAGMENTAL) Fs phyric ANDESITE.
160		<0.2% Py	Common cm scale pseudofragmental fabric imposed
			by dominant weak sericite alteration of chloritic
	massive		andesite, alteration intensity is weak
	Q-Chl-		(0-1); feldspars variably preserved or blurry,
180	Ep-Cc		sparse rounded Q pcts (<0.5% to 2mm) and alt
	veins		pseudomorphs Hbl (~1%)
5 cm			
200		<0.2% Py	Extensive patchy to patchy semi pervasive
			Epidote alteration below 190m affecting
			~20% of rock but with relict porphyritic
			fabrics well preserved.
220			Generally looks coherent & dominant
			alt'n producing pseudoclastic fabric
ASC 623069			but weak Chl partly Hydroclastite
			especially below 220 m.
240			
			Alteration intensity rated ~1 (Epidote)
			& identity not associated with major
			vein changes
259.3			

MA2

10-52 m. This zone was logged as "Sheared Agglomerates" by MLMRC and there are certainly some short sections (notably between 33-46 m) which have a definite fragmental fabric — this discussion revolves about whether these fragments are volcaniclastic or cataclastic.

Fragments are mostly angular - or lenticoid and mainly in the range 3-50 mm; they are ubiquitously but variably altered with pink to yellowish grey, Q-Ser-Ab, Q-Ser-Py and minor Q-Ser-Chl-Py assemblages and (in the cases where alteration is not texturally destructive) mostly seem to retain a relict Fsp porphyritic fabric similar to the less altered coherent Fsp Andesite at the collar. (≤ 1-3 mm, 5% Fsp phts.) The matrix is of essentially similar composition represented by fine granular to sheared/foliated grey to greenish grey Qtz-Ser-Chl-Py commonly ± relict partly milled pink Fsp grains resembling those in the fragments etc.

These are interspersed with mylonitic shear zones upto ~ 0.5m wide (mainly at ~ 40° to CA0C) in which kernels of altered rock as above are enveloped by anastomosing bands of fine granular Pyrite etc, and short segments of pervasively pink-grey Q-Ser-Py-Ab altered coherent Fsp Andesite with variably intense stockwork of irregular fine Py veinlets.

The entire zone is variably broken with frequent/patchy vuggy fractures and minor qtz-carb-(chl) veins ± pink alteration haloes.

It could be interpreted as a sheared, incompetent unit of hydrothermally altered Andesitic Hx? breccia.

However, the close spatial association between Q-Ser-Py alteration and brittle-ductile shear zones, the monomict nature of the fragments, the patchy variability of alteration intensity and pyrite concentration are all consistent with localized fault associated alteration. The almost ubiquitous existence of relict pink ("albite") feldspar similar to that observed near the HFZ and in YNC 14 & 15 supports the interpretation that the Q-Ser-Py alt. is fault associated — one would not expect Fsp phts to survive in pervasive Q-Ser-Py footwall type alteration proximal to a VHMS system.

GRAPHIC CORE LOG		Hole No. HA3	Depth 244.0 m
Scale 1:1000		Project SOUTH HENTY EL 8/96	
By W.HERRMANN		Section	
Date 11 JULY 1996		Collar co-ords E	N RL
Page 1 of 1		Az. °G °M	Incl. °

3901827

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			Massive grey DACITE (HYALOCLASTITE?) Bx. More or less monomict fs phyric basite. Siliceous looking clasts; pale sandy Q-Fxt. matrix.
Fs v fxtl	0.5-1% Py	Bd: ~40° some slumped.	Thin bd: V/c sst; fairly well sorted variolitic qtz + fs xt. rich with pale grey ashy matrix, variable f-c grained, minor lithics mainly Dacite as above.
20			Polymict Dac + fossil Lst. Breccia ± sandy matrix as above.
TZR 15.1		0.5% Py disseminated & some clasts.	Massive Dacite Hx similar to above 9m, few shale clasts near base
		clv: 55° 0.5% Py	Laminated/transposed Dk grey-blk slst/shale. 0.5% disem Py
40			Massive Fs-Q xt/lithic vc Sst. Generally >40% xtals & small lithics ± variable grey ashy sericitic (pumiceous) matrix.
TZR 38.1		0.2% Py	Fs mostly fairly fresh, slight ser-chl alt below 45m. Rare Basalt clasts.
		clv: 45-50° locally Magnetic	Sheared/Mylonitic Basalt Bx, mostly chloritic ± M. scale bands Hem. St. and Ser bleaching. = Howards Tuff and unit in NC4?
60	①	① Ser Py 0.5-1% disem Py	Massive f-M.g. ashy (Q-Fs xt) felsic VC SST. Sericitic ashy base but fs xts fairly fresh but upto 1% disem. Py.
		Shrd clv: 50°	MIXED FELSIC sericitic and chloritic mafic/BASALTIC POLYMICT LITHIC VC SST.
		upto 3% Mt	SERICITIC-HEMATITIC Mixed MAFIC-FELSIC BRECCIA and volcaniclastic Sst — strongly sheared. Resembles lenticular "aphyric basalt" felsic of Howards Tuff but mostly grey sericitized ? (variable chloritic) and some definate felsic bands (eg: 94.2 m). Hematite in pebbles, quite sharp boundaries + amor. ± disem Mt to 3%
80			
~ 49m @ 8.4 g/t Ag		0.5% disp Py in fine sericitic zones clv: 60°	
100			
~ @ 9.4 g/t Ag			
"HOWARDS TUFF"			
		Unrounded clasts to ~30-40 mm.	HEMATITIC MAFIC Bx and V/C SST. ± minor felsic? sericitic bands below 118m and generally ~5% CO_3 throughout as small granular blebs to 2mm (resembling altd fs?)
120			
		clv. 60-70°	curved to rounded massive patches to 10mm (deformed amygdales?) and shearing veins ± chlorite. Generally not Magnetic though Hem. stain is fairly pervasive. Similar to lenticular texture.
		(Trace Py in Ser bands)	
140			
		clv: 70°	Sericitic-Chloritic Mg. V/C SST of mixed felsic-minor mafic composition. 1-2% disem detrital Mt.
		Sericitic	Mixed volcaniclastic SST as above and SM white-pink CO_3.
160			
¼ CORE INTERFRAGMENT			MASSIVE WHITE-PINK CARBONATE (Cc >> Dol) with <5% chloritic shreaks + bands (= volcaniclastic material?) +/- granular detrital Mt.
		clv: 70°	
180			Hematitic Fs xt. rich V/C SST ± streaks + patches SM CO_3.
5 cm			Similar to 158-174 m ± ~10% chl. V/C detritus +/- Mt.
200		1-3% disp. detrital Mt -sat 201m	Massive Fs xt rich (locally Fs phyric "basaltic" lithic) VC Sst ± upto 30% Cc as matrix cement? and SM veins, minor chl. Patchy pink V.fs por? alt. assoc ± trace Py appears to predate Cc? MASSIVE WHITE (PINK) CO_3 (calcite) ± minor 5-10% chl.
			VC detritus and rare chl. beds. 1m ± 5% Py stringers in CO_3.
220		Local 5% Py in Vns	[Fs phyric, chl alt matrix] Fs(Hbl) phyric Andesite; coherent, 15-20% 0.5-2 mm tabular pinks Fs pxts + 2% 5mm prismatic chl+Mt alt Hbl. Bedded V/C Sst → Slst → massive CO_3, detrital v/c sand + Mt. grading down into massive white CO_3.
AIC: TZR 29.8. Suite II		Perfect chl 5% Cc Vns	
240			Fs-Hbl Andesite HYALOCLASTITE BRECCIA ± white CO_3 Cement. Fs pxts weakly "saussuritized", variable chlorite alteration of matrix, fine accessory Mt.

390188

Notes on HA3. 16/7/96

The "Howards Duff" mafic breccia has fabric of flattened lenticular fg-aphyric (to vaguely amygdaloidal) basalt and variable chlorite-sericite-hematite "alteration" similar to that of NC4 and NC1. and (although there is no immobile element geochem data to confirm it) there is little doubt that it is a lithological correlate. The upper? 12m (48-60m) is chloritic/hematitic and magnetic but the middle zone contains mixed mafic/felsic volcaniclastic material with the apparently fg phyric felsic parts generally being more sericitic and occasionally containing minor pyrite. There are repeated small scale variations bt sericitic + hematitic which I interpret to represent primary compositional/depositional variations and consequent different alteration assemblages rather than gross variation in hydrothermal alteration - boundaries seem to sharp and unsystematic to be superimposed hydrothermal changes.

There is no equivalent of the lst + Lst congl/sed of NC4 above the HT mafic bx; the overlying FS-Ox rich sst (36-48m) could be a variant of the lower Fsxt sst. unit of NC4 but the matrix is more sericitic and doesn't have same overall "green" chloritic colour. Therefore the Idle shale could be equivalent to fine grey V/c slst. underlying Hematite bx in NC4. [* Better compare composition of Dacites in NC4 and HA3 from their upper Dac. horizon?]

The calcsilic Carbonate below the HT mafic Bx in HA3 varies from lining volcaniclastic sandstones ± calcareous matrix to massive white fg carbonate/marble; no fossils observed. I have little doubt that these are sedimentary mixtures of "limestone" and volcaniclastic detritus including granules of HT. (The pink colour could be due to later? oxidation of Ht in parts?) Fs xts in the VC Sst. component are not especially altered (eg. 195-210m) and (apart from the obvious redistribution of CO_3 into veins + vein sets which also occurs in the coherent Fs-Hb Andesite) there is no indication of semi pervasive to pervasive CO_3 alteration to account for the massive amounts of CO_3 in the rocks. It is interpreted as a mixed volcaniclastic-limestone sediment package. Content relationships of the coherent Fs-Hb/p Andesite and massive CO_3 units are assumed by CO_3 veining or non diagnostic and they may be sills but the apparent Hyaloclastite Bx fabric in the last metre suggests eruption of thin porphyritic Andesite lavas inter-layered with the Lst-Sediment package. Unfortunate that this hole was stopped at 244m — it did not penetrate to the equivalent of Dacites under HT. in NC4 and no comparison ± FW alt. intensity is possible.

GRAPHIC CORE LOG		Hole No. HA5	Depth m
Scale 1: 1000		Project	
By G.Mac Donald		Section	
Date		Collar co-ords E	N RL
Page 1 of 2		Az. °G °M	Incl. °

390189

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			No core (glacials)
			F >> Q xtal v/c. In broken core so
			contacts unclear. Foliated.
20			Large clast (?) of QP
			P gy shaky slt, foliated ~ abund weathered detrital magnetite.
384066 T:12= 21.4			F ≥ Q xtal v/c sst becoming more slt + felsic volcanic
			lithic (still < 5%) rich down hole - inc large QFeR
40			Narrow P gy silty shale. Foliated
			F ≥ Q xtal v/c sst ~ variable Mt (detrital) Become
384072 T:12= >26.6			ang lithic rich @ base - felsic volcanics, slt (ser?) Foliated
	msv hmt		Weathered fault ~ mm fine py vnl parallel to foliation
384061 T:12= 24.4 Block Nrd 623095 @ 59m			Strongly foliated chl - hmt altered F ≥ Q xtal
60			sst - identical in parts to ▨ in TC holes - Zones of
			strong q - py alt= ~ 10% ~ q pervasive ~ 1% py in stringers but
623096 @ 68m	← Hb rich ≈		FpD (felsic) clasts at base. Containing detrital Mt not parallel to foliation
80			F xtal sst ~ no obvious Q (but it is mx'kg),
	flt ≈ 45° to core.		detrital Mt Intriguing ≈ 72m appears porph
384065 T:12= 35.9	+ ocl Hb xtals.	F >> Q	~ glomero F. Mg's (?) Wk hmt - chl alt=
		FpD clasts + ag. sltst + Mt	except for ≈ 1% py in parts of Ag ≈ - also
100			to Ba vng.
	+ ocl Hb xtals.	F >> Q	Occasionally more Q rich
			~ Mt +/o - v occasional
384063 T:12= 35.6			lithics FpD.
			FQp D/R clast or matrix supp. Contacts in broken core
120	+ ocl Hb xtals.		F >> Q v/c sst but but sharp.
			no ~~sign~~ Mt Poss lithic @ 131.5
		Upper Contact 55° to core.	
140			Gn bedded slt, cherty, mn drd py
384062 T:12= 25.9			Fsp (Mt) xtal sst ~ lithics (FpD ghosted) @ base.
			Fsp (Mt) xtal sst ~ ocl lithics (FpD ? aphyric ? pink orange like MTG). Ocl Mottled albite alt=, Mn
160			epidote alt= also. Hb like xtals in
			parts especially ≈ below 148.5 -
			in discrete ~~clast~~ ~~Hb~~ pseudo clasts
			clasts.
180			Gn bedded slt, cherty as above. Bedding
			@ ≈ 50° to core axis. Possibly fine
384071 T:12= 26.3	← v/c w/ on core base ← FAULT	broken core + alt fault bx.	grained top to underlying sst. Mn Mt
			Fsp > Mt >> Hb xtal sst. Up to 5% Mt detrital
200			Ocl lithics
			NB @ ≈ 200 - 3 pieces of fg slt - vg fsp - mt - hb sst between FHbpA - these are interpreted to be due to people shifting the core.
At core loss			
		but only ≈ 2 pieces at core.	F Hbp A Contacts in broken core. Upper possibly
384075 T:12= 31.9			faulted. Lower possibly sligtly higher/at the being marked by a bx.
384069 T:12= 34.8			
	Bedding 65° to core 11 to bx.		Lithic rich (≈ 75%) mx poor sst - bx. Mafic derived clasts
220			Strongly foliated @ 45° to core. Wid Mt. (plate (a))
			Same but preceding unit ie. lithic rich mx poor sst bx. ≈ mafic
			clasts [grading]
			Pink, leached FHbpA
	NO CORE + LITTLE CORE - mixed up + broken	contact? sharp or alteration?	
240			
	③		Q - ser - py altd Schistose zone. Probably
			after sediment as above but not obvious.
			Schistosity/veining ≈ @ 55°-60° to core

5 cm

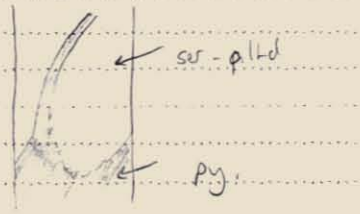
390190

(a) Porous leached zones alongside fractures due to later groundwater - gives rock a spongy appearance.

(b) Mostly ~ 5m dark accessory evidence of fining up to 213m. Porous spongy zone adjacent to fractures due to weathering of ~~magnetite~~.

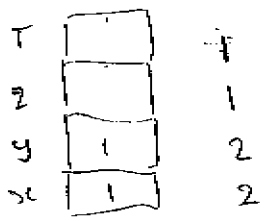
GRAPHIC CORE LOG		Hole No. HA5	Depth m
Scale 1:1000		Project	
By		Section	
Date		Collar co-ords E	N RL
Page 2 of 2		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
250			FHbpA pink massive,
384074 T.Ir = 15.4			Ser-py altd sediment; c fragged edges of NC1 (see below).
270	2.5		FHbpA
384073 T.Ir = 17.2			Bx. c clasts of andesite in my ser-py altd mx, Str mt alt of mc clasts
290			Pink to green FHbpA.
FOH 297.5			



5 cm

390191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GRAPHIC CORE LOG		Hole No. HA6	Depth m
Scale 1: 1000		Project	
By G MacDonald		Section	
Date 1996		Collar co-ords E	N RL
Page 1 of 1		Az. °G °M	Incl. °

3901193

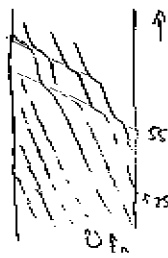
Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
20		min Mt	V/c bx clasts > 50% ± QFpR dominant poss FpD? F>Q mx ± Mt
		not obv Mt	V/c bx F>Q mx QFpR (white) clasts, <50% clasts
			Not obv graded V/c bx ± clasts of QFpR >>
			rip up silt (soft sed) + at least one fossilt clast in F>Q mx
			Gy shaly slt grading into bx ± rdd wt QFpR clasts - silty mx
			Sim to above unit except clasts v wt a sil - mx becomes v silicaous blw. 4cm ± ≈ 95% clasts
			Gy shaley slt
60		f. 60° pervasive cb - bd - mx. + vng	F >> Q sst ± possible clasts FpD? F>>Q in mx ± clasts ~~not~~ don't have obvious ϕ
		f. 60°	Faulted contact though most deformation is in underlying unit.
Ti/Zr = 384068 32.6			Strongly foliated haematitic - carbonate rich ± chlorite
80			mafic lithic v/c bx ± sy hmt wispy rod
Ti/Zr = 384067 34.5		HCBS	mc clasts ± ~~chloritic~~ stretched chloritic phenos ±
			± "HOWARDS TUFF" - no Q obvious in mx
33.8			Lower contact difficult to define - possibly just lack of hmt.
100			Gn gy foliated marly sst ± tabular calcite [PTO(a)]
Ti/Zr = 384069 44.8			to Im - F sst ± cb. Lower contact defined by first shaley bed. [PTO(b)]
22.8			Same as above unit but shaley zone more
120		Mt mc	common ie x 20% [PTO(c)]. Graded top of underlying
		FHbpA extrusive bx / lava.	
		variable Mt	V/c bx derived from FHbpA as seen above - below. Still has cb mx ± mod hmt/chl giving ppl/gn colour. Strongly foliated.
160			Sandy top. ± cb mx to v/c bx (hyaloclastic?) Mod hmt/chl. Sy foliated.
24.3			
160		← Contact hard to pick	
		Cb. vng	FHbpA ± Mt - foliated phenocrysts - Mafics now hmt
Ti/Zr = 384070 19.7		← contact hard to place	← Clasts of FHbpA in sandy mx (difficult)
180			"Banded Carbonate" - actually carbonate - sandy/silty carbonate. Foliated @ 25°. Includes clast of FHbpA @ 177m
		0.05m cb	Apparently massive FHbA but ± small (0.05m → 1m)
		0.05m cb	intervals of typical sandy/silty cb (apart from
20.4		0.05m cb	cb vng). Contacts between cb & A not peperitic
200		0.3m cb	yet A is often massive. Cb is not indurated
		0.9m cb inc sst ±	adj to A - most likely interflow sedimentation but
		0.9m cb	Unclear where base is. Not (intriguing)
220			obviously bxd towards base.
		0.5m cb	semi mive hmt after Mt in cb.
		←	Slightly coarser ± ? clasts (?) of cb.
240			Cb rich sandy unit ± cl giving gn colour in parts. Includes clasts - ± of "banded carbonates", marly ssts, bx's
			Some fragments of detrital Mt? in cb (v) magnetic.
250			

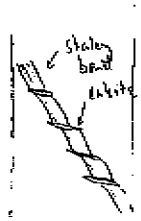
Clasts - ± of banded cbs cb rich sst - lge clasts FHbpA overprinted by later cb vng. Not foliated.

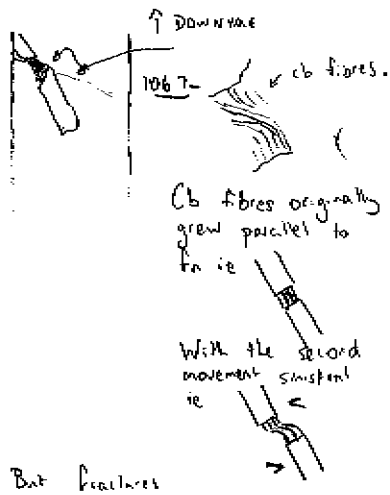
(a) The rock contains carbonate throughout the matrix as well as zones of banded sandy cb eg 74.8 - 75.3 which look like interbeds. Hard to see all of this as a mass flow or distal hyaloclastic bx. Could be similar eruptive process to spillway mafic bx. Mafic clasts are strongly elongated in foliation but many have been partly elongate prior to def^{n}. Ag mzn is in later cb vng eg ≈ 96.0m.

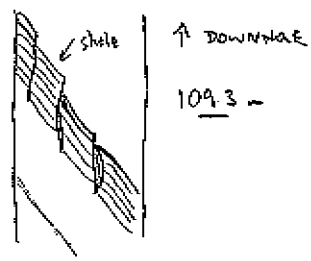
(b) Wispy sericite clasts look to be pumice. Qtz shaley zones (or high strain areas) eg 105m contain sdi (py). The rock looks to be made of glassy shards in fine mtx(?) parallel to fn. Look remobilised.

(c) Consistent overprinting foliation expressed in shalier bands. Unit is v/c bx ± FHbp A clasts derived from underlying Andesite extrusive. Contains a number of bands of pink carbonate (± te sd'e) Mx which is Andesite derived contains considerable cb









ALTERATION INTENSITY : Weak (1), Moderate (2), Intense (3)

GRAPHIC CORE LOG		Hole No. HA 7	Depth 233.5 m
Scale 1: 1,000		Project STH HENTY EL 8/96	
By W. HERRMANN		Section	
Date 8 JULY 1996		Collar co-ords	RL
Page 1 of		Az. °G	°

5 cm

3901195

Ti/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
	19.6			Hematitic coherent fs porphyritic Dacite, 15-20%, 0.5-4mm tabular partly "saussuritised" plag. and <5% 2-4mm pseudo altered mafic in f.g. dk grn-grey - purplish matrix dusted ± hm, ox Mt and fine mafics? Not Magnetic!
	16.0			
	20		Blocky Hyaloclastite	
5 * (25.1)	21.0			
	21.2			Hematitic coherent fs glomeroporphyritic - Qphyric Andesite. ~10%, 1-3mm glomeroporph. tabular wh-pink fs and abundant 2-3% upto 4mm rounded to irregular clear fractured and clot rimmed Qtz pcts (some resemble amygdules) in massive f.g. grey slightly fluidal matrix dusted ± ox Mt. Granular. Not Magnetic but primary Mt: 0.5-1%
	19.9			
	18.8	40		
	19.6		Interflow Hyaloclastite?	
	18.5			
	15.1	60	Slight Bpenitic	
	14.4			Chloritic massive "Andesitic" Breccia/Sst. ± Hyaloclastite. Largely fs(Q)p Andesite as above + below but some definite foreigners (± polymict); variably sandy-lithic to clast rich. Weakly chloritic (green) but NO Hem, not magnetic!
	20.4			
	21.1		Distinctly Magnetic	
	19.7	80 83.6	Bpenitic base + top?	Hematitic coherent (Q)Fp Andesite similar to upper HA8.
350 Zn	16.5	Shear 0.5m ? ②	Sheared QFp Andesite or pap. Hx? ± semi pervasive silic. + dissem Py to	
	19.9	①	2-3% B.; totally silicif above 87m then Q-ser-Py and veinlet fs below.	
	16.0	100		Chloritic massive And. Bx-SST-Hx, Qtz xts increasing down. ± weak Q-ser-Py ① alt in sandy matrix, little effect on clasts.
	12.8	Local intense Hem. bands ②	2-3% disP y.	Sericitic Massive Q xt. rich "Pumiceous" SST ± pervasive ② Q-ser-Py alt. (Cum HA8)
	15.3		Cl: 50°	
700 Zn	18.0	120	Mn-FeCO3 + Baryte Vns, Sp, Fm	Sericitic-Mt-CO3 altd. Mylonitic fp. Dacite. Very strongly strained + foliated (resembles massive ashy clst.) but there are visible v. stretched pseudomorphs of fs + FeMg largely replaced by Mt + CO3, mud dissem Mt in matrix. Irregular Sth wards Sid-Ba veins (upto 5% core) 113-125m ± traces Sp thin. Mt alteration and sparser Cc veining diminishing below 130m. Distinct Magn
	19.3			
* (21.2)	17.5			
	17.4	140	Cl: 40°	
	17.6			
	18.0		Cl: 40°	
	17.9	160	Tr: Py	Sericitic massive (to Hyaloclastic) QFp Dacite ± trace dissem Mt.
960 Zn .04 Au	13.7	167	10cm Shear	Cuny clot fol ser matrix 3%, 3mm rnd. Qtz pcts, bluish fs,
	10.7		Q-ser-Py ② 2% Py.	Coherent but clot to 164m, then blocky Hx.
	10.2	180	~175m (fs destruct)	Sericitic-Siliceous massive (coherent?) Q(F)p "Phyllite" (or pumice bx??)
	10.4			
	11.0		Q-ser-Py	Identical to massive Q xt. rich units in
710 Zn .1 * (11.9)	10.8		① <1% Py	HA8 but in HA7 has very uniform distrib.
	10.7	200 *		10%, 3-5mm round inclusion filled Q pcts
	10.4		Alteration Warning. (Patchy veinlet CO3 alt fs)	in wispy "chloritic"? fine q-ser matrix ± trains dissem Py to ~175m. Below ~175m is transition to less altd. ± patchy veinlet (CO3 altd) fs pcts (10%, 1-3mm tabular wht) and <1% Py. (eg. 174.2m) also fresh fs at EOH. No evidence of clastic sandy units except in uphole 2m (167-169m)
	9.7			
	9.7	220		
	10.0			
	233.5			Suggests that massive units in HA8 + 7 could be coherent flows? and there is a permeability control on alter. intensity.

ALTERATION : ① = Minor ② = Moderate ③ = V. Intense Alteration

GRAPHIC CORE LOG

Scale 1: 1000
By W. HERRMANN
Date 4 JULY 1996
Page 1 of

Hole No. HA8 **Depth** 251-5 m
Project Sth Henty Eel 8/96
Section
Collar co-ords
Az. °G
5 cm
RL °

Ti/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
	18.9	7.5	ser-chl ① Mt (Hem) Ser-Chl-Py Mt (Hem)	Coherent QFp 2½, 2-3 mm rounded Pls Qtz pets and tabular grn-grey-brn 3-5%, 1-2 mm Fs pets in variably altd felsic matrix ± sparse "books" of chl. biot. and abundant 1-3% dusty-granular Mt. Patchy Mt destructive ser-chl.
	20		cl: 40°	altn. assoc. ± local 2% Py vns near 14 m in clyg // bands.
	15.0		Q-ser-Py ③ 2-5% Py	Ser-chl altn seems to be shear related, not fs destructive eg: 13.5m. Fresher core has dark purplish grey dns glassy matrix, distinctly magnetic
	40		Patchy fs- ≤1% Py vns	QFp hyaloclastite + V/c sst/bx. ± strong Q-ser-Py altn.
	15.2		transition? ③	Contact transitional over ~3m, bodies partly clastic but some delicate pseudofragmental texture (eg: 21.5m) ±
	60	2-5% Py decreasing down	Trace Cm-Sp in blebs and short trains	Q-ser-Py domains enveloping less altd QFp kernels. Some granular Q-ser-Py alt matrix ± finer lithics Qxts (eg 32m)
	13.1	transition Hx?	Q-ser-Py ②	Suggests mixture of QFp hyaloclastite and finer Vc sst.
	?	2% Py	Bd: 45° cl: 35-40°	Virtually total fs destruction. Variable Qtz xts 0.5-6mm, 1-15%
Shear?	11.6	80	2-3½ Py Q-ser-Py ③	62-112 m: Qxt. rich pumice? bx and V/c sst.
	11.6			characteristic large Q xts 2-6mm, 5-10% in silica-ser altd matrix with wavy wisps/stains ser anastomosing round qtz xts. Short intervals of finer qxt. V/c sst.
	100	2-4% Py	cl: 45°	& similar comp but <5% qtz xts 0.5-2mm + Lithics?
	10.5			
	10.5	120 1-2½ Py	Q-ser-Cos -Py	Qtz xt rich Pumice Bx/sst. Q-ser-Py ② 1-2% dis. Py, overprinted by late Cos mainly in cracks in Q xts + silic. domains orthogonal to clyg.
			cl: 40-50°	
	10.9	? 140		within Rich Base? Lithics are Sid. alt. Qp and ser. pumice?
	10.1	2-4½ Py	Q-ser-Py 2-3	Qxt. pumice bx + sst. Qxts are fractured and partly disaggregated — by shear? — near lower contact, minor sheared zone ± m.
	10.0	160	Q-ser-Py ② 1-3% Py	Qxt. rich pumice Bx? (patchy Sid Cos overprint) Trace blebby Cm-pale Sp usually in fine vns/trains // clyg.
	9.8			
	+ 180	4½ Py	← 623044	Coherent Qp? AJC calls this coherent / "false breccia" it contains some sections with pink felsic, less silicif. matrix but Q xts are identical in form, size + coloured to pumice? units appear, undoubted comp/genetic connection. Q-ser-Py alt ① → ② tending patchy, partly ± diffuse bands/stringers.
	9.7	½-2% Py		
		200		
	9.8		② Q-ser-Py	
		220	1-3% dis Py	Q-ser-Py altered Qp Hyaloclastite Bx + V/c sst? Inhomogeneous mixture of coarse Qp/pumice as above, finer ang qxt/lithic sst and minor pale grey clasty slst, possibly repetitive or hyaloclastic bx unit boundaries blurred by pervasive Q-(ser) alt = ② Generally 1-3% dis. Py.
	9.8			
	9.5	240		
	10.0			
		2545		

96 0196 C3

390197

Notes on HAB.

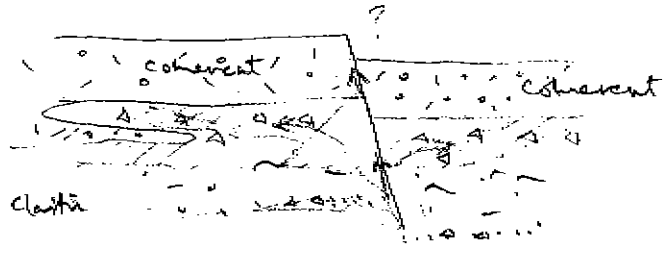
Pheno/xt assemblages and morphologies are consistent with Ti/Zr data indicating 2 major compositional units in this hole:

(a) the upper (Q)Fp phyric coherent units (0-20, 35-42 m) and associated hyaloclastic? v/clastic breccia/sst down to ~45 m

(b) Qtz xtal rich mostly massive with occasional zones of stratified fine sst and/or irregular lithic clast rich breccias to a few metres thick. Characterised by 15-10% (locally approaching 5%) 2-6 mm dia. large round quartz pheno/xts, with round inclusion and corona resorbed margins, and minor flakes ser biotite contained in grey siliceous f.g. - aphanitic matrix with wispy anastomosing streaks of sericite wrapping around qtz xts. This gives the impression of collapsed pumice (eutaxitic) fabric and the somewhat variable and irregular size and distribution of qtz xts reinforces the concept that it is clastic. The intervening short V/c sst-bx zones are sometimes bedded and nearly always contain high proportn 5-10% of smaller broken qtz xts but are probably of largely related composition to the massive sections.
The consistently low (<12) Ti/Zr below ~65 m supports an int grp. that this Qxt rich pumice? / volcaniclastic sst/bx sequence is cogenetic / comagmatic.
ATC. interpreted 63044 at 180 m to be pseudo fragmental Qbi(F?) porphyritic lava — it looks essentially similar to pumice? units above but has relict? pink felsic matrix suggesting lesser alteration pcbly or due to more coherent lithology?
Some possibility that the massive Qxt rich units (like pumice bx) are a pile of Qp flows or sills and the intervening clastic zones are hyaloclastite interbeds; there is certainly some indication that the clastic zones are always strongly Q-ser-Py altd. but the massive zones also generally have mod-strong (2-3) pervasive alteration, not confined to discrete stringers suggesting relatively high permeability.
Alteration is still moderately strong at end of hole.

By contrast: the coherent (Q)Fp (35-42 m) is not pervasively altered; contains relict fp phenos and Q-ser-Py alt. is largely confined to narrow stringer veins. Overall there is strong suggestion that alteration boundary ~21 m is strongly permeability controlled.

Schematic:



GRAPHIC CORE LOG		Hole No. YNC 4	Depth 272.0 m
Scale 1: 1000		Project SOUTH HENTY Ea 5/96	
By W.HERRMANN + A. MACDONALD		Section	
Date		Collar co-ords	RL
Page 1 of		Az. °G	°

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
0			Glacial boulder clays, v. poor recovery.
20			
40		Clasts to 20mm. Moderately foliated Clv.: 50° Pebbly - breccia top contact	MASSIVE chloritic/sericitic Fs > Qtz Xt V/F SST ± sparse lenticular/rounded clasts pale greenish grey fg. Basalt - possibly related to HBB. 1% detrital Mt, patchy Hem. stain. Impure type 5/ HBB volcaniclastic.
60		Not clvd. Coherent	MASSIVE Qtz-Feldspar PORPHYRY. 5%, 2-4 mm rounded/embayed inclusion rich qtz phenos and 10-15%, 1-3 mm tabular white/pink plagioclase phenos evenly distributed in red brown quartzofeldspathic fine grained matrix ± mica chloritic shreds (after mafics?) and ~1% fine granular disseminated accessory Mt. Slightly magnetic
80			
100			below 117 however few metres has weak matrix sericitization assoc. with incipient foliation and trace fine disseminated Py but absence of Mt.; feldspar phenocrysts largely unaffected.
120		Possible pepperitic contact over 15cm. Bd: 50°//clvg	Diffuse bedded to massive sericitic-chloritic felsic/pumiceous VC SST. Spare relict pumice to 5mm; and minor fg > qtz clasts <0.5 mm in sericitic "ashy" matrix ± upto 20% lenticular "bleb-like" chlorite often arrosr ± upto 1-2% fine disseminated Py.
140	<0.5% Py sericitic ± fine sideritic Clb veinlets.	Sporadic Py	
?	Strong Clb ± Hem veinlets ± Sp-Cu-Py 1-3% disseminated Py. Overall 10-15% Chl.		CHLORITIC-CARBONATE altered massive basaltic volcaniclastic? with blurry bleb-like patches of chlorite (possibly ex basaltic hyaloclasts?) and patchy semi-pervasive chlorite associated with stockworks of 1-20mm (±5% wide) sideritic-Clb veins containing splashy Sp-Cu-Py. Overall disseminated Py 1-3%, locally 5%
160	Clb veinlets diminishing to ~1% Py ~0.5%		Alteration intensity diminishing below ~159 m, chlorite more bleb-like/patchy 5-10%, but still locally quite significant. Overall Pyrite ~ 0.5% Precursor facies uncertain but recrystallized qtz eyes suggest it was not entirely monomictic Basalt breccia or coherent basalt, though overwhelmingly of Basaltic composition.
180	<0.2% Py	?	Indeterminate "basaltic" as above, sericitic ± ~5% disseminated and fine veinlets Sid-Clb, insignificant Py, Cpy or other sulphides
	<0.2% Py 2% Clb veinlets		Massive (sericitic-Clb) volcaniclastic breccia/conglomerate. Clast supported pink + grey fg felsic clasts (felsic volcanics?) and minor clastic siltstone
	0.5% Py	Bd//clv: 50°-55°	Bdd sericitic felsic VC SST ± 5% fine clvg.// veinlets Sideritic carbonate.
200	<1% Clb	(SERICITIC) Trace Py + Blebby Sp-Cpy	MASSIVE to diffuse bedded POLYMICTIC VOLCANICLASTIC BRECCIA. Dominated by fg Basalt Hyaloclasts to 50 mm above ~205 m then increasing indistinct felsic pumice? in fine sandy to clasty clst matrix
220	Clasts ~30% minor pepperite		(POLYMICT) Breccia dominated by fg Basalt Hyaloclasts 3-70 mm also pink/grey flinty felsic volc and grey clasty clst matrix supported in fine sandy - silty sericitic/siliceous ground mass.
	Partly transposed Bd: 60° Content decrease?		Bdd sericitic silicic (minor Clb) felsic VC SST and clasty siltstone. Minor patchy pink pervasive Clb alteration MASSIVE Basaltic Hyaloclastite, showing splintery clasts 3-100 mm ~70/60% in pale grey clasty clst matrix. Relatively unaltered.
240	No Py.		Massive coherent fg phyric Basalt. Dark grn/grey colour from pervasive weak chl. alt. of matrix but fg phenos fairly fresh. Patches of pink pervasive Ser-Kspar-(Mn-Clb) alt. at 263-265 m and 269-271 m.

35084 → Ti/Zr = 14.0

C0198

GRAPHIC CORE LOG		Hole No. YNC 5	Depth m
Scale	1:1000	Project EL 8/96 SOUTH HENTY.	
By	W. HERRMANN	Section	
Date	28 AUGUST 1996	Collar co-ords	RL
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5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
			Massive sphenulitic faintly flow banded QFP rhyolite similar to upper unit in YNC 10
20		Trace Disc Pyrite <0.1%	Mostly ± reddish brown glassy sphenulitic matrix ± patchy pervasive fragmental chlorite/qtz in ½ matrix but FS plagioclase fresh and unaffected.
		* Bucky Qtz Veins/ Breccia Core	
TOFR 40			Below ~58m matrix is pale grey sometimes mottled pale-dark grey, weakly silicified? but FS phen. essentially unaffected and fresh; still with only tr. Py.
		↑ matrix Red-Brown	
60		Matrix Pale grey	
			Thin unit polymict v/c lithic breccia/SST.
HBB			* MASSIVE chloritic Basaltic Bx; close packed ellipsoidal clasts ½ f.g. vesicular basalt — resembles HBB but less fol. no Hem!
80	NO CORE	~1% diseminated detrital/ framboidal Py.	INTERBEDDED Polymict (Phy/Slst/Sst?) Bx, qxt rich vc SST - slst and dark grey-black pyritic mudstone. Traces blebby Cu Sp. Cmay stylolitic limestones and limy FS xt rich v/c SST.
100		Alt = (<1) (FS fresh) Clasts to 100mm	Mixed FS. phyric (brown) Andesite Hyaloclastite Bx; Andesitic FS xt rich vc SST, limy SST. Distinctly magnetic, abund. Cc veining ~10%. Patchy Hem-chl alt increasing down.
120		5% Cc vns. Bd: 50-70°	Ser-chl Bdd. (FS xt) volcaniclastic SST.
37219	=TCp	(MJR)	Alt = (1) in ashy sericitic matrix but FS xts fairly fresh.
			Massive/bedded c-f.g. QFPhyolite Breccia and ± (Cc) xt sericitic/ flinty sandstone. Traces blebby Sp+Cu to 0.2%.
140			Curvy/patchy massive Sericitic ashy/pumiceous?/FS xt vc SST.
37220		0.2% Cu Sp	Massive brown/green (patchily chloritic) FS phyric Andesite. ARA type ± 0.40 P2O5/TiO2. Sharp planar contacts // clvg.
Sh zone	Strong Chl Alt	Lithic Sst	"Ashy" sericitic volcaniclastic sst/slst ± 5% silicfd. clasts ± traces Cu Sp
	Ser Alt = (2)	1-2% diss. Py	Bedded "ashy" sericitic-pyritic-Qxt (<0.5mm, 5%) vc SST/SLST.
to -Strong -MnCb -Chl = 2-3		10% MnCb, Bx, Q, Cu-Sp vns	Massive Sericitic/chloritic DACITE? SST ± 10% spanny veining and semi-massive chlorite + MnCb alteration selvedges
160		5% MnCb vnlets.	Sericitic MnCb Stkwk veined vc SST, rather sheared with minor ptygg fault zones.
		← Bleached upper contact	
	No Py	Alt = (1) (Ser) Bd/clv: 45-50°	MASSIVE sericitic (chloritic) DACITE Hyaloclastite Bx + SST (mainly FS phyric devitrified clasts locally to 30mm, 50% in sandy ser matrix.
180			MASSIVE to Diffuse Bdd. variably chloritic > Sericitic
		0.1-0.2% Py	POLYMICTIC VC BRECCIA/CONGL. Rounded to lenticular
		Clv: 45°	clasts of dark or pale chloritic weakly vesicular Basalt?? grey dacitic SLST, silicified f.g. volcanics and minor Dacite 5-70mm, upto 50% matrix supported in messy f-m.g. ashy - Qxt bearing matrix. dusted ± 0.1-0.2% diseminated f.g. Pyrite. May have similarities with SBB or Spillway Polymict
200		Minor Sh + Qz vns.	
AI = 47 Na_2O = 0.1% 37221		Alt = (1.5) No Py!	Sericitic (carbonated) Massive sparsely FS phyric DACITE, well preserved micro pumiceous snowflake texture v/c highly indicates strong Na depletion and some CaCO3 but doesn't look very alt.
220		Alt (1-2)? No Py.	Massive FS phyric (1-2mm 10-15%) DACITE with pervasive pinkish alteration; feldspars look fresh but possibly V. feldspathized
		Diffuse Fault Zone	Bleaching and intense MnCb veined Stkwk near fault contact
240		Alt = (1)	Massive sericitic Dacitic Hyaloclastite SST/Bx. some Qxt in matrix. Weak Stkwk fine MnCb veinlets No Py.

C 0019 99

GRAPHIC CORE LOG		Hole No. YNC 5.	Depth	m
Scale	1: 1000	Project		
By		Section	5 cm	
Date		Collar co-ords		RL
Page	2 of 2	Az. °G		°

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
280		Alt = (1)	Massive Sericitic POLYMICT Breccia: pale grey-pink aphyric Rhyolite and blurry f.g. Dacite in sericitic matrix,
F	Pugg cataclasite (20 cm) (frost fs)	Alt = 0	Protolaby phaneritic matrix with 2% qtz xtls. <20% clasts As above but >70% clasts 2mm - 40mm almost framework supported.
32722			Massive (silicified) fs phyric Dacite. Coherent.
290		Alt = 0	Patchy pointed breccia + pale grey silicification 275-280cm
	~20cm shear		Otherwise dk grn-grey with faintly fresh fs, weak
		Alt = (1?)	Ser-Clb alt. below 280.
			(Pyritic) sericitic Q-Fs vnt rich Sandstone.
		1% vein Py Alt = (1)	MASSIVE C.g. (Sericitic) DACITIC HYALOCLASTITE BRECCIA
	ALT (1)		Virtually monomict grn-grey fs ph Dacite in angular - splintery
		0.1% Py	clasts 2mm upto 80mm constitute ~ 40% vol. in
	ALT (1.5)		pale buff grey sericitic SST. matrix ~ 2-3% qtz xtls.
310	Vnlets	0.1% Sp Cm	SWAMPED/BOD f.g clasty SST + f. SST ~ 10% MnClb in vnlets + semi pervasive patches.
	Repetite?	5% MnClb in diffuse wkns and fine vnlets	MASSIVE Sericite-Kspar-MnClb Altered sparsely fs phyric
32723			DACITE; velint pentitic/spherulitic structure near base but otherwise
330		0.2% Py Trace Sp Cm	pale buff grey pervasive ser-Ksp, MnClb altered. Splashy Cm-Sp in some vein
	Alt (2.5)		POLYMICT Bx ± MnClb + Cm-Sp clasts ?? (See over →)
	Alt (2)	Cm-Sp in vnlets and diss. blebs 0.5%	MONOMICT DACITE HYALOCLASTITE Bx ± pervasive/patchy ser-Ksp-MnClb alts and MnClb stockworks; diminishing below 345m. Trace splashy/blebby Cm-Sp.
350			
32724		Alt = 0	Massive dark green grey sparsely fs phyric DACITE
			Blurry but fs laths fairly fresh, little sericitisation of
			matrix, whole Rock analysis (32724) indicates
364.5			low Al and near mod Mn, Na, K levels but
EOH			note 208 ppm Zr which is at low end for these
			Dacites - this suggests that either NC Dacites
			have quite variable range of Zr + Ti but
			consistent Ti/Zr (unlikely) or that
			MnClb-Ser-Kspar alteration here is
			associated with some mass loss (also unlikely)
			This is perplexing in view of MnClb-Ksp-Ser
			alts in NC4 which appeared to involve
			some mass gain (in Si).

390200

390201

333 - 335.1 m

Massive Rhyolite Breccia ± clasts of white - pale grey flinty silicified aphyric Rhyolite? (angular - ragged) and angular - rounded clasts of totally carbonated felsic? volcanic in variably silicic/pyritic sandy matrix which has been partly replaced by near pervasive MnFeCa? carbonate (known oxidized, cream when fresh.)

Clasts are generally in 2mm - 30mm size range and constitute about 40-50% of volume.

Flinty Rhyolite clasts appear to contain fine dissem. Galena and there are irregular blebs and splashes of red-brown Sp-Cpy and Py upto 15mm size some of which look suspiciously like clasts.

Tricky to interpret this rock. Strong Cb replacement of matrix indicates some post depositional alteration; Cb alt. of clasts (some still well defined with sharp boundaries) and apparently mineralized flinty Rhyolite clasts suggests alt. + mins of the precursors PRIOR to brecciation and emplacement. Possible complicated alternative would involve selective replacement of some clasts and some parts of matrix.

Assays indicate 4-8% MnO 0.6% Pb and 1.4% Zn (but no anomalous Cu or Au)

Mn CO_3 alteration may be significant in VMS alteration systems eg: SR. Hercules.

Possible that hydrothermal fluid has been focused along permeable polymict Bx bed between dacite flows/sills and has percolated outward, mainly upward into perlitic/spherulitic permeable parts of adjacent dacite.

Syn: SR Hercules permeability controls (White Zair + Large; 1992

GRAPHIC CORE LOG	Hole No. YNC 6	Depth 451.6 m
Scale 1:1000	Project SOUTH KENTY EL 8/96	
By W. HERRMANN	Section	
Date 3 September 1996	Collar co-ords	RL
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5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
			Brown stony clay.
20			Massive (matrix leached/chloritic) ft xt vicl lithic SST, 5-10% matrix supported angular and rounded clasts of fabric vbles (Qfp Rhyolite) in size range 5-20 mm. Silicified matrix core ± some wht. Q-Chl (Cb) vein material.
	Bd: 70°/130° Tr - 0.5% Py		Sericitic Bdd. SLST ↔ f.g. SST and fractured/massive cherty SLST.
	Bd: 35°		SERICITIC Bedded "ashy" Q-Fs xt. vicl SST and minor SLST.
40	Bd: 50°	0.5% Py	Sericitic/carbonaceous (pyritic) laminated SILTSTONE
Sed.	Bd: 45-50°		Interbedded lithic slst, lithic sandstone and thin graded polymictic Breccia units. Lithics include Vlc slst, grey cht, fluidy foliated vbles. Trace brown Sp in veinlets.
Graded	Trace Sp		
60 Stylolitic ± fossil	Bd 50-70°	0.5% Py	Massive to nodular interbdd grey LIMESTONE and f.g sericitic VC SANDSTONE.
veins frags			Massive microlitic fsp DACITE HYALOCLASTITE Bx ± V.fed fs)
Ser. Shear	2% Py	0.5-1% disp Py	grading down into grey sericitic/cherty SLST-SST ± Sparse DAC clasts
80			Chloritic massive - pseudofragmented (or HyBx?) fs phyric DACITE
	Below 86m:		Sericitic massive fs xt. vicl "ashy" pumiceous SST ±
	Alt = ②	Py 1-2%	int vaclastic cherty SLST, pink DACITE and (1) M Py below 86m
			Polymict Bx ↔ SST ± Cc matrix, Hematitic ANDESITE-DAC clasts ↔ fs xts. Andesitic (Glomeroclastic) SANDY LIMESTONE
100		clv: 55-60°	
			Sericitic massive fs xt vicl (Dacitic?) "ashy" pumiceous
		} Pepperite	SANDSTONE and minor cherty-ashy SILTSTONE, Pepperite below 108m
120		Alt = ①	Chloritic-Sericitic massive/pseudofragmental fs phyric
		No Py	DACITE. 10%, 2 mm blurry pink/grey tabular plagioclase in smoky dk grey gm devitrified chlorite-sericite matrix; ubiquitous "apparent" fragmental fabric with 1-5cm domains dark chloritic altn in generally lighter sericitic matrix, good examples of pseudo breccia at ~145m.
140			
160		Alt = ① No Py	Massive (chl-ser) monomict DACITE Hyaloclastite Breccia
180		Alt = ① clv. 45°	Sericitic (chloritic) fs xt "ashy" DACITIC VOLCANICLASTIC SST.
		Alt = ②	Massive monomict fsp DACITE Hyaloclastite Breccia
200			partly in f.g. grey siliceous mudstone matrix. Fs very fresh
			Massive pseudofragmental? DACITE (similar to 112-151m)
220			Massive monomict fsp DACITE Hyaloclastite Breccia, patchy pink pervasive alteration assoc ± thin sideritic Cb veinlets but only trace Py, alters ~ 2-3% of core in isolated patches.
		Alt = (1-0)	
240		No Py	Massive coherent? locally pseudofragmental fs phyric DACITE. Very fresh fs below 250m. Localized ↓? pervasive pink alteration assoc ± Sid Cb veinlets.

LYNCHFORD MEMBER

390202

GRAPHIC CORE LOG		Hole No. YNC 6	Depth	m
Scale	1: 1000	Project		
By		Section	5 cm	
Date		Collar co-ords		RL
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390203

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
270		Alt = (0-1) Trace Py assoc. ± Cb veins.	Pepenite : Mostly massive fs. plagioclase DACITE pepenitic intrusive hyaloclastite ± green grey silty mudstone matrix - possibly derived from SBB mafics? Silty matrix generally <10% volume.
290		Alt = 1	Mk. grn grey chl-ser massive mostly fs plagioclase DACITE. Minor pepenitic zones down to 300m. Short section @ ~1m (<10%) @ pervasive pink alteration ± minor Sid (Mn?) Cb veining + spotting; close spatial assoc. with mostly qtz Cb veins,
310		Brittle / Broken	Weak pervasive pink Ser-MusCb? - Hem? alteration ± <2% Sid Cb stockwork vaincets, appears related to brittle fracture zones. No Pyrite or other sulphides.
330		Puggy Sh.	Pale pink grey buff patchy to pervasive sericite-Cb? alteration definitely form of bleaching associated with brittle fracture zones.
350		Relict fl. fol. ~50-60°.	Massive grey mostly fs plagioclase Dacite. Alt = (1) "normal" matrix ser-chl alt @ devit. glass?
370		Alt (0-1)	No pyrite, trace Cb mainly in straw around veins.
390		Tr Py Contact obscured Bx ~70° Alt (0-1)	Cream/grey clayey-puggy brittle cataclasite. Pepenitic intrusive Hyaloclastite : fs p Dacite in pale grey cherty siltstone. INTERBEDDED POLYMICT BRECCIA and f.g. grey sericitic SANDSTONE. Close packed almost framework supported clasts mostly 3-30mm dominated by pink aphyric flinty DACITE? (some pyritic altd mafics) and dense cherty chert and lava f.g. basalt in sandy glassy matrix with minor tuffaceous
410	(Close Packed, clast supported)		SST and POLYMICT BRECCIA (as for 391-395m) ± abundant Basalt clasts, grading down to almost monomict Basalt Breccia below 405m. Basalt clasts 5-30mm lenticular with numerous rounded clasts to 150mm
430	F Sericite puggy Fault		SILICEOUS massive Polymictic Bx, clast supported, dominated by clast + pink Dac clasts. Sericitic massive PUMICE (LITHIC) BRECCIA, with characteristic pink aphyric vole. clasts to 50mm ~2%, Sim. to clasts in Polymict units.
450	Brittle Broken zones		Uncertain? probable ser-chl fs plagioclase coherent DACITE though some parts look vaguely Volcaniclastic Overprinted by patchy - pervasive pink Ser-Cb-Hem? alteration assoc. ± fine stockwork Sid Cb veinlets (~2% vol.); alteration exists in more than 50% of interval and has close association around minor faults and brittle fracture zones.
EOH (451.2m)			Sericitic massive PUMICE (lithic) Breccia similar to 420-428m, overprinted by pink Ser-Cb-Hem? alt (as above) except for last 30cm of core.

GRAPHIC CORE LOG		Hole No. YNC 7	Depth 289.4 m
Scale 1:1000		Project SOUTH HENTY EL 8/96	
By W.HERRMANN		Section	
Date 10 Sept. 1996		Collar co-ords	RL
Page 1 of 1		Az. °	5 cm

390204

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
0			
80CO	Leached and chalky to ~13m.	Clv: 45°	(Partly Leached) Sericitic (Carbonated) massive felsic Pumice Breccia. Distinctive mottled/lenticular fabric with 2-10cm pale greenish grey vuggy siliceous lenses (sometimes ± well preserved velict tube pumice textures) separated by straw coloured anastomosing bands of sericitic velict. Latter contains 1-2% disseminated Py and siliceous lenses sometimes trace Au, Sp, Py. Overall rather leached suggesting removal of CO_3? and there are patches of dk brown Siderotic Cb staining upto a few metres in length which appear to be velict "kernels" overprinted by Ser-Py. altn?
20	Alt = ②	0.5-2% Py Trace Sp, Cpy	
40	(See Below)	clv: 45°	
37541 →	Alt = ②		
60 F	Piggy sand	Alt = ②	LEACHED SERICITIC Massive – diffuse bedd volcaniclastic SST (1% Qtz xtls 1-2mm, ser alt pchs > 5%, 0.5% disp Py, trace Sp, Cpy)
	Ser Py ± velict mins	Alt = ②	Sericitic/Chloritic/Sid. Cb Massive DACITIC breccia or pseudobreccia 5% Cb, partly leached; no significant sulphides.
80	Cb 1-2% Py	Alt = ②	Bedded sericitic – Pyritic ± Siderotic volcaniclastic SANDSTONE, SILTSTONE and minor dk grey Py Shale.
	Ser-Cb-(Py)	5% Cb. 0.5-1% Py	Sid Cb as pervasive stain, disseminations, minor veinlets below 87m.
100			PEPERITIC DACITE HYALOCLASTITE in grey clasty SANDSTONE
		No Py	Massive (sericitic) sparsely Fs phyric DACITE.
		<0.5% Sid Cb in veinlets	Typical unit by fabric, fs generally indistinct, matrix devitrified sericitic but not strongly altered.
120		Alt = ①	Rare traces bleb dk brn Sp.
	Trace Py	Alt = ①	Dacite Hyaloclastite Breccia, angular clasts, sparse grey silic. matrix.
140		Alt = (0-1) No Py	Massive sparsely fs phyric Dacite, velict micropoikilitic but near base.
GRADED BEDS	Alt = ① No Py.	Bd 50-60°	LAMINATED sericitic – clasty VOLCANICLASTIC SST/SLST and grey clasty MUDST. fs xtls relatively fresh.
160	Trace Py Alt = ① fs fairly fresh	clasts to 100mm	MASSIVE POLYMICT V/CLASTIC BRECCIA. 50-80% clasts dominated by angular to ragged sparsely fs phyric Dacite and rounded fg volcanic Basalt (2:1) with subordinate clasty SLST, fs phyric pumice and flinty silicified QFPhy in sericitic/formerly pumiceous sandy matrix ± sparse Qtz xtls
GRADED SST.	Bd 60-65° Alt = ①	INTERBEDDED	V/C SST and fs phyric Pumice (lithic) BRECCIA.
	Alt < ①	(<0.2% Py) clasts to 100mm.	POLYMICT BRECCIA similar to 152.5 – 164 m.
180	Alt = ①	0.5-1% Py	Massive ± (rounded) clast vcls breccia (>70% clasts) dominated by clasty siltstone, pyritic Ser/Q/Cb altered fg. felsic volcanics sericitic pumice, minor fg basalt and rare fs phyric Dacite towards base. Ubiquitous disseminated Py 0.5-2% and traces bleb/vein Au, Sp, Py and Cpy.
200 →		No Py.	CHLORITIC diffuse bedded? BASALT BRECCIA and SANDSTONE Highly variable grain size but virtually monomictic basalt derived; ranging from 1-2mm Lithic SST to coarse breccia or "agglomerate" of rounded to lenticular/flattened "bombs" to 100mm with one possible 50cm pillow at ~219m, clasty SLST and minor polymict bx bed at 221-222m. Basalt clasts commonly flattened and highly vesicular or otherwise distinctly vesicular/amygdaloidal with 1-2mm rounded Cb amygdales.
	Pillowed?		
220	Bleached Shear Zone	Bd: 60°	In transitional mixed zone of feldspathic/pumiceous and basaltic SST
	fg grey SSST		Sericitic massive fs phyric PUMICE Breccia; ~5-10% 2mm pink plag xtls in green grey sericitic matrix ± abundant velict tube pumice textures, sparse pink/brown fg flinty
240			Sparsely fs phyric rhyolite clasts increasing in abundance to ~1% below 260m; pink clasts are angular to sub rounded mostly 5-30mm, occasionally upto 60mm.

* Analysis 37160 ± 0.72% TiO_2 is quite incredible must be spurious! *(corrected to 0.21%

GRAPHIC CORE LOG	Hole No. YNC 8	Depth 282.0 m
Scale 1:1000	Project	
By W. HERRMANN + G. MacDONALD	Section	
Date 2	Collar co-ords.	RL
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5 cm

390205

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
	No core		
	Bd supported	clasts 5-80mm	Massive sericitic (Si-carbonated) coarse POLYMICTIC VC BRECCIA clasts of fg Dacite / flinty pale grey felsic vole, minor dk grey slst, possible pumice in M.C.g. granular Sandy matrix ~60% clasts
20	Pebbly Mudst.		
		Alt: ①	Massive Breccia, dominated by angular Dacite clasts
		<0.2% Py	ranging upto ~100mm, ~30% in coarse sandy matrix
			Alteration: ordinary Sericitic, minor chlorite
	Mudst.	intraclasts: Bd//clvg 60°	
40	Bndy	Qtz vein	Coarse Polymictic (Dacite >> dk slst > flinty volcanic) Breccia grading upto SST and fine laminated Slst. Some bac. clasts have pervasive pink MnCb/ks? altn - pre deposition?
		Alt ①	Dacite pepperite, sparse clasts silt/sand matrix; Alteration: normal sericitic(chloritic).
60	Contact obscure		Dacite Hyaloclastite ± sparse clasty silt/sand matrix
		Alt = ①	Massive (coherent) fg. Dacite, mostly weakly altered
			typical sericite/chlorite ± blurry fg). Patchy pervasive
80		No Py	pink Ser-Kspar-(MnCb?) altn, with some spatial
			association with murky qtz-chl-ck veins. These pink
			zones have < 1% Sid/fine Cb and no significant Py or sulphides.
100			"Hydrothermal" pseudobreccia with appearance of in situ hyaloclastite and pale flinty silicification of inter fragment spaces.
		No Py.	
120			
			(Clast rich almost framework supported)
		Bd: 60-70° Trace Cu Sp Py	Interbedded Polymictic Bx" SST fine laminated dk grey Mst clasts to 20mm incl. blk slst, pumiceous vc and Si-Ch altd felsic volcs. Strong matrix Cb altn. and Ck veining, trace Barite?
140			
		Alt = (<1)	Massive pseudofragmental - coherent fg. plagioclase Dacite: 10%, 1-2mm tabular pink plagioclase evenly distrib in med. green grey fg devitrified (glassy) matrix. Common pseudofragmental/blistery alteration fabric but fg sts generally very fresh. Very minor patches of pink pervasive alteration but insignificant
160			
		No Py	
180			
200			
		Pepperite Clasts to 7mm	fg. laminated grey siliceous/sericitic
		Bd: 60°	Massive VC Bx. dominated by 70% Dacite Hyaloclasts, v. Sparse Basalt.
220		0.5% disp Py Clasts 2-30mm	Diffuse Bdd., Polymictic Bx, lenticular clasts fg. Basalt, dusty slst, silicified fg. plagioclase Porphyritic volcanic.
	Laim. Arg Slst + Dlte Stds.		
Cuspate Bdd.			Thin bdd. SST + SLST derived entirely of fg. basalt lithics + shards?
		No Py.	Chloritic massive fg/amygdaloidal Basalt ± thin monomict basaltic hyaloclastic top; relict pedite in some clasts. Chloritic.
240		Bd//clv: 70°	Thin bdd. Chloritic (Basaltic) volcaniclastic SST + SLST.
		Sharp planar	
		Contact //clvg.	MASSIVE (Sericitic) feldspar plagioc PUMICEOUS (LITHIC) BRECCIA.

see over →

EOH 282.0m

390206

243 – 282 m

Pumice Breccia :
(1–4 mm, 10% vol) tabular pink plagioclase xtals more or less evenly dispersed with variable sparse to 1% lithic clasts in a pale green grey uniform wispy sericitic matrix composed apparently of tightly compacted pumice and ash. Relict tube pumice generally discernible on fresh breaks or cleavage surfaces!
Lithic clasts range 5–50 mm mainly of pink fp. phyric felsic glassy (Rhyolite or Dacite) and also pale grey silicified versions of same ± 1% dissem fine pyrite — appear to have been altered + pyritized prior to emplacement.
Apart from sericitisation of glassy pumice the rock is essentially unaltered, fx xtls appear quite fresh and there is insignificant (not discernible) pyrite.
Analysis at 279 m indicates 1.8% Na_2O (normal level) and rather low 131 ppm Zr giving 15.6 Ti/Zr which is abnormal for the footwall pumice bx unit of: in YNC10.

* This requires checking with other holes eg: YNC 9 or re-analysis.

GRAPHIC CORE LOG		Hole No. YNC 9	Depth 262.0 m
Scale 1: 1000		Project SOUTH HENTY EL 896	
By W. Hermann		Section	
Date 3 September 1996		Collar co-ords	RL
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5 cm

390207

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
0			(Sericitic) massive fs phyric DACITE. Coherent.
		<0.1%/fg	10%, 2-3mm tabular pink or smoky grey plagioclase
		Clv: 40-60°	in aphanitic sericitic pale-med grey grey matrix,
20			trace disem Py <0.1%. Unit fs largely fresh.
			Sheared + broken brittle deformation (fault?)
		Q-dol	zones with semi-pervasive pink matrix alteration
40			bleaching and patchy Q-dol-Cb veins, no sulphides
			associated.
			Diffuse zones semi-pervasive pink bleaching
60			alteration — feldspar xts seem largely
			unaffected, no significant Py & MnCb
		Q-dol-Cb veins.	veinlets.
80			
		Alt ①	Cur-grey (Sericitic-chloritic) massive fs phyric
			Dacite (as above). "Normal" type matrix
100			alteration, fs xts fresh, patchy pervasive fragmented
		Pegmatite??	fabrics and possible relict flow banding.
			Sericitic massive fs ± Pumice Breccia. No pink lithics
		Bd 70°	but otherwise similar to typical "footwall" pum Bx. Fs fresh.
120			Sericitic bedded - massive pale grey f.g. "salty" SLST,
Pugging contact.			minor SST and POLYMICT (granule-pebble) BRECCIA.
			Clasts in Bx include white fs phyric Pty-Dac, fs-Q phyric MA Dacite?
TI/Zr = 16.1 !	39904		angular chalky clst, pumice, minor f.g. basalt and
140			~1-2% embayed qtz xts to 3-4mm in smoky
		Alt = ②?	Sericitic matrix. Clasts generally closely packed but
		(Ser-Ky-MnCb)	not well sorted from <5mm upto ~ 60mm. One large
			clast at 114.6m in ~300mm consisting of Alt fs
160		Alt = ②	phyric flinty Rhyol-Dacite with concentric altn/banding.
			Chloritic massive-bedded BASALT BRECCIA. Close packed lenticular
			clasts f.g. vesicular? basalt mainly 5-30mm, some upto 50mm,
180			Not entirely monomict, some rigid Dacite clasts + fs xts. (<2%)
			Minor patchy Cc veining and semi-pervasive altn.
		Brittle fault.	Sericitic massive fs phyric (sparsely lithic) Pumice BRECCIA.
			Exactly resembles PuBx in end of YNC10 but has low Zr
			(= Ti/Zr 16.1) possibly similar to PuBx in YNC8. Fs fresh, relict tube pumice
200			
		Pale Buff-Pink pervasive alteration	Massive sparsely fs phyric DACITE, normal grey grey
			colour, ± smoky tabular fs xts ~5%, 2-3mm in
			devitr. matrix (± relict micropoikilitic plagics?)
220			Patches pervasive buff-pink Ser-Kspar-MnCb altn"
39905			(hatched buff) are associated ± fine network of siderite Cb
			and weakly Cb alt fs but insignificant sulphides ie <0.1%
240			Elsewhere there are broad diffuse zones (hatched brown) of
			pervasive matrix alteration but without significant Cb
			stockwork veining; there is a crude spatial association
			with smoky Qtz-Cb-(Dol) veins; Analysis 39905 indicates
			normal levels of MnO + Na_2O indicating this is not strongly
EOH 262 m			analogous to alteration in YNC10.

GRAPHIC CORE LOG		Hole No. YNC 10	Depth 529.7 m
Scale	1: 1000	Project STH HENTY EL 8/96	
By	W. HERRMANN	Section 5 360 000 N	
Date	26 AUGUST 1996	Collar co-ords	RL
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390208

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
			0 - 0.8m : Glacial boulder/gravels.
BOCO		PINK MATRIX O/Py	Pinkish brown-Grey, flow banded to massive, spherulitic Qtz-Fs porphyritic RHYOLITE. Locally autobrecciated (eg: 8m). Textures indicate extrusive mainly coherent facies. Fs quite fresh. Not magnetic and contains abs sulphides. Pxt population is trimodal : tabular Fs 1-2 mm, ~1%; small angular/rounded/fragments Qtz pkts <1 mm, 3-5%; rounded/embayed or angular xts 2-4 mm, <1%.
20			
40 F		GREEN MATRIX ± TRACE Py. SER-CLAY ALT. QVN TRACES.	
TOFR		CO_3	SERICITIC Fs Pxt. DACITIC VC SST ± PUMICEOUS BX; few small lithic clasts, diffuse bdd, near 50m
60	fs-Qtz (Fs Fresh) TR Py. Bd: 50-60°		GREY siliceous/Sericitic laminated to massive f.g. V/C SLST + SST with minor c.g. xtal rich/lithic SST; considerable syn-sedimentary slumping and brecciation.
80	Bd: 50-70°		DARK - LIGHT GREY diffuse bedded LAMY FELSIC V/C SST ± Sericitic matrix and Cc cement, Trace Py, Q-Fs xts <1mm, ~10%.
F	Qvn Bd 60°	DACTIC? Fs	CONGLOMERATIC - MASSIVE - STYLOLITIC GREY - PINK fossiliferous LIMESTONE; Pxt sericitic V/C SST. MIXED Mt-bearing (HA) arenite, felsic volcaniclastic Sst and strained reddish hematitic LIMESTONE. Much Q-Cb-Chl Vns ± trace Py, Bn
100		Foliated waxis upper contact. Cl: 45°.	MASSIVE COHERENT Q-Fs PORPHYRY
120			White/pink/grey tabular somewhat glomeroporphyritic plagioclase (1-3mm, ~15%) and distinctive rounded/embayed Qtz phenocrysts (2-4 mm, 5%) with sparser corroded/chloritized skeletal remains of former mafic mineral (Bi or Hbl?) evenly distributed in f.g. glassy? / qtz-feldspathic? dark grey to brownish grey matrix.
140		Patchy grey - brown Matrix Ser alt: but fs is fresh.	
160		Mainly red/brown fresh-part Zone.	Qtz phenocrysts are bluish grey with characteristic small wht + green rounded inclusions (melt inclusions?) similar to Qtz xts in Rhyolitic porphyries in HA7, 8. Trace disseminated granular Mt, generally weakly magnetic. Matrix mainly grey to ~180m but fs is fresh.
180			
200			Upper contact appears peperitic into Lst and calcareous volcaniclastics; lower contact also appears peperitic into Sericitic qxt. SST which is unlike underlying pumiceous volcaniclastic and may suggest minor pyroclastic or hydroclastic xtal sedimentary emplacement prior to coherent high level intrusion/extrusion. Note 10-20m thick foliated weakly sericitized marginal zones - porphyry Cu style concentric alt. due to intrusion into wet rocks?
220		Pale grn/grey Ser-Chl alt. matrix moderately foliated 45° ± traces Cp+Py <0.1%	
	Alt = ①		SER-CHL massive DACTIC? PUMICE BRECCIA. Small shreds and clasts dk chl (1-3mm, 10-15%) in pale grey Ser matrix ± abund. relict tube pumice. Chty beds near 235m could be intraclasts, or disrupted beds, otherwise massive.
240	No Py	Clv: 50°	

(FP phenocrysts are sericitized near contact but relatively unaffected above 220m ie further than 10m out)

QFP foliated, sericitic matrix distinctive Qtz xts, similar to above 229m. Downhole,

GRAPHIC CORE LOG		Hole No. YNC 10	Depth m
Scale 1: 1000		Project	
By W Hewins		Section	5 cm
Date 27/8/96		Collar co-ords	RL
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390209

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
250	Alt ② → ①	near contact	SER-CHL DAC PUMICE Bx (Similar to above) with f.g. salty/sandy top containing ~1% diseem Py diminishing downhole
	Alt ①	No Py.	Mixed ser/chl pumice bx ± chalcy clst intraclasts and sparse dark dacitic? lithics.
270 →		lithics 5-50 mm	Sericitic massive pumiceous lithic (DACITIC) V/c SST.
			Similar comp. to above but sandier, with 5% dark dacite lithics
			Below 277m is near pervasive pale buff/grey sericite alth ±
38928 →	Alt = ②	~0.2% Cu(Py)	Specks + clots of Sideritic Cb (5-10%) and trace diseem Cu(Py) <0.5%
290	Alt = ②		Sericitic (Sideritic <5%) f.g. V/c SST. Alth type same as above.
		clv: 45°	SERICITIC MASSIVE OLIGMICT RHY/PUMICE VC BRECCIA. wispy clasts of Sericitic pumice and Qpct (1-2mm, 10%) in vit. rhyolite? totalling 20-30%.
Ruggy Shear. 40° sub// clvg.	Alt = ②	<0.2% Cu+Py	in friab g. Sericitic sandy/pumiceous matrix. Same pervasive Ser-Cb alt ± trace Sulph.
		Clasts to 50mm	SER-CB alt. massive - diffuse bd. NONDESCRIPT felsic VC SST.
310 →	Alteration transitio ↓ bleaching of Sid VR selvedges		(resembles rhyolite) Anast. stockwork fine Cb veins with local Cu-Sp-Py mins. of breccia above ± minor qtz xts.
	Alt = ①	0.2% Py	"NORMAL" Ser-chl massive Dacitic Pumice Bx/SST (± relict Pumice)
Cracked			Interbedded f.g. SST and POLYMICT VC Bx. Clasts fsPlag, white Rhy, dk cherty clst and Py-Ser alt. VC.
	Alt ① → ②		Massive POLYMICT BRECCIA. Blurry to angular clasts of (chloritic)
330		<0.5% Mt.	fs phyric DACITE, FS-Q phyric Andesite ± access. Mt (esp: 326-330m)
		Trace Py	and silicic Pumice (5-100mm 30-70%) in foliated sericitic ashy matrix;
	Bd//clv: 45°		Patchy pervasive buff-pink Ser-(Cb) alth. in Mt dominative.
	~85°E		
		0.5% Py.	Fissile dk grey siltstone and thin intbd. felsic V/c SST; trace dk Sp in part S2 veinlets.
	PEPERITIC	Alt = ①	
350			
38931 →	Alt = (2)		MASSIVE sparsely Fs phyric - Aphyric Ser-Ksp-Cb altered
			DACITE. Apparently completely coherent, peperitic top suggests sill.
370		Zones of Mod intens Cb Sth wash and Na depletion	Blurry "kernels" of less altered chloritic sparsely fs phyric
			Dacite above 350m but otherwise more or less
			pervasively altered (except for minor less altered greenish grey
38938			patches at ~ 397-399m, 402-412m)
390 →			Otherwise has uniform pale creamy buff colour, fairly hard +
			flinty without cleavage but probably much fine Sericite. Stockwork
	Alt ①		of fine anastomosing cream coloured (brown oxidized) Mn? bearing
			Sideritic Carbonate (non fizzing) veinlets and diseem small
	Alt ①		spots + clots (1-5mm) constitute upto about 5% of volume most intense
410			350-370 & 380-393m PXRF analyses (3) indicate
	Alt ②		strong Na depletion and slight Mn, K enrichment above
	but not show Na depletion		400m but not evident at 432m even though pervasive
430 →			alteration style looks identical! Traces red brown Sp, (Cu
38942 →			Py) in some Cb veinlets (eg: 361m, 385m) but generally very
	Contact obscure		little diseem sulphide. Overall Py content <0.1%, rarely >0.5% (CONT. OVER →)
	Bd: 50°	Alt = ①	Ser-chl Dacite hyaloclastite Bx ± grey cherty mudst interclasts.
		Alt = ①	Interbedded Dacite Hyaloclastite Bx, Polymict Bx ± local
450		<0.5% Py	Rounded clasts of pale grn grey alt Basalt (= Spillway FFB)
	Bd 20-60° Av. ~ 45°	Some Soft sed. deformat	(clasts 5 to 30mm) and thin bdd - laminated grey cherty clst + sst.
470 →	Py 0.5%	clv // Bd: 50°	Diffuse bdd (ser-chl) POLYMICT/MAFIC BRECCIA. 2% Basalt clasts 3-40mm,
			Rare lenses/patches SM Pyrite to 50mm doubtful if clasts?
	Sist/sst upto 1-2% Py		INTERBEDDED POLYMICTIC Bx and minor cherty-Sericitic sist./sst.
	Crucial Py 0.5-1%		clasts include FF Basalt, dirty pyritic clst, minor dacite, pumice ±
	Traces Sp		considerable ~3% rounded qtz xts common in ser matrix,
	Cu-Cp		minor Sp-Cu-Cp-Py in blebs and anast. MnCb veinlets + lenses
38947 →	Clasts 2-30 mm		
490 →	clv: 50-60°	Alt = ①	(SERICITIC) MASSIVE Fs phyric PUMICE BRECCIA. (5%, 1-3mm pink
		Fs phyric,	f. xtals and <1% cm sized pink clasts (some ± relict tube pumice text.)
500			in pale greenish grey, silky sericitic matrix.
		Alt = (1-5)	
38948 →			qad - in less pervasive pink buff sericite - Alb-Cb alteration with f. xtn slightly carbonated (Sideritic Cb) WR. Analysis suggests slight mass gain (Si?) but very little change in majors (see over)

Pervasive pale buff-grey ser-sideritic alteration ②

→ "NORMAL" Sericite/chlorite Alth ①

347 - 440 m. Dacite & Alteration :

"Strongest" alteration indicated by Na depletion and to lesser extent anomalous Mn appears to occur in zones of Cb stockwork veining and fine network of grey qtz/silica veinlets which appear to have persisted along almost micro scale devitrification cracks + fractures AND there is also a spatial association with murky white Qtz-Cc veins which however are late brittle structures clearly cross cutting earlier stockwork veinlets.

It is somewhat surprising to see this "most intense" Na depleting alteration within a coherent dill like facies when presumably more permeable pumice breccias and polymict bx/tst. nearby are relatively unaffected.

Can only surmise that devitrification of Dacite still allowed high permeability for fluids

Lack of Na depletion + anomalous Mn at 432 m is confusing because colour and degree of matrix alteration looks similar to other examples; intensity of Mn/Cb stockwork and fine silicious stockwork in ground mass may be discriminants for picking significant alteration but it is very difficult + uncertain to map out intensity variations without numerous WR analyses in this type of alteration.

GRAPHIC CORE LOG	Hole No. YNC 10	Depth m
Scale 1:	Project	
By	Section	
Date	Collar co-ords	RL
Page 3 of 3	Az. °C	5 cm °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
500			Thin Bdd. grn-grey/ ser-chlorite to grey chalky slst and VR sst; possible mafic clastic input; resembles bedded sediments above 483m and has small tight fold at 502.4m which is small N plunging Syncline (oriented by steep cleavage)
520			
EOH			FS physic PUMICE BRECCIA similar to 483-502m and with identical patchy to pervasive pink alteration.
			It is problematic to interpret this alteration style because of 4 VR samples (38747-38750). The 1st and last are of "least altered" normal sericitic greenish grey (devitrified) rock and the 2nd + 3rd are of pervasively pink altered pumice breccia. Yet the 1st + 3rd have high Zr ~340 and the 2nd + 4th have lower Zr ~305 ppm. Similar Ti/Zr ratios strongly suggest a formerly massive unit/s and it is tempting to ascribe the shift in Zr+(Ti+Al) concentration to alteration — if so, it would imply that 2 of the samples have been switched?
			Comparison of greenish "normal sericitic" pumice bx samples of YNC 11 (39388, 39339) indicates Zr levels of 348-351 ppm which suggests that in YNC 10 the high Zr samples are probably the "freshest" and the pink alteration induces a slight mass gain. (Note: that this is entirely dependent on concept of samples being inadvertently confused in Lab? — sample tickets are stored in trays.)
			If above assumptions are followed through then following mass changes can be estimated (on basis of Zr immobility)

Average Compositions: (Oxides)

	Si	Ti	Al	Fe	Mn	Mg	Ca	Na	K	P	S	LOI	Zr	Al
least altered	70.1	0.36	13.83	3.11	0.10	1.14	1.93	1.33	3.54	0.06	0.09	4.29	341	59
Pink pervasive Alt	68.9	0.33	12.98	3.29	0.12	1.32	2.66	1.68	3.04	0.05	0.04	5.52	306	50
Mass change g/100g	7	0	0.5	0.6	.03	0.3	1.0	0.5	-0.2	0	0	1.9	0	

Suggests pink alteration is associated ± slight Si (Ca) mass gain but is not plagioclase destructive ∴ probably not proximal VHMS. (This is consistent with lacks of pyrite.)

390211

GRAPHIC CORE LOG		Hole No. YNC 11	Depth 151.3 m
Scale 1:1000		Project SOUTH HENTY EL 8/96	
By WILLEMANN		Section	
Date 11 September 1996		Collar co-ords	RL
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5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
		Sub-standard core loss to 35m (~70% recovery)	Leached, oxidized, clayey (formerly sericitic) massive DACITIC? breccia. Relict fragmental texture apparently monomictic and absence of distinctive xts or phnts suggests weathered sparsely ϕ phyric Dacite Bx.
20		3 Fe stained fractures	Oxidized sericitic m.g. massive to diffuse bdd volcaniclastic SANDSTONE, sparse relict ϕ xts = Dacitic derivation?
BOCO		sheared	Ser/chl mass→bdd f.g. SST and polymict lithic fine BRECCIA, disseminated Py and prominent 1-2% qtz xts in matrix, some wispy pumice? clasts to 50 mm (matrix supported) in lower part.
40 TOFR		1-2% Py clasts <15mm Bd: 40-60°	
		No Sulphides Not magnetic	chloritic massive to diffusely stratified monomict BASALTIC BRECCIA and SANDSTONE.
60			Typical close packed rounded to lenticular/flattened/compacted clasts of green f.g. distinctly vesicular basalt with very variable size range from 2mm to ~100 mm but mostly < 50 mm. Clast margins often difficult to discern and some massive sections could be either coherent or massive f.g. SST? No clear internal stratification except near basal contact. Pervasive green colour due chlorite ± minor epidote alteration, smears + joint coatings of Hematite common below 70 m.
80			
39337 →			
100			
120		Bd: 60°	Thin bedded Sericitic (chloritic) felspathic vc SST and clasty SLST. Fs xts fresh, NO significant Pyrite.
39338 →			
		clv: 50-60°	Sericitic MASSIVE feldspar phyric Pumice BRECCIA. 5-10% 2-3 mm pink plag xts in compacted foliated sericitic matrix with abundant relict tube pumice fabrics (on broken surfaces) sparse subround to angular clasts pinkish sparsely ϕ-Fs phyric Rhyolite? 3-50 mm, 1% not below 140 m. Fs xts v. fresh, No Py.
140			
39339 →			
151.3 EOH			

3902212

GRAPHIC CORE LOG		Hole No. YNC16	Depth m
Scale	1: 1000	Project	
By	G MacDonald	Section	
Date		Collar co-ords	RL
Page	1 of 1	Az. °	

5 cm

390213

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
20			
40			
60			
80			
100			
120			
140			
160			
180			
200			
220			
240			

Msv d. ppl ^org gg. QFpR. Q xtals are equiv size to F & not the large embayed ARA rhyolite Q. Only wy magnetic. Last 150m~ sericitised foliated & compacted but contact fairly discrete (not peperitic). - MJR

F xtal rich volcanic - looks v much like [pto1(B)]

pumice bx. Base interfingers (rip up clast) ± underlying slt.

Mod gy to p gy slt - diffuse bedding (?) ± 75-80 CA.

D gy bn fine shaley/slt - bedding ± 45° CA. Lots stringy v/s of dk-pt (red) & cb - pg - asp. Wt cb clasts? / lenses? from 83.0 - 83.5 Dsd p.y.

Soft sediment slump bx [PTO.(a)] - reworking of cb, marly d gy slt too to F>Q xtal sst [pto(a)], v/c sst & m slt/sh.

Mixed sequence of v/c sst - slt ± cb variable cb

① Marly v/c sst ± nodules of cb & ± 5% py over 10cm

Slt contains F>Q xtals & is essentially same as ov bur ± cb [pto(d)] (upside - Q not active below ± 11.0.)

② Mod gy slt/sh - no cb overlying bed of F>Q xtal sst - no cb except for wisps

③ P.gy msv cb. Apparently formed by the coalescing of nodules [PTO(c)]

④ Slt ± cb nodules - precursor to ③

⑤-⑪ PTO

F>Q(Hb?) p A ± cb filling hyaloclastic breccia spaces - (interp.) Hard rock but coherent ± F (inc glomeroporph) & weak chl clots all Hb(?) ± "veins" of pk hem c.f. sed cb - must be hyalo lava bx ± cb filling frac's Total cb ≈ 3-5%. Becomes more finely clastic ± sub rounded cb & volcanic clasts over a couple of metres. Saw cb poss fossiliferous eg 164.7m.

← Poss cte between two flows as below ≈ 193.0

± negligible cb but may also be more coherent part of flow 10m msv py vn @ 202.5m

Volcaniclastic with weak to moderate (F still v/s) sericite alt^n & mod foliation @ ≈ 30° CA [PTO(f)]

Volcaniclastic - dacite derived as for prev unit. Possibly continuation of the above but is topped by 0.5m silty (sericitic) bed which itself overlies 1m ± of ante bx ± silica (only mm py) [PTO(g)]

Unimodal Dacite. Pk/org. alt^n overprint makes it hard to be definite, but PAS call the alt^n sericite - could it be Mn cb? F are preserved pk/org. [PTO(h)]

EOH 252.8

(b) Contains rounded clasts of pale pink vg volcanic (glassy / porph fr volc? or aphyric) c.f. C.V.C. pm bx.

(a) Best described as a fairly proximal soft sediment slump bx cong mass flow. Some parts apparently in-situ sediment however adjacent parts bxd apparently transported. Apart from rare d gg slt/sh @ 95.2 - 95.5 the clasts are cb (either wk, or pink (hmt) or marly sst) in a sandy mx which itself is marly (granular) in places or v/c in others. Where v/c it appears contains a chloritic xtals which are probably after hyp but possibly mic(?). Need T.R/Zr. Clasts contain fossils (trilobites in parts) eg. This style of cb bx is the nodular type. The cb becomes org/bx below ≈ 95.5m but this due to Fe impurities in the cb - not a change in the cb chemistry. Some of the cb "clasts" have definitely grown in situ - it's just the bxd nodular clasts + the occasional obscure pk cloth which suggest that there has been some (minor) movement.

(c) Slt/sst. Coarse clots of pyritic cb with laminae wrapping around clasts but laminae are probably foliation with true bedding around 75° cA.

(d) Contains bxd / bed zone ≈ x 5% Mt as v fine dstr + associated ± cl. cb. has calc cmnts banded (but folded) vng. Coarsening up of unit at base is based upon increased pink/red hmt carb clasts - in some cases these are orgnably not clasts, others are more clearly defined.

(e) Nodular cp Grn/gy stylolites may be silty mx squeezed out by nodule formation + diagenesis. Cb contains fossils.

(5) Hard to pick but probably clasts of F> Hb p A intruding into cb - not jigsaw fit + hard to see cb at vng.

(6) Non cb slt over hmt cb bx - possibly more hyaloclastic bx

(7) Bed F xtal ss. or clast of coherent F p A(?) ± Mt.

(8) Non cb slt bed as for (6)

(9) Pk hmt cb bx ± sandy F x'al rich mx - not obviously discrete clasts but more convoluted

(10) Either bdd slt + F x'al sst or slt ± flattened clasts of F p A/D ? - Not v significant whatever. ≈ 2% Mt.

(f) Alt° masks some textures - pervs introduces some pseudoclastic textures but still is fair distinction v/c ± a dacitic provenance i.e. F p D clasts + F xtal mx. Mod rdd clasts + ≈ 80% mx so distal. No obv andesitic material. Contact between lst top + ov andesite is sharp but there are two "lenses" of andesite in the upper 10cm of the lst - apparently fine intrusions. Mn dsd mt + ocl py but sericite alt° contains surprisingly low amount of sd.

(g) Definite F p D (v fine g inclusions not phen's) clasts mod rdd. Dsd mt (anh) + mn dsd ☐ in parts. Hmt overprint ± g/v @ 115.3 + ser/gy @ 228.3 - 229.1. Some Fe cb vng + lesser diffuse alt° (giving cb stained appearance) between ≈ 226 - 234

(h) Clastic top may be partly pseudoclastic but clearly slt ≈ 247.8 suggests some influx of sed. Z of cb alt° (low dips) from 248.5 - 249.5. Becomes mod slightly sericitic below ≈ 250. Looks to be coherent (but mod foliated) from ≈ 244 - 248.5 + poss below but grossly looks more like pk pm bx in colour + gross text (it is not pm bx). Distinction between this unit + ov unit maybe transitional ie ov unit sourced from this dacite but ov unit is more sandy at its base - also sharp change to pk/org colour

GRAPHIC CORE LOG

Scale 1:1000
By GRANT MACDONALD.
Date 12/7/96.
Page 1 of 4

Hole No. NC1 Depth m
Project SOUTH HENTY.
Section
Collar co-ord RL
Az. ° 5 cm

Sample No	Ti/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
627355	8.1	0			Q F xtal rich sst w mottled albite chlorite alt? ≈ 3% detrital mag. to. Py Msv.
356	7.4				
357	8.0	20			
358	13.3				± Mt Msv Q F xtal rich v/c bx ≤ clasts (≤ 5%) of rounded to angular slt ≥ rounded QFpR. Mottled
359	7.6	40			alb>chl alt?. Variable mt to 2%
360	8.8				
361	9.8	60			Msv QF ± mt xtal rich v/c bx ≤ clasts (≤ 5 - 10%) of rounded to angular slt and FpD. Mottled alb < chl alt?. Variable
362	11.5				mt to 2%. Flow banded FpD clast
363	13.8	80			@ 94 m.
364	22.6				
365	23.1	100			
366	17.7				
367	12.3	120	F>Q F≥Q F>Q	QFpR, slt QFpR, slt, FpD QFpR, slt, Bd 20°	Series of well graded (bx) - sst - slt bds. Xtal rich x̄ composition varying between units from F ≥ Q (± Mt) to F >> Q (± Mt) as shown. Clasts (≤ 5% unless indicated) variable
368	15.4		173.5 - PET 627653		
369	17.1				composition is variable - angular/rounded slt,
370	24.3		F>Q		rounded QFpR, FpD. Mt t/a but
371	17.4	140	F≥Q Mt F>Q	Bd 30°	also in discrete fine beds towards top of
372	17.8		180.1 - PET 627654 Mt Mt	Bd 39°	graded unit. Tc dsd Py > cp.
373	22.0	160			F>Q xtals, clasts QFpR > slt.
					F≥Q xtals, clasts QFpR > slt
374	14.4				F≥Q xtals, coarse lithic rich base, QFpR > slt
			176.1 PET 627655	Bd 45°	
375	21.8	180	184.9 PET 627656 Mt		F >> Q xtals
376	15.8			Bd 40°	F>Q xtals.
377	18.6	200			F ≥ Q xtals, occasional clasts (to 10mm) of QFpR, slt
378	24.5				
379	22.7	220			
380	17.9				
381	18.4		Mt	Bd 75°(?)	F>Q xtals, clasts QFpR, slt
382	14.2	240		Bd 43°	
383	15.3				
		260			

390215

GRAPHIC CORE LOG

Scale 1:1000
By
Date
Page 2 of 4

Hole No. NC1 Depth m
Project
Section
Collar co-ords
Az.

5 cm

RL °

390216

plug No.	T/Zr	Depth m	Mean Grainsize (Mud 0.5 2 8 32 mm)	Max. clast φ & Structure	Description
	15.3 (ant)	280		Po...	F ≥ Q xtal, clasts QFpR generally angular
384	20.6				
					F > Q xtal, clasts rounded QFpR, and angular slt
386	14.2	270			F ≥ > Q xtal, clasts rounded QFpR, FpD and angular slt
387	23.7				V/c slt–sst–bx. Single grossly graded unit.
388	14.9				Upper part similar to overlying units – F ≥ Q (Mt) xtal
		290			rich slt–sst ± clasts (rounded) QFpR > (angular) slt >
389	13.1	294.2 PET 627659			FpD. Cb clasts more common down hole
390	20.0				Basal part of unit (below 292) is soft-sediment
391	14.9				
392	13.5				
393	13.5	301.1 PET 627670			slump bx ± clasts QFpR, bdd slt (inc sdc slt) ± mottled alb-chl alt°
394	15.0				
395	31.8				
396	36.0	310		Puggy flt	50°) and rafts of wk–pk (hmt)–p gn (chl) lst [PTO (a)]
397	35.9	318.6 PET 627669		Puggy flt	Mod to v strongly foliated F > Q (Mt) xtal lithic v/c bx [PTO (b)]
398	21.0			[E] PTO]	
399	34.7			Foliation @ 328 65°–110° (TN)	V/c bx. Strongly altered hmt–cb ± chl,
399	35.6	328 PET 627672		68°–102° (TN)	strongly foliated bx ± apparent clasts (50°) (hmt altd)
		330			of F.p.A in F xtal mx. V occasional zones of
400	35.1	328.8 PET 627673			F > Q xtal sst as seen above ± 307 m. Provenance
402	37.5				apparently more int./mafic, but still polymictic.
403	40.7	343.5 PET 627661			Carbonate lenses clearly alt° in parts, interpreted
404	38.8				as alteration elsewhere. Still v difficult rock
405	40.4	350			Negligible sulphides.
406	37.3	349.9 PET 627674		Brittle cb-chl healed fault	V/c bx derived from underlying F(Hb?)p.A. Strongly
407	39.3				foliated cb–hmt altd >50% clasts predominantly
408	24.8	361.5 PET 627682			F(Hb?)p.A possibly slt, in F rich mx – no obvious
409	36.9				
410	38.7	370			Cb rich lens eg 349.0–351.0 & 369.0–372.0 interpreted as early alteration
411	44.8			Brittle/ductile cb-chl ± hmt healed fault	
412	43.9				
413	44.4				Strongly foliated variably (weak to moderate)
414	47.6	390			cb > hmt altd F(Hb?)p.A Distinctive cb–hmt filled
415	45.5	395.3 PET 627675			amyg.
		400.7 PET 627683			Strongly foliated, apparently brecciated
417	44.9				F(Hb?)p.A ± moderate hmt–cb alt°. Distinctive
417		410			cb–hmt filled amyg. Cb from 420.8–421.0
418	43.8				is bounded by slt and is intraclast from underlying lst–slt
					Lst, mostly wt but ± lt gn slt beds < 2mm and pink-grey
419	37.0	430			50 mm thick gn slt bed @ 23° to core axis
		431.8 PET 627684			Lst–slt. Cb in part looks pure 100% Cc
					Lst however other zones, particularly
420	24.4				Lst–bx/sst the more bx's the cb is filling
		450		arbitrary distinction between lst–cb alt°	Lst–slt the mx. [PTO (d)]
420	40.4	459.1 PET 627685			V. Strongly foliated strongly cb altd bx–±
					~ 50% hmt or ser/chl altd clasts
422	20.5				Strongly foliated strongly cb altd slt–sst–bx.
		470			V difficult to pick but appears to contain soft-
423	34.5	471.2 PET 627686			sediment rafts of sandier material
					clasts > mx
424	34.5				Andesite lava bx – monomict. Fragments are
		490			strongly foliated to sub-parallel to core
425	45.1				axis. Some clasts are F.p. ± cb±hmt
		500			filled amygs in some fragments.
		498.6 PET 627687			

GRAPHIC CORE LOG

Hole No. VC1 Depth m

Scale 1: 1000

Project

By

Section

Date

Collar co-ords RL

Page 3 of 4

Az. °G

5 cm

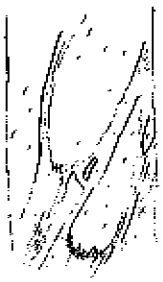
3902217

Sample No	Ti/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
426	45.1	500			The mx is altd + sy foliated but appears to consist of andesitic detritus. The pronounced thickness of the intersection is due to drilling running sub-parallel to bedding. Hmt alt= is both diffuse and in lockade cb > hmt vng which was pre (or early syn) deformational.
427	46.2				
428	44.3	520			
429	47.7			hmt	
430	45.7	540			
431	42.8				(or bods) Cb as both clasts and vng. Clasts pk wy hmt cb. Later vng is spatially associated w clasts but also cross-cuts "Bedding" (clast boundary) to core axis is ≈ 0°-15° w cb along core for up to 2m's. Clasts >> mx. Similar to previous hmt-cb altd zone.
432	45.9				
433	44.7				
434	44.0	560			
35	42.6				
436	43.7	580			Andesitic lava bx (possibly pillows?), strongly foliated w foliation intensity decreasing slightly down hole. Clast >> mx.
437	43.7				
438	46.7	600			
439	47.4				Polymict bx w dominantly And lava clasts and minor ag-lr ngn slt clasts to 150 mm. Foliation intensity increasing
		620		5° 10° py	Andesite lava bx w up to 25% py (early to syn-D) in veins anastomosing around Andesite clasts [PTO(c)]
				foliation @ 630m	Basal part of Andesite lava bx has occasional Q xtals in mx as suggested by Ti/Zr
				65→225 (TN) 70→220 (TN)	V/c bx/sst w FpD >> And clasts (10%) in a fg mx w F≥Q xtals
468	20.4				
469	11.5	640		3° py	F xtal v/c sst w rare rounded FpD clasts. Wk diffuse ser-arg-py alt.
470	12.2				Difficult - probably clast of FpD at base of
471	17.9				F xtal sst - correct sub-parallel to core
472	15.3			Alt= more diffuse - pervasive than above	Strongly q-ser-py altd top to Andesite bx - no q xtals in mx but possible ?ing of prov. [PTO(d)]
473	44.7				
474	46.1	660			
475	44.4			"	Andesitic lava bx - not obviously jigsaw fit but foliated
476	44.8				contact hard to pick
478	46.3	680			Andesite, massive, F hard to see, no mafics recognisable - based on Ti/Zr. - actually looks more like Dacite.
479	46.1				
480	44.1	700		pyritic zone around discrete fault	(10° to core axis)
				contact sharp and @ 20° core axis	Not certain - Tony C says could be lava.
481	11.8	720			Fg xtal rich sst(?) evenly distributed F, murky, c v. rare <10-15% rounded lithics - Felsic volcanics? FpD. Rafts (or dyke) of FpD. Lower contact strongly ∥ to core. Similar to clasts in underlying unit. Moderate to strongly foliated throughout.
482	18.5				
483	12.3	740		small pyritic zone	
484	12.5	750			

Every 1m
100 - 467
≈ 40.0 → 46.1
626→627 51.8
627→628 35.0

613 - 614 0.284 Au
627 - 627.6 0.033 Au

390218

(a) 

← Py is assd ⊕ diffuse cl or cb
Ts not post deformational but some suggestion of being syn-deformational

Cb bx zone from 626.2 - 626.6. Appears grossly polymict ⊇ wispy volcanic clasts and sadier cb altd clasts. however cb elsewhere looks to be v.g hill.g. Petrology says cb/cmt altd plag phyric lava bx

(b) Difficult to define contacts as they parallel core and both rock types are clastics. alt: is strong in parts.

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* UNDERROCK SAMPLES from ~ 642 m (in Basile) and ~ 662-668 m (in HBB or equivalent coherent/intrusive? facies) are submitted for major and incompatible trace element analyses to ascertain mass changes involved in ser-pyrite alteration which seems to be more ⊇ semi pervasive and closely associated with mylonitic shear zones which anastomose at low ∠ to LMOC.
Textures tend to be dominated by sheets and assoc. alt. selvedges but in both cases the precursor rock looks more or less coherent and ought to have been compositionally uniform pre alteration.

GRAPHIC CORE LOG		Hole No. NC1	Depth m
Scale 1:1000		Project	
By		Section	
Date		Collar co-ords	5 cm — RL
Page 4 of 4		Az. °G	°

sample	T.I.Rs	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
484	12.5	750			intrusive contact.
		751.6 627695			Sharp contact - slightly ragged due to foliation(?)
485	3.9				Massive gn/gy Fp Andesite ? intrusive. Becomes slightly bxd downhole
486	29.4	766.1 627696			Fxtal rich sst as above.
		770		Shear @ 15° to core	Foliated glomeroporphyritic FpD ± mafic intrusive, as above but parallel to core
487	15.0	777.0 627697	≈2%	pg	Apparently ~~bxd~~ ductile lava bx but many may be pseudoclasts. Monomict but not immature hyalo
488	12.3				F rich xtal sst but murky gy due to wk g-ps alt - rafts of gy slt - soft sediment.
		790	1-2%	Pb	Becomes more FpD clast rich downhole but masked by alt.
489	15.2	777.1 627698			
490	12.2	747.2 627699			
491	12.4	801.3 627700			Broad shear - ≈ 75° to 055° (± 10°) +N
492	16.8				← contact unclear [needs more attention]
493	28.3	810			Interpreted as F rich sst ± rare lithics but conceivably could be FpD bx in parts - monomict - no Q. Cross-cutting mafic dykes still.
494	14.2				
495	27.3	823.9 627986			
		829.8 EOH			

390219

GRAPHIC CORE LOG		Hole No. NC2	Depth 631 m
Scale 1:1000		Project	
By W. HERRMANN		Section	5 cm
Date 7 August 1996		Collar co-ords	RL
Page 1 of 1		Az. °C	°

3902220

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
370			Fg. chloritic dark green/black amygdaloidal Basalt sharp drilled contacts, irregular intrusive zone at low ∠ (40°).
390		Mod. Magnetic	Massive to diffuse bedded grn/pink Fs xt vcls
400		Clasts to 100 mm	VC sandstone and lithic sst, lithics increasing downhole to polymict Bx ± clasts QFpR, FpBas-And, clasts, mudst and rare white Lst. Pink + green, semi regular Wk/Stky bedding 45-80° (40°). <2% Oxt in matrix
410		Fs xt ≥40%. Ox t <2%	Interlayered? fg grn grey clasty siltstone (or aphyric felsic intrusive??) and Fs xt/silic sst, v. sharp partly irregular intrusive like contacts.
430		Wkly Magnetic	Fxt sst + Bx as before. Massive (sericitic-chloritic) ashy pumiceous Fs xt Dacitic VC Sst, trace Mt, Fs xts ~15-20% in pale ashy "smoky" "intact-ic" matrix ± rare velvet tuff pumice? Slightly hematitic below 433m.
433		Minor Fault Scar	pug/cataclas.
450		clv: 35-40°	452.3-453.2m Hematitic polymict bx ± flattened clasts HT type basalt?
470		No Py indicate ~50° to SSE! (unlikely!)	Variably sericitic-chloritic massive pumiceous fs Dacite VC Sst with mixture of chloritic Dacitic hyaloclastite below 460m and Mt magnetic. No Py!
		cl: 35°	SEE OVER →
		cl: 25-40°	Not magnetic.
		cl - 35-40°	Trace <0.1% Cpy and possible silver minerals?
490		Scan chloritic	Chloritic shear at 489.2m followed by 90cm fractured grey chlorite then 80cm sheared clayey cataclasite and clayey-chloritic mylonite in fault zone terminated by grey clayey pug at 491.29m. Shear planes at 35-45° (40°).
		Bd ~ 25°	Mg. grey micaceous chlorite (= NC Sst?) somewhat fractured ± minor faults near shear.
510			± colobly silicic clastic (Quartzite) conglomerate. Trace disc. Py <0.1%.
			Interbedded m.g. micaceous chlorite and pebbly-cobbly silicic clastic cong.; sst layers tend to be rather broken/faulted.
530			
		Bd: 30°	Cursory inspection (ends of trays poking out of stacked trays on pallets) suggests micaceous qtzite and minor <20% beds of pebbly silicic clastic Cgl. continue to EOH - probable correlate of NC Sst; dark grey-black striped
550		Bd 20°	siltstones (as in NC2) are not present.
			Minor f.g. qtz vcls f.g. Sst and siltstone.
570			Coarsening grading and possible current bedding at ~625m indicates bedding @ 80° (40°). ∴ nearly ⊥ to horizontal sequence. No well developed cleavage
590		Bd 60°	* well bedded quartzitic Sst + f. qtzite and interbedded ± volcaniclastic/epiclastic sandstones above 30m in NC2. They are similar to f.g-m.g. Sst/Slst interbdd ± coarse flaggy/polymictic epiclastic sst/cgl. at ~70-95m in NC3) (part of Mt Julia Member)
610			
		Bd: 80°	
631 EOH			

Tie line to intersecting at base of NC4, NC3

Ti/Zr

21.0, 54.2, 39.8, 53.9, 21.5, 22.0, 10.1, 15.8, 13.3, 13.8, 13.1, 13.4, 15.1, 13.6, 13.2, 16.2, 15.8, 29.4, 39.1, 38.3, 44.1, 47.0, 47.4, 21.4, 10.5

390221

"HOWARDS TUFF" (HBB)

468.6 - 474.2 Chloritic massive Mafic Breccia

Close packed flattened ellipsoidal slightly "fluidal" clasts of f.g. Basalt ± small dark dk. teardrop amygdules or altered mafic microphenocrysts, minor <1% fk plagioclase laths, also ± softer dark murky dk. matrix alteration

Clasts rich flattened fabric v. similar to other occurrences of "Howards Tuff" but there seems less strained rock typical semi mylonite, flattening may be partly depositional from semi congealed? lapilli ? Clasts generally 20 - 60mm long.

474.2 - 478.2 Zone of spotty hematite "alteration" ± pervasive purple colour associated with 10-20% semi massive to veiny white + pink Calcite in central zone and 30 cm widths of pinkish sericite alteration at contacts with "normal" chloritic mafic breccia above + below. Entire zone looks somewhat more strained, foliated + flattened giving impression of ductile shearing related to acid fluid movement along shear zone?

478.2 - 483 m chloritic Mafic Breccia similar to 468.6-474.2 m grading downwards into blurry coarse breccia d/or coherent fs plagioclase basalt containing ~15%, 2mm blobby pinkish brown fs phenocrysts in fine chloritic matrix. Narrow bands of aphyric basalt bx (sim. 468.6-474.2) (as at 481.9 m) suggest fs. plagioclase variety is not entirely coherent, possibly pillowed but margins very blurred. Generally chloritic with minor veinlike hematite staining, minor cc filled pinkish amygdales and ~3% cc ± veining.

483 - 491.2 Non-chloritic massive - diffuse bedded aphyric Basalt Breccia + Ve set, similar to 468.6-474.2 m with some m.-c.g. sandy (mafic) layers containing considerable carbonate (cc) in matrix cement - maybe approaching calcareous sandstone.

Considerable veining and semi massive bands (= deformed veins?) of pinkish-white Calcite totalling 2-10% vol (esp. in 483-485 m.) Generally not magnetitic but trace granular Mt. amor ± trace Specks Cpy and cc in amygdales? (Note elevated Cu 110ppm) Includes block/pillow/tongue? of chloritic fs plagioclase Bas. Bx (sim 478.2-483) at 485.9-486.4 m but contact relationships are obscure.

Foliation slightly variable: 484 = 25-40°, 490 m = 35-40°; No oriented core but if cleavage is assumed to dip east (// to gross layering?) then Cc planes on foliation (Slickenside pitch in vertical plane) suggest E side up movement (No reliable asymmetric shear indicators observed)

Overall moderate to strong flattening + shearing increasing over last few metres towards fault.

GRAPHIC CORE LOG

Scale 1: 1000
By W. HERRMANN
Date 16 July 1996
Page 1 of 3

Hole No. NC 3 Depth m
Project South Kenty EL 8/96
Section
Collar co-ords E N RL
Az. °G °M Incl. °

390222

AI	T/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
42	14.1	250			
		270			5 cm
47	28.3	290			
49	30.6	310			
47	23.2	330			
		350		0.5% Mt	Massive Fs xt rich (lithic) V/C SST. 2-20% lithic clasts generally < 50mm but few upto 300mm, 25% 2mm tabular Fs xts but < 3% grey Qtz xts in matrix. Clasts include
37	23.8		Moderately Magnetic		Fsp Andesite and pink/grey Q-Fsp(glassy) Rhyolite. Fs freq. =O
			Sharp Bd. Undul.	10 – 300 mm ϕ	
5	14.5		Rhizose coral @ 363.8m		FOSSILIFEROUS LIMESTONE CONGLOMERATE in f-m.g. marly to
5	17.0	370	Trace Sp-Cu	~0.2% Py in Cc vns. Bd: 40°	sericitic ashy SLST (+SST). Fs xts in V/C SST are fairly fresh.
4	8.9		Shd Sor. Q-F-plum SST.		Sericitic VC sed matrix commonly ~ 0.2% f. dis Py.
2	8.8				MASSIVE WHT (PINK) Cc MARBLE ~ minor grey/pk Fs xt
28	12.6	390			bearing Felsic VC SST.
31	24.9		Clty sor.	VC sst. TRACE Cu. Bd. Subs // LAOC in part.	POLYMICT (LST + QFpR) CONGLOMERATE & VC SST; m-f.g. Fs + Qtz xt. bearing ashy sericitic sandy matrix.
31	30.6	410		clasts to 70mm < 5% vol.	MASSIVE Fs xt. rich V/C SST similar to above 360m but sparse lithics. Diffuse bedding in upper few m. Patchy minor pink Alt.? alteration and leaves grey Fsp. appear ~ traces Py and rare specks Cu but generally contains ~ 1% granular Mt. and is distinctly magnetic
50	31.2	430			
31	22.0	450		clasts to 200 mm, upto 20%	QFpRhyolite CLAST rich VC Breccia. 10-30% clasts to 200 mm, increasing downhole; similar fst matrix.
36	9.5			Grey Curvy	Massive bioturbic Fs-Q xt VC SST + Pebbly mst Bx ~ some lst. clasts.
20	9.5		Trace Py.		Slump disrupted clty silts. cls + Fs-qxt SST ~ fine Cc stained matrix
22	9.2				
10	11.1	470			
17	8.0			Trace dis Py in matrix sst.	Inhomogenous massive to diffuse bedded MIXTITE of
18	9.5				muddy grey Siliceous Fs (Q) xt. pleniclastic SST,
27	6.0				lithic SST Bx ~ small pale grey Fsp Dacite clasts
39	6.1				and polymictic SST – Bx with flattened white
28	7.2	490			limestone clasts sometimes crowded upto 70% vol.
35	7.0				in sandy V/C matrix. Bedding appears irregular
		500			slump disrupted possibly overall at low angle to LAOC.

GRAPHIC CORE LOG

Hole No. NC3 Depth m

Scale 1:1000

Project South Henty EL 5/96

By W. HERRMANN

Section

Date 16/9/96

Collar co-ords RL

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Az. °G

5 cm

°

390223

AI	Ti/Zr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
16	9.3	500			Lst/Sst breccia and polymictic Bx grading down to Fsp Rhyolite clast rich Hx breccia below 510 m. Fs is fairly fresh.
13	9.6				
47	6.6				
3	9.0				
5	10.7	520		clvg 5-30° (ORIENTED)	MASSIVE - SHEARED GREY MARBLE ± speed anastomosing blade stylolitic shear planes sub// LAOC trending 350°/80 W Ser-Silicious "blurry" Fs xt. Rhyolitic vc/SST ± Q-Cc = Chl Vns (Chemical correlate of punicreous/polymict Breccias)
3	13.7				
		540		clvg: 20-40°	Sheared - massive grey marble ± thin dark shaley stylolites? similar to 514 - 526 m Flattened Lst Cgl?
1	13.6			Bd?= clvg 5-15°	Streaky massive white-pink-grey MARBLE
				Bd? 0-30°	
4	11.9	560		clvg: 0-20°	Similar to 514-526 ± minor felsic V/c SST - Lst cgl bands and ubiquitous thin anastomosing blade "shaley" stylolitic? shear planes running sub// to LAOC.
3	16.4			Trace Py	
				Trace Po in	cross cutting calcite veins.
2	9.1			Bd? 30°	
		580		Bd sub// clvg ~0°	Wht-pink-grey MARBLE ± wavy laminae; possible relict bedding. Sericitic chalky fg. V/c SLST + SST. 0.5% Po+Py, dissem + Vnlets.
14	8.4				
16	8.2			~0.5% dissem Py in V/c silty matrix	Interbedded/slump brecciated massive grey LIMESTONE/ impure sandy Lst, grey cherty (sericitic) volcaniclastic
		600			
27	8.8			Bd // clv. 10-30° LAC	siltstone and minor felsic V/c SST. Common nodular/mottled aged sandy Lst clasts in sparse fine
26	9.0				
9	8.0			Bd // clv < 10°	silty matrix, latter containing < 0.5 dissem Py (± Po)
8	8.7				No fossils observed but megascopically similar to Lst/SEDS at 360-393 m
14	13.3	620		clv: 15°	
40	18.0		Minor FAULT at contact.	Bd: 40°	Fsporph. DIORITE DYKE? >50% fresh wht. Plag 1-2mm holocrystalline (possible parent magma for Fxt rich SST of Middle Tyndall?)
47	6.9		Clasts 5-150 mm		MASSIVE POLYMICT FELSIC VC Bx, >50% variable sized clasts Fs Dac, Qfp Rhy, aphyric and cherty slst in ser-felsic airy matrix.
44	6.2				
31	16.3			Bd 70°	Some Fs xts but v. little Q xtl in matrix.
41	8.9	640	MINOR SHEAR.		
46	10.4			Bd 20°	
38	6.0				
74	5.9				MASSIVE sericitic/siliceous POLYMICT LITHIC PUMICE BRECCIA.
59	7.6			<0.2% Py. Bd 05°	fresh spare fs xts in pumice Bx; distinct relict fabric pumice.
56	15.1	660		Bd: 10°	LAMINATED TO MASSIVE BLK CHERTY SLST with minor thin sericitic felsic volcaniclastic SST beds.
42	38.8		(628117)	Tr: Py	MASSIVE M.G. Fs xt. rich (>50% 1-2mm) felsic lithic VOLCANICLASTIC SST. (WR Comp identical to Fxt SST above 450m)
				Bd: 30°	
60	15.8	680		Bd 15-20°	LAM-MASSV BLK CHTY SLST ± thin ser felsic VC SST. bed identical to interval 654 - 667 m.
		ORIENT	5 V/S 315/60SW? 50 cm fracture ZONE	clv: 30° (minor Fault)	
56	9.4				MASSIVE POLYMICT LITHIC Fs phyric RHYOLITIC PUMICE
32	6.7	700		Bd: 30° 50/50	BRECCIA similar to 646-653 m. eg. 701.6 Mixed polymictic volcaniclastic and Lst. Bx; Lst appear fossiliferous.
36	7.6				
30	9.9			Bd: 40°	50-50 Sheared - massive grey DOLOMITE/MARBLE and green-grey chlorite schist representing dol/ser alt. f.g. Volcanic ± trace fossils eg. 719.5 m
		720	Puggy Shear 20 cm @ 15° LAC		
10	8.8			clv // LAC	Sericitic-chloritic cherty f.g. VC SST ± sparse fresh fs xts; patchy DOLOMITE.
25	11.2		MYLONITE	clv: 15° inc	As for 712-721 except MYLONITE ZONE which contain Chl-Cc - Not Dolomite!
38	20.5	740			MASSIVE white - pale pinkish white DOLOMITIC MARBLE.
		750			

GRAPHIC CORE LOG

Scale 1: 1000
By
Date
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Hole No. NC3 Depth m
Project
Section
Collar co-ords
Az. °G

5 cm

RL

3902244

AT	Ti/Zr
38	20.5
39	25.6
86	11.6
81	10.7
76	11.4
77	11.3
77	10.8
82	8.7
74	9.0
74	9.6

Depth m | Mean Grainsize Mud 0.5 2 8 32 mm | Max. clast ϕ & Structure | Description

750 — MASSIVE white DOLOMITIC MARBLE mottled pink + white below. 754 m
Mixed DOLOMITE and Fol. cemented fr-Qzt. vfu SST and chl. slst.
Bd // shear planes at < 10° ubc.
? Bd // clvg (partly transposed) S=15°
770 — Puccary - SHEARED FAULT ZONE ~ 2m in Cam blk slst + SST.
Bd 10°
Bd 15°
Bd // clv 35°
LAMINATED TO THIN BEDDED TURBIDITIC grey-blk SHALE - SLST and grey quartzitic (micaceous, SANDSTONE
790 — Bd 40°, Clv 5° SST / SHALE ~ 1/1 Common turbiditic facing indicators (load casts, flame structures, grading) and locally
Bd: 25°, Bd: 45° contorted bedding; Generally quite finite // bedding; Locally
contorted — cleavage truncating bedding eg. 789 m (int with similar strike)
810 — Bd: 20°
Bd // clv: 15°
SST : SHALE/SLST ~ 1:1
830 — Pale Sandy beds are mostly slightly calcareous
between 808 - 885 m but otherwise appearance
850 — Bd: 10° is identical.
Bd 30-40°
870 — Bd 20° Sandy beds are ~10% Calcareous (Cc)
CORE ORIENTATION (890 m) indicates strike & bedding is perpendicular
890 — Bd: 45 to azimuth of hole, dip of bedding is Steep to East.
Bd 42° 70% SST 30% SLST + SHALE
910 — Bd: 10°
Bd 50°
Bedded to massive, graded medium to fine grained
930 — Qtz wacke - SST with <5% fine slst + blk shale.
Bd 50° Minor detrital mica ? and fine lithic grains.
Trace disc Py, not magnetic.
Bd 45° (Resembles ACC)
950 —
970 —
990 —
1000

* At 1080 m facing is ↓ up hole and bedding is ~45° ubc
↓ Massive - graded slst c < 5% slst/shale.
Some Sst is slightly calcareous.

GRAPHIC CORE LOG

Hole No. NC 4 Depth 577.2 m

Scale 1:1000

Project 5th HENTY EL 8/96

By W. HERRMANN

Section

Date 9 JULY 1996

Collar co-ords

Page 1 of 3

Az. °G

5 cm

RL °

390225

Ti/2r	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
9.8				Massive, pink Q-F xtal rich (Rhyolitic) sst/cgl ± prominent rounded-irregular clasts (5-200 mm) of cherty slst and Q-F pph., increasing downhole to ~20% matrix supptd.
14.0	20		↕ Graded	Thick bdd. F > Q xtal rich volcaniclastic/lithic sst, < 5% lithic clasts mostly 5-40 mm. Unaltd.
26.5	40			Massive to diffuse thick bdd. F >> Q xt rich volcaniclastic sst with polymict Q-F-pph, cherty slst, and fp. And. volcanic lithic clasts ranging from < 2% ≤ 5 mm to locally ≈ 15% upto 50 mm, all matrix supported. Clasts commonly rimmed by halos of pink Ab? alter in sandy xt. rich matrix.
24.1				
27.1	60			
27.2				Most is distinctly magnetic ± < 0.5% detrital? granular Mt.
27.3	80			
25.5	100		Peperite Hx	(Sericitic) Fp Dacite ? peperite in variably cse g. lithic to f.g. sandy Q-F xt. rich pale grey sil-ser V/c Sst. 112-115 m: Interlaminated bedded - slump disrupted or peperitic mixture ± f.g. grey v/c slst, limy slst, massive - fine particular white CO2 and polymict red bx ± clasts f. dacite pumice, Rhy? + CO2. Tr. Py, No Pph!
7.2			← Contact Bd: 40°	
16.2	120		20 cm Muggy Sh. Bd: 0° LAPOC	Sst, Limy Sst, sed bx - bioclinaged Cc (Lst) and mixed Dac-And. Lst Sedimentary gimble bx. Trace Py.
9.9			Pumiceous Sst-Bx	Mixed Polymict Dac-Lst bx, Lst cgl in mudst, massive Lst + Dac Peperite?
16.6				Massive blocky to fine sandy Fp Dacitic Hyaloclastite and volcaniclastic sandstone. tr to 70% clasts in places, ± in situ Hx; pale grey tabular F pphs 1-3 mm, 10%, near monomict
15.6	140		* Pet log. 627288	
13.5			Tr. Po, Py Massive	Lst-V/c congl. rounded clasts to 100 mm in grey bar? Sst. matrix.
14.7				
15.8	160		Bd: 40° Bd: 30°	Laminated to massive f.g. grey cherty slst and sst, minor Lst-Dac cong/bx bands, bedding often lenticular transposed? Trace to 0.5% fine diffuse Po > Py in veins // bedding planes.
17.1				
32.1				Massive F xt. rich - lithic volcaniclastic Sst, clasts ret aph. and Q-F, Rhy 5-30 mm increasing downhole diffuse bedded, sandy top. (Similar lithotype to 31-108 m) Minor granular Mt, trace diss Py.
26.2	180		clv: 30°	
14.2			Bd: 35-40°	Massive/foliated Lst, sandy Lst ± Lst Cgl = Q-F xt. rich sandy matrix. Dominantly Hem St. Calcite; Some clearly bdd.
22.7			Mylonitic	Mixed felsic-mafic vc sst + bx, mafic clasts incr down.
37.7			Shear ? W. Side Down ?	
43.3	200		← Hem	Mylonitic Mafic Breccias; close packed Very flattened thin lenticular-wispy-swallowtailed chloritized fg. basalt clasts 5-70 mm. Variably
42.3			clv: 35-40°	chloritic with patchy sericite and common Hematite
43.4			← Sericitic Patch	Overprint; not magnetic. Reverse felsic-sericitic bands.
42.5	220		← Trace Py vnr	with minor tension vein Pyrite (eg. 218.8 m).
42.0			clv: 35°	Uniformly chloritic below 224 m becoming slightly
39.3				dimictic below 226 m with occasional more rigid subangular
17.6	240		clv: 35°	clasts (CO2 (Sid) altd f.g. Fp And?) (to 30 mm, < 1%)
	250			see next page. 30 cm fine laminated grd.

GRAPHIC CORE LOG

Hole No. NC4 Depth m

Scale 1: Project

By Section

Date Collar co-ords RL

Page 2 of 3 Az. °G Dip °

5 cm

390226

Ti/Sr	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
	13.6			Sericitic > chloritic Nondescript Dacitic? massive volcaniclastic sandstone. Typically contains 10-20% small
	12.9		α: 45°	2-5mm clyg // shreds+blebs of chlorite and <5% 1 mm granules
			d: 40°	of straw CO_3 (alt Fs?) in pale grey-white fg. amorphous-granular
	15.6	270	CO_3 alt'd Mafic Dk. & chilled inbeds @ 35° // clyg.	Q-Ser matrix. Original textures destroyed, no fresh Fs,
	13.2			but looks volcaniclastic & vague grainsize variations,
	17.7	290	Polymict Bx & minor mafic clasts	rare lithic clasts (2-5mm) and local vaguely pepperitic / Hyaloclastite
	21.8		SST	or pseudoclastic? fabrics (defined by dark chl.) No Py or Mt,
	14.9		Bd 35° // clv.	1% Py and trace Sp(Cu) 293-294 m assoc & Ba-CO_3 vns.
	13.2	7i/Sr 44.6	Fp Mafic Dk. (amygdaloidal) Carbonated	SILICEOUS MASSIVE Fs phyric pink PUMICEOUS SST? Absolut
	15.7			change in alt. style fs is CO_3 altd. not sericitic, no chl, more silica.
		310		Rare relict tube pumice.
	13.1			Entirely massive, with murky pseudo fragmental?
				fabric evident below 310m — could be coherent
			Contact Bd: 20°	devitrified altered glassy flow bd? Dacite. Angular-irregular
-98	13.8		sharp	clasts of alt fs p Dacite to 40mm below 313.8m looks real.
594	14.9	330		Bed of Polymict V/c bx; 40% clasts 5-20mm, Dac, QFP, minor basalt.
			Only trace	
595	12.6		Py <0.2%	MASSIVE SILICEOUS-SERICITIC (FELSPATHIC?) pink fp phyric
			generally	blurry Dacitic Pumiceous SST - Bx or
596	12.6	350		pseudoclastically altd. glassy Dacite? Sparse rigid
				lithic clasts below 345m. Amorphous pink-grey
597	13.3			siliceous/sericitic matrix. Chty mudst intraclasts below 365m
598	42.5		←	F.G. amygdaloidal Basalt, pale grey-buff, weakly CO_3 alt'd
599	13.2			
600	14.2	370		
	14.9			Massive-thin laminated grey cherty mudstone & trace disseminated Py,
	20.6		Total <1% sulphides	Py? and brown Sp blebs mainly in CO_3 brittle veinlets.
	15.8			DACITE-MUDST PEPERITE?
625	15.0			
626	14.9			
427	12.2			
428	12.9		1% diss Py	Silicic massive POLYMICT V/C BRECCIA-SST (fpDac, QFPR?, mudst.)
429	13.1			& semi pervasive Q-Ser(Cb) Py alt ~ 1% disseminated Py
→430	12.8	390		Coarse angular Dacitic Hyaloclastite, pale siliceous matrix.
431	12.6			
432	13.4			
433	13.5		<0.5% Py	MASSIVE SILICIC/SERICITIC/FELDSPATHIC coherent DACITE.
434	13.8		trace diss. pale Sp(Cu)	Sparsely feldspar phyric, fs phacts, <5% ~ 2mm,
		410		sometimes dark-sericitized but generally
435	12.8			indistinguishable against pale buff-grey murky
				flinty felsepathic? matrix which shows no distinct
436	13.1			fabric except some possible micropolitic texture and
		430		disseminated granules of straw CO_2 (<0.5mm ~ 2-3%)
437	13.0		<0.2% Py	Massive murky Dacite Hyaloclastite Bx? Sparse QPR?
438	14.3			clasts near 437.5m. Pervasive moderate Si-Ser altn but
439	20.1			<0.2% Py.
440	19.0	450		Fig: amygdaloidal Basalt Dykes.
441	14.0		<0.5% Py trace Sp(Cu)	Mixed Murky Dacite Hyaloclastite/Bx/SST, polymict V/c
442				SST and Dacitic pepperitic mixtite.
				Murky coherent massive Dacite similar to
443	12.5	470	<0.2% Py	above 436m. Pervasive Si-Ser-Fs-CO_3 altn but <0.2 Py
444	13.1			DACITIC HYALOCLASTITE BX. & SST.
				Curvy fg. amygdaloidal BASALT DYKE
445	15.3			
446	12.1		<0.2% Py	SILICEOUS MASSIVE Curvy Coherent DACITE. Sparsely fp phyric or
		490		aphyric fs phacts indistinct against "aphanitic" Q-f matrix.
447	12.3			Moderate Q-Ser-Fs-(CO_3) alteration quite pervasive.
448	12.3			Pervasive pink colour due to fine KSp altn of matrix? and
449	12.2	500		spaced network of Py veins to 10mm, ~ 5-10/m core.

totalling ~ 1-2% Py, mostly coarse & fine crackle bx - stockwork of grey Qtz >> straw CO_3 veinlets.

GRAPHIC CORE LOG

Scale 1:1000
By W.HERRMANN
Date
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Hole No. NC4 Depth m
Project
Section
Collar co-ords RL
Az. °G

5 cm

390227

Depth m	T/Tr	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
625450	12.0			
451	12.0			
452	12.2			
453	12.3			Silicic – (sericitic – feldspathic – carbonated) massive pinkish grey coherent (e.g. DACITE (as above) Pink (Kspar?) clots and Py veins diminished to
454	12.3			absent below ~510 m but fine cracks bx-stkwk & hairline
455	12.3	520	<0.5% Py disem.	qtz veinlets pervasive throughout
456	12.3			
457	20.3			Mixed Polymict Bx+Sst ± prominent rounded Qtz xts.
458	30.3			
459	28.10			MIXTITE Zone of coherent massive Fs-Qphyric "Andesite"
460	24.5			and coarse – fine hyaloclastite of similar comp,
461	29.8	540		partly in situ Hx, distinctive round inclusion rich qtz xt
462	25.3		<0.5% Py	in clastic matrix derived from coherent Fs phase
463	30.1			Coherent part is characterised by ~3% 1-3 mm, carbonated
464	27.8	560		Fspts, 1-3% 2-5 mm rounded/resorbed inclusion rich clear
465	22.1			Qtz pxts in uniform fine grained aphanitic q-f
				pinkish-buff-grey matrix. Doesnt appear very
466	16.6		<0.5% Py	altered but has low Na high K indicating Kspar
		577.2	<0.2% Py	alt. and moderate silicification, Generally <0.5% Py.
		EOH		Finer matrix of hyaloclastite zones is generally
				grey, more silica-sericite altered and may be
				dusted ± 0.5–1% fine disem Py.
				Rare blebs dark brown Sp some in cores
				of alt. fx xts!
				Protolith has textural resemblance to "Andesite"
				at top of MA7 + MA8 but very different
				Si-KS-Ser-CO_3 type alter. Not MAGNETIC or Leucoxitic.
				lower few metres has pink clasts of sparsely fsp Dacite
				from unit below?
				(566–577) Massive Silicic–Kfeldspathic pinkish buff
				sparsely fs phyric DACITE (similar to above 528 m.
				lower ½ metre is clastic in situ Hyaloclastite
				with cherty silica space filling. Similar pervasive
				silica–kspar (±dolomite CO_3) alteration to host
				xphase.
				(575–577.2) Coarse, massive QF p "Andesite" hyaloclastite
				Breccia. Composed of 50% angular to irregular
				monomict clasts of Q-F phyric Andesite? (related
				to sequence 528–566? – has similar inclusion
				rich rounded/resorbed Qtz phenos ± carbonated Fs pats
				in grey siliceous-devitrified glassy matrix with
				relict spherulitic fabric) ranging in size from
				5–50 mm and set in pale grey siliceous
				mildly altered glassy? matrix. Irregular clast
				shapes may be partly due to matrix alteration
				overprinting clast boundaries but near absence
				of Q xts in space between Hyaloclasts suggests
				true clastic origin, possibly partly in situ
				fragmentation. Moderate (2) silicification and
				fe destruction but V. Low Pyrite etc.

GRAPHIC CORE LOG

Scale 1:100
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Hole No. TC1 Depth m
Project
Section
Collar co-ords E N RL
Az. °G °M Incl. °

390228

Zn (ppm)	Ba (%)	As (ppm)	Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
						5 cm
97	116	0.9	0.6	624876	Much	Hydrothermally silica-sericite-pyrite (2:5) ± chlorite, feldspar (1-2 mm, pink) phyric
74	126	0.9	0.8	624877	broken	dacite. Alteration is domainal with
777	77	0.9	0.7	624878	core/core loss	feldspars visible in lesser altered zones. Most core is broken, having been brittly deformed, becoming more ductilely deformed down hole. Pyrite ≈ 2%
402	282	0.8	0.6	624879 5m		
3	331	0.9	0.4	624880		
5	122	1.2	0.7	624881		
0	292	1.1	0.7	624882	contact is broken core	Strongly foliated/sheared (5° uh to 15° dn ?to the core axis), hydrothermally silica-sericite-pyrite (2:5) altered feldspar (1-2 mm, pink) volcanic, possibly coherent dacite. Less altered domains look porphyritic. Pyrite ≈ 1%-2%
			10m		?? Crystal Sandstone	
100	187	0.8	0.04	624883	Much broken core/core loss	
				384099	② - ③	
				T.I. r=20.8		
5	259	0.8	0.15	624884		
				NS		No core recovery
606	449	0.7	0.1	624885 15m	Much broken core/core loss	Hydrothermally alt silica-pyrite (1) altered, strongly foliated, feldspar (1-2 mm pink) volcanic, possibly sandstone but difficult due to pink albite(?)-silica veining which is post silica-pyrite pre foliation. Unit grades up d.h. becoming sandier and more obviously crystal rich. Pyrite ≈ 1%
449	338	0.9	0.09	624886	①	
4	744	07	0.07	624887		
	216	0.7	0.04	624888		≈ 50 mm wide (minimum) piece of quartz-albite veining c.f. similar vein in adjacent holes
			20m			
				NS		No core recovery
						Poor core recovery, weathered clayey zone
89	238	0.1	0.01	624889		

GRAPHIC CORE LOG		Hole No. TC1	Depth m
Scale 1: 100		Project	
By		Section	
Date		Collar co-ords E	N RL
Page 2 of 2		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			Poor core recovery, weathered clayey zone.
624889 (cont)			5 cm
624890		Broken core/ core loss	Dark green/grey, weakly hydrothermally altered but chloritic rock with ghosted feldspar crystals surrounded by anastomosing foliation/cleavage. Interpreted to be volcanic sandstone but very difficult.
30m 624891			
31.1m EOH			

b Zn Ba Au (ppm)

4 1531 0.15 0.01

3 412 0.18 0.01

390229

390230

GRAPHIC CORE LOG		Hole No. TC2	Depth m
Scale 1: 100		Project	
By		Section	
Date		Collar co-ords	E N RL
Page 1 of 1		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
			No core
			5 cm
5m			
565705			Strongly hydrothermally altered (3) Kernels of silicified volcanic with scattered ghosted porphyritic (looking) feldspar phenocrysts (inc py, sphal) are wrapped around by wispy to breccia infill galena, pyrite, barite and sphalerite with predominant orientation at 70° to core axis. Host bet is feldspar porphyritic volcanic clasts (silicified) in feldspar crystal rich matrix ← preferentially altered
565706			
565707			
384080 Tilt = 2 SOT 108°			
565708			
565709			Hydrothermally altered (2) - sericite-sulphide ± silica
10m			Strongly foliated (70° to core axis) feldspar (1-2mm, pink), volcanic - probably sandstone but possibly porphyritic or with porphyritic clasts. Sulphides (inc py, sphal) in stringers and veinlets
565710 PET 624888			
565711			
624892			← quartz albite qtz vein, 100mm wide
624893			Strongly foliated/sheared (70° to core axis) feldspar (1-2mm, pink) volcanic sandstone but possibly porphyritic 1%-2% magnetite in m-sericite-silica pyrite altered zones
624894			
15m			
		Sandy fault breccia	
		contact in broken core	
624895			Unaltered feldspar (1-2mm pink/white) volcanic sandstone. No definite lithics but possible lithic at 21.0 similar to uncompacted pumiceous clast in TC4. ~ 1%-2% detrital ~~ferromagnetic~~ magnetite
624896			
624897			
20m			
624898			
624899			
22.4 EOH			

Pb (%)	Zn (%)	Ba (%)	Au (ppm)
7.6	0.9	10.8	1.3
1.4	2.2	17.2	3.0
1.3	1.4	8.6	1.6
2.5	0.6	5.2	0.7
1.3	0.4	2.4	0.3
1.5	0.6	1.3	0.2
1.3	0.6	0.6	0.3
2	0.5	2600 (ppm)	0.2
4.0	292	2400	0.02
9	174	2450	0.01
9	177	1000	0.01
1	111	800	0.01
7	103	800	0.01
13	89	600	<
24	90	600	<

GRAPHIC CORE LOG		Hole No. TC3	Depth m
Scale 1: 100		Project	
By		Section	
Date		Collar co-ords E	N RL
Page 1 of 2		Az. °G °M	Incl. °

390231

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
624651			Strongly hydrothermally altered non-descript rock - possibly fine grained pre-cursor, no Mg volcanic quartz visible. Rock becomes strongly foliated down-hole at 60° c.a. Alteration assemblage is hematite - silica - chlorite/sericite ± sul magnetite
625121			
PET 624189			
625122			A pyrite veinlet cuts across the foliation, it is deformed by the foliation but not significantly
625123			
625124			
625125			
625126	magnetite		Some magnetite occurrences are marked.
625127	← 384078	T: 12r = <50:1 3:2r	
PET 624190			
625128	magnetite		
625129			Strongly foliated breccia (foliation ≈ 65° c.a.), moderately sericite - silica - sulphide altered, ≈ 5% volcanic quartz
625130			Bands of strong sericite altered between sulphides - barite
625131			'Banded' barite - galena - pyrite - sphalerite (cream) at 67° to
625132	← 384076	T: 12r = <50:1 34:2r	
625133			Ghosted pink feldspars (1-2mm) have porphyritic texture in parts, 'sandier' in more altered, foliated zones between. Suggestion that it is a breccia. Clasts (?) of quartz - feldspar - mafic (?) at ≈ 182m. Moderately silica - sericite altered. ≈ 2% sulphides in veinlets and with barite (rounded - possibly angular)
PET 624191			
625134			
625135			
625136			
NS	← contact in vein.		
	← albite/quartz vein.		-pyrite 2%
624652			Moderate/strongly foliated, silica - sericite (2-3) altered rock with rare ghosted feldspar textures - possibly strained/altered continuation of rock dth. Foliation is at 60° to the core axis
624653			

5 cm

	Zn	Ba	As
	(ppm)		
10	52	4700	0.04
	(%)		
235	315	0.06	0.04
472	290	0.05	0.03
852	279	0.07	0.02
667	388	0.14	0.02
586	341	2.15	0.03
09	501	4.04	<
121	0.31	6.1	0.01
75	0.90	13.6	0.02
68	0.69	7.7	03
69	0.92	22.0	0.4
14	2.44	16.4	3.8
08	3.52	41.5	4.0
41	0.42	4.5	.03
30	0.70	4.7	0.4
	(ppm)		
91	4592	3.0	03
89	4632	2.9	0.3
774	2089	3500	0.6
969	1851	2000	0.14

GRAPHIC CORE LOG		Hole No. TC3	Depth m
Scale 1:100		Project	
By		Section	
Date		Collar co-ords	E N RL
Page 2 of 2		Az. °G °M	Incl. °

Pb	Zn	Ba	Au
	(ppm)		
141	200	1000	0.01
46	111	438	<
4	110	700	0.009
6	123	1500	<
<	110	1600	<

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
	← 384074	Ti/Zr = 24.2	
624654	← contact in broken core.		Unaltered feldspar (1-2mm white) volcanic sandstone with no obvious lithics nor magnetite. Very occasional wispy chloritic zones may be after pumice.
624655	← 384077	Ti/Zr = 29.7	
624656			
PET 624192			5 cm
624657 30cm			
624658			
32.45 EOH.			

390232

3902233

GRAPHIC CORE LOG		Hole No. TC4	Depth m
Scale 1:		Project	
By,		Section	
Date		Collar co-ords E	N RL
Page 1 of 2		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast & Structure	Description
			Unaltered, massive, clast/crystal supported feldspar crystal rich polymict volcanic sandstone/breccia. Gross grading downhole from polymict breccia to volcanic crystal rich sandstone.
			Crystals – 95–98% pink/white feldspar to 2mm generally moderately-euhedral
			– 2%–5% magnetite (detrital) to 0.5mm generally moderately euhedral
			Clasts make up 10% of rock up hole decreasing to ≈ 2% downhole
PET 624193			– Pale creamy feldspar phyric (2mm) pumiceous clasts – to 30mm
			– Pinky/orange feldspar phyric (0.5mm – 2mm) porphyritic volcanic clasts – to 25mm
			– Occasional wispy to rounded chloritic clasts with occasional visible feldspars but generally fine grained – to 10mm
384102 Tl2l=474 10			Only minor disseminated pyrite, predominantly uphole
PET 624194			No hydrothermal alteration or significant veining
			Foliation defined by elongation/compaction(?) of pumiceous clasts at 25° to the core axis eg 9.5m
			Below ≈ 23m some pink albite(?)/silica alteration
		Rubbly zone of broken core with chloritic alteration	
		Fabric at ≈ 40° to core axis – Fault/shear	5cm
20			
		– minor broken core/ sandy-fault	
PET 624195			↓ pk alb/si alt? in pot

All Pb, Zn, Ba, Au low.

GRAPHIC CORE LOG		Hole No. TC4	Depth m
Scale 1:		Project	
By		Section	
Date		Collar co-ords	E N RL
Page 2 of 2		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			5 cm
30			
PET 624196			
40			
384101 Ti/Zr = 38.9			
PET 624197			
bom 4			
So 2m EOH			

3902234

All Ab, Zn, Bc - Av low,

GRAPHIC CORE LOG		Hole No. TC5	Depth m
Scale 1: 100		Project	
By		Section	
Date		Collar co-ords E	N RL
Page 1 of 1		Az. °G °M	Incl. °

3902235

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			5 cm
384103 = <50T <5Zr			Massive ba - hm - py. Hm - py coexist. Also more sericitic zones. Foliated Massive sulphide. Kernels of silica - sulphide are wrapped around by ba-ser-sd-si alt± in the fn at 70°ca. Some hm alt± ≈ 4.7 m
624626			
384104 = <50T <5Zr			
624627			
624628			Sericitic zone
624629			Brecciated zone with clasts of banded sulphide, + sericitised feldspars ? in ba matrix. Suggests soft sediment
624630			Feldspar (pink 1-2mm) volcanic sandstone, moderately sericite - silica - sulphide - barite altered matrix.
624631			Cross-cutting but pre deformational veins of hm - ba - py - ga - sph ± ba - sd ± fl. Strong foliation up hole 70° ca decreasing so down hole. Bands/veins of massive sulphides - ba parallel to foliation in
384100 = <50T 1182T/a			
624632			
624633			
384081 19.9			No core - logged previously as a result.
624634			Upper part of hole.

	Pb (%)	Zn (%)	Ba (%)	Au (ppm)	Ti/Zr
77	0.16	0.83	25.0	0.02	
20	6.6	9.01	16.6	0.5	T:1/2
10	2.7	5.16	30.9	1.14	
20	1.95	2.86	8.6	1.3	
20	1.43	1.83	8.3	1.6	
50	0.72	0.84	6.6	1.5	
					T:1/2
50	0.77	0.32	0.5	0.35	
30	0.87	0.83	11	0.5	
					T./Zr =

APPENDIX II

Major element and immobile trace element analyses

Appendix II-a Sources of Analytical Data

The major element and immobile trace element (wholerock) data tabulated in this appendix, and extensively referred to in the text of the report, include analyses of 589 surface rock and drill core samples previously reported by Pasminco and Aberfoyle and an additional 59 analyses obtained for Resolute during this investigation.
The assistance of Mike Quayle (Pasminco) and Richard deBomford (Aberfo[redacted]oviding the data in digital form is gratefully acknowledged.

No.	Sample type	Company	Tabulated in:	Sample Nos.
40	split core	Resolute	App II-b	384031 etc.
44	split core	Pasminco	App II-b	350[redacted]etc.
19	split core	Aberfoyle	App II-b	632036 etc.
19	rock	Resolute	App II-e	384054 etc.
47	surface rock	Pasminco	App II-g	31483 etc.
40	surface rock	Aberfoyle	App II-h	623046 etc.
19	rock & petrographic	Aberfoyle	App II-i	623001 etc.
419	core grind	Aberfoyle	App II-j	625363 etc.

Analytical Methods

All analyses were carried out by ANALABS mainly by XRF methods OX401 and OX408.

Resolute's samples were separately analysed for sulphur by Leco method OM613.
Pasminco and Aberfoyle samples were analysed for sulphur by OX408 which would result in a low reading (due to partial loss of the sulphur as sulphides upon ignition during the fusion process). However, since most of the rocks did not contain very high levels of sulphur, the analyses remain broadly comparable.

Abbreviations in Column Headings

Fmn	"formation"	Lithofacies units as discussed in text and summarised in App. II-d.
Gp	"group"	Alphanumeric code used in sorting the analyses.
*P/Ti	"P2O5/TiO2"	Calculated ratio.
AI	"Alteration Index"	100*(MgO+K2O) / (MgO+CaO+K2O+Na2O) after Ishikawa et al., 1976.

Appendix II-b **South Henty Wholerock Analyses: 104 core samples.** (SHApp II-b) 29 October, 1996 P1

All Resolute, Pasminco and Aberfoyle split drill core samples and one additional surface sample 624459; Sorted by litho-geochemical Groups

SAMPLE	Hole	From	To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
							%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
35049	YNC1	51.6	51.7	gy massv sillcifd? Fxt Pumice Breccia	FPB	A	74.90	0.44	11.59	2.87	0.06	0.79	0.89	2.45	3.10	0.06		2.16	99.3	352	7.5	0.14	54
35099	YNC3	9.7	10.0	mass ser F xt Pumice Breccia	FPB	A	71.30	0.44	14.89	2.80	0.05	1.21	0.86	1.84	3.41	0.06	0.04	3.05	99.9	379	7.0	0.14	63
37160	YNC7	260.3	260.8	massv ser Fxt Pumice Breccia	FPB	A	71.30	0.34	13.37	3.15	0.08	1.24	1.96	1.71	3.02	0.05	0.00	3.65	100.3	327	6.2	0.07	54
38747	YNC10	488.9	489.2	gy-gn ser F phyric Pumice Breccia	FPB	A	70.60	0.36	13.87	3.39	0.11	1.20	1.75	1.43	3.42	0.06	0.04	3.49	99.7	340	6.3	0.17	59
38748	YNC10	500.7	501.0	pink ser-cb? alt F phyric Pumice Breccia	FPB	A	69.90	0.33	12.97	2.82	0.11	1.14	2.30	1.60	2.97	0.05	0.02	5.47	99.7	307	6.4	0.15	51
38749	YNC10	514.7	515.0	pink ser-cb? alt F phyric Pumice Breccia	FPB	A	69.50	0.36	13.78	2.83	0.08	1.07	2.10	1.22	3.66	0.05	0.02	5.08	99.8	342	6.3	0.14	59
38750	YNC10	528.1	528.5	gy-gn ser F phyric Pumice Breccia	FPB	A	67.90	0.33	12.76	3.76	0.12	1.50	3.01	1.75	3.11	0.05	0.01	5.56	99.9	305	6.5	0.15	49
39338	YNC11	124.9	125.2	ser F phyric Pumice Breccia	FPB	A	71.60	0.36	13.20	3.69	0.06	1.74	1.37	1.60	2.56	0.05	0.00	3.49	99.7	348	6.2	0.14	59
39339	YNC11	145.8	146.1	ser F phyric Pumice Breccia	FPB	A	71.00	0.36	14.00	3.30	0.05	1.59	1.64	1.91	2.78	0.06	0.02	3.42	100.1	351	6.1	0.17	55
37906	YNC8	279.2	279.4	massv ser Fxt Pumice Breccia	FPB	A	71.60	0.34	13.36	3.77	0.05	2.03	1.03	1.76	2.60	0.05	0.08	3.06	99.7	307	6.6	0.15	62
37904	YNC9	130.0	130.4	massv ser Fxt Pumice Breccia	FPB	A	69.00	0.33	13.69	3.85	0.07	1.68	1.89	1.22	3.46	0.05	0.06	4.15	99.5	300	6.6	0.15	62
37159	YNC7	201.9	202.2	chl Basalt breccia	SBB	B	49.90	0.76	15.51	11.52	0.19	3.82	5.73	2.46	1.69	0.06	0.06	8.16	99.9	85	53.6	0.08	40
384084	YNC8	235.6		chl fg coherent Basalt, 2% Cc amyg	SBB	B	50.70	1.02	18.40	11.27	0.15	2.77	3.93	4.98	1.43	0.28	0.03	5.06	100.00	209	29.3	0.27	32
384085	YNC9	120.8		chl Basalt (polymict) Bx, 5% Cc Vns	SBB	B	52.80	0.63	15.40	7.49	0.17	2.39	7.44	4.12	1.43	0.09	0.08	7.37	99.40	98	38.5	0.13	25
384096	YNC10	503.0		gn chl fg mafic? Slst encl by PuBx	SBB	B	57.20	0.95	17.50	10.29	0.10	3.01	1.12	2.20	2.64	0.15	0.17	4.23	99.50	124	45.9	0.15	63
39337	YNC11	89.3	89.7	gn chl-(ep) alt Basalt Breccia	SBB	B	51.50	0.83	17.60	11.70	0.22	5.04	4.37	3.03	0.78	0.12	0.01	4.49	99.7	104	47.8	0.14	44
39816	YNC12	8.5	9.0	chl coherent Basalt, 1% Cc amygdales	SBB	B	45.20	0.78	15.70	10.80	0.16	3.33	9.67	1.84	2.04	0.13	0.00	10.56	100.2	90	52.0	0.17	32
35057	YNC3	18.6	19.2	massv polymict lith-F xt Pumice Bx	SPB	C	64.60	0.41	15.99	4.19	0.11	1.06	2.50	3.05	2.94	0.08		4.42	99.4	288	8.5	0.20	42
384095	YNC10	469.4		ser-chl polymict Dacite-Basalt Bx	SPB	C	64.30	0.58	14.40	5.57	0.17	1.50	4.23	0.75	3.31	0.10	0.08	4.65	99.50	183	19.0	0.17	49
384041	NC1	642.8		gy-gn ser-chl rel unalt Dacite, <0.1%Py	NCD	D	73.40	0.32	9.34	3.37	0.16	1.20	4.59	1.81	1.37	0.09	0.03	4.82	100.60	150	12.8	0.28	29
35046	YNC1	10.2	10.3	gy massv Fp Dacite ç relict perlitic txt	NCD	D	65.60	0.49	13.76	4.53	0.09	0.69	3.57	3.09	4.06	0.12		4.01	100.0	227	12.9	0.24	42
35087	YNC4	244.8	245.1	gy-gn massv Fp dacite	NCD	D	65.80	0.45	13.39	7.02	0.35	0.80	2.49	1.92	2.66	0.13	0.02	4.59	99.6	210	12.8	0.29	44
37222	YNC5	269.6	270.4	gn-gy massv Fp Dacite	NCD	D	64.80	0.56	16.40	5.37	0.12	1.00	2.27	4.85	2.08	0.16	0.05	1.97	99.6	259	13.0	0.29	30
37224	YNC5	350.4	350.7	gy-gn massv (Fp) Dacite	NCD	D	66.40	0.44	12.98	9.06	0.29	0.87	1.38	2.57	2.23	0.12	0.08	3.19	99.6	204	12.9	0.27	44
37468	YNC8	190.4	191.0	gy-gn massv Fp Dacite	NCD	D	63.60	0.47	14.79	4.17	0.11	0.80	3.58	4.81	1.94	0.13	0.00	4.24	98.6	223	12.6	0.28	25
384086	YNC9	144.6		pink blchd Fp Dacite, assoc ç fault?	NCD	D	67.40	0.48	13.60	4.36	0.07	0.88	2.54	1.44	3.17	0.12	0.01	5.63	99.70	214	13.4	0.26	50
384087	YNC9	190.7		gy-buff Fp Dacite, 2% chl vnlts	NCD	D	69.30	0.48	14.10	5.52	0.05	1.03	1.59	1.15	3.43	0.13	0.02	3.32	100.10	231	12.5	0.26	62
384088	YNC9	201.0		least alt gy-gn Fp Dacite	NCD	D	65.70	0.50	14.70	5.20	0.07	0.82	2.86	2.50	3.24	0.13	0.04	3.95	99.70	236	12.7	0.26	43

Appendix II-b **South Henty Wholerock Analyses: 104 core samples.** (SHApp II-b) 29 October, 1996 P2

All Resolute, Pasminco and Aberfoyle split drill core samples and one additional surface sample 824459; Sorted by litho-geochemical Groups.

SAMPLE	Hole	From	To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
							%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
37905	YNC9	227.7	228.1	buff blchd (Fp) Dacite <0.1% sulph	NCD	D	66.50	0.48	13.74	4.74	0.07	0.83	2.01	1.80	3.80	0.13	0.14	5.39	99.6	190	15.1	0.27	55
384094	YNC10	397.7		lst alt kernel gy-gn Fp Dacite, no Py	NCD	D	59.20	0.55	15.90	7.16	0.55	0.59	2.69	2.46	4.47	0.15	0.14	5.32	99.20	252	13.1	0.27	50
38742	YNC10	431.8	433.6	buff wk ser? alt Fp Dacite	NCD	D	64.90	0.57	16.81	2.56	0.19	0.45	2.45	2.66	4.39	0.16	0.31	3.95	99.4	283	12.1	0.28	49
39645	YNC12	566.3	566.8	gy-n massive Fp Dacite	NCD	D	66.70	0.50	14.40	4.45	0.06	0.86	3.21	2.46	3.65	0.14	0.07	4.12	100.6	229	13.1	0.28	44
39822	YNC12	323.7	324.6	massive Fp Dacite, 10% 3mm plag pxls	NCD	D	66.30	0.49	14.40	4.91	0.07	0.72	3.25	2.51	3.33	0.14	0.00	4.14	100.3	248	11.8	0.29	41
384045	YNC13	432.4		gy-gn wk ser-chl [1] altd Dacite 0.2%Py	NCD	D	64.80	0.52	14.90	5.31	0.10	1.61	2.56	1.57	3.45	0.14	0.63	3.61	98.50	247	12.6	0.26	55
384046	YNC13	470.8		gy-gn ser-chl [1] altd Dacite 0.5%Py	NCD	D	64.40	0.47	13.80	6.44	0.08	1.72	3.44	1.85	2.45	0.13	0.91	3.92	98.70	227	12.4	0.27	44
37978	YNC13	64.5	64.9	gy-gn Fp Dacite Hx? breccia	NCD	D	65.60	0.50	14.80	5.98	0.09	1.90	1.55	1.86	3.67	0.15	0.02	3.27	99.4	240	12.5	0.30	62
37981	YNC13	310.0	310.6	gy-gn massv (pseudoclastic) Fp Dacite	NCD	D	66.70	0.46	13.80	4.50	0.10	1.24	2.98	3.43	2.74	0.13	0.24	3.16	99.5	219	12.6	0.28	38
37983	YNC13	419.4	419.8	gy-gn massv Fp Dacite ç wk Cb alt	NCD	D	63.00	0.47	13.90	4.95	0.13	1.33	4.29	2.13	2.99	0.14	0.60	4.61	98.5	226	12.5	0.30	40
384048	YNC14	40.3		gy gn ser-chl wk alt Fp Dacite <0.1%Py	NCD	D	65.30	0.51	13.80	6.60	0.09	1.46	2.82	2.68	2.37	0.14	0.01	4.67	100.50	207	14.8	0.28	41
384049	YNC14	41.0		plnk blchd Fp Dacite <0.1%Py, tr Gn	NCD	D	62.00	0.60	16.40	5.83	0.07	1.25	1.65	2.90	3.42	0.17	0.02	5.92	100.20	248	14.5	0.29	51
37223	YNC5	327.1	327.4	ser-Cb-Ks alt Fp Dacite 5%Cb(Sp-Gn) vns	NCD	D2	57.40	0.58	16.20	6.90	2.61	0.64	0.62	0.06	7.38	0.13	0.10	6.79	99.4	263	13.2	0.22	92
38731	YNC10	354.6	356.3	buff ser-cb alt Fp Dacite, ~5% Cb vnlts	NCD	D2	63.90	0.49	14.39	5.31	1.44	0.57	1.99	0.31	5.17	0.15	0.14	5.96	99.8	238	12.3	0.31	71
38738	YNC10	389.8	390.2	buff ser-cb alt Fp Dacite, ~5% Cb vnlts	NCD	D2	62.70	0.56	16.77	4.40	0.44	0.62	2.33	0.65	5.79	0.14	0.03	5.51	99.9	276	12.2	0.25	68
37221	YNC5	218.5	218.9	massv ser-(Cb) alt Fp Dacite	NCD	D2a	66.70	0.47	13.33	2.75	0.20	0.45	4.90	0.19	4.14	0.13	0.00	6.27	99.5	212	13.3	0.28	47
384083	YNC8	140.6		buff ser-cb alt Dacite, 5% Cb bleb & vnl	NCD	D2a	64.00	0.50	14.90	5.67	0.15	1.31	2.06	0.13	1.64	0.13	0.05	9.14	99.70	261	11.5	0.25	57
384040	NC1	642.1		gy Ser-Py alt Dacite, 3%Py, relict F	NCD	D3	60.70	0.62	18.10	6.09	0.03	0.61	1.37	2.07	4.60	0.17	3.49	5.10	99.50	270	13.8	0.28	60
384047	YNC13	483.1		lt gy perv ser-sil alt [2] Dacite 1-2%Py	NCD	D3	64.20	0.49	14.10	4.91	0.05	1.43	3.61	1.38	3.41	0.13	2.99	4.58	98.40	230	12.8	0.27	49
384050	YNC14	44.3		grey ser-sil-py alt Fp Dacite 2%Py, relict Fs	NCD	D3	64.40	0.60	15.20	5.84	0.06	0.97	1.40	2.70	3.66	0.11	3.09	4.87	99.80	235	15.3	0.19	53
40423	YNC14	65.7	67.7	pk-gy Fp Dacite Hx? ç sil alt 1-3%Py	NCD	D3	63.80	0.48	14.40	7.26	0.05	0.57	1.52	3.39	3.12	0.12	0.40	4.74	99.9			0.25	43
40433	YNC14	111.0	113.0	pk-gy Fp Dacite ç perv sil alt 2-5%Py	NCD	D3	68.30	0.46	13.20	5.16	0.03	0.41	1.35	4.25	2.13	0.11	2.03	3.73	101.2	217	12.7	0.24	31
384129	YNC7	16.5		ser alt Dacitic breccia? without Cb part lchd	NCC	E	71.40	0.55	16.60	3.14	0.02	0.42	0.13	0.03	4.84	0.12	0.21	2.64	100.10	256	12.9	0.21	97
37541	YNC7	56.6	58.5	lchd ser felsic V/c SST 1%Qxt 5%Fxt	NCC	E1	65.10	0.72	20.01	2.24	0.04	0.70	0.02	0.14	7.46	0.05	0.35	3.16	100.0	320	13.5	0.07	98
384092	YNC10	271.7		gy ser-(chl) Dacitic V/c, sparse Dac clasts	NCD	E1	64.00	0.52	14.70	5.58	0.13	0.74	4.17	0.10	4.02	0.14	0.01	5.43	99.50	220	14.2	0.27	53
384093	YNC10	312.5		ser-(chl) alt Dacitic Bx, no Py	NCD	E1	65.70	0.55	15.00	4.75	0.21	0.73	3.79	0.10	4.07	0.15	0.01	4.52	99.60	228	14.5	0.27	55
384128	YNC7	14.6		Cb-ser alt Dacitic breccia (part lchd)	NCC	E2	65.30	0.51	14.60	7.05	1.51	0.43	0.31	0.03	4.32	0.13	0.22	5.33	99.74	223	13.7	0.26	93
384082	YNC4	180.2		gy ser-cb alt Dacite V/c; perlitic? <0.2%Py	NCD	E2	63.70	0.52	14.00	7.49	2.03	0.79	0.80	0.08	4.44	0.14	0.22	6.38	100.40	215	14.5	0.28	86

Appendix II-b **South Henty Wholerock Analyses: 104 core samples.** (SHApp II-b) 29 October, 1996 P3

All Resolute, Pasminco and Aberfoyle split drill core samples and one additional surface sample 624459; Sorted by litho-geochemical Groups.

SAMPLE	Hole	From	To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
							%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
35084	YNC4	159.9	160.2	ser-chl-cb alt Dacite V/C? 0.5% Py Cb vnl	NCC	E2	66.30	0.52	14.67	8.44	0.30	1.13	0.26	0.15	3.75	0.15	0.43	3.57	99.7	223	14.0	0.29	92
38728	YNC10	284.6	286.5	pale buff ser-cb alt Dacitic pum/lith SST	NCC	E2	66.40	0.48	13.97	4.31	1.38	0.80	1.44	0.17	4.26	0.14	0.19	5.78	99.3	222	13.0	0.29	76
623069	HA2	228.9		(chl-ep) F-Hb phyric Andesite	ARH	F	47.90	0.58	17.85	9.99	0.31	6.04	6.02	3.40	1.34	0.21	0.70	6.42	100.85	150	23.1	0.36	44
623060	HA3	225.6		chl F(Hb)p Andesite 5% Cc vns	ARH	F	54.60	0.56	17.78	6.28	0.08	2.52	4.76	7.71	1.21	0.22	0.15	4.12	100.06	160	20.8	0.40	23
623783	HA6	117.1		F(Hb)p Andesite ç Cc	ARH	F	52.30	0.46	13.73	6.83	0.13	1.75	9.69	5.74	1.05	0.18	0.02	8.51	100.39	120	22.8	0.40	15
623784	HA6	155.3		F(Hb)p Andesite Hx? breccia	ARH	F	54.80	0.57	16.01	12.14	0.15	2.37	3.32	3.44	3.06	0.20	0.02	4.03	100.20	140	24.3	0.35	45
623785	HA6	196.3		massv F(Hb)p Andesite	ARH	F	58.70	0.48	15.59	6.51	0.13	3.00	3.48	5.81	3.11	0.21	0.03	3.23	100.43	140	20.4	0.44	40
623036	HA7	128.8		fol ser-Cb-Mt alt F-(Hb?)p Andesite	ARH	F	50.50	0.71	20.50	9.64	0.97	1.95	1.76	2.74	6.53	0.42	0.14	3.95	100.10	200	21.2	0.59	65
39818	YNC12	123.9	124.5	massive F-Hb(Q)p Andesite	ARH	F	55.40	0.41	11.50	5.04	0.13	1.69	11.30	3.36	0.99	0.30	0.01	9.53	99.7	195	12.6	0.73	15
39819	YNC12	216.6	217.2	massive F-Hb(Q)p Andesite ç pk matx alt	ARH	F	58.10	0.52	13.30	6.47	0.10	2.74	6.24	3.11	2.83	0.40	0.00	5.89	99.7	245	12.7	0.77	37
37977	YNC13	13.7	14.2	dk gn massv F(Q-Hb)p Andesite	ARH	F	55.30	0.49	15.70	7.97	0.13	2.88	5.40	3.02	2.25	0.19	0.01	6.08	99.4	134	21.9	0.39	38
37979	YNC13	151.4	151.9	dk gn massv chl murky F-Hb(Q)p Andesite	ARH	F	55.40	0.45	14.90	7.79	0.11	3.54	5.49	2.42	2.58	0.18	0.01	6.63	99.5	121	22.3	0.40	44
37980	YNC13	249.4	249.9	dk gn massv chl murky F-Hb(Q)p Andesite	ARH	F	56.40	0.46	13.90	6.30	0.11	2.80	7.09	2.30	2.70	0.15	0.04	7.50	99.8	160	17.2	0.33	37
37982	YNC13	381.1	381.6	gy-gn massv F(Hb-Q)p Andesite, 0.5% Py	ARH	F	57.70	0.48	15.20	7.87	0.15	3.78	4.13	2.83	1.83	0.18	0.40	4.52	99.1	128	22.5	0.38	45
384034	HA2	78.4		gn chl lst alt F(Q) Andesite	ARA	G	54.30	0.54	16.00	5.88	0.22	1.21	7.72	3.59	2.88	0.27	0.41	6.17	98.90	144	22.5	0.49	27
384036	HA2	159.8		gn chl lst alt F(Q) Andesite	ARA	G	52.30	0.51	15.90	8.82	0.28	3.13	8.03	3.26	1.52	0.18	1.78	6.05	99.90	121	25.3	0.36	29
623061	HA2	24.6		sil(chl) Fp Andesite	ARA	G	58.30	0.54	18.09	10.30	0.31	2.11	0.71	4.99	1.39	0.19	0.15	2.91	100.00	150	21.6	0.35	38
623064	HA2	89.9		ser-Cb (chl-ep) alt Fp Andesite	ARA	G	53.30	0.65	19.42	5.77	0.16	1.24	5.39	3.65	4.76	0.30	0.80	5.43	101.09	180	21.7	0.46	40
623042	HA7	25.5		massv Hm F(Q)p Andesite 0.5%Mt	ARA	G	58.20	0.75	20.39	6.07	0.06	1.46	2.11	6.91	1.98	0.19	0.11	1.77	100.12	180	25.1	0.25	28
37220	YNC5	145.1	145.6	massv br-gn (chl) Fp Andesite	ARA	G	53.10	0.53	17.07	7.39	0.74	4.31	3.66	6.27	0.65	0.21	0.00	5.68	99.6	143	22.2	0.40	33
384031	HA2	18.9		pink F(Q)Andesite Bx, sil-py matrix	ARA	G3	60.50	0.50	16.40	7.59	0.14	0.73	1.17	2.75	4.00	0.17	4.07	5.82	99.90	132	22.7	0.34	55
384032	HA2	36.6		pink F(Q)Andesite catclBx, sil-py matrix	ARA	G3	62.30	0.48	15.80	7.45	0.02	0.77	0.47	1.89	4.51	0.20	4.32	5.81	99.90	139	20.7	0.43	69
384033	HA2	68.0		pink F(Q)Andesite pseudBx, sil-py matrix	ARA	G3	63.00	0.49	15.30	3.81	0.08	0.54	4.97	2.92	3.62	0.28	1.62	3.74	98.80	141	20.8	0.58	35
384090	YNC10	187.4		br QFP Rhy-Dacite, acc Mt	ARF	H	66.60	0.35	16.00	4.28	0.08	2.05	1.04	7.73	0.41	0.17	0.01	1.99	100.70	159	13.2	0.48	22
624459		380308		5358279.00	ARF	H	66.90	0.34	15.09	4.86	0.12	2.14	0.50	5.17	2.70	0.19	0.01	1.84	99.83	166	12.3	0.56	46
384037	HA7	174.7		gy ser Q(F)P Rhy-Dac, relict F, 0.5%Py	ARF	H1	68.10	0.31	14.90	3.65	0.22	0.71	1.80	0.63	4.89	0.14	0.10	4.19	99.50	148	12.6	0.45	70
623039	HA7	200.1		massv sil-ser alt QFP Rhy-Dacite1%Py	ARF	H1	66.50	0.32	14.34	4.90	0.78	0.84	1.44	0.30	6.10	0.16	0.71	3.71	100.31	160	11.9	0.50	80
384038	HA8	197.3		gy sil-ser Q(F)P Rhy-Dac, no F, 4%Py	ARF	H1	66.90	0.37	15.40	3.37	0.05	0.40	0.41	0.12	8.54	0.21	2.38	3.39	99.50	164	13.5	0.58	94

Appendix II-b **South Henty Wholerock Analyses: 104 core samples.** (SHApp II-b) 29 October, 1996 P4

All Resolute, Pasminco and Aberfoyle split drill core samples and one additional surface sample 624456; Sorted by lithio-geochemical Groups.

SAMPLE	Hole	From	To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
							%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
384039	HA8	204.4		pink ser Q(F)P Rhy-Dac, relict F, 1%Py	ARF	H1	68.60	0.36	14.60	2.49	0.25	0.33	1.05	0.26	9.01	0.22	1.02	2.74	99.80	161	13.4	0.60	88
623044	HA8	180.0		massv sil-ser alt QFP Rhy-Dacite 3%Py	ARF	H1	67.50	0.30	11.93	5.26	0.25	0.35	1.36	0.16	7.81	0.18	2.86	3.65	101.86	140	12.8	0.60	84
384091	YNC10	226.6		gy ser-fol Q(F)P Rhy-Dacite, no Mt	ARA	H1	59.60	0.38	16.50	4.91	0.13	1.27	4.90	0.06	5.38	0.21	0.02	5.98	99.30	170	13.4	0.54	57
623056	HA3	22.3		massv Fp Dacite Hx breccia	ARC?	J	61.20	0.78	19.46	4.25	0.06	1.65	1.02	6.37	1.88	0.21	0.59	2.55	100.16	310	15.1	0.27	32
623099	HA5	137.2		bdd ser felsic V/c chly SLST & SST	ARC?	J	75.60	0.43	11.11	2.90	0.06	0.99	0.57	4.16	2.57	0.07	0.72	1.30	100.76	180	14.4	0.16	43
623780	HA6	96.6		calcareous volcaniclastic SST	ARC	J	29.80	0.62	11.26	4.89	1.17	8.37	16.62	0.17	4.15	0.19	0.17	21.97	99.45	110	33.8	0.31	43
384035	HA2	110.4		Q-ser-Py alt V/c SST-Bx, 5%Py	ARC	J1	63.90	0.38	11.90	9.49	0.05	1.06	0.82	0.04	4.31	0.14	5.06	6.41	98.60	127	17.9	0.36	86
623065	HA2	110.6		sil-ser-py alt V/c SST 2% Py	ARC	J1	44.20	0.61	18.73	16.57	0.03	1.37	0.38	0.13	7.43	0.29	4.71	9.64	104.89	160	22.9	0.48	95
623057	HA3	45.4		chl shd/myl mafic breccia	HBB	K	51.10	1.02	18.79	10.53	0.37	2.02	3.98	1.28	4.15	0.16	0.34	6.61	100.50	160	38.1	0.16	54
384042	NC1	662.6		chl rel unalt Basalt, 1%Py	HBB	K	51.20	0.83	14.30	10.59	0.24	3.43	6.76	3.68	0.62	0.28	1.21	6.16	98.10	103	48.3	0.34	28
384098	YNC5	73.4		gy-gn chl Basalt Bx	HBB	K	55.00	1.14	18.50	12.05	0.27	1.97	0.28	0.10	6.35	0.16	0.06	4.21	100.10	123	55.6	0.14	96
384043	NC1	663.1		30%unalt kernels in ser Basalt, 5%Py	HBB	K3	43.00	1.24	23.40	12.17	0.06	1.66	1.44	1.74	5.99	0.19	6.61	8.14	99.10	153	48.6	0.15	71
384044	NC1	667.4		Shd pervasive ser alt Basalt, 5% Py	HBB	K3	40.00	1.27	23.90	13.18	0.04	1.46	1.60	0.30	7.11	0.16	7.48	10.62	99.70	158	48.2	0.13	82
384089	YNC10	13.7		pink spher QFp Ryholite	MJR	R	77.50	0.24	11.90	2.00	0.02	0.41	0.07	4.57	2.62	0.02	0.01	0.73	100.10	261	5.5	0.08	40
384097	YNC16	68.0		br QFp Rhyolite	MJR	R	77.50	0.20	11.10	3.05	0.04	0.62	0.75	4.14	2.23	0.02	0.01	1.15	100.80	199	6.0	0.09	37
37219	YNC5	128.6	128.9	stratfd QFp Rhyolite Bx-SST, tr Sp&Gn	MJR	R	73.80	0.13	15.38	0.62	0.03	0.12	0.31	8.70	0.33	0.01	0.04	0.79	100.3	135	5.8	0.08	5
384051	STD	RH1		STANDARD RHYOLITE		X	76.50	0.08	11.40	1.72	0.03	0.97	0.74	0.86	5.87	0.00	0.40	1.32	99.60	134	3.6	0.05	81
623787	HA4	58.3		?	?		58.70	0.38	12.25	6.48	0.17	1.48	6.56	2.93	2.29	0.05	2.44	8.49	102.26	140	16.1	0.13	28
623788	HA4	178.6		?	HBB?		47.90	1.01	20.23	5.74	0.84	1.66	2.15	0.75	9.67	0.19	2.62	6.36	100.44	170	35.5	0.19	80
623792	HA4	288.2		?	HBB?		47.50	1.07	20.55	6.70	0.12	2.49	6.06	4.76	3.63	0.32	0.02	6.82	100.19	130	49.4	0.30	36

Appendix II-c **Average & range of compositions of litho-geochemical groups.** (SHAppII-c) 31 October, 1996 P1

(Calculated from Analyses in Appendices II-b and II-e)

Function	n=	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
					%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
Mean	n=11	Footwall Pumice Breccias	FPX	A	70.9	0.37	13.4	3.2	0.1	1.3	1.8	1.7	3.1	0.05	0.0	3.9	99.8	339	6.5	0.14	56
Std Dev				A	1.9	0.04	0.9	0.4	0.0	0.3	0.7	0.3	0.3	0.01	0.0	1.2	0.3	23	0.4	0.03	4
Max				A	74.9	0.44	14.9	3.8	0.1	1.7	3.0	2.5	3.7	0.06	0.0	5.6	100.3	379	7.5	0.17	63
Min				A	67.9	0.33	11.6	2.8	0.1	0.8	0.9	1.2	2.6	0.05	0.0	2.2	99.3	305	6.1	0.07	49
Mean	n=6	Spillway Basalt Breccia	SBB	B	51.2	0.83	16.7	10.5	0.2	3.4	5.4	3.1	1.7	0.14	0.1	6.6	99.8	118	44.5	0.16	39
Std Dev				B	3.9	0.14	1.3	1.6	0.0	0.9	3.0	1.2	0.6	0.08	0.1	2.5	0.3	46	9.2	0.06	13
Max				B	57.2	1.02	18.4	11.7	0.2	5.0	9.7	5.0	2.6	0.28	0.2	10.6	100.2	209	53.6	0.27	63
Min				B	45.2	0.63	15.4	7.5	0.1	2.4	1.1	1.8	0.8	0.06	0.0	4.2	99.4	85	29.3	0.08	25
Mean	n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
Std Dev	(excl 384041)			D	2.1	0.04	1.1	1.4	0.1	0.4	0.8	1.0	0.7	0.01	0.3	1.0	0.6	22	0.9	0.01	9
Max				D	69.3	0.60	16.8	9.1	0.6	1.9	4.3	4.8	4.5	0.17	0.9	5.9	100.6	283	15.1	0.30	62
Min				D	59.2	0.44	13.0	2.6	0.1	0.4	1.4	1.1	1.9	0.12	0.0	2.0	98.5	190	11.8	0.24	25
Mean	n=3	ser-Ks-MnCb Type 2 alt Dacite	NCD	D2	61.3	0.54	15.8	5.5	1.5	0.6	1.6	0.3	6.1	0.14	0.1	6.1	99.7	259	12.6	0.26	77
Std Dev				D2	3.5	0.05	1.2	1.3	1.1	0.0	0.9	0.3	1.1	0.01	0.1	0.6	0.3	19	0.6	0.04	13
Max				D2	63.9	0.58	16.8	6.9	2.6	0.6	2.3	0.6	7.4	0.15	0.1	6.8	99.9	276	13.2	0.31	92
Min				D2	57.4	0.49	14.4	4.4	0.4	0.6	0.6	0.1	5.2	0.13	0.0	5.5	99.4	238	12.2	0.22	68
Mean	n=2	massv ser-(Cb) Type 2? alt Fp Dacite,	NCD	D2a	65.3	0.49	14.1	4.2	0.2	0.9	3.5	0.2	2.9	0.13	0.0	7.7	99.6	236	12.4	0.26	52
Std Dev		≤0.2%MnO		D2a	1.9	0.02	1.1	2.1	0.0	0.6	2.0	0.0	1.8	0.00	0.0	2.0	0.1	35	1.3	0.02	7
Max				D2a	66.7	0.50	14.9	5.7	0.2	1.3	4.9	0.2	4.1	0.13	0.1	9.1	99.7	261	13.3	0.28	57
Min				D2a	64.0	0.47	13.3	2.8	0.2	0.4	2.1	0.1	1.6	0.13	0.0	6.3	99.5	212	11.5	0.25	47

Appendix II-c **Average & range of compositions of litho-geochemical groups.** (SHAppII-c) 31 October, 1996 P2

(Calculated from Analyses in Appendices II-b and II-e)

Function	n=	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
					%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
Mean	n=4	Q-ser-Py Type 3 alt Dacite,	NCD	D3	65.2	0.51	14.2	5.8	0.0	0.8	2.0	2.9	3.1	0.12	2.1	4.5	99.8	227	13.6	0.24	44
Std Dev	(excl 38	relict plag, >1% Na2O		D3	2.1	0.06	0.8	1.1	0.0	0.5	1.1	1.2	0.7	0.01	1.2	0.5	1.1	9	1.5	0.03	10
Max				D3	68.3	0.60	15.2	7.3	0.1	1.4	3.6	4.2	3.7	0.13	3.1	4.9	101.2	235	15.3	0.27	53
Min				D3	63.8	0.46	13.2	4.9	0.0	0.4	1.4	1.4	2.1	0.11	0.4	3.7	98.4	217	12.7	0.19	31
Mean	n=3	ser-Py alt Dacitic volcaniclastics	NCC	E1	64.9	0.60	16.6	4.2	0.1	0.7	2.7	0.1	5.2	0.11	0.1	4.4	99.7	256	14.1	0.20	69
Std Dev				E1	0.9	0.11	3.0	1.7	0.1	0.0	2.3	0.0	2.0	0.06	0.2	1.1	0.3	56	0.5	0.12	25
Max				E1	65.7	0.72	20.0	5.6	0.2	0.7	4.2	0.1	7.5	0.15	0.4	5.4	100.0	320	14.5	0.27	98
Min				E1	64.0	0.52	14.7	2.2	0.0	0.7	0.0	0.1	4.0	0.05	0.0	3.2	99.5	220	13.5	0.07	53
Mean	n=12	F-Hb(Q)p Andesite	ARH	F	54.8	0.51	15.5	7.7	0.2	2.9	5.7	3.8	2.5	0.24	0.1	5.9	99.9	158	20.2	0.46	37
Std Dev				F	3.2	0.08	2.4	2.0	0.2	1.2	2.7	1.7	1.5	0.09	0.2	2.0	0.5	38	3.9	0.15	14
Max				F	58.7	0.71	20.5	12.1	1.0	6.0	11.3	7.7	6.5	0.42	0.7	9.5	100.8	245	24.3	0.77	65
Min				F	47.9	0.41	11.5	5.0	0.1	1.7	1.8	2.3	1.0	0.15	0.0	3.2	99.1	120	12.6	0.33	15
Mean	n=6	least alt F(Q)p Andesite	ARA	G	54.9	0.59	17.8	7.4	0.3	2.2	4.6	4.8	2.2	0.22	0.5	4.7	99.9	153	23.1	0.39	32
Std Dev				G	2.7	0.09	1.8	1.9	0.2	1.2	3.0	1.5	1.5	0.05	0.7	1.9	0.7	23	1.7	0.09	6
Max				G	58.3	0.75	20.4	10.3	0.7	4.3	8.0	6.9	4.8	0.30	1.8	6.2	101.1	180	25.3	0.49	40
Min				G	52.3	0.51	15.9	5.8	0.1	1.2	0.7	3.3	0.6	0.18	0.0	1.8	98.9	121	21.6	0.25	27
Mean	n=3	pink sil-Py Type 3 alt F(Q)p Andesite/brecc	ARA	G3	61.9	0.49	15.8	6.3	0.1	0.7	2.2	2.5	4.0	0.22	3.3	5.1	99.5	137	21.4	0.45	53
Std Dev				G3	1.3	0.01	0.6	2.1	0.1	0.1	2.4	0.6	0.4	0.06	1.5	1.2	0.6	5	1.1	0.12	17
Max				G3	63.0	0.50	16.4	7.6	0.1	0.8	5.0	2.9	4.5	0.28	4.3	5.8	99.9	141	22.7	0.58	69
Min				G3	60.5	0.48	15.3	3.8	0.0	0.5	0.5	1.9	3.6	0.17	1.6	3.7	98.8	132	20.7	0.34	35

Appendix II-c **Average & range of compositions of litho-geochemical groups.** (SHAppII-c) 31 October, 1996 P3

(Calculated from Analyses in Appendices II-b and II-e)

Function	n=	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
					%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
Mean	n=2	least alt QFP Rhy-Dacite	ARF	H	66.8	0.34	15.5	4.6	0.1	2.1	0.8	6.4	1.6	0.18	0.0	1.9	100.3	162	12.8	0.52	34
Std Dev				H	0.2	0.01	0.6	0.4	0.0	0.1	0.4	1.8	1.6	0.01	0.0	0.1	0.6	5	0.6	0.06	17
Max				H	66.9	0.35	16.0	4.9	0.1	2.1	1.0	7.7	2.7	0.19	0.0	2.0	100.7	166	13.2	0.56	46
Min				H	66.6	0.34	15.1	4.3	0.1	2.0	0.5	5.2	0.4	0.17	0.0	1.8	99.8	159	12.3	0.48	22
Mean	n=6	sll-ser +/-Py Type 1 alt QFP Rhy-Dacite	ARF	H1	66.2	0.34	14.6	4.1	0.3	0.6	1.8	0.3	7.0	0.19	1.2	3.9	100.0	157	12.9	0.55	79
Std Dev				H1	3.3	0.03	1.5	1.1	0.3	0.4	1.6	0.2	1.7	0.03	1.2	1.1	1.0	11	0.6	0.06	13
Max				H1	68.6	0.38	16.5	5.3	0.8	1.3	4.9	0.6	9.0	0.22	2.9	6.0	101.9	170	13.5	0.60	94
Min				H1	59.6	0.30	11.9	2.5	0.1	0.3	0.4	0.1	4.9	0.14	0.0	2.7	99.3	140	11.9	0.45	57
Mean	n=5	sll-ser +/-Py Type 1 alt QFP Rhy-Dacite	ARF	H1	67.5	0.33	14.2	3.9	0.3	0.5	1.2	0.3	7.3	0.18	1.4	3.5	100.2	155	12.8	0.55	83
Std Dev		In HA 7 & 8		H1	0.9	0.03	1.3	1.1	0.3	0.2	0.5	0.2	1.7	0.03	1.2	0.5	1.0	10	0.6	0.07	9
Max				H1	68.6	0.37	15.4	5.3	0.8	0.8	1.8	0.6	9.0	0.22	2.9	4.2	101.9	164	13.5	0.60	94
Min				H1	66.5	0.30	11.9	2.5	0.1	0.3	0.4	0.1	4.9	0.14	0.1	2.7	99.5	140	11.9	0.45	70
Mean	n=3	least alt Howards Basalt/breccia	HBB	K	52.4	1.00	17.2	11.1	0.3	2.5	3.7	1.7	3.7	0.20	0.5	5.7	99.6	129	47.3	0.21	59
Std Dev				K	2.2	0.16	2.5	0.9	0.1	0.8	3.3	1.8	2.9	0.07	0.6	1.3	1.3	29	8.8	0.11	34
Max				K	55.0	1.14	18.8	12.1	0.4	3.4	6.8	3.7	6.3	0.28	1.2	6.6	100.5	160	55.6	0.34	96
Min				K	51.1	0.83	14.3	10.5	0.2	2.0	0.3	0.1	0.6	0.16	0.1	4.2	98.1	103	38.1	0.14	28
Mean	n=2	coherent QFp Rhyolite	MJR	R	77.5	0.22	11.5	2.5	0.0	0.5	0.4	4.4	2.4	0.02	0.0	0.9	100.4	230	5.8	0.09	38
Std Dev				R	0.0	0.03	0.6	0.7	0.0	0.1	0.5	0.3	0.3	0.00	0.0	0.3	0.5	44	0.4	0.01	2
Max				R	77.5	0.24	11.9	3.0	0.0	0.6	0.8	4.6	2.6	0.02	0.0	1.1	100.8	261	6.0	0.09	40
Min				R	77.5	0.20	11.1	2.0	0.0	0.4	0.1	4.1	2.2	0.02	0.0	0.7	100.1	199	5.5	0.08	37

Appendix II-c **Average & range of compositions of litho-geochemical groups.** (SHAppII-c) 31 October, 1996 P4

(Calculated from Analyses in Appendices II-b and II-e)

Function	n=	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
					%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
Mean	n=2	Henty MQ with high grade Au	MQ	Q4	91.4	0.38	0.6	0.8	0.0	0.2	3.2	0.0	0.2	0.02	0.2	2.5	99.5	170	13.4	0.05	10
Std Dev				Q4	0.1	0.03	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.01	0.0	0.1	0.0	2	0.8	0.01	6
Max				Q4	91.5	0.40	0.7	0.9	0.1	0.3	3.4	0.0	0.2	0.03	0.2	2.5	99.5	172	13.9	0.06	14
Min				Q4	91.3	0.36	0.5	0.8	0.0	0.1	3.1	0.0	0.2	0.02	0.2	2.4	99.5	169	12.8	0.05	6
Mean	n=22	Type 2 altered Dacites	NCD	D2	65.2	0.51	13.9	5.0	0.8	0.7	1.4	0.1	7.6	0.13	0.3	3.8	99.4	237	12.8	83.86	
Std Dev		NC4: 386-446m & 478-529m		D2	3.1	0.05	1.0	0.7	0.3	0.2	0.5	0.1	1.5	0.02	0.4	0.6	0.3	17	0.8	4.66	
Max				D2	69.2	0.64	15.4	7.0	1.5	1.0	2.6	0.3	9.9	0.19	1.4	5.1	100.2	260	15.3	90.79	
Min				D2	59.8	0.43	11.6	4.1	0.3	0.5	0.8	0.0	5.5	0.11	0.0	2.7	98.7	197	12.0	75.87	

Appendix II-d **Definitions of Litho-Geochemical Groups and Abbreviations South Henty EL 8/96**

390245

Group	DESCRIPTION	Abbrev.
	Suite I Central Volcanic Complex	
A	"Footwall" pumice breccia & stratigraphically higher rhyolitic-pumiceous breccias	FPB
B	Spillway Basalt/Breccia, coherent & volcaniclastic	SBB
C	Spillway Polymictic Breccia, lithic sandstone & siltstone	SPB
D	Massive coherent Dacite	NCD
E	Massive & stratified Dacite volcaniclastics	NCC
	Suite II Anthony Road Andesites	
F	F-Hb phyric Andesite	ARH
G	F(Q) phyric Andesite	ARA
H	Q-F porphyritic Rhy-Dacite (QFP)	ARF
J	Suite II associated volcaniclastics, dominantly derived from G	ARC
	Suite I? Comstock Fmn of Tyndall Group	
K	Howard's Basalt Breccia	HBB
L	Limestones and calcareous clastics	LML
M	Sandstones, mudstones, shales, cherty siltstones	LMS
N	Dacites, coherent & volcaniclastic; probably similar to D & E	LMD
R	Rhyolites, coherent & volcaniclastic	MJR
S	F xt rich massive Sandstone & lithic sandstone-breccia	LMX
T	F-Q xt rich massive Sandstone & lithic sandstone-breccia	MJX
	Suite I? Zig Zag Hill Fmn of Tyndall Group	
U	Post eruptive volcanolithic sandstone & conglomerate	ZZH
	Denison Group	
W	Turbiditic siltstone, sandstone & conglomerate	NCS
	Unassigned	
Q	Comstock & Henty siliceous altered samples	MQ, MZ, MV

Alteration Type[1]	DESCRIPTION
1	Ser (+/- Qtz, Ks, Py) alteration with strong Na depletion and K gain but no MnCb; VHMS footwall type?, in part associated with margins of Suite II QFP intrusive bodies.
2	Ser + Ks + (Mn)Cb alteration with strong Na depletion and K gain but insignificant Py; possible weak, peripheral zones of VHMS systems??
3	Qtz + ser + Py alteration without strong Na depletion and plagioclase destruction, some Ca depletion; usually associated with faults and shear zones, especially South Henty Fault.
4	Henty MQ and Comstock Chert: extreme silicification with total feldspar destruction and removal of Al, Mg, Na & K, some Henty samples retain Ca (possibly in Cb veinlets?), variable sulphide and anomalous Au. Ti & Zr data suggest alteration of precursor volcanics, depletion of Al is atypical of VHMS.

[1] Alteration types are identified by suffixes in text and Appendix II-b: eg: D3 refers to Type 3 altered dacite.

Appendix II-e **South Henty Wholerock Geochem: 19 samples.** (SHAppII-e) 29 October, 1996 P1

Additional samples from Resolute, 1996; mainly surface rocks & several from Henty underground, sorted by sample number.

SAMPLE	Loc.	E	N	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
				Units			%	%	%	%	%	%	%	%	%	%	%	%	%	ppm			
				Detection			0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	5			
				Method			OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OM613	OX408	OX408	GX401	OX408	OX408	Calc
384052	Comstk	DDH C70		Comstock chert	MQ	Q4	98.30	0.44	0.09	0.64	0.01	0.02	0.01	0.04	0.02	0.00	0.41	0.34	99.90	122	21.6	0.01	44
384053	Comstk	outcrop		Q-ser-Py alt 40m W of Mullock Qu MS lens		Q1	76.30	0.47	12.60	3.08	0.01	0.20	0.04	0.04	3.79	0.04	2.31	3.47	100.10	111	25.4	0.09	98
384054	Henty			MQ @ 71g/t Au	MQ	Q4	91.50	0.40	0.47	0.83	0.06	0.07	3.36	0.04	0.16	0.03	0.22	2.51	99.50	172	13.9	0.06	6
384055	Henty			MQ @ 48g/t Au	MQ	Q4	91.30	0.36	0.67	0.85	0.04	0.29	3.14	0.04	0.22	0.02	0.18	2.42	99.50	169	12.8	0.05	14
384056	Henty			MV Q-ser alt	MV	Q1	54.50	1.03	27.90	1.29	0.00	1.28	0.26	0.11	9.43	0.16	0.00	4.17	100.10	457	13.5	0.15	97
384057	Henty			MZ Q-ser-Py alt	MZ	Q1?	72.70	0.27	6.95	6.94	0.04	0.66	1.74	0.04	2.37	0.13	2.21	5.04	98.50	127	12.7	0.46	63
384111		79790	57565	massv Basalt, possibly F phyric			53.20	0.87	18.40	11.92	0.15	5.03	0.05	1.85	2.06	0.09	0.00	5.53	99.15	144	36.2	0.10	79
384112		79800	57565	massv Basalt			51.80	1.02	20.10	13.10	0.10	2.90	0.12	5.01	1.55	0.09	0.00	3.90	99.69	113	54.1	0.09	46
384113		79835	57600	massv Basalt, possibly pseudobreccia			51.00	0.96	18.40	14.97	0.12	3.55	0.20	3.35	2.05	0.13	0.00	4.45	99.19	105	54.8	0.14	61
384114		797705	57470	Pumice breccia			73.40	0.38	13.80	2.75	0.02	1.69	0.03	1.01	3.74	0.03	0.00	2.47	99.32	329	6.9	0.08	84
384115		79830	57600	QFHbp R/D			59.10	0.40	19.00	7.30	0.25	1.64	1.13	2.16	4.25	0.17	0.00	3.84	99.24	176	13.6	0.42	64
384116				Si-ser-Py alt			75.90	0.33	11.70	3.50	0.00	0.34	0.10	3.23	1.91	0.07	2.43	2.86	102.37	262	7.6	0.20	40
384117				Si-ser-Py alt			69.40	0.42	13.70	5.99	0.00	0.49	0.00	0.71	4.08	0.02	4.17	4.95	103.94	335	7.5	0.04	86
384122				STD RH1		X	77.10	0.08	11.40	1.69	0.03	1.00	0.74	0.74	5.88	0.00	0.31	1.38	100.35	136	3.5	0.04	82
384123		380050	58800	ser Fxt Pumice breccia	FPX	A	73.50	0.38	13.60	3.43	0.05	1.46	0.89	1.07	2.61	0.04	0.00	2.38	99.41	339	6.7	0.11	67
384124		380190	58860	Py-ser-Q alt volcanic of uncertain affinity	NCC	E1	61.20	0.63	18.30	7.31	0.04	0.59	0.08	0.08	5.21	0.14	3.21	5.15	101.94	299	12.6	0.21	97
384125		380190	58860	ser Q(F)Porphyry	ARF	H1	57.80	0.58	19.90	10.20	0.13	1.21	0.18	0.07	4.68	0.24	0.01	4.26	99.26	262	13.3	0.41	96
384126		380160	58900	chl Basalt breccia	SBB	B	48.10	0.70	14.90	11.55	0.17	4.75	7.21	2.96	0.36	0.15	0.00	8.71	99.57	88	47.7	0.22	33
384127		380240	58880	F-Qp Andesite (fresh)	ARA	G	59.20	0.49	17.60	8.72	0.15	2.53	0.97	7.86	0.42	0.13	0.00	1.97	100.05	133	22.1	0.27	25

Appendix II-e **South Henty Wholerock Geochem: 19 samples.** (SHAppII-e) 29 October, 1996 P2

Additional samples from Resolute, 1996; mainly surface rocks & several from Henty underground; sorted by sample number.

SAMPLE	Loc.	E	N	Description	Fmn	Gp	Cu	Pb	Zn	Ag	Au	Ba	S	Ti/Zr	Ti	Ti	
				Units			ppm	ppm	ppm	ppm	ppb	ppm	%		ppm	ppm	%diff
				Detection			2	3	2	1	1	10	0.01		50	Calc	
				Method			GA140	GA140	GA140	GA140	GG326	GX401	OX408	GX401	GX401	OX408	
384052	Comstk	DDH C70		Comstock chert	MQ	Q4											
384053	Comstk	outcrop		Q-ser-Py alt 40m W of Mullock Qu MS lens		Q1											
384054	Henty			MQ @.71g/t Au	MQ	Q4											
384055	Henty			MQ @ 48g/t Au	MQ	Q4											
384056	Henty			MV Q-ser alt	MV	Q1											
384057	Henty			MZ Q-ser-Py alt	MZ	Q1?											
384111		79790	57565	massv Basalt, possibly F phyric								678	0.01	37.0	5334	5216	97.8
384112		79800	57565	massv Basalt								530	0.01	53.8	6081	6115	100.6
384113		79835	57600	massv Basalt, possibly pseudobreccia								474	0.00	56.0	5882	5755	97.8
384114		797705	57470	Pumice breccia								1080	0.00	6.0	1963	2278	116.1
384115		79830	57600	QFHbp R/D								1429	0.00	13.7	2409	2398	99.5
384116				Si-ser-Py alt			8	28	469	<1	34	1849	2.27	6.9	1809	1978	109.4
384117				Si-ser-Py alt			5	9	19	<1	17	3022	3.51	6.9	2295	2518	109.7
384122				STD RH1		X						1204	0.29	3.3	455	480	105.4
384123		380050	58800	ser Fxt Pumice breccia	FPX	A						1158	0.00	5.3	1809	2278	125.9
384124		380190	58860	Py-ser-Q alt volcanic of uncertain affinity	NCC	E1	52	1526	4939	1	26	806	2.41	10.6	3161	3777	119.5
384125		380190	58860	ser Q(F)Porphyry	ARF	H1						956	0.01	12.9	3388	3477	102.6
384126		380160	58900	chl Basalt breccia	SBB	B						286	0.00	51.5	4529	4196	92.7
384127		380240	58880	F-Qp Andesite (fresh)	ARA	G						171	0.00	19.7	2625	2938	111.9

Appendix II-f **Comparison of SBB and HBB compositions** (SHAppII-f) 29 October, 1996 P1

		Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
				%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
Spillway Basalt Breccia; split core.																				
37159, 39337, 39816, 384084, 384085, 384096																				
Mean	n=6	SBB	B	51.2	0.83	16.7	10.5	0.2	3.4	5.4	3.1	1.7	0.14	0.06	6.6	99.8	118	44.5	0.16	39
Std Dev				*3.9*	*0.14*	*1.3*	*1.6*	*0.0*	*0.9*	*3.0*	*1.2*	*0.6*	*0.08*	*0.06*	*2.5*	*0.3*	*46*	*9.2*	*0.06*	*13*
Max				57.2	1.02	18.4	11.7	0.2	5.0	9.7	5.0	2.6	0.28	0.17	10.6	100.2	209	53.6	0.27	63
Min				45.2	0.63	15.4	7.5	0.1	2.4	1.1	1.8	0.8	0.06	0.00	4.2	99.4	85	29.3	0.08	25
Least altered Howard's Basalt Breccia, split core																				
623057, 384042, 384098																				
Mean	n=3	HBB	K	52.4	1.00	17.2	11.1	0.3	2.5	3.7	1.7	3.7	0.20	0.54	5.7	99.6	129	47.3	0.21	59
Std Dev				*2.2*	*0.16*	*2.5*	*0.9*	*0.1*	*0.8*	*3.3*	*1.8*	*2.9*	*0.07*	*0.60*	*1.3*	*1.3*	*29*	*8.8*	*0.11*	*34*
Max				55.0	1.14	18.8	12.1	0.4	3.4	6.8	3.7	6.3	0.28	1.21	6.6	100.5	160	55.6	0.34	96
Min				51.1	0.83	14.3	10.5	0.2	2.0	0.3	0.1	0.6	0.16	0.06	4.2	98.1	103	38.1	0.14	28
Coregrind samples from NCs 1, 2 & 4 of Howard's Basalt Breccia																				
648040-43, 625574-79, 627473-80																				
Mean	n=17	HBB	K	48.29	1.11	18.01	10.15	0.53	2.40	4.74	1.90	3.69	0.30	0.38	7.64	99.13	158	42.4	0.26	51
Std Dev				*4.21*	*0.16*	*2.26*	*1.91*	*0.74*	*0.80*	*4.10*	*1.28*	*1.37*	*0.07*	*0.46*	*2.86*	*1.35*	*27*	*4.1*	*0.03*	*17*
Max				55.10	1.34	21.10	13.80	2.51	4.27	19.64	4.29	6.42	0.41	1.25	17.31	101.00	202	46.3	0.33	84
Min				38.10	0.70	11.20	6.22	0.06	1.52	1.38	0.11	1.93	0.16	0.00	4.42	95.43	110	29.4	0.23	17

Appendix II-g **Pasminco - Newton Creek Wholerock Geochem. 47 surface samples.** (SHAppII-g) 29 October, 1996 P1

Sorted by Sample No.

SAMPLE	EAST	NORTH	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc		calc
31483	379385	5358398	clv-alt fp volc	CVC		64.10	0.51	15.99	7.43	0.06	2.28	0.03	1.04	3.78	0.12	0.03	4.78	100.1	144	21.2	0.24	85
31484	379285	5358398	fe st wd mafic?	CVC		70.40	0.62	9.48	11.89	0.06	0.40	0.01	0.03	2.45	0.14	0.03	4.14	99.6	181	20.5	0.23	99
31488	379924	5358394	wht sil clast	NCcgl		74.80	0.32	13.34	1.93	0.04	0.50	0.49	5.98	0.82	0.05	0.18	1.05	99.5	280	6.9	0.16	17
31491	379940	5358300	hb And?	ARA?		62.60	0.42	15.10	6.60	0.10	3.36	2.51	4.63	2.45	0.18	0.03	1.62	99.6	137	18.4	0.43	45
31492	379993	5358308	lam sst	NCcgl		72.00	0.49	13.20	4.15	0.07	1.15	0.97	5.75	0.33	0.06	0.16	1.17	99.5	294	10.0	0.12	18
31494	379875	5358680	R-Dac.2k NWdam	NCD		69.30	0.51	15.50	5.05	0.03	1.10	0.14	2.58	3.18	0.14	0.14	2.34	100.0	243	12.6	0.27	61
31495	379400	5357970	lam sil sst in N Ck	CVC?		77.30	0.18	10.86	3.05	0.07	1.03	1.19	0.56	2.90	0.03	0.01	2.43	99.6	227	4.8	0.17	69
31496	379636	5357920				69.50	0.47	11.96	4.76	0.07	1.59	1.86	2.11	2.94	0.08	1.28	2.92	99.5	173	16.3	0.17	53
31500	379400	5360830				72.10	0.43	12.89	3.93	0.01	0.37	0.08	4.24	1.82	0.04		3.30	99.2	176	14.6	0.09	34
32149	379284	5357760				75.20	0.38	13.47	2.56	0.01	0.77	0.04	0.94	3.88	0.03	2.91	2.66	102.8	300	7.6	0.08	83
35009	379800	5358870				70.00	0.52	14.96	5.20	0.03	1.09	0.10	1.42	3.52	0.10		3.18	100.1	244	12.8	0.19	75
35010	379700	5359000				74.80	0.32	13.77	2.45	0.02	0.84	0.02	1.87	2.09	0.02		3.32	99.5	250	7.7	0.06	61
35037	379425	5360720				73.10	0.41	12.16	4.78	0.02	0.51	0.08	2.38	2.72	0.08		3.63	99.9	181	13.6	0.20	57
35039	379880	5360610				69.70	0.52	14.39	2.92	0.03	0.94	0.18	1.40	5.18	0.14		2.98	98.4	222	14.0	0.27	79
35041	379540	5360715				66.50	0.58	16.62	4.44	0.08	1.81	0.35	5.29	1.85	0.16		2.42	100.1	268	13.0	0.28	39
35042	379837	5360680				70.30	0.39	11.83	5.13	0.02	0.58	0.19	1.40	2.48	0.14		4.73	97.2	171	13.7	0.36	66
35043	379840	5360674				74.90	0.20	10.90	3.25	0.14	0.95	1.39	2.78	1.93	0.04		3.60	100.1	131	9.2	0.20	41
35076	379877	5359912				70.70	0.26	7.55	14.97	0.88	1.94	0.05	0.03	0.23	0.07		3.55	100.2	118	13.2	0.27	96
35077	379896	5359892				74.70	0.19	7.40	11.59	0.25	0.90	0.07	0.09	0.67	0.06		3.58	99.5	101	11.3	0.32	91
35100	379560	5360134				53.30	0.72	17.34	9.94	0.17	4.65	2.42	4.17	1.14	0.08	0.01	5.74	99.7	90	48.0	0.11	47
37145	379978	5358302				79.10	0.33	12.33	0.87	0.01	0.14	0.42	5.06	0.73	0.08	0.07	0.86	100.0	207	9.6	0.24	14
37146	379980	5358300				70.00	0.32	11.93	2.19	0.07	0.39	4.94	5.97	0.20	0.13	0.18	3.60	99.9	256	7.5	0.41	5
37150	379500	5358800				77.50	0.19	13.04	1.25	0.01	0.66	0.03	1.21	3.91	0.03	0.02	1.91	99.8	158	7.2	0.16	79
37151	379360	5358800				77.90	0.20	12.34	1.54	0.00	0.61	0.02	1.60	3.64	0.02	0.02	1.92	99.8	158	7.6	0.10	72
37152	379580	5358800				74.20	0.43	14.27	2.66	0.02	0.97	0.04	0.88	3.85	0.04	0.01	2.36	99.7	299	8.6	0.09	84
37153	379720	5359000				75.90	0.30	13.77	2.07	0.01	0.84	0.02	2.18	2.23	0.02	0.01	2.74	100.1	255	7.1	0.07	58

Appendix II-g **Pasminco - Newton Creek Wholerock Geochem. 47 surface samples.** (SHAppII-g) 29 October, 1996 P2

Sorted by Sample No

SAMPLE	EAST	NORTH	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc		calc
37155	379460	5359760				74.30	0.24	11.35	6.35	0.01	0.65	0.01	0.36	3.95	0.04	0.16	2.82	100.2	182	7.9	0.17	93
37156	379660	5359815				79.70	0.36	10.10	2.96	0.03	0.47	0.10	2.05	1.99	0.06	0.12	1.85	99.8	206	10.5	0.17	53
37178	379308	5360430				70.80	0.51	14.70	4.01	0.01	0.73	0.14	2.70	3.51	0.14	3.29	2.88	103.4	219	14.0	0.27	60
37186	379988	5358306				51.10	0.69	15.34	8.96	0.20	4.44	6.47	5.08	0.82	0.09	0.08	6.82	100.1	88	47.0	0.13	31
37187	379954	5358294				70.00	0.32	12.94	3.06	0.08	0.71	2.91	5.82	1.66	0.05	0.12	2.65	100.3	279	6.9	0.16	21
37192	379535	5358182				70.60	0.35	13.29	3.39	0.06	1.15	0.66	4.87	2.89	0.07	0.17	2.44	99.9	297	7.1	0.20	42
37197	379861	5358835				69.60	0.52	15.06	4.27	0.01	0.93	0.09	1.72	3.58	0.10	0.04	4.39	100.3	227	13.7	0.19	71
37903	379309	5360422				67.30	0.67	13.76	8.33	0.13	2.03	0.02	1.54	2.73	0.04	0.16	3.06	99.8	158	25.4	0.06	75
37907	379815	5360987				76.10	0.18	10.91	2.36	0.02	0.56	0.02	1.55	5.08	0.01	0.02	1.29	98.1	215	5.0	0.06	78
37914	379367	5360200				69.00	0.51	14.83	5.15	0.04	0.87	0.19	1.70	4.22	0.14	0.05	3.00	99.7	259	11.8	0.27	73
37915	379304	5360260				75.00	0.30	11.36	3.24	0.07	0.97	1.19	0.11	3.17	0.08	0.10	4.47	100.1	157	11.5	0.27	76
37916	379306	5360300				84.30	0.16	7.19	2.46	0.05	0.45	0.33	0.07	1.23	0.04	0.81	3.00	100.1	109	8.8	0.25	81
37917	379290	5360360				76.80	0.28	12.44	2.25	0.01	0.51	0.01	1.75	3.12	0.03	0.60	2.17	100.0	244	6.9	0.11	67
37918	379316	5360418				69.00	0.52	14.98	4.50	0.02	0.82	0.10	1.73	4.11	0.14	1.84	3.18	100.9	259	12.0	0.27	73
37919	379324	5360200				71.30	0.56	15.93	2.22	0.01	0.66	0.08	0.14	4.92	0.08	0.81	3.26	100.0	280	12.0	0.14	96
37938	379715	5358227				60.20	0.41	13.07	6.28	0.11	1.81	5.71	3.06	2.45	0.16	0.80	5.80	99.9	173	14.2	0.39	33
37939	379775	5358192				73.10	0.43	13.26	2.84	0.02	0.75	0.27	2.36	4.20	0.12	0.39	1.94	99.7	218	11.8	0.28	65
75836	379925	5358000				63.75	0.29	10.74	1.70	0.09	0.34	9.56	5.73	0.27	0.20		7.35	100.0	199	8.7	0.69	4
75852	379915	5358240				62.57	0.41	15.33	6.71	0.08	2.94	2.30	5.54	2.64	0.21		1.59	100.3	131	18.8	0.51	42
75874	379957	5358280				75.32	0.46	12.89	1.87	0.03	0.41	0.58	5.14	1.55	0.13		1.37	99.8	202	13.7	0.28	26
216481	379404	5360858				70.40	0.56	15.01	3.52	0.02	0.74	0.16	1.84	3.77	0.14	4.93	3.81	104.9	260	12.9	0.25	69

Appendix II-h **Aberfoyle - Newton Creek Wholerock Geochem. 40 surface samples** (SHAppII-h) 29 October, 1996 P1

Sorted by Sample Number

SAMPLE	EAST	NORTH	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
623076	380030	5358315				75.90	0.34	10.28	4.56	0.05	0.87	0.48	0.69	2.92	0.07	0.83	2.57	99.57	160	12.7	0.21	76
623077	380020	5358310				69.00	0.53	15.52	3.60	0.06	1.04	1.03	2.65	3.51	0.16	0.02	2.51	99.64	240	13.2	0.30	55
623078	380010	5358305				67.10	0.43	13.30	6.02	0.10	1.52	2.25	1.26	3.56	0.09	1.05	3.16	99.84	200	12.9	0.21	59
623079	380000	5358300				68.70	0.41	12.66	4.34	0.10	1.18	3.27	2.59	2.38	0.11	0.29	3.50	99.53	190	12.9	0.27	38
623080	379990	5358290				69.30	0.33	11.66	5.63	0.12	1.50	2.92	1.76	2.60	0.07	0.74	2.97	99.62	190	10.4	0.21	47
623801	380380	5360100				67.50	0.59	16.18	5.45	0.04	1.23	0.19	0.48	4.25	0.15	0.42	3.63	100.07	260	13.6	0.25	89
623802	380370	5360090				66.50	0.63	16.57	5.25	0.03	1.49	0.15	0.19	4.49	0.14	0.26	3.84	99.55	260	14.5	0.22	95
623803	380360	5360085				75.10	0.42	12.92	3.02	0.02	0.64	0.05	0.15	4.03	0.06	0.61	2.90	99.88	240	10.5	0.14	96
623804	380350	5360080				70.50	0.49	15.30	3.49	0.02	1.12	0.07	0.17	5.73	0.08	0.38	2.88	100.16	230	12.8	0.16	97
623805	380340	5360075				70.60	0.50	15.42	3.61	0.04	1.08	0.02	0.10	5.67	0.03	0.08	2.72	99.89	230	13.0	0.06	98
623806	380330	5360070				70.40	0.46	14.09	4.44	0.02	0.75	0.07	0.15	5.14	0.06	1.48	3.44	100.49	200	13.8	0.13	96
623807	380320	5360065				72.70	0.42	14.06	3.51	0.04	1.03	0.06	0.11	5.25	0.06	0.40	2.70	100.31	230	10.9	0.14	97
623808	380310	5360060				70.00	0.52	16.41	2.75	0.02	0.95	0.04	0.09	6.03	0.05	0.18	2.80	99.85	250	12.5	0.10	98
623809	380300	5360055				70.60	0.46	16.07	2.65	0.03	0.94	0.04	0.19	6.17	0.05	0.06	2.85	100.09	260	10.6	0.11	97
623810	380290	5360050				70.00	0.45	16.89	2.34	0.02	1.06	0.03	0.22	5.55	0.04	0.06	3.31	99.97	300	9.0	0.09	96
623811	380000	5359100				69.00	0.60	16.96	3.00	0.15	0.50	0.14	0.23	5.24	0.12	0.39	3.25	99.56	270	13.3	0.20	94
623812	380010	5359120				65.60	0.46	14.21	6.95	0.33	0.52	0.16	0.13	4.34	0.13	2.32	4.50	99.62	230	12.0	0.28	94
623813	380030	5359140				80.00	0.30	8.14	3.81	0.01	0.27	0.02	0.15	2.69	0.03	2.19	3.24	100.85	100	18.0	0.10	95
623814	380040	5359170				72.20	0.54	15.71	2.90	0.05	0.52	0.14	0.18	4.80	0.16	0.21	2.72	100.16	240	13.5	0.30	94
623815	380050	5359180				70.70	0.53	15.64	4.11	0.05	0.71	0.16	0.33	4.56	0.15	0.21	2.77	99.89	240	13.2	0.28	91
623816	380060	5359200				65.20	0.62	15.86	8.43	0.12	1.17	0.16	0.12	4.19	0.15	0.34	3.28	99.72	230	16.2	0.24	95
624203	379794	5358210				61.90	0.44	15.28	6.84	0.08	3.01	1.80	4.83	2.44	0.19	-0.01	3.05	99.98	139	19.0	0.43	45
624204	379716	5358238				66.40	0.48	14.01	4.88	0.07	1.06	2.58	2.00	3.64	0.13	0.40	3.90	99.72	220	13.1	0.27	51
624439	380067	5358353				60.60	0.57	18.20	8.67	0.09	1.55	0.28	4.03	2.70	0.15	0.03	2.83	99.66	291	11.7	0.26	50
624440	380027	5358315				66.20	0.53	15.47	5.74	0.07	0.88	1.50	3.84	2.36	0.14	-0.01	2.93	99.65	239	13.3	0.26	38
624441	380051	5358335				68.50	0.52	15.56	6.12	0.05	0.89	0.45	3.12	2.60	0.14	-0.01	2.42	100.38	247	12.6	0.27	49

Appendix II-h **Abertoyle - Newton Creek Wholerock Geochem. 40 surface samples** (SHAppII-h) 29 October, 1996 P2

Sorted by Sample Number

SAMPLE	EAST	NORTH	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
624442	380037	5358338				69.40	0.44	15.26	5.49	0.06	1.11	0.22	3.70	1.94	0.13	-0.01	2.10	99.83	235	11.2	0.30	44
624443	379978	5358303				72.40	0.35	13.89	3.96	0.08	0.79	1.09	3.18	2.63	0.05	0.01	1.39	99.87	310	6.8	0.14	44
624444	379940	5358281				62.70	0.44	15.84	6.28	0.06	3.80	0.44	4.63	2.55	0.20	-0.01	2.64	99.58	142	18.6	0.45	56
624445	379924	5358296				61.50	0.45	16.46	6.42	0.11	3.59	1.50	4.25	3.24	0.21	-0.01	2.47	100.22	152	17.7	0.47	54
624451	380177	5358406				64.40	0.54	15.59	9.25	0.17	1.96	0.14	2.48	1.67	0.11	0.01	3.48	99.85	245	13.2	0.20	58
624452	380208	5358406				66.50	0.42	16.16	4.92	0.05	1.11	0.07	1.91	4.50	0.10	0.01	4.32	100.38	189	13.3	0.24	74
624453	380284	5358376				69.10	0.34	14.79	4.47	0.06	1.19	0.19	4.19	3.14	0.15	0.02	2.30	99.93	146	14.0	0.44	50
624456	380005	5358214				62.20	0.46	14.56	6.99	0.12	3.63	1.58	3.68	2.77	0.17	-0.01	3.36	99.75	146	18.9	0.37	55
624457	380029	5358196				60.20	0.53	14.85	8.91	0.11	3.59	2.07	4.73	1.65	0.05	0.01	3.22	100.02	174	18.3	0.09	44
624458	380151	5358202				68.20	0.59	15.14	5.08	0.08	0.53	0.65	3.22	3.75	0.13	-0.01	2.39	99.96	261	13.6	0.22	53
624459	380308	5358279				66.90	0.34	15.09	4.86	0.12	2.14	0.50	5.17	2.70	0.19	0.01	1.84	99.83	166	12.3	0.56	46
624464	380938	5357170				55.10	1.02	17.14	9.90	0.13	5.55	0.40	5.86	0.85	0.14	0.14	3.32	99.60	140	43.7	0.14	51
624465	380925	5357163				62.90	0.95	16.25	6.12	0.11	3.59	0.27	6.91	0.22	0.13	0.14	2.49	100.14	132	43.1	0.14	35
624466	380930	5357146				80.50	0.31	6.79	4.17	0.11	2.02	0.35	1.93	1.17	0.25	0.38	1.52	99.63	64	29.0	0.81	58

Appendix II-i **Aberfoyle - Newton Creek Wholerock Geochem: 19 surface samples (with petrographic descriptions by AJCrawford)**
Sorted by Sample No. (SHAppII-i) 29 October, 1996 P1

SAMPLE		SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al	Cu	Pb	Zn	Ag	Au	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm				ppm	ppm	ppm	ppm	ppb	ppm
	Detection	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	5				2	3	2	1	1	10
	Method	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	GX401	calc	calc	calc	GA101	GA101	GA101	GA101	GG309	GX401
623001		70.10	0.50	14.95	4.23	0.16	1.29	0.17	2.50	3.47	0.14	0.00	2.51	100.03	230	13.0	0.28	64	7	<5	75	<2	<0.008	1150
623002		61.60	0.42	14.94	6.18	0.19	2.87	3.11	4.57	1.86	0.20	0.00	4.29	100.23	150	16.8	0.47	38	9	<5	207	<2	<0.008	1200
623005		58.40	1.07	17.80	8.48	0.18	4.36	0.20	2.43	2.98	0.13	0.02	3.93	99.98	190	33.8	0.13	74	5	<5	204	<2	<0.008	1050
623031		73.70	0.53	15.04	1.90	0.10	0.48	0.14	0.31	4.91	0.13	0.51	2.49	100.24	240	13.2	0.25	92	28	425	1600	<2	<0.008	900
623032		70.20	0.53	15.91	3.29	0.18	0.74	0.19	0.34	4.98	0.17	0.17	2.73	99.43	270	11.8	0.32	92	44	123	92	<2	<0.008	1350
623033		73.00	0.53	15.52	2.36	0.13	0.65	0.10	0.16	5.07	0.11	0.01	2.40	100.04	250	12.7	0.21	96	8	100	45	<2	<0.008	1150
623047		78.60	0.17	12.43	0.86	0.05	0.14	0.04	6.92	0.14	0.02	0.17	0.44	99.98	210	4.9	0.10	4	380	26	173	2	<0.008	100
623081		58.50	0.87	19.50	9.33	0.15	1.80	0.31	3.07	3.19	0.19	0.01	3.39	100.31	120	43.5	0.22	60	44	17	99	<2	<0.008	750
623082		78.10	0.33	11.32	3.12	0.18	0.46	0.01	0.20	3.44	0.03	1.22	3.01	101.42	210	9.4	0.09	95	17	13	21	<2	<0.008	1150
623084		72.60	0.48	14.64	3.44	0.17	1.09	0.03	0.11	5.45	0.05	0.01	2.32	100.38	230	12.5	0.09	98	9	16	39	<2	<0.008	1700
623089		77.80	0.18	11.38	2.64	0.10	0.93	0.02	3.16	2.11	0.02	0.01	1.40	99.75	220	4.9	0.12	49	14	<5	64	<2	<0.008	680
623090		73.00	0.41	14.68	2.69	0.12	1.11	0.03	0.11	5.54	0.06	0.01	2.46	100.22	240	10.2	0.14	98	35	11	34	<2	<0.008	910
623091		66.20	0.56	15.86	6.43	0.18	1.83	0.12	0.14	5.20	0.11	0.31	3.03	99.97	260	12.9	0.20	96	14	71	135	<2	<0.008	980
623092		77.50	0.33	11.49	3.13	0.11	0.91	0.02	0.12	4.08	0.04	0.54	2.28	100.55	210	9.4	0.12	97	20	238	216	3	<0.008	840
623093		65.90	0.63	16.69	5.60	0.27	1.47	0.19	0.95	3.93	0.17	0.17	3.48	99.45	270	14.0	0.28	83	8	<5	84	<2	<0.008	1550
623094		60.10	0.70	18.37	8.71	0.21	2.50	0.25	2.11	3.23	0.19	0.11	3.74	100.22	310	13.5	0.27	71	13	<5	164	<2	<0.008	1350
623101		70.90	0.26	11.32	3.67	0.15	0.96	3.99	2.22	2.41	0.03	0.02	4.25	100.18	270	5.8	0.11	35	13	8	61	<2	<0.008	670
623113		57.80	0.52	16.78	8.75	0.40	3.95	0.28	4.07	3.41	0.20	0.01	4.14	100.31	190	16.4	0.39	63	20	16	351	<2	<0.008	1900
623115		69.40	0.52	15.44	4.83	0.14	1.05	0.15	2.20	3.70	0.14	0.00	2.63	100.20	260	12.0	0.26	67	8	6	67	<2	<0.008	940

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P1

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
625363	HA7	0.0	10.0			na	0.57	na	na	na	na	na	na	na	0.22	na	na	na	175	19.6	0.38	
625364	HA7	10.0	20.1			na	0.51	na	na	na	na	na	na	na	0.23	na	na	na	191	16.0	0.45	
625365	HA7	20.1	26.1			na	0.59	na	na	na	na	na	na	na	0.15	na	na	na	168	21.0	0.26	
625366	HA7	26.1	32.1			na	0.61	na	na	na	na	na	na	na	0.17	na	na	na	172	21.2	0.28	
625368	HA7	32.1	38.1			na	0.62	na	na	na	na	na	na	na	0.15	na	na	na	187	19.9	0.24	
625369	HA7	38.1	44.1			na	0.54	na	na	na	na	na	na	na	0.15	na	na	na	171	18.8	0.28	
625370	HA7	44.1	50.0			na	0.63	na	na	na	na	na	na	na	0.15	na	na	na	194	19.6	0.24	
625371	HA7	50.0	56.0			na	0.58	na	na	na	na	na	na	na	0.17	na	na	na	188	18.5	0.29	
625372	HA7	56.0	62.0			na	0.51	na	na	na	na	na	na	na	0.17	na	na	na	202	15.1	0.33	
625373	HA7	62.0	68.0			na	0.49	na	na	na	na	na	na	na	0.18	na	na	na	204	14.4	0.37	
625374	HA7	68.0	74.0			na	0.61	na	na	na	na	na	na	na	0.15	na	na	na	178	20.4	0.25	
625375	HA7	74.0	80.0			na	0.56	na	na	na	na	na	na	na	0.15	na	na	na	158	21.1	0.27	
625376	HA7	80.0	86.0			na	0.53	na	na	na	na	na	na	na	0.14	na	na	na	163	19.7	0.26	
625377	HA7	86.0	92.0			na	0.51	na	na	na	na	na	na	na	0.15	na	na	na	185	16.5	0.29	
625378	HA7	92.0	98.0			na	0.56	na	na	na	na	na	na	na	0.15	na	na	na	170	19.9	0.27	
625379	HA7	98.0	103.0			na	0.53	na	na	na	na	na	na	na	0.15	na	na	na	198	16.0	0.28	
625380	HA7	103.0	111.0			na	0.43	na	na	na	na	na	na	na	0.20	na	na	na	199	12.8	0.47	
625381	HA7	111.0	117.0			na	0.47	na	na	na	na	na	na	na	0.27	na	na	na	186	15.3	0.57	
625382	HA7	117.0	123.0			na	0.41	na	na	na	na	na	na	na	0.29	na	na	na	135	18.0	0.71	
625383	HA7	123.0	129.0			na	0.46	na	na	na	na	na	na	na	0.34	na	na	na	143	19.3	0.74	
625384	HA7	129.0	138.0			na	0.47	na	na	na	na	na	na	na	0.34	na	na	na	162	17.5	0.72	
625385	HA7	138.0	143.0			na	0.43	na	na	na	na	na	na	na	0.30	na	na	na	150	17.4	0.69	
625386	HA7	143.0	149.0			na	0.57	na	na	na	na	na	na	na	0.27	na	na	na	194	17.6	0.47	
625387	HA7	149.0	155.0			na	0.58	na	na	na	na	na	na	na	0.15	na	na	na	192	18.0	0.26	
625388	HA7	155.0	163.0			na	0.59	na	na	na	na	na	na	na	0.19	na	na	na	201	17.7	0.32	
625389	HA7	163.0	169.0			na	0.42	na	na	na	na	na	na	na	0.17	na	na	na	186	13.7	0.40	
625390	HA7	169.0	175.0			na	0.28	na	na	na	na	na	na	na	0.14	na	na	na	154	10.7	0.51	

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P2
Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
625391	HA7	175.0	181.0			na	0.27	na	na	na	na	na	na	na	0.15	na	na	na	160	10.2	0.55	
625392	HA7	181.0	187.0			na	0.29	na	na	na	na	na	na	na	0.15	na	na	na	164	10.4	0.53	
625393	HA7	187.0	193.0			na	0.27	na	na	na	na	na	na	na	0.17	na	na	na	150	11.0	0.62	
625394	HA7	193.0	199.0			na	0.28	na	na	na	na	na	na	na	0.14	na	na	na	154	10.8	0.50	
625395	HA7	199.0	205.0			na	0.27	na	na	na	na	na	na	na	0.15	na	na	na	153	10.7	0.55	
625396	HA7	205.0	211.0			na	0.28	na	na	na	na	na	na	na	0.17	na	na	na	159	10.4	0.62	
625397	HA7	211.0	217.0			na	0.26	na	na	na	na	na	na	na	0.15	na	na	na	159	9.7	0.58	
625398	HA7	217.0	223.0			na	0.26	na	na	na	na	na	na	na	0.14	na	na	na	157	9.7	0.55	
625399	HA7	223.0	233.5			na	0.27	na	na	na	na	na	na	na	0.15	na	na	na	159	10.0	0.57	
623751	HA8	0.0	19.5			na	0.60	na	na	na	na	na	na	na	0.17	na	na	na	190	18.9	0.28	
623752	HA8	19.5	35.4			na	0.45	na	na	na	na	na	na	na	0.13	na	na	na	180	15.0	0.29	
623753	HA8	35.4	63.4			na	0.43	na	na	na	na	na	na	na	0.15	na	na	na	170	15.2	0.35	
623754	HA8	63.4	66.0			na	0.35	na	na	na	na	na	na	na	0.13	na	na	na	160	13.1	0.37	
623755	HA8	66.0	83.0			na	0.29	na	na	na	na	na	na	na	0.15	na	na	na	150	11.6	0.52	
623756	HA8	83.0	96.5			na	0.31	na	na	na	na	na	na	na	0.12	na	na	na	160	11.6	0.39	
623757	HA8	96.5	112.0			na	0.28	na	na	na	na	na	na	na	0.15	na	na	na	160	10.5	0.54	
623758	HA8	112.0	127.0			na	0.28	na	na	na	na	na	na	na	0.15	na	na	na	160	10.5	0.54	
623759	HA8	127.0	141.0			na	0.29	na	na	na	na	na	na	na	0.16	na	na	na	160	10.9	0.55	
623760	HA8	141.0	150.0			na	0.32	na	na	na	na	na	na	na	0.16	na	na	na	190	10.1	0.50	
623761	HA8	150.0	165.0			na	0.30	na	na	na	na	na	na	na	0.17	na	na	na	180	10.0	0.57	
623762	HA8	165.0	182.0			na	0.31	na	na	na	na	na	na	na	0.21	na	na	na	190	9.8	0.68	
623763	HA8	182.0	207.2			na	0.29	na	na	na	na	na	na	na	0.20	na	na	na	180	9.7	0.69	
623764	HA8	207.2	221.8			na	0.31	na	na	na	na	na	na	na	0.24	na	na	na	190	9.8	0.77	
623765	HA8	221.8	227.0			na	0.31	na	na	na	na	na	na	na	0.21	na	na	na	190	9.8	0.68	
623766	HA8	227.0	241.0			na	0.30	na	na	na	na	na	na	na	0.22	na	na	na	190	9.5	0.73	
623767	HA8	241.0	251.5			na	0.25	na	na	na	na	na	na	na	0.12	na	na	na	150	10.0	0.48	

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P3

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627355	NC1	0.0	7.7			66.80	0.54	17.00	3.95	0.05	1.54	0.19	6.63	0.76	0.08	0.01	2.31	99.9	400	8.1	0.15	25
627356	NC1	7.7	18.8			66.60	0.51	16.10	4.94	0.08	1.84	0.21	6.35	1.16	0.09	0.05	1.86	99.8	408	7.4	0.18	31
627357	NC1	18.8	26.0			66.50	0.55	15.90	4.87	0.09	1.76	0.24	6.26	1.14	0.09	0.15	1.81	99.4	412	8.0	0.16	31
627358	NC1	26.0	35.0			68.00	0.87	15.00	4.72	0.07	1.79	0.19	5.05	2.11	0.08	0.06	1.82	99.8	394	13.3	0.09	43
627359	NC1	35.0	50.0			69.00	0.43	14.40	4.78	0.10	1.81	0.15	4.55	2.34	0.07	0.05	1.85	99.5	337	7.6	0.16	47
627360	NC1	50.0	60.0			69.90	0.46	14.00	4.56	0.08	1.89	0.18	5.44	1.16	0.08	0.09	1.84	99.7	313	8.8	0.17	35
627361	NC1	60.0	70.0			70.50	0.49	13.60	4.68	0.07	1.98	0.16	5.09	1.43	0.07	0.02	1.55	99.6	301	9.8	0.14	39
627362	NC1	70.0	78.4			69.00	0.57	13.90	5.25	0.07	2.15	0.31	5.48	0.96	0.07	0.02	1.72	99.5	297	11.5	0.12	35
627363	NC1	78.4	84.3			68.00	0.63	13.90	5.62	0.09	1.98	0.92	5.96	0.39	0.09	0.03	2.07	99.7	276	13.8	0.14	26
627364	NC1	84.3	99.1			60.30	0.89	16.30	7.81	0.14	3.34	1.03	6.54	0.58	0.12	0.01	2.76	99.8	236	22.6	0.13	34
627365	NC1	99.1	104.9			58.90	0.98	16.50	8.28	0.15	4.10	0.97	6.13	0.85	0.14	0.03	2.76	99.8	255	23.1	0.14	41
627366	NC1	104.9	110.7			61.50	0.78	16.50	6.92	0.11	3.13	0.85	6.32	0.95	0.12	0.05	2.64	99.9	263	17.7	0.15	36
627367	NC1	110.7	124.3			62.80	0.71	16.70	6.43	0.12	2.95	0.56	5.76	1.87	0.14	0.02	2.24	100.3	345	12.3	0.20	43
627368	NC1	124.3	130.0			62.60	0.71	16.60	6.26	0.12	2.84	0.52	6.27	1.39	0.12	0.01	2.20	99.6	275	15.4	0.17	38
627369	NC1	130.0	133.0			61.30	0.74	16.20	6.72	0.15	2.99	1.33	6.55	0.73	0.10	0.04	2.74	99.6	259	17.1	0.14	32
627370	NC1	133.0	138.8			59.10	0.93	16.50	8.28	0.18	3.49	1.06	6.11	1.22	0.12	0.03	2.75	99.8	229	24.3	0.13	40
627371	NC1	138.8	145.2			59.80	0.84	17.00	7.73	0.17	3.44	0.63	6.03	1.53	0.13	0.03	2.47	99.8	289	17.4	0.16	43
627372	NC1	145.2	151.6			57.60	0.95	16.80	8.29	0.17	4.35	0.99	6.27	1.03	0.14	0.02	3.00	99.6	318	17.8	0.15	43
627373	NC1	151.6	165.5			56.40	1.01	16.50	9.12	0.17	4.88	1.24	5.84	0.67	0.14	0.05	3.55	99.6	225	27.0	0.14	44
627374	NC1	165.5	177.9			61.10	0.78	16.50	6.67	0.12	3.30	0.75	5.85	1.75	0.14	0.06	2.70	99.7	327	14.4	0.18	43
627375	NC1	177.9	189.2			57.40	0.95	16.90	8.24	0.14	3.93	1.36	5.70	1.40	0.15	0.04	3.40	99.6	261	21.8	0.16	43
627376	NC1	189.2	198.8			57.80	0.84	17.40	7.97	0.13	4.20	0.65	5.29	1.90	0.16	0.09	3.14	99.6	319	15.8	0.19	51
627377	NC1	198.8	206.4			57.70	0.79	16.60	6.66	0.16	2.67	3.00	6.53	0.29	0.12	0.20	4.59	99.3	254	18.6	0.15	24
627378	NC1	206.4	213.4			57.40	0.89	16.30	7.44	0.14	2.95	2.95	6.59	0.31	0.13	0.06	4.25	99.4	218	24.5	0.15	25
627379	NC1	213.4	223.1			57.80	0.88	16.20	7.07	0.15	2.82	2.94	6.84	0.37	0.12	0.14	4.00	99.3	232	22.7	0.14	25
627380	NC1	223.1	230.9			59.60	0.77	16.20	5.63	0.14	2.30	3.51	7.00	0.27	0.12	0.06	4.20	99.8	257	17.9	0.16	20

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P4

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627381	NC1	230.9	235.4			60.10	0.86	16.80	7.11	0.12	2.95	1.39	6.63	0.67	0.13	0.05	2.94	99.8	281	18.4	0.15	31
627382	NC1	235.4	242.2			61.00	0.78	16.40	6.92	0.11	3.18	0.80	5.52	1.69	0.15	0.11	2.76	99.4	331	14.2	0.19	44
627383	NC1	242.2	253.0			61.10	0.75	16.60	6.58	0.12	2.92	1.30	6.29	1.10	0.14	0.07	2.79	99.8	294	15.3	0.19	35
627384	NC1	253.0	267.0			58.10	0.80	15.50	7.51	0.16	3.21	3.13	5.64	0.79	0.12	0.08	4.56	99.6	233	20.6	0.15	31
627386	NC1	267.0	274.2			63.10	0.73	15.70	5.20	0.11	1.96	2.35	6.09	0.84	0.13	0.12	3.83	100.2	306	14.2	0.18	25
627387	NC1	274.2	281.8			58.10	1.06	15.00	7.97	0.16	2.80	3.69	5.55	0.59	0.15	0.13	4.54	99.7	268	23.7	0.14	27
627388	NC1	281.8	292.3			59.70	0.65	14.40	5.81	0.13	2.50	4.93	5.28	0.63	0.12	0.07	5.48	99.7	260	14.9	0.19	23
627389	NC1	292.3	295.1			13.70	0.12	3.31	1.45	0.23	0.68	43.38	0.93	0.47	0.11	0.11	35.00	99.5	55	13.1	0.92	3
627390	NC1	295.1	296.9			50.30	0.70	14.50	5.29	0.15	1.63	10.35	2.66	3.30	0.17	0.22	9.90	99.2	209	20.0	0.24	27
627391	NC1	296.9	299.4			51.70	0.49	11.60	4.15	0.16	2.01	13.01	3.76	0.87	0.11	0.05	11.64	99.6	197	14.9	0.23	15
627392	NC1	299.4	301.4			60.10	0.71	17.00	7.00	0.11	3.86	1.15	4.40	1.62	0.12	0.03	3.65	99.7	314	13.5	0.17	50
627393	NC1	301.4	304.7			48.10	0.41	11.10	4.31	0.19	1.99	15.53	3.66	0.67	0.10	0.13	13.45	99.6	184	13.5	0.24	12
627394	NC1	304.7	306.9			40.00	0.51	12.50	4.58	0.19	1.81	18.36	1.56	2.99	0.13	0.21	16.30	99.1	194	15.6	0.26	19
627395	NC1	306.9	308.0			7.92	0.09	1.94	1.49	0.25	0.55	47.88	0.59	0.23	0.06	0.21	38.30	99.5	17	31.8	0.67	2
627396	NC1	308.0	312.0			40.20	0.81	14.80	6.89	0.11	2.08	14.95	1.72	3.64	0.21	0.01	14.30	99.7	134	36.0	0.26	26
627397	NC1	312.0	316.8			33.10	0.68	12.60	6.34	0.09	1.55	21.26	1.96	3.17	0.25	0.01	18.66	99.7	113	35.9	0.37	17
627398	NC1	316.8	317.4			4.55	0.04	0.72	0.40	0.09	0.16	51.72	0.44	0.05	0.06	0.00	41.40	99.6	11	21.0	1.56	0
627399	NC1	317.4	325.0			39.00	0.82	13.80	8.27	0.10	1.77	15.94	1.95	3.46	0.23	0.01	14.23	99.6	141	34.7	0.28	23
627400	NC1	325.0	331.0			36.60	0.72	12.20	7.32	0.11	1.55	19.45	1.50	3.08	0.17	0.01	16.87	99.6	122	35.6	0.23	18
627401	NC1	331.0	335.2			20.60	0.37	7.19	4.42	0.19	1.18	34.28	1.42	1.18	0.21	0.14	28.10	99.3	64	35.1	0.56	6
627402	NC1	335.2	339.0			34.40	0.77	13.40	7.96	0.20	2.34	19.02	1.77	2.23	0.30	0.17	16.84	99.4	123	37.5	0.39	18
627403	NC1	339.0	346.4			42.30	0.93	16.30	8.49	0.12	2.16	11.94	1.79	3.88	0.26	0.03	11.44	99.6	137	40.7	0.28	31
627404	NC1	346.4	349.0			38.90	0.82	14.60	9.22	0.15	1.83	15.17	1.75	3.51	0.31	0.03	13.59	99.9	126	38.8	0.38	24
627405	NC1	349.0	350.8			17.20	0.31	5.32	2.80	0.33	1.00	38.80	1.35	0.55	0.53	0.28	30.90	99.4	46	40.4	1.71	4
627406	NC1	350.8	358.9			41.80	0.90	15.90	8.97	0.12	2.54	11.96	1.28	4.03	0.25	0.02	12.09	99.9	145	37.3	0.28	33
627407	NC1	358.9	363.2			36.00	0.90	13.10	6.81	0.15	1.93	19.24	2.16	2.53	0.27	0.02	16.69	99.8	137	39.3	0.30	17
627408	NC1	363.2	363.6			41.20	0.83	12.50	8.61	0.13	2.01	13.33	1.29	2.68	0.26	1.25	11.04	95.1	143	34.8	0.31	24

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P5
Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627409	NC1	363.6	368.9			38.00	0.91	13.40	8.22	0.11	1.82	16.59	1.88	3.17	0.30	0.09	14.84	99.3	147	36.9	0.33	21
627410	NC1	368.9	372.0			10.50	0.20	3.66	3.28	0.16	0.98	43.82	0.47	0.64	0.35	0.53	34.60	99.2	31	38.7	1.75	4
627411	NC1	372.0	379.5			39.20	0.86	15.40	8.07	0.14	2.31	14.60	2.19	2.94	0.32	0.05	13.62	99.7	115	44.8	0.37	24
627412	NC1	379.5	382.7			49.00	0.92	16.50	8.66	0.13	2.73	7.72	1.32	3.45	0.19	0.13	8.76	99.5	126	43.9	0.21	41
627413	NC1	382.7	389.0			39.50	0.87	16.60	11.69	0.22	3.87	10.69	1.80	2.23	0.23	0.02	11.74	99.5	117	44.4	0.27	33
627414	NC1	389.0	395.1			40.70	0.94	17.90	12.86	0.21	4.26	8.42	1.16	2.76	0.22	0.06	10.01	99.5	129	43.6	0.23	42
627415	NC1	395.1	401.0			41.10	0.87	16.30	7.43	0.17	2.45	13.24	2.05	3.18	0.21	0.25	12.39	99.6	114	45.5	0.24	27
627417	NC1	401.0	411.0			36.40	0.79	14.70	7.04	0.14	2.01	17.36	2.17	2.92	0.25	0.02	15.64	99.4	106	44.9	0.32	20
627418	NC1	411.0	422.0			33.60	0.71	13.30	7.03	0.10	1.69	20.15	1.62	3.15	0.31	0.04	17.73	99.4	97	43.8	0.44	18
627419	NC1	422.0	437.0			3.94	0.06	1.10	0.65	0.10	0.49	51.35	0.53	0.15	0.08	0.03	41.70	100.2	9	37.0	1.44	1
627420	NC1	437.0	453.0			6.63	0.11	2.32	1.75	0.07	0.80	48.07	0.52	0.42	0.18	0.06	38.60	99.5	26	24.4	1.70	2
627421	NC1	453.0	460.0			9.89	0.20	3.48	2.08	0.09	0.89	45.10	0.73	0.65	0.12	0.01	36.40	99.6	29	40.4	0.61	3
627422	NC1	460.0	468.8			4.58	0.06	1.47	1.28	0.49	0.54	49.81	0.71	0.22	0.08	0.02	40.30	99.6	17	20.5	1.38	1
627423	NC1	468.8	477.7			7.72	0.13	2.44	1.46	0.34	0.47	47.48	0.84	0.27	0.07	0.01	38.30	99.5	22	34.5	0.55	2
627424	NC1	477.7	490.0			33.00	0.67	11.80	9.55	0.25	1.35	20.42	1.64	2.56	0.19	0.01	18.21	99.7	117	34.5	0.28	15
627425	NC1	490.0	499.3			36.10	0.89	15.70	10.85	0.21	2.48	14.26	1.32	3.60	0.23	0.01	13.96	99.6	118	45.1	0.26	28
627426	NC1	499.3	505.5			41.70	1.04	19.20	6.19	0.16	2.48	10.77	1.86	4.51	0.23	0.01	11.41	99.6	138	45.1	0.22	36
627427	NC1	505.5	515.0			36.60	0.79	14.20	8.22	0.16	1.85	17.08	1.68	3.15	0.22	0.03	15.59	99.6	102	46.2	0.28	21
627428	NC1	515.0	525.0			36.50	0.76	14.10	8.04	0.14	1.40	17.51	1.72	3.27	0.28	0.17	15.40	99.3	103	44.3	0.37	20
627429	NC1	525.0	535.0			36.20	0.86	15.40	5.90	0.10	1.63	17.77	2.47	3.14	0.26	0.06	15.75	99.5	108	47.7	0.30	19
627430	NC1	535.0	546.0			36.70	0.80	14.70	6.96	0.10	1.45	17.69	2.34	3.13	0.25	0.03	15.36	99.5	105	45.7	0.31	19
627431	NC1	546.0	548.9			10.10	0.16	2.81	1.85	0.49	0.47	45.52	0.81	0.34	0.12	0.08	36.70	99.4	22	42.8	0.76	2
627432	NC1	548.9	550.9			33.70	0.72	13.80	6.63	0.16	1.60	20.35	3.15	2.08	0.26	0.03	17.35	99.8	94	45.9	0.36	14
627433	NC1	550.9	559.2			17.00	0.38	6.47	3.54	0.51	1.03	37.42	1.01	1.17	0.19	0.17	30.40	99.3	51	44.7	0.50	5
627434	NC1	559.2	569.9			37.00	0.90	16.40	7.68	0.13	1.42	15.66	1.94	3.95	0.23	0.01	14.28	99.6	122	44.0	0.26	23
627435	NC1	569.9	582.9			35.80	0.77	14.20	8.21	0.15	1.59	17.83	1.55	3.31	0.20	0.01	16.07	99.7	108	42.6	0.26	20
627436	NC1	582.9	591.6			44.50	0.93	17.10	8.74	0.17	3.47	9.47	2.21	2.58	0.24	0.08	10.11	99.6	127	43.7	0.26	34

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P6

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627437	NC1	591.6	596.6			41.00	1.01	16.90	8.32	0.18	3.24	11.55	2.37	2.55	0.24	0.41	11.14	98.9	139	43.7	0.24	29
627438	NC1	596.6	604.0			43.30	0.98	17.80	8.82	0.17	3.10	9.70	2.03	2.99	0.19	0.09	10.33	99.5	126	46.7	0.19	34
627439	NC1	604.0	611.0			42.20	0.97	17.80	8.25	0.16	2.52	11.02	1.72	3.37	0.17	0.26	10.98	99.4	123	47.4	0.17	32
627440	NC1	611.0	612.0			36.90	0.62	12.70	8.55	0.23	2.23	17.50	1.04	2.10	0.20	0.97	12.58	95.6	88	42.4	0.32	19
627441	NC1	612.0	613.0			32.30	0.55	10.50	8.92	0.21	1.95	22.20	1.22	1.52	0.17	1.85	14.36	95.7	76	43.3	0.31	13
627442	NC1	613.0	614.0			39.30	0.69	12.60	9.23	0.20	1.99	15.80	1.83	1.72	0.19	1.83	8.98	94.4	102	40.6	0.28	17
627443	NC1	614.0	615.0			36.80	0.75	14.60	9.49	0.23	2.16	16.10	2.05	2.06	0.23	1.32	11.19	97.0	103	43.8	0.31	19
627444	NC1	615.0	616.0			42.60	0.95	18.40	8.38	0.16	1.98	9.43	1.84	3.75	0.26	1.42	7.20	96.4	128	44.5	0.27	34
627445	NC1	616.0	617.0			36.60	1.04	17.70	9.72	0.18	2.01	12.30	1.45	3.71	0.29	2.41	7.99	95.4	140	44.7	0.28	29
627446	NC1	617.0	618.0			38.70	1.50	23.30	12.10	0.09	1.71	4.30	0.69	6.32	0.34	5.61	6.36	101.0	198	45.4	0.23	62
627448	NC1	618.0	619.0			39.40	1.36	22.50	11.00	0.11	1.95	5.55	1.03	5.66	0.35	3.78	5.34	98.0	177	46.1	0.26	54
627449	NC1	619.0	620.0			29.40	0.83	15.20	13.70	0.23	2.07	14.30	1.12	3.00	0.21	5.87	6.88	92.8	114	43.9	0.25	25
627450	NC1	620.0	621.0			34.80	0.86	16.20	12.70	0.20	2.08	12.30	1.65	2.94	0.24	4.57	7.18	95.7	113	45.8	0.28	26
627451	NC1	621.0	622.0			33.40	0.87	16.40	14.50	0.21	2.50	11.70	1.75	2.65	0.24	4.85	7.37	96.4	119	43.8	0.28	28
627452	NC1	622.0	623.0			40.10	1.07	19.80	9.39	0.19	2.23	9.85	2.83	3.29	0.29	0.93	8.18	98.2	144	44.7	0.27	30
627453	NC1	623.0	623.5			32.00	1.24	20.00	16.70	0.13	1.95	5.59	1.10	4.69	0.27	9.11	8.40	101.2	170	43.9	0.22	50
627454	NC1	623.5	623.6			22.80	1.17	15.80	27.30	0.08	1.90	1.63	0.27	3.76	0.23	20.10	15.60	110.6	168	41.7	0.20	75
627455	NC1	623.6	624.0			41.90	1.07	19.10	9.68	0.16	2.08	8.06	2.53	3.39	0.28	1.78	4.86	94.9	142	45.1	0.26	34
627456	NC1	624.0	625.0			40.40	0.96	17.70	7.12	0.19	1.50	12.90	3.19	2.95	0.27	1.25	8.11	96.5	137	42.0	0.28	22
627457	NC1	625.0	626.0			40.40	1.00	18.60	11.10	0.12	1.93	8.50	1.58	3.88	0.27	2.90	5.45	95.7	142	42.4	0.27	37
627458	NC1	626.0	627.0			20.40	0.41	7.48	7.88	0.21	1.20	32.90	0.88	1.00	0.12	0.09	24.92	97.5	47	51.8	0.30	6
627459	NC1	627.0	628.0			37.00	0.98	18.30	14.20	0.14	1.89	8.92	0.97	4.10	0.21	4.37	6.67	97.7	167	35.0	0.22	38
627460	NC1	628.0	629.0			36.80	1.18	21.70	15.30	0.08	1.87	4.14	0.71	5.57	0.24	7.85	8.28	103.7	158	44.9	0.20	61
627461	NC1	629.0	630.0			37.90	1.44	24.50	14.00	0.06	1.83	1.81	0.33	6.90	0.26	7.28	10.14	106.5	189	45.7	0.18	80
627462	NC1	630.0	631.0			36.50	0.88	16.60	14.00	0.17	2.16	10.30	1.32	3.34	0.20	5.32	6.96	97.7	117	45.1	0.23	32
627463	NC1	631.0	632.0			37.70	0.94	18.10	17.00	0.13	2.16	4.87	1.37	3.78	0.19	8.64	7.96	102.8	128	43.9	0.20	49
627464	NC1	632.0	633.0			38.60	1.16	21.10	16.30	0.08	1.91	2.73	0.37	5.57	0.25	8.94	8.76	105.8	160	43.4	0.22	71

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P7

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627465	NC1	633.0	634.0			42.40	0.92	17.90	9.55	0.14	2.13	8.93	1.15	3.89	0.27	2.08	6.59	95.9	128	42.9	0.29	37
627466	NC1	634.0	635.0			43.50	0.98	19.50	9.37	0.14	1.58	7.59	1.07	4.78	0.26	2.56	5.78	97.1	136	43.0	0.27	42
627467	NC1	635.0	636.0			47.40	0.98	18.90	11.30	0.18	2.06	5.19	0.87	3.60	0.27	0.39	5.72	96.9	147	40.0	0.28	48
627468	NC1	636.0	639.1			63.20	0.69	16.30	5.42	0.11	1.28	2.77	1.78	3.56	0.18	0.35	4.23	99.9	204	20.4	0.26	52
627469	NC1	639.1	642.2			66.90	0.39	11.90	4.88	0.08	0.70	2.55	1.75	2.53	0.14	1.60	3.72	97.1	201	11.5	0.36	43
627470	NC1	642.2	646.0			69.50	0.40	11.80	3.73	0.14	1.07	4.31	1.74	2.16	0.12	0.20	4.71	99.9	196	12.2	0.30	35
627471	NC1	646.0	651.4			54.30	0.81	19.50	7.26	0.15	1.60	4.25	2.29	3.62	0.23	0.36	6.16	100.5	272	17.9	0.28	44
627472	NC1	651.4	654.4			54.10	0.73	18.70	10.10	0.06	1.38	1.46	1.78	4.34	0.20	1.14	6.01	100.0	284	15.3	0.28	64
627473	NC1	654.4	658.0			44.50	1.05	19.70	11.30	0.13	2.00	4.65	1.79	4.21	0.25	1.25	8.79	99.6	141	44.7	0.24	49
627474	NC1	658.0	669.1			44.50	1.08	19.70	13.80	0.06	1.52	2.05	1.17	5.06	0.26	1.12	8.27	98.6	140	46.1	0.24	67
627475	NC1	669.1	673.7			43.70	1.12	21.10	12.50	0.12	2.61	3.20	1.22	4.19	0.27	0.98	4.42	95.4	151	44.4	0.24	61
627476	NC1	673.7	677.0			49.50	1.08	19.40	8.84	0.14	2.30	3.48	3.78	2.44	0.29	0.29	7.80	99.3	145	44.8	0.27	39
627478	NC1	677.0	685.4			48.90	0.95	18.30	11.70	0.16	2.11	3.76	2.73	2.64	0.24	1.17	8.00	100.7	123	46.3	0.25	42
627479	NC1	685.4	695.1			47.30	1.00	18.60	9.63	0.17	1.83	4.90	4.29	2.05	0.24	0.69	7.82	98.5	130	46.1	0.24	30
627480	NC1	695.1	705.2			48.50	1.10	20.60	6.22	0.20	1.75	4.70	3.88	2.73	0.27	0.08	7.90	97.9	150	44.1	0.24	34
627481	NC1	705.2	721.0			60.90	0.53	15.80	5.70	0.17	2.51	3.92	1.84	2.78	0.15	0.01	5.39	99.7	268	11.8	0.28	48
627482	NC1	721.0	723.5			62.70	0.55	13.70	5.89	0.20	1.88	5.06	3.66	0.90	0.15	0.01	4.93	99.6	180	18.5	0.27	24
627483	NC1	723.5	740.0			61.30	0.56	16.00	6.14	0.16	2.52	3.41	2.06	2.62	0.16	0.02	4.83	99.8	270	12.3	0.29	48
627484	NC1	740.0	759.6			62.60	0.54	15.50	5.27	0.14	2.16	3.91	1.69	2.91	0.15	0.00	5.20	100.1	257	12.5	0.28	48
627485	NC1	759.6	763.8			51.40	0.87	17.00	9.72	0.22	2.27	6.05	4.00	1.36	0.22	0.01	6.60	99.7	137	37.9	0.25	27
627486	NC1	763.8	772.5			52.60	0.99	20.50	7.77	0.15	1.72	3.56	3.41	3.30	0.28	0.14	5.20	99.6	201	29.4	0.28	42
627487	NC1	772.5	781.8			61.20	0.67	16.20	6.80	0.09	0.92	2.46	2.55	3.20	0.22	1.14	4.46	99.9	270	15.0	0.33	45
627488	NC1	781.8	794.2			63.60	0.50	14.70	5.47	0.14	1.20	3.56	2.20	2.75	0.15	1.10	4.92	100.3	246	12.3	0.30	41
627489	NC1	794.2	796.1			60.80	0.73	17.40	5.10	0.07	0.84	2.09	1.21	4.59	0.23	1.25	4.47	98.8	289	15.2	0.31	62
627490	NC1	796.1	798.0			58.40	0.59	17.20	6.31	0.15	1.36	3.50	1.89	3.72	0.17	1.17	5.71	100.2	291	12.2	0.29	49
627491	NC1	798.0	804.9			65.30	0.49	13.70	4.95	0.16	1.32	4.10	2.43	2.14	0.14	0.44	4.73	99.9	237	12.4	0.29	35
627492	NC1	804.9	810.1			61.30	0.81	16.80	7.37	0.10	0.85	2.53	0.31	4.13	2.80	1.43	5.81	104.2	287	16.8	3.48	64

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P8
Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
627493	NC1	810.1	818.0			56.60	0.86	16.60	7.18	0.18	1.55	4.35	2.67	2.69	0.24	0.58	5.23	98.7	182	28.3	0.28	38
627494	NC1	818.0	819.3			67.80	0.47	13.00	6.29	0.05	0.58	1.76	1.75	2.89	0.13	0.73	4.79	100.2	198	14.2	0.28	50
627495	NC1	819.3	829.8			62.90	0.75	16.80	6.66	0.09	1.29	2.04	1.49	3.80	0.21	1.32	4.42	101.8	203	22.3	0.28	59
628001	NC2	0.0	14.4			67.50	0.36	16.80	3.80	0.03	1.42	0.05	0.48	6.26	0.03	0.08	3.28	100.1	267	8.1	0.08	94
628002	NC2	14.4	35.0			75.30	0.52	11.70	3.85	0.03	1.01	0.09	1.88	3.51	0.05	0.09	2.23	100.3	278	11.2	0.10	70
628003	NC2	35.0	57.0			68.90	0.59	13.90	4.88	0.07	1.60	0.23	1.93	4.87	0.08	0.14	2.31	99.5	281	12.5	0.14	75
628004	NC2	57.0	63.8			59.80	0.46	14.80	4.23	0.23	2.87	4.63	4.25	2.23	0.08	0.02	5.91	99.5	285	9.6	0.18	36
628005	NC2	63.8	79.4			61.40	0.66	16.60	5.96	0.15	3.08	1.88	3.58	3.00	0.12	0.07	4.09	100.6	338	11.7	0.18	53
628006	NC2	79.4	110.0			68.60	0.45	15.10	3.78	0.07	1.73	0.69	4.82	2.94	0.08	0.03	2.03	100.3	304	8.9	0.18	46
628007	NC2	110.0	125.4			67.40	0.44	15.20	4.06	0.09	2.08	0.42	4.59	2.86	0.08	0.03	3.04	100.3	305	8.7	0.18	50
628008	NC2	125.4	138.2			67.20	0.50	14.30	4.53	0.09	2.49	1.06	2.88	3.55	0.08	0.08	2.80	99.6	288	10.5	0.16	61
628009	NC2	138.2	162.5			66.50	0.48	16.10	4.21	0.07	2.28	0.76	4.70	3.09	0.08	0.06	2.48	100.8	333	8.7	0.17	50
628010	NC2	162.5	163.6			74.30	0.36	11.90	1.71	0.09	0.62	2.13	5.72	0.69	0.05	0.06	2.72	100.4	200	10.8	0.14	14
628011	NC2	163.6	170.0			74.30	0.36	10.60	3.32	0.08	1.72	0.86	2.16	3.15	0.05	0.05	2.69	99.3	214	10.0	0.14	62
628012	NC2	170.0	190.0			64.70	0.59	14.90	5.70	0.12	3.27	1.33	4.38	1.92	0.09	0.04	3.39	100.4	306	11.5	0.15	48
628013	NC2	190.0	220.0			60.90	0.56	16.40	6.21	0.13	3.15	1.41	4.86	2.05	0.10	0.08	3.51	99.4	430	7.8	0.18	45
628014	NC2	220.0	240.0			64.70	0.55	15.90	5.37	0.08	1.83	0.71	6.83	0.89	0.07	0.07	3.78	100.8	432	7.7	0.13	27
628015	NC2	240.0	261.5			62.30	0.58	16.00	5.78	0.15	2.50	1.30	6.53	0.75	0.09	0.04	3.06	99.1	426	8.1	0.16	29
628016	NC2	261.5	280.0			64.30	0.54	16.10	5.20	0.08	2.40	0.67	6.04	1.44	0.08	0.05	2.37	99.3	393	8.2	0.15	36
628017	NC2	280.0	287.0			67.60	0.44	14.70	4.45	0.06	1.99	0.67	4.91	1.74	0.06	0.08	2.41	99.1	365	7.2	0.14	40
628018	NC2	287.0	302.5			68.70	0.44	14.40	4.24	0.06	1.90	0.58	5.46	1.55	0.07	0.05	1.93	99.4	329	8.0	0.16	36
628019	NC2	302.5	322.2			69.00	0.57	13.50	5.48	0.09	2.68	0.60	5.16	1.06	0.08	0.06	2.05	100.3	254	13.6	0.14	39
628020	NC2	322.2	340.0			61.70	0.80	16.20	6.72	0.11	3.17	0.88	6.77	0.81	0.12	0.04	2.47	99.8	240	19.9	0.15	34
628021	NC2	340.0	360.0			61.10	0.88	16.30	7.32	0.12	3.68	0.89	7.07	0.41	0.12	0.04	2.43	100.4	226	23.4	0.14	34
628022	NC2	360.0	379.6			59.50	0.86	16.50	7.15	0.10	3.34	1.54	7.32	0.23	0.13	0.07	3.05	99.8	245	21.0	0.15	29
628023	NC2	379.6	381.9			44.50	1.45	15.10	10.12	0.23	6.32	8.78	2.04	1.77	0.20	0.09	8.69	99.3	161	54.2	0.14	43

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P9

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
628024	NC2	381.9	384.9			54.80	1.18	16.30	9.76	0.16	4.90	2.09	6.10	0.54	0.14	0.02	4.19	100.2	178	39.8	0.12	40
628025	NC2	384.9	386.6			46.60	1.48	15.70	9.70	0.21	7.82	8.05	1.83	1.26	0.20	0.09	7.82	100.8	153	57.9	0.14	48
628026	NC2	386.6	398.8			59.60	0.89	16.70	7.47	0.10	3.65	1.45	7.24	0.20	0.14	0.03	3.16	100.6	249	21.5	0.16	31
628027	NC2	398.8	409.5			60.20	0.82	15.30	7.53	0.11	3.34	1.86	6.35	0.32	0.12	0.10	3.21	99.3	223	22.0	0.15	31
628028	NC2	409.5	420.0			66.30	0.51	14.20	4.53	0.08	2.01	2.38	6.63	0.09	0.11	0.06	2.83	99.7	303	10.1	0.22	19
628029	NC2	420.0	429.8			61.10	0.73	16.00	6.79	0.09	2.98	2.26	6.32	0.43	0.13	0.03	3.36	100.2	275	15.8	0.18	28
628030	NC2	429.8	435.0			61.30	0.60	16.90	5.96	0.06	2.84	1.81	3.89	2.56	0.16	0.00	3.49	99.6	268	13.3	0.27	49
628032	NC2	435.0	441.1			62.50	0.55	15.30	5.82	0.06	2.85	2.22	2.38	3.18	0.15	0.02	4.15	99.2	241	13.8	0.27	57
628033	NC2	441.1	445.0			60.40	0.57	15.90	6.94	0.10	3.34	2.79	4.17	1.64	0.14	0.07	4.49	100.5	254	13.4	0.25	42
628034	NC2	445.0	450.0			60.80	0.57	16.00	5.81	0.07	2.61	3.18	3.25	2.84	0.16	0.00	4.54	99.8	255	13.4	0.28	46
628035	NC2	450.0	454.8			59.50	0.62	16.80	7.50	0.08	2.90	3.38	2.44	3.12	0.17	0.00	4.23	100.7	246	15.1	0.27	51
628036	NC2	454.8	457.1			63.30	0.57	15.70	4.02	0.07	2.38	3.24	1.76	3.54	0.15	0.00	4.64	99.4	251	13.6	0.26	54
628037	NC2	457.1	461.0			63.30	0.54	15.60	5.74	0.09	3.28	2.63	1.73	2.90	0.14	0.00	4.39	100.3	245	13.2	0.26	59
628038	NC2	461.0	465.0			61.50	0.64	15.40	5.90	0.11	2.94	3.67	2.11	2.63	0.19	0.06	4.79	99.9	238	16.2	0.30	49
628039	NC2	465.0	468.5			58.60	0.68	16.40	6.45	0.12	2.74	3.90	1.89	3.20	0.18	0.12	5.09	99.4	257	15.8	0.27	51
628040	NC2	468.5	472.0			54.10	0.99	16.10	9.17	0.17	3.77	5.10	2.49	2.04	0.25	0.06	6.76	101.0	202	29.4	0.25	43
628041	NC2	472.0	475.3			48.80	1.09	15.80	11.22	0.16	3.83	6.49	2.74	1.93	0.31	0.00	7.61	100.0	168	39.1	0.28	38
628042	NC2	475.3	478.0			38.10	0.70	11.20	7.68	0.15	1.89	19.64	1.25	2.49	0.16	0.01	17.31	100.6	110	38.3	0.23	17
628043	NC2	478.0	483.0			45.80	1.01	17.90	10.29	0.16	4.27	6.53	2.14	3.20	0.26	0.02	8.46	100.0	137	44.1	0.26	46
628044	NC2	483.0	486.0			37.10	0.75	14.20	9.30	0.14	2.06	16.71	1.74	3.42	0.23	0.01	15.41	101.1	95	47.0	0.31	23
628045	NC2	486.0	491.2			39.10	0.86	16.60	9.84	0.12	2.42	11.98	1.71	4.24	0.22	0.01	12.22	99.3	109	47.4	0.26	33
628046	NC2	491.2	495.0			61.20	1.04	15.10	7.45	0.06	4.00	1.64	0.03	3.12	0.15	0.29	5.53	99.6	292	21.4	0.14	81
628047	NC2	495.0	501.5			68.30	0.57	14.30	3.25	0.08	2.27	1.80	0.03	4.50	0.06	0.46	4.33	100.0	323	10.5	0.11	79
628051	NC3	0.0	20.0			71.50	0.50	13.30	3.87	0.08	1.03	0.29	2.89	3.71	0.07	0.05	1.90	99.2	258	11.6	0.14	60
628052	NC3	20.0	50.7			74.40	0.20	12.20	2.50	0.09	0.69	0.75	3.97	2.67	0.02	0.02	1.61	99.1	217	5.5	0.10	42
628053	NC3	50.7	62.7			73.60	0.45	12.20	3.67	0.04	0.86	0.18	1.45	4.60	0.05	0.05	1.82	99.0	281	9.6	0.11	77

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P10
Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
628054	NC3	62.7	74.0			72.20	0.54	12.20	4.26	0.07	1.08	0.48	0.89	4.54	0.06	0.07	2.57	99.0	316	10.2	0.11	80
628055	NC3	74.0	96.1			69.20	0.43	13.80	4.29	0.07	1.59	0.32	1.40	4.61	0.06	0.25	2.99	99.0	316	8.2	0.14	78
628056	NC3	96.1	117.5			60.40	0.52	15.60	5.27	0.18	2.76	2.00	6.40	0.78	0.09	0.56	4.55	99.1	387	8.1	0.17	30
628057	NC3	117.5	132.0			61.70	0.53	15.40	5.36	0.21	2.30	2.21	6.63	0.69	0.08	0.10	3.92	99.1	415	7.6	0.15	25
628058	NC3	132.0	148.0			60.80	0.53	15.50	5.69	0.20	2.37	2.51	5.94	1.03	0.09	0.08	4.45	99.2	399	8.0	0.17	29
628059	NC3	148.0	180.0			61.90	0.62	17.30	6.36	0.11	2.47	0.66	7.01	0.98	0.10	0.09	2.60	100.2	436	8.5	0.16	31
628060	NC3	180.0	205.0			66.10	0.48	15.30	5.18	0.06	1.89	0.46	6.16	1.02	0.08	0.09	2.11	98.9	386	7.5	0.17	31
628061	NC3	205.0	230.0			64.00	0.66	15.00	6.13	0.10	2.65	0.84	5.76	0.98	0.09	0.05	2.70	99.0	294	13.4	0.14	35
628062	NC3	230.0	260.0			64.00	0.65	14.50	6.14	0.13	3.01	1.21	4.79	1.31	0.08	0.12	3.38	99.3	276	14.1	0.12	42
628063	NC3	260.0	290.0			58.50	1.00	15.70	8.14	0.16	4.33	1.25	5.11	1.27	0.13	0.05	3.64	99.3	211	28.3	0.13	47
628064	NC3	290.0	320.0			57.00	0.98	15.70	8.51	0.16	4.86	1.23	5.27	1.31	0.12	0.05	3.79	99.0	191	30.6	0.12	49
628065	NC3	320.0	350.0			59.10	0.84	16.10	7.15	0.14	3.86	1.21	5.39	1.95	0.12	0.10	3.25	99.2	217	23.2	0.14	47
628066	NC3	350.0	361.2			59.00	0.86	15.40	7.39	0.15	3.96	1.92	5.61	0.54	0.12	0.06	4.19	99.2	216	23.8	0.14	37
628067	NC3	361.2	367.0			29.00	0.16	4.01	1.96	0.53	1.31	33.09	0.82	0.59	0.28	0.16	27.15	99.1	65	14.5	1.78	5
628068	NC3	367.0	373.0			23.50	0.15	4.08	1.73	0.59	1.38	35.84	0.95	0.52	0.21	0.11	29.82	98.9	53	17.0	1.40	5
628069	NC3	373.0	380.8			14.10	0.05	3.88	1.02	0.31	1.10	42.38	1.05	0.58	0.08	0.04	34.66	99.2	37	8.9	1.46	4
628070	NC3	380.8	387.5			21.00	0.13	5.31	1.19	0.28	0.75	37.55	2.44	0.19	0.07	0.14	30.11	99.2	86	8.8	0.56	2
628071	NC3	387.5	392.5			52.50	0.46	14.40	5.46	0.19	3.11	8.05	4.27	1.78	0.13	0.28	8.22	98.8	218	12.6	0.28	28
628072	NC3	392.5	395.3			63.60	0.52	11.30	5.01	0.14	2.67	4.89	3.48	1.12	0.41	0.52	5.39	99.0	127	24.4	0.79	31
628073	NC3	395.3	420.0			56.10	0.91	16.50	7.62	0.15	3.66	2.58	6.36	0.44	0.12	0.10	4.55	99.1	179	30.6	0.13	31
628074	NC3	420.0	445.5			54.30	0.89	16.40	9.04	0.17	5.37	1.64	5.00	1.25	0.14	0.20	4.70	99.1	171	31.2	0.16	50
628075	NC3	445.5	456.9			57.90	0.71	14.30	6.60	0.15	3.54	4.40	5.19	0.68	0.11	0.10	5.65	99.3	193	22.0	0.16	31
628076	NC3	456.9	463.9			58.60	0.50	15.50	5.75	0.11	2.74	3.75	4.39	1.86	0.11	0.11	5.60	99.0	315	9.5	0.22	36
628077	NC3	463.9	465.4			62.80	0.21	12.60	3.68	0.14	1.74	6.09	4.64	0.91	0.03	0.12	6.15	99.1	132	9.5	0.14	20
628078	NC3	465.4	469.5			56.70	0.39	13.40	4.70	0.13	2.07	7.92	4.21	1.42	0.10	0.14	8.02	99.2	254	9.2	0.26	22
628079	NC3	469.5	473.2			41.40	0.27	9.09	4.19	0.23	1.76	20.66	2.92	0.74	0.23	0.20	17.25	98.9	146	11.1	0.85	10
628080	NC3	473.2	476.5			55.80	0.30	11.70	4.50	0.15	1.78	10.12	3.83	1.04	0.12	0.22	9.44	99.0	225	8.0	0.40	17

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P11

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
628082	NC3	476.5	480.0			50.90	0.32	11.90	4.80	0.16	2.01	12.54	3.51	1.40	0.18	0.17	11.33	99.2	204	9.5	0.56	18
628083	NC3	480.0	483.0			67.60	0.31	13.30	4.01	0.08	1.52	2.34	5.08	1.18	0.05	0.41	2.91	98.8	309	6.0	0.16	27
628084	NC3	483.0	487.3			67.90	0.38	15.20	3.82	0.04	1.47	1.04	4.58	2.17	0.06	0.12	2.66	99.4	373	6.1	0.16	39
628085	NC3	487.3	494.6			56.40	0.37	13.40	4.79	0.14	2.19	7.84	3.35	2.12	0.09	0.13	8.13	98.9	306	7.2	0.25	28
628086	NC3	494.6	500.8			59.10	0.37	13.90	4.12	0.11	2.03	6.23	2.86	2.92	0.06	0.30	7.44	99.4	316	7.0	0.16	35
628087	NC3	500.8	505.0			41.90	0.32	11.50	3.79	0.18	1.91	18.43	2.66	2.03	0.10	0.23	15.99	99.0	205	9.3	0.31	16
628088	NC3	505.0	509.8			40.30	0.29	10.40	3.70	0.23	1.91	20.12	2.62	1.63	0.09	0.27	17.14	98.7	178	9.6	0.32	13
628089	NC3	509.8	513.6			64.70	0.33	13.30	4.01	0.09	2.03	3.06	2.75	3.16	0.07	0.19	5.19	98.9	299	6.6	0.21	47
628090	NC3	513.6	517.7			41.20	0.15	5.96	1.58	0.37	0.52	25.51	2.78	0.37	0.17	0.22	20.05	98.9	102	9.0	1.10	3
628091	NC3	517.7	521.5			26.50	0.18	5.32	2.12	0.48	1.08	33.82	1.31	0.78	0.30	0.20	26.80	98.9	104	10.7	1.62	5
628092	NC3	521.5	526.1			18.20	0.14	3.12	1.22	0.51	0.76	40.73	0.78	0.43	0.29	0.14	32.76	99.1	45	19.0	2.04	3
628093	NC3	526.1	529.2			64.60	0.35	14.70	4.47	0.06	2.62	2.37	2.26	3.23	0.04	0.14	4.39	99.2	328	6.4	0.11	56
628094	NC3	529.2	546.5			17.90	0.12	4.00	1.26	0.49	0.81	39.93	1.38	0.40	0.19	0.11	32.25	98.8	52	13.7	1.60	3
628095	NC3	546.5	553.2			4.70	0.03	0.98	0.57	0.24	0.52	51.46	0.51	0.10	0.09	0.02	40.78	100.0	13	13.6	3.05	1
628096	NC3	553.2	562.0			25.70	0.15	5.93	1.41	0.49	0.88	33.72	2.43	0.46	0.17	0.18	27.17	98.7	77	11.9	1.11	4
628097	NC3	562.0	572.7			13.90	0.11	2.69	1.29	0.72	0.79	43.30	0.68	0.39	0.32	0.13	34.55	98.9	40	16.4	2.92	3
628098	NC3	572.7	582.0			30.00	0.14	7.43	1.04	0.25	0.60	30.89	3.66	0.28	0.08	0.09	24.69	99.2	92	9.1	0.57	2
628099	NC3	582.0	590.2			39.20	0.38	12.70	3.72	0.14	1.89	19.11	3.59	1.88	0.10	0.30	15.85	98.9	275	8.4	0.26	14
628100	NC3	590.2	600.5			39.80	0.36	12.10	3.43	0.18	1.74	18.68	2.80	2.37	0.09	0.40	15.83	97.8	260	8.2	0.25	16
628101	NC3	600.5	607.0			47.40	0.44	14.20	5.35	0.16	2.66	11.35	2.92	2.66	0.12	0.63	10.37	98.3	299	8.8	0.27	27
628102	NC3	607.0	613.8			46.40	0.48	14.50	5.84	0.15	2.86	11.74	3.25	2.37	0.14	0.50	10.56	98.8	322	9.0	0.29	26
628103	NC3	613.8	618.3			41.20	0.30	11.20	2.60	0.17	1.45	20.16	4.22	1.02	0.08	0.31	16.38	99.1	223	8.0	0.27	9
628104	NC3	618.3	621.0			49.20	0.26	11.30	1.72	0.23	0.99	16.00	5.16	0.77	0.06	0.22	13.47	99.4	178	8.7	0.23	8
628105	NC3	621.0	624.7			38.90	0.42	12.00	4.79	0.24	2.44	18.46	3.68	1.24	0.14	0.22	16.53	99.1	188	13.3	0.34	14
628106	NC3	624.7	631.0			56.40	0.43	12.30	4.79	0.24	4.75	6.03	3.26	1.52	0.08	0.17	8.80	98.8	144	18.0	0.18	40
628107	NC3	631.0	636.0			60.10	0.37	15.50	4.15	0.17	3.80	2.93	4.11	2.32	0.05	0.20	5.70	99.4	317	6.9	0.14	47
628108	NC3	636.0	638.2			64.20	0.23	15.30	3.79	0.08	2.51	1.88	4.37	2.31	0.03	0.31	3.74	98.7	223	6.2	0.13	44

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P12

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
628109	NC3	638.2	640.0			65.20	0.31	9.75	3.82	0.26	3.58	5.11	3.93	0.39	0.05	0.35	6.76	99.5	115	16.3	0.16	31
628110	NC3	640.0	642.2			66.80	0.14	9.19	3.07	0.22	4.06	4.51	2.53	0.76	0.02	0.33	7.12	98.7	121	6.9	0.14	41
628111	NC3	642.2	644.6			62.50	0.43	13.20	4.91	0.17	4.08	2.93	3.80	1.16	0.06	0.20	5.63	99.1	249	10.4	0.14	44
628113	NC3	644.6	646.8			68.50	0.17	10.90	3.68	0.17	2.47	3.96	2.54	1.58	0.02	0.28	4.89	99.2	167	6.0	0.12	38
628114	NC3	646.8	652.7			63.40	0.33	16.20	4.10	0.08	3.17	1.04	1.87	4.95	0.05	0.11	3.80	99.1	339	5.9	0.15	74
628115	NC3	652.7	655.6			61.80	0.34	15.70	4.26	0.11	2.97	2.31	2.36	3.75	0.03	0.27	4.92	98.8	271	7.6	0.09	59
628116	NC3	655.6	666.8			60.40	0.44	13.20	5.62	0.19	3.53	3.69	1.42	2.90	0.38	0.92	6.16	98.9	175	15.1	0.86	56
628117	NC3	666.8	676.8			50.40	0.98	16.90	9.93	0.22	5.80	3.58	5.16	0.42	0.14	0.05	6.28	99.9	151	38.8	0.14	42
628118	NC3	676.8	687.9			61.90	0.46	13.80	5.67	0.12	3.14	3.68	0.54	3.16	0.28	0.38	6.22	99.3	174	15.8	0.61	60
628119	NC3	687.9	696.5			66.20	0.40	13.60	4.06	0.12	4.06	1.28	3.27	1.64	0.06	0.17	3.97	98.8	258	9.4	0.15	56
628120	NC3	696.5	704.0			51.10	0.32	13.30	3.92	0.22	3.39	11.27	1.42	2.49	0.07	0.10	12.06	99.7	287	6.7	0.22	32
628121	NC3	704.0	711.5			50.80	0.40	15.20	5.51	0.19	3.95	8.38	2.68	2.39	0.08	0.05	9.89	99.5	310	7.6	0.20	36
628122	NC3	711.5	720.0			37.30	0.18	6.25	4.33	0.58	8.16	18.91	0.93	0.54	0.09	0.10	22.65	100.0	108	9.9	0.50	30
628123	NC3	720.0	729.0			46.90	0.27	11.00	2.91	0.38	6.68	12.05	1.26	2.23	0.13	0.06	16.58	100.4	180	8.8	0.49	40
628124	NC3	729.0	734.9			25.90	0.27	7.00	3.86	0.49	6.96	25.77	0.23	1.51	0.10	0.14	27.31	99.5	146	11.2	0.37	25
628125	NC3	734.9	754.3			4.08	0.04	0.98	1.83	0.80	18.01	29.82	0.15	0.16	0.14	0.04	43.73	99.8	11	20.5	3.71	38
628126	NC3	754.3	758.8			8.81	0.13	2.22	2.05	0.74	16.93	27.51	0.03	0.46	0.09	0.05	40.64	99.7	31	25.6	0.68	39
628127	NC3	758.8	790.0			62.00	0.56	18.90	4.74	0.04	2.15	1.13	0.09	5.43	0.07	0.21	4.67	100.0	288	11.6	0.13	86
628128	NC3	790.0	805.5			64.90	0.51	16.30	4.87	0.05	1.76	1.51	0.03	4.69	0.08	0.36	4.58	99.6	284	10.7	0.16	81
628129	NC3	805.5	825.0			62.70	0.48	17.20	4.53	0.03	1.79	2.13	0.07	5.00	0.08	0.34	4.77	99.1	253	11.4	0.17	76
628130	NC3	825.0	865.0			62.70	0.50	17.10	4.53	0.03	1.77	1.84	0.09	4.82	0.07	0.38	4.53	98.4	263	11.3	0.14	77
628131	NC3	865.0	905.0			64.90	0.50	16.90	4.60	0.04	1.84	1.77	0.09	4.53	0.08	0.25	4.33	99.8	279	10.8	0.16	77
628132	NC3	905.0	945.0			76.40	0.47	10.60	3.20	0.03	1.21	0.93	0.03	3.05	0.04	0.22	2.78	99.0	328	8.7	0.08	82
628133	NC3	945.0	985.0			72.50	0.48	11.80	3.39	0.04	1.37	1.59	0.06	3.42	0.06	0.30	3.52	98.5	320	9.0	0.13	74
628134	NC3	985.0	1025.0			68.50	0.45	13.30	3.86	0.03	1.52	1.81	0.10	3.85	0.05	0.21	4.07	97.7	281	9.6	0.11	74
628135	NC3	1025.0	1065.0			63.60	0.47	15.10	4.23	0.05	1.75	3.28	0.03	4.44	0.06	0.31	5.50	98.8	251	11.3	0.13	65
628136	NC3	1065.0	1081.0			73.40	0.46	11.20	3.31	0.05	1.48	2.01	0.03	3.19	0.05	0.24	3.83	99.3	314	8.9	0.11	70

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P13

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
625551	NC4	0.0	17.4			69.10	0.50	14.10	5.01	0.05	1.95	0.16	5.20	0.99	0.07	0.03	2.39	99.6	307	9.8	0.14	35
625552	NC4	17.4	28.5			69.50	0.51	14.20	5.05	0.05	1.95	0.16	5.25	1.00	0.07	0.03	2.56	100.3	218	14.0	0.14	35
625553	NC4	28.5	42.4			60.10	0.94	16.70	7.55	0.11	3.37	0.29	6.48	1.13	0.12	0.07	2.54	99.4	213	26.5	0.13	40
625554	NC4	42.4	55.0			59.50	0.86	16.10	7.91	0.15	3.48	0.82	6.08	1.82	0.11	0.02	2.36	99.2	214	24.1	0.13	43
625555	NC4	55.0	70.0			60.70	0.96	16.20	8.08	0.14	3.01	0.97	6.64	1.18	0.13	0.05	2.35	100.4	212	27.1	0.14	36
625556	NC4	70.0	80.0			58.60	1.00	16.50	8.38	0.15	3.05	1.23	7.20	0.82	0.13	0.07	2.06	99.2	220	27.2	0.13	31
625557	NC4	80.0	95.0			58.10	0.93	16.20	8.24	0.13	3.39	2.34	6.95	0.58	0.12	0.07	2.84	99.9	204	27.3	0.13	30
625558	NC4	95.0	108.4			58.90	0.89	16.30	7.32	0.15	3.46	2.70	6.14	0.69	0.12	0.02	3.16	99.9	209	25.5	0.13	32
625559	NC4	108.4	115.5			63.70	0.37	14.70	4.52	0.11	2.48	3.52	1.49	3.67	0.07	0.10	5.13	99.9	310	7.2	0.19	55
625560	NC4	115.5	123.7			47.50	0.41	12.80	5.58	0.23	1.78	13.83	2.15	2.45	0.18	0.09	12.63	99.6	152	16.2	0.44	21
625561	NC4	123.7	130.6			52.60	0.38	13.80	4.76	0.16	2.24	10.60	1.37	3.36	0.11	0.13	10.45	100.0	230	9.9	0.29	32
625562	NC4	130.6	137.0			56.40	0.62	16.90	5.42	0.13	2.00	5.32	3.63	2.56	0.19	0.56	5.10	98.8	224	16.6	0.31	34
625563	NC4	137.0	143.3			58.80	0.68	18.00	6.43	0.08	2.07	3.22	5.31	1.43	0.18	0.26	3.31	99.8	261	15.6	0.26	29
625564	NC4	143.3	147.0			56.20	0.57	16.50	5.93	0.09	2.45	5.53	3.59	2.19	0.15	0.54	5.23	99.0	253	13.5	0.26	34
625565	NC4	147.0	150.0			60.30	0.53	15.00	6.20	0.07	2.48	3.77	1.62	3.21	0.12	0.60	3.76	97.7	235	13.5	0.23	51
625566	NC4	150.0	156.0			62.80	0.51	14.00	6.09	0.07	2.25	3.43	1.65	2.82	0.13	0.88	2.82	97.4	208	14.7	0.25	50
625567	NC4	156.0	162.0			62.30	0.48	12.40	5.35	0.09	2.06	5.50	1.76	2.43	0.15	0.75	4.14	97.4	182	15.8	0.31	38
625568	NC4	162.0	166.0			58.80	0.62	15.80	6.65	0.11	2.52	4.14	2.71	2.75	0.19	0.46	4.15	98.9	218	17.1	0.31	43
625569	NC4	166.0	176.0			54.10	0.91	16.50	8.74	0.21	4.48	4.19	5.13	0.48	0.14	0.09	4.81	99.8	170	32.1	0.15	35
625570	NC4	176.0	184.0			55.40	0.83	16.80	8.57	0.22	3.85	3.24	5.89	0.67	0.14	0.07	3.89	99.6	189	26.3	0.17	33
625571	NC4	184.0	188.0			19.90	0.15	4.15	2.26	0.36	0.62	39.21	1.92	0.28	0.11	0.01	31.01	100.0	63	14.3	0.73	2
625572	NC4	188.0	192.0			13.10	0.14	3.32	1.67	0.41	0.81	43.52	0.87	0.53	0.15	0.03	35.21	99.8	37	22.7	1.07	3
625573	NC4	192.0	198.0			52.10	1.03	17.20	10.69	0.29	3.75	3.29	0.98	4.15	0.32	0.00	5.93	99.7	164	37.7	0.31	65
625574	NC4	198.0	204.0			55.10	1.30	17.80	8.09	0.33	2.19	3.07	1.93	4.07	0.36	0.02	4.99	99.2	180	43.3	0.28	56
625575	NC4	204.0	210.0			53.70	1.34	18.50	9.04	0.61	2.18	2.38	1.42	4.46	0.36	0.05	5.12	99.2	190	42.3	0.27	64
625576	NC4	210.0	216.0			49.00	1.28	17.70	10.35	2.51	1.96	2.54	0.11	5.57	0.36	0.17	7.52	99.1	177	43.4	0.28	74

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P14
Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
625577	NC4	216.0	221.4			51.20	1.34	19.00	10.46	0.51	1.78	1.38	0.19	6.42	0.37	0.27	4.42	97.3	189	42.5	0.28	84
625578	NC4	221.4	230.0			50.00	1.24	17.70	9.92	2.15	2.20	2.99	0.56	5.02	0.41	0.16	7.20	99.5	177	42.0	0.33	67
625579	NC4	230.0	240.0			48.30	1.18	17.10	12.31	1.34	2.53	3.72	0.65	4.18	0.36	0.12	7.43	99.2	180	39.3	0.31	61
625580	NC4	240.0	250.0			58.90	0.73	16.80	6.83	0.52	1.92	2.52	0.79	4.53	0.22	0.21	5.11	99.1	249	17.6	0.30	66
625582	NC4	250.0	260.0			63.40	0.53	15.00	4.81	0.51	1.48	3.35	0.38	4.31	0.14	0.05	5.46	99.4	233	13.6	0.26	61
625583	NC4	260.0	270.0			62.00	0.54	15.90	5.29	0.47	1.44	3.33	0.43	4.55	0.15	0.05	5.47	99.6	250	12.9	0.28	61
625584	NC4	270.0	280.0			60.80	0.61	16.10	5.27	0.66	1.21	3.15	0.11	5.10	0.16	0.16	5.62	98.9	235	15.6	0.26	66
625585	NC4	280.0	286.0			62.20	0.56	16.00	6.09	0.66	1.37	1.93	0.03	5.08	0.15	0.13	4.92	99.1	254	13.2	0.27	77
625586	NC4	286.0	292.0			62.30	0.74	16.80	4.92	0.39	1.13	1.61	0.12	5.77	0.22	0.59	4.29	98.9	251	17.7	0.30	80
625587	NC4	292.0	294.0			59.30	0.85	17.00	6.06	0.65	1.25	1.43	0.03	6.10	0.23	0.54	4.70	98.1	234	21.8	0.27	83
625588	NC4	294.0	296.0			61.90	0.50	13.70	5.23	0.94	1.16	2.53	0.49	4.93	0.14	0.64	4.67	96.8	201	14.9	0.28	67
625589	NC4	296.0	302.0			63.30	0.51	14.70	4.76	0.83	1.08	1.39	0.08	5.32	0.14	0.34	4.86	97.3	231	13.2	0.27	81
625590	NC4	302.0	308.0			62.50	0.57	15.60	5.57	0.89	1.26	1.44	0.07	5.61	0.15	0.19	5.43	99.3	218	15.7	0.26	82
625591	NC4	308.0	318.4			65.70	0.50	14.50	5.51	0.66	1.25	1.28	0.03	5.09	0.14	0.06	4.85	99.6	229	13.1	0.28	83
625592	NC4A	303.0	313.0			62.40	0.57	15.20	5.69	0.90	1.27	1.00	0.03	5.48	0.15	0.12	5.27	98.1	226	15.1	0.27	87
625593	NC4A	313.0	323.0			64.50	0.53	14.80	5.68	0.67	1.32	1.40	0.03	5.21	0.15	0.05	5.05	99.4	230	13.8	0.28	82
625594	NC4A	323.0	333.0			65.30	0.56	14.50	5.29	0.49	1.18	1.80	0.03	5.05	0.14	0.19	4.71	99.2	225	14.9	0.24	77
625595	NC4A	333.0	343.0			66.20	0.51	15.10	4.72	0.35	1.07	1.40	0.03	5.26	0.14	0.03	4.36	99.2	242	12.6	0.28	82
625596	NC4A	343.0	353.0			65.60	0.52	15.20	4.97	0.27	1.08	2.10	0.03	5.08	0.14	0.04	4.51	99.5	248	12.6	0.27	74
625597	NC4A	353.0	360.0			64.10	0.56	15.90	5.60	0.41	1.25	1.00	0.03	5.36	0.15	0.05	4.43	98.8	253	13.3	0.27	87
625598	NC4A	360.0	365.0			51.50	1.05	18.20	9.36	1.21	1.60	1.50	0.06	6.49	0.25	0.26	7.34	98.8	148	42.5	0.24	84
625599	NC4A	365.0	370.0			64.60	0.56	16.20	5.07	0.52	1.17	0.60	0.03	5.76	0.15	0.10	4.64	99.4	255	13.2	0.27	92
625600	NC4A	370.0	372.4			53.60	0.77	21.70	5.44	0.77	1.53	1.00	0.03	7.92	0.20	0.08	5.84	98.9	326	14.2	0.27	90
629272	NC4A	372.4	372.8			59.90	0.79	22.10	3.29	0.14	1.20	0.36	0.07	7.98	0.20	0.15	3.75	99.9	322	14.7	0.25	96
629273	NC4A	372.8	373.5			55.80	0.85	23.60	4.25	0.26	1.35	0.48	0.10	8.49	0.22	0.37	4.30	100.1	341	14.9	0.26	94
629274	NC4A	373.5	374.0			77.40	0.31	8.98	4.78	0.42	0.89	0.22	0.03	3.09	0.04	0.72	3.28	100.2	97	19.4	0.14	94
629275	NC4A	374.0	375.0			73.20	0.41	11.70	4.81	0.33	0.96	0.14	0.03	4.05	0.05	0.69	3.61	100.0	118	20.8	0.12	97

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P15

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
629276	NC4A	375.0	376.0			70.00	0.49	14.20	4.42	0.23	1.00	0.21	0.03	5.07	0.07	0.81	3.56	100.1	177	16.6	0.14	96
629277	NC4A	376.0	376.5			52.30	0.86	25.00	4.68	0.22	1.48	0.43	0.07	9.06	0.25	0.73	4.47	99.5	344	15.0	0.29	95
629278	NC4A	376.5	376.8			67.40	0.58	15.70	3.86	0.21	0.98	0.80	0.06	5.69	0.14	0.75	3.45	99.6	216	16.1	0.24	89
629279	NC4A	376.8	377.1			68.20	0.49	14.20	4.27	0.37	0.99	1.26	0.07	5.16	0.14	0.79	3.68	99.6	207	14.2	0.28	82
629280	NC4A	377.1	378.0			51.30	0.62	17.90	6.15	1.59	2.10	3.89	0.12	6.57	0.18	0.22	8.61	99.2	262	14.2	0.29	68
629281	NC4A	378.0	378.6			76.00	0.30	8.37	5.69	0.58	1.00	1.10	0.03	2.85	0.04	0.62	3.38	100.0	108	16.7	0.13	77
625426	NC4A	378.6	381.0			58.00	0.74	17.40	5.94	0.84	1.44	2.10	0.03	6.39	0.22	0.00	6.16	99.3	298	14.9	0.30	79
625427	NC4A	381.0	384.0			67.80	0.52	14.40	4.48	0.42	1.08	1.12	0.03	5.33	0.14	0.24	3.84	99.4	255	12.2	0.26	85
625428	NC4A	384.0	386.0			64.10	0.61	16.90	4.51	0.33	0.94	1.10	0.17	6.55	0.15	0.56	3.58	99.5	283	12.9	0.24	86
625429	NC4A	386.0	389.0			69.20	0.43	11.60	5.21	0.67	0.69	1.73	0.22	5.46	0.11	0.04	3.94	99.3	197	13.1	0.25	76
625430	NC4A	389.0	392.0			68.60	0.47	12.80	5.55	0.70	0.77	1.20	0.09	6.05	0.12	0.29	3.56	100.2	220	12.8	0.26	84
625431	NC4A	392.0	395.0			69.10	0.44	12.40	5.06	0.61	0.72	1.34	0.03	5.86	0.11	0.49	3.19	99.4	210	12.6	0.26	83
625432	NC4A	395.0	398.0			67.10	0.48	13.00	5.34	0.75	0.88	1.90	0.03	6.02	0.13	0.00	3.96	99.6	214	13.4	0.27	78
625433	NC4A	398.0	404.0			68.20	0.51	13.40	4.24	0.48	0.63	1.30	0.10	7.11	0.13	0.00	3.23	99.3	227	13.5	0.25	85
625434	NC4A	404.0	410.0			64.40	0.56	14.90	4.81	0.53	0.84	1.60	0.21	7.28	0.14	0.00	4.25	99.5	243	13.8	0.25	82
625435	NC4A	410.0	420.0			65.50	0.55	14.60	4.44	0.53	0.75	1.56	0.28	6.93	0.14	0.00	3.97	99.3	258	12.8	0.25	81
625436	NC4A	420.0	430.0			67.70	0.50	13.40	4.08	0.50	0.54	1.60	0.13	7.44	0.13	0.00	3.46	99.5	228	13.1	0.26	82
625438	NC4A	430.0	440.0			65.40	0.53	14.70	4.50	0.49	0.76	1.70	0.10	7.04	0.14	0.00	3.82	99.2	244	13.0	0.26	81
625439	NC4A	440.0	446.0			66.20	0.60	15.40	5.33	0.34	0.98	0.83	0.03	5.54	0.15	0.00	4.13	99.5	251	14.3	0.25	88
625440	NC4A	446.0	449.0			60.80	0.70	16.50	6.70	0.54	1.07	1.50	0.03	5.89	0.18	1.15	4.32	99.4	209	20.1	0.26	82
625441	NC4A	449.0	452.0			59.90	0.74	17.30	6.62	0.75	1.17	1.30	0.03	6.14	0.19	0.12	5.11	99.4	233	19.0	0.26	85
625442	NC4A	452.0	462.0			63.70	0.58	15.00	5.09	0.34	0.98	3.10	0.03	5.17	0.14	0.25	5.16	99.5	248	14.0	0.24	66
625443	NC4A	462.0	472.0			61.00	0.55	15.80	5.18	0.35	1.01	3.90	0.03	5.35	0.15	0.00	6.26	99.6	264	12.5	0.27	62
625444	NC4A	472.0	478.0			62.90	0.60	15.30	5.84	0.53	1.00	1.90	0.03	5.78	0.16	1.10	4.42	99.6	275	13.1	0.26	78
625445	NC4A	478.0	484.0			62.20	0.64	15.20	5.58	0.68	0.94	2.00	0.09	6.36	0.19	0.00	5.11	99.0	251	15.3	0.29	78
625446	NC4A	484.0	490.0			68.10	0.50	14.20	4.17	0.44	0.55	0.80	0.30	7.31	0.13	0.37	2.71	99.6	247	12.1	0.25	88
625447	NC4A	490.0	493.0			64.40	0.49	14.00	4.16	0.67	0.50	2.60	0.16	8.18	0.12	0.17	3.86	99.3	238	12.3	0.26	76

Appendix II-j **Aberfoyle - Newton Creek Wholerock Geochem. 419 coregrind samples** (SHAppII-j) 29 October, 1996 P16

Sorted by Sample Number

SAMPLE	Hole	From	To	Description	Fmn Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
						%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	calc	calc	calc
625448	NC4A	493.0	496.0			59.80	0.51	14.60	7.02	1.06	0.51	1.20	0.21	9.68	0.13	0.31	4.57	99.6	249	12.3	0.26	88
625449	NC4A	496.0	499.0			60.90	0.53	14.80	5.67	1.12	0.60	1.20	0.12	9.59	0.14	1.24	3.97	99.9	260	12.2	0.26	89
625450	NC4A	499.0	502.0			61.20	0.50	14.10	5.81	1.21	0.57	1.40	0.13	9.29	0.13	1.09	3.85	99.3	250	12.0	0.26	87
625451	NC4A	502.0	505.0			60.40	0.51	14.40	5.82	1.53	0.53	1.20	0.20	9.59	0.13	1.38	4.16	99.8	254	12.0	0.25	88
625452	NC4A	505.0	508.0			61.40	0.50	14.60	5.04	1.32	0.57	0.87	0.19	9.88	0.13	0.55	3.69	98.7	246	12.2	0.27	91
625453	NC4A	508.0	514.0			63.80	0.49	14.10	4.38	1.22	0.50	1.42	0.15	9.46	0.13	0.00	3.64	99.3	238	12.3	0.26	86
625454	NC4A	514.0	520.0			65.20	0.47	13.60	4.34	0.84	0.46	2.29	0.12	8.28	0.12	0.00	3.56	99.3	229	12.3	0.26	78
625455	NC4A	520.0	526.0			67.20	0.46	12.90	5.04	0.82	0.50	1.17	0.08	7.88	0.12	0.12	3.23	99.5	224	12.3	0.26	87
625456	NC4A	526.0	529.0			68.20	0.47	13.30	4.81	0.67	0.56	0.77	0.03	7.02	0.12	0.50	2.73	99.2	230	12.3	0.25	90
625457	NC4A	529.0	532.0			56.50	0.74	16.00	6.91	2.16	1.00	1.34	0.06	7.39	0.16	0.82	5.42	98.5	219	20.3	0.22	86
625458	NC4A	532.0	535.0			57.00	0.95	17.40	6.50	1.84	1.18	1.10	0.03	7.09	0.22	0.36	5.79	99.5	188	30.3	0.23	88
625459	NC4A	535.0	538.0			55.80	0.85	16.50	6.12	1.97	1.12	2.20	0.15	7.36	0.21	0.48	5.96	98.7	182	28.0	0.25	78
625460	NC4A	538.0	541.0			60.20	0.81	15.90	4.75	1.53	0.91	1.12	0.19	7.63	0.20	0.80	4.25	98.3	198	24.5	0.25	87
625461	NC4A	541.0	544.0			55.80	0.82	15.30	5.79	2.11	0.88	3.52	0.45	7.53	0.22	0.39	6.58	99.4	165	29.8	0.27	68
625462	NC4A	544.0	550.0			58.20	0.84	16.10	7.03	1.16	1.03	1.63	0.23	6.90	0.19	0.55	5.51	99.4	199	25.3	0.22	81
625463	NC4A	550.0	556.0			58.80	0.90	16.60	6.14	0.93	0.91	1.48	0.26	8.00	0.22	0.41	4.80	99.4	179	30.1	0.25	84
625464	NC4A	556.0	562.0			58.40	0.82	15.50	7.19	1.04	0.86	1.14	0.45	7.58	0.20	1.67	4.64	99.5	177	27.8	0.24	84
625465	NC4A	562.0	568.0			59.50	0.73	15.00	7.73	0.85	0.91	1.40	0.26	6.99	0.13	1.89	4.73	100.1	198	22.1	0.18	83
625466	NC4A	568.0	577.0			63.80	0.63	15.20	4.66	0.61	0.74	1.77	0.28	7.33	0.17	0.00	4.38	99.6	228	16.6	0.28	80

APPENDIX III

Immobile trace elements in identification of altered rocks and mass change calculations.

III-a Introduction to the use of immobile trace elements

It has been shown that some components of hydrothermally altered volcanic rocks, notably Al_2O_3, TiO_2 and the high field strength elements (HFSE) Zr, Nb & Y, may be chemically immobile during hydrothermal, metamorphic and weathering alteration processes, (Winchester and Floyd, 1977, and Finlow-Bates and Stumpfl, 1981).
Immobile components, therefore, have applications in identifying the magmatic affinities of otherwise unrecognisable altered rocks in which concentrations of mobile components may have been substantially modified, and in quantitative estimation of such chemical mass changes due to alteration (eg: MacLean and Kranidiotis, 1987; Barrett et al., 1993; MacLean and Barrett, 1993).

MacLean and Barrett (1993) recommended that element mobility in a system should be tested (rather than assumed) on variably altered and fresh samples, preferably from an identifiable volcanic unit that was traceable through an alteration zone. In such "single precursor" systems, X-Y scatter plots of immobile element pairs will form highly correlated (r=0.90 to 0.99) linear trends - "alteration lines" - due to mass gains and losses of mobile components in the altered zones of the rock unit. Calculated linear regression lines ideally pass through the origin of the plot (representing infinite mass gain) with positions between the origin and the (unaltered) precursor composition representing net mass gain (immobile element dilution by addition of mobile components) and those at values higher than the precursor composition representing net mass loss (Figure 1, from MacLean and Barrett, 1993).

Scatter plots of immobile incompatible-incompatible element pairs such as Zr-Y and Zr-Nb can be used to identify rocks of different magmatic fractionation series within a volcanic sample set; they produce separate linear trends of magmatic enrichment which pass through the origin and are coincident with their respective alteration lines, (Figure 3, from MacLean and Barrett, 1993). On the other hand, plots of immobile compatible-incompatible pairs (eg. TiO_2-Zr) and compatible-compatible pairs (eg. Al_2O_3-TiO_2) produce separate alteration lines for each chemically distinct rock unit and are useful for discrimination and correlation of individual homogenous volcanic units within and through alteration zones (Figure 5, from MacLean and Barrett, 1993).

Recent studies of altered volcanics at the Thalanga massive sulphide deposit in the Mt Windsor Volcanics, North Queensland (Herrmann, 1994) and the Mt Read Volcanics, Tasmania (Crawford, 1990 and Crawford et al., 1992) have shown that Zr, TiO_2, P_2O_5 and Al_2O_3 are the most reliably "immobile" components. Nb and Y have relatively low abundance levels and low primary ranges in typical calcalkaline lavas and have not proven useful for diagnostic geochemistry.

In practice, it has been found that TiO_2-Zr and P_2O_5/TiO_2-SiO_2 scatterplots and the ratios Ti/Zr and P_2O_5/TiO_2 are most useful for discriminating various volcanic rock units and compositional groupings. Interpretation of the volcanic stratigraphy and alteration styles at South Henty EL 8/96 has been greatly facilitated by the large database of existing major and immobile trace element analyses available from previous exploration programmes (Appendix II).

In cases where the pre alteration (precursor) composition of an altered rock can be inferred, from mapping or the existence of highly correlated linear trends including altered and least altered samples, it is possible to estimate the mass changes which occurred during alteration, for each mobile component, using calculations based on the dilution or concentration of an immobile component, such as Zr.
Calculated mass changes offer a means of discriminating alteration styles and delineating zones of different intensity of alteration which could provide vectors to ore and set exploration priorities (Barrett and MacLean, 1994).

Mass changes for each mobile component (using Zr as the immobile monitor) are calculated as:

$$\text{Mass Change (g/100g)} = [Zr_{precursor} / Zr_{altered} \times \%\ component_{altered}] - \%\ component_{precursor}$$

(after: MacLean and Barrett, 1993)

These calculations can be made either for individual precursor & altered sample pairs or (as most commonly adopted in this investigation) by comparisons of "average" compositions from a set of *least altered precursors* with "average" compositions of a particular type of *altered* rocks from the same or magmatically related volcanic unit.

The calculated mass changes are expressed in the unit: g/100g (interchangeable with weight% but not to be confused with the chemical "concentration") for each of the twelve major components of wholerock analyses (SiO_2 to P_2O_5 , S and LOI).

Components which are expected to be immobile (eg: TiO_2 and Al_2O_3) should have very low calculated mass changes. Small Al_2O_3 changes may be due to variations in feldspar phenocryst abundance but significant mass changes in Al_2O_3 (say >1%) should trigger suspicions that the precursor composition is inappropriate.

The sum of individual component mass changes represents the net mass change due to alteration. Large mass changes have implications for gross volume change (MacLean and Barrett, 1993) although considerable mass gains can be accommodated as void fillings in volcaniclastic, pumiceous or amygdaloidal volcanics.

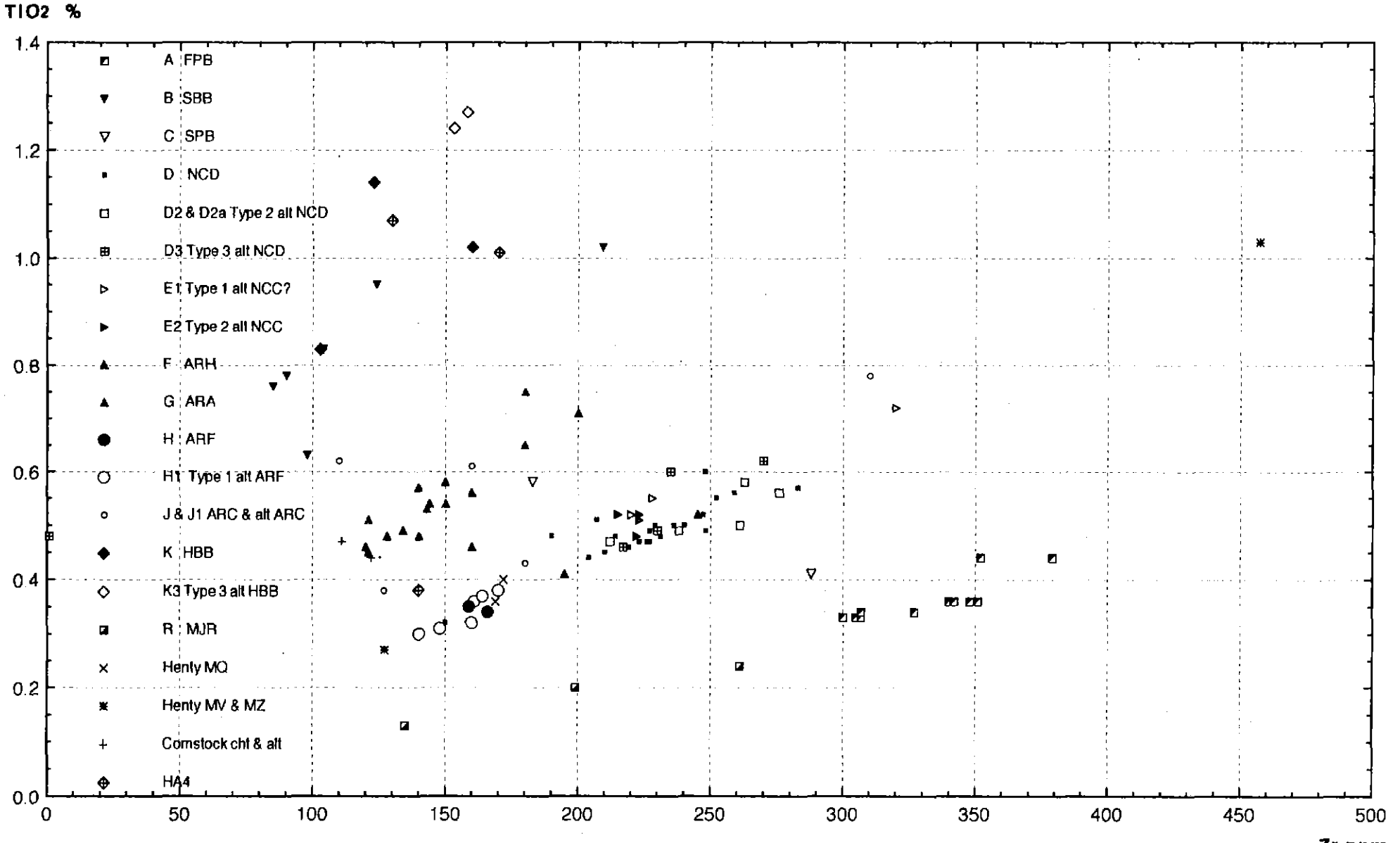


Figure 21 TiO2 - Zr scatterplot of 104 analyses from App.II-b and 6 Henty & Comstock analyses from App.II-e

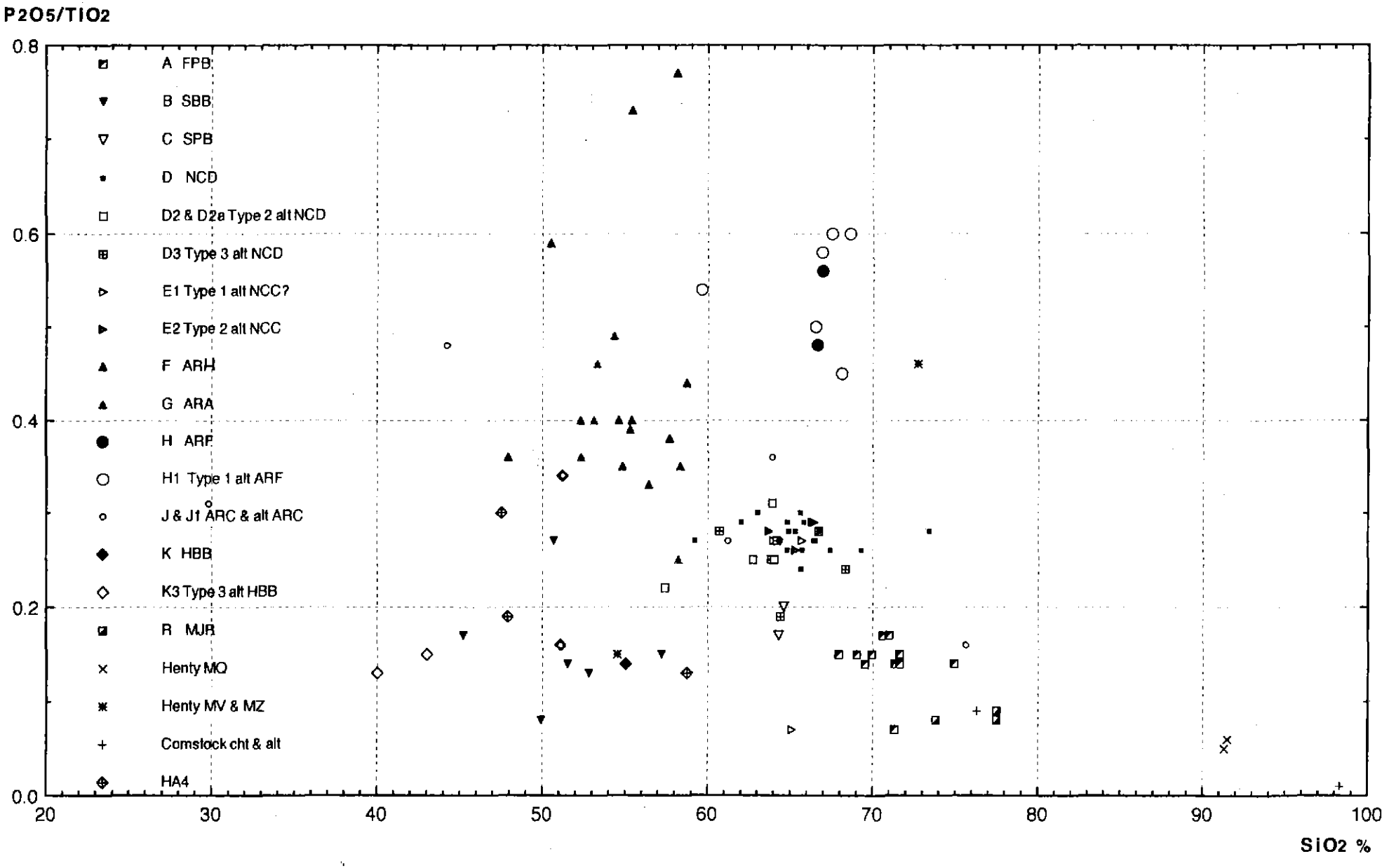


Figure 22 P2O5/TiO2 - SiO2 scatterplot of 104 analyses from App.II-b and 6 Henty & Comstock analyses from App.II-e

Appendix III-c Calculated Mass Changes in altered rocks

(Refer to Appendix III-a for explanation of method of calculation; all Mass Changes expressed in g/100g)

(SHAppIII-c) 31 October, 1996 P1

SAMPLE	Hole	E / Fr	N / To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
Mean			n=2	least alt QFP Rhy-Dacite	ARF	H	66.8	0.34	15.5	4.6	0.1	2.1	0.8	6.4	1.6	0.18	0.0	1.9	100.3	162	12.8	0.52	34
Mean			n=6	Type 1 Q-ser-Py alt QFP Rhy-Dacite	ARF	H1	66.2	0.34	14.6	4.1	0.3	0.6	1.8	0.3	7.0	0.19	1.2	3.9	100.0	157	12.9	0.55	79
Mass Changes					H->H1		1.7	0.01	-0.4	-0.3	0.2	-1.4	1.1	-6.2	5.6	0.01	1.2	2.2		Nett:	3.7		
Mean			n=2	least alt QFP Rhy-Dacite	ARF	H	66.8	0.34	15.5	4.6	0.1	2.1	0.8	6.4	1.6	0.18	0.0	1.9	100.3	162	12.8	0.52	34
Mean			n=5	Type 1 alt in HA7 & HA8	ARF	H1	67.5	0.33	14.2	3.9	0.3	0.5	1.2	0.3	7.3	0.18	1.4	3.5	100.2	155	12.8	0.55	83
Mass Changes					H->H1		4.2	0.00	-0.6	-0.4	0.2	-1.5	0.5	-6.1	6.1	0.01	1.5	1.8		Nett:	5.6		
384090	YNC10	187.4		br QFP Rhy-Dacite, acc Mt	ARF	H	66.6	0.35	16.0	4.3	0.1	2.0	1.0	7.7	0.4	0.17	0.0	2.0	100.7	159	13.2	0.48	22
384091	YNC10	226.6		gy ser-fol Q(F)P Rhy-Dacite, no Mt	ARF	H1	59.6	0.38	16.5	4.9	0.1	1.3	4.9	0.1	5.4	0.21	0.0	6.0	99.3	170	13.4	0.54	57
Mass Changes					H->H1		-10.9	0.01	-0.6	0.3	0.0	-0.9	3.5	-7.7	4.6	0.03	0.0	3.6		Nett:	-7.8		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
384124	380190E	58860N		Py-ser-Q alt volcanic of uncertain affinity	NCC	E1	61.2	0.63	18.3	7.3	0.0	0.6	0.1	0.1	5.2	0.14	3.2	5.2	101.9	299	12.6	0.21	97
Mass Changes					D->E1		-17.9	-0.01	-0.4	0.2	-0.1	-0.6	-2.6	-2.5	0.8	-0.03	2.3	-0.2		Nett:	-20.9		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
Mean			n=22	NC4 Dacites 386-446m & 478-529m	NCD	D2	65.2	0.51	13.9	5.0	0.8	0.7	1.4	0.1	7.6	0.13	0.3	3.8	99.4	237	12.8		84
Mass Changes					D->D2		-1.6	-0.01	-0.9	-0.5	0.6	-0.4	-1.3	-2.4	4.2	-0.01	0.1	-0.5		Nett:	-2.6		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
Mean			n=3	Type 2 alt Dacite	NCD	D2	61.3	0.54	15.8	5.5	1.5	0.6	1.6	0.3	6.1	0.14	0.1	6.1	99.7	259	12.6	0.26	77
Mass Changes					D->D2		-10.5	-0.01	-0.4	-0.5	1.2	-0.5	-1.2	-2.2	2.3	-0.01	-0.1	1.3		Nett:	-10.7		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
Mean			n=2	Type 2a alt Fp Dacite, ≤0.2%MnO	NCD	D2a	65.3	0.49	14.1	4.2	0.2	0.9	3.5	0.2	2.9	0.13	0.0	7.7	99.6	236	12.4	0.26	52
Mass Changes					D->D2a		-1.4	-0.03	-0.7	-1.3	0.0	-0.2	0.7	-2.4	-0.4	-0.01	-0.1	3.4		Nett:	-2.4		

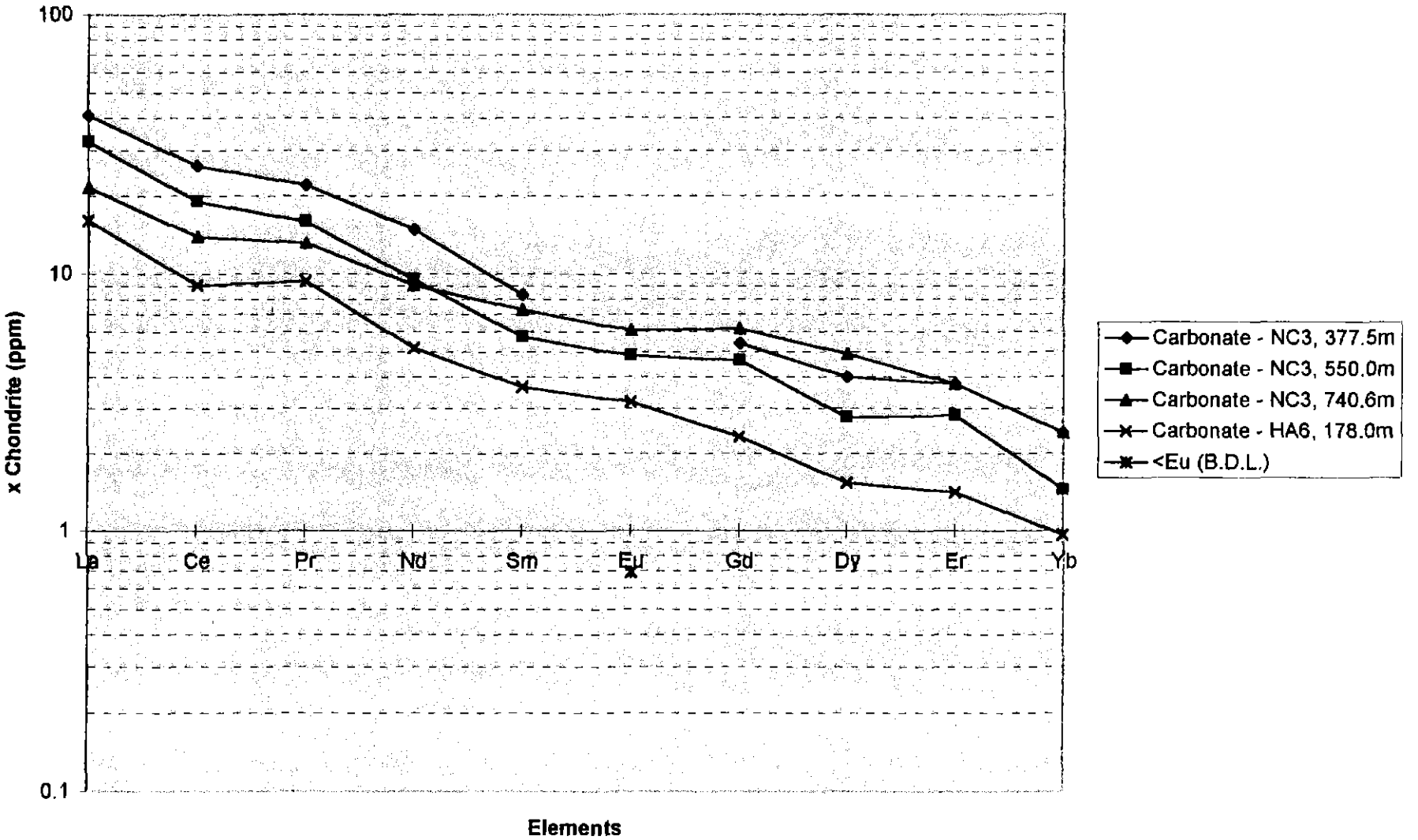
Appendix III-c **Calculated Mass Changes in altered rocks** (SHAppIII-c) 31 October, 1996 P 3

(Refer to Appendix III-a for explanation of method of calculation; all Mass Changes expressed in g/100g)

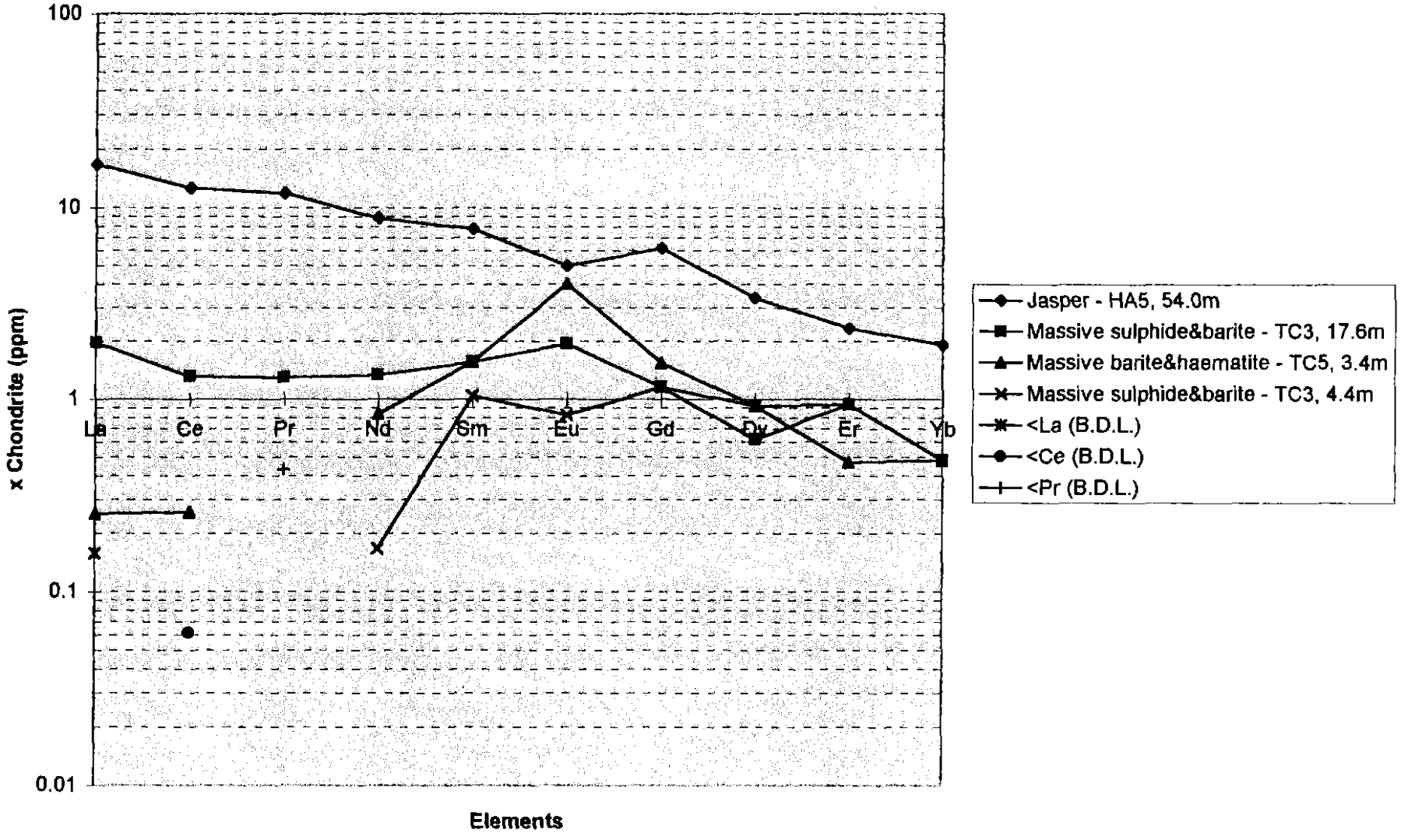
SAMPLE	Hole	E / Fr	N / To	Description	Fmn	Gp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	LOI	Total	Zr	Ti/Zr	*P/Ti	Al
HENTY and COMSTOCK SAMPLES																							
Mean			n=6	least alt F(Q)p Andesite	ARA	G	54.9	0.59	17.8	7.4	0.3	2.2	4.6	4.8	2.2	0.22	0.5	4.7	99.9	153	23.1	0.39	32
384053	O/c	Comstock		Q-ser-Py alt 40m W of Mullock Qu MS lens	MQ	Q1	76.3	0.47	12.6	3.1	0.0	0.2	0.0	0.0	3.8	0.04	2.3	3.5	100.1	111	25.4	0.09	98
Mass Changes					G->Q1		50.3	0.06	-0.4	-3.1	-0.3	-2.0	-4.5	-4.7	3.0	-0.17	2.6	0.1		Nett:	40.8		
Mean			n=6	least alt F(Q)p Andesite	ARA	G	54.9	0.59	17.8	7.4	0.3	2.2	4.6	4.8	2.2	0.22	0.5	4.7	99.9	153	23.1	0.39	32
384052	C70	?		Comstock chert	MQ	Q4	98.3	0.44	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.00	0.4	0.3	99.9	122	21.6	0.01	44
Mass Changes					G->Q4		68.4	-0.04	-17.7	-6.6	-0.3	-2.2	-4.6	-4.7	-2.2	-0.22	-0.0	-4.2		Nett:	25.6		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
Mean			n=2	Henty MQ ç Au	MQ	Q4	91.4	0.38	0.6	0.8	0.0	0.2	3.2	0.0	0.2	0.02	0.2	2.5	99.5	170	13.4	0.05	10
Mass Changes					D->Q4		58.6	0.02	-13.7	-4.3	-0.1	-0.8	1.7	-2.5	-2.9	-0.10	0.1	-0.8		Nett:	35.3		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
384057	Henty			MZ Q-ser-Py alt	MZ	Q1?	72.7	0.27	6.9	6.9	0.0	0.7	1.7	0.0	2.4	0.13	2.2	5.0	98.5	127	12.7	0.46	63
Mass Changes					D->Q1?		67.0	-0.01	-1.9	7.2	-0.1	0.2	0.5	-2.5	1.1	0.10	3.8	5.0		Nett:	80.6		
Mean			n=20	least altered coherent Dacites	NCD	D	65.2	0.50	14.5	5.4	0.1	1.0	2.7	2.5	3.2	0.14	0.2	4.1	99.6	231	13.0	0.28	46
384056	Henty			MV Q-ser alt	MV	Q1	54.5	1.03	27.9	1.3	0.0	1.3	0.3	0.1	9.4	0.16	0.0	4.2	100.1	457	13.5	0.15	97
Mass Changes					D->Q1		-37.7	0.02	-0.4	-4.8	-0.1	-0.4	-2.5	-2.5	1.6	-0.06	-0.2	-2.0		Nett:	-49.0		
Mean			n=2	least alt QFP Rhy-Dacite	ARF	H	66.8	0.34	15.5	4.6	0.1	2.1	0.8	6.4	1.6	0.18	0.0	1.9	100.3	162	12.8	0.52	34
Mean			n=2	Henty MQ ç Au	MQ	Q4	91.4	0.38	0.6	0.8	0.0	0.2	3.2	0.0	0.2	0.02	0.2	2.5	99.5	170	13.4	0.05	10
Mass Changes					H->Q4		20.4	0.02	-15.0	-3.8	-0.1	-1.9	2.3	-6.4	-1.4	-0.16	0.2	0.4		Nett:	-5.4		
Mean			n=2	least alt QFP Rhy-Dacite	ARF	H	66.8	0.34	15.5	4.6	0.1	2.1	0.8	6.4	1.6	0.18	0.0	1.9	100.3	162	12.8	0.52	34
384057	Henty			MZ Q-ser-Py alt	MZ	Q1?	72.7	0.27	6.9	6.9	0.0	0.7	1.7	0.0	2.4	0.13	2.2	5.0	98.5	127	12.7	0.46	63
Mass Changes					H->Q1?		26.3	0.00	-6.7	4.3	-0.0	-1.3	1.5	-6.4	1.5	-0.01	2.8	4.5		Nett:	26.5		

Appendix IV: Light rare earth element graphs

REE - Carbonates, South Henty



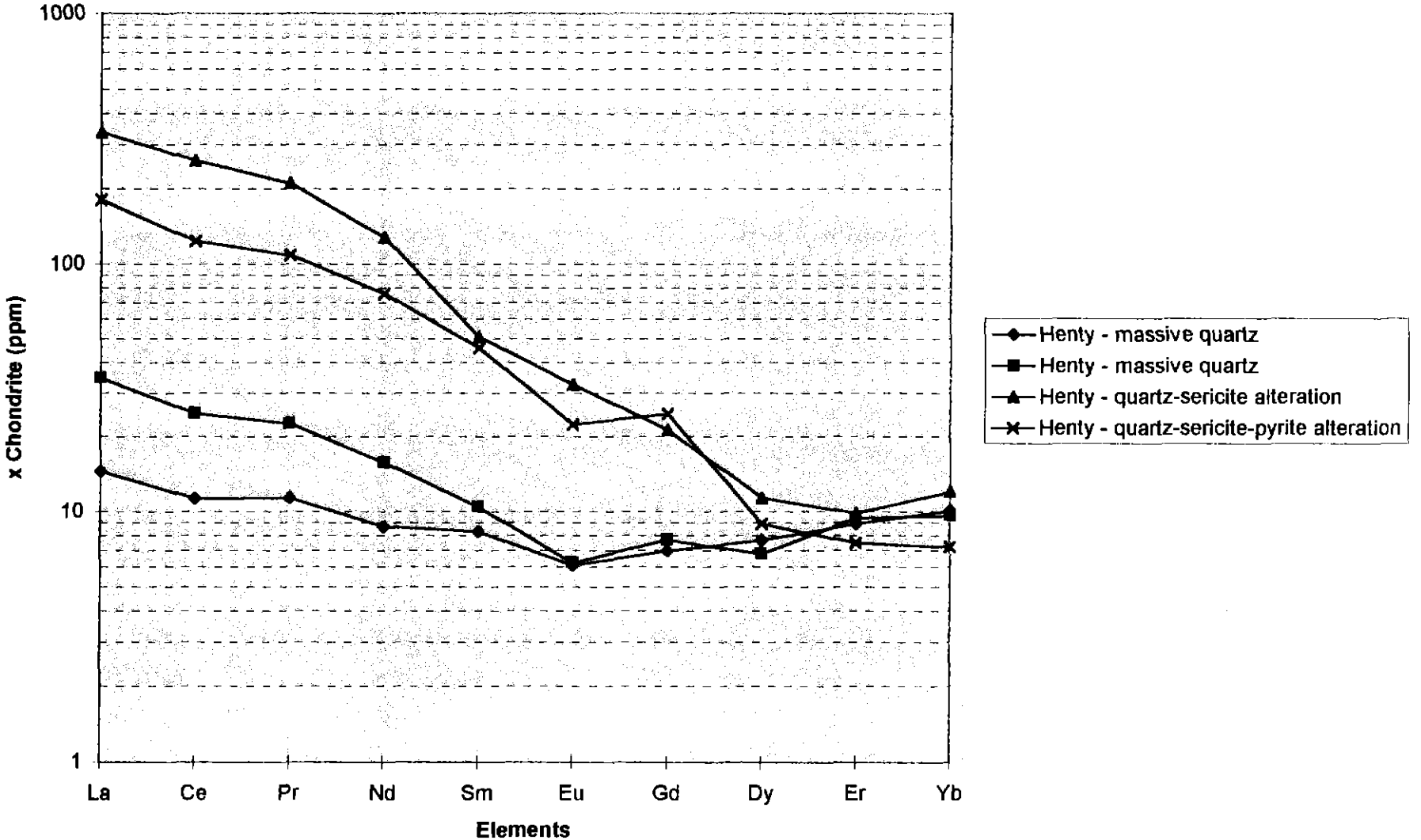
Tyndall Creek sulphide, barite and jasper



390278

390279

Henty massive quartz and alteration



Appendix V: ANALABS Analytical Reports

390281

MINLAB
MINCULTURE LABORATORIES PTY LTD ACN 008 950 174
TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

257A Forrest Street
KALGOORLIE WA 6430
Tel: (090) 21 5664
Fax: (090) 91 2200

18A Denninup Way
MALAGA WA 6062
Tel: (09) 249 5277
Fax: (09) 249 5323

Lot 484 Criddle St
MT MAGNET WA 6638
Tel: (099) 634 532
Fax: (099) 634 531

ANALYTICAL REPORT

Reference No: P62094

Date: 06 DEC 95

Samples Received: 04 DEC 95
Order Number : N/A
Submission Sheet: N/A
Project Number : N/A
Samples in Batch: 4

HENTY SAMPLES

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE SAMANTHA LIMITED

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: A Ferguson
A.J. Ferguson

ATTN: G McDONALD
RESOLUTE SAMANTHA LIMITED
MANGANA RD
FINGAL TAS 7214

390282

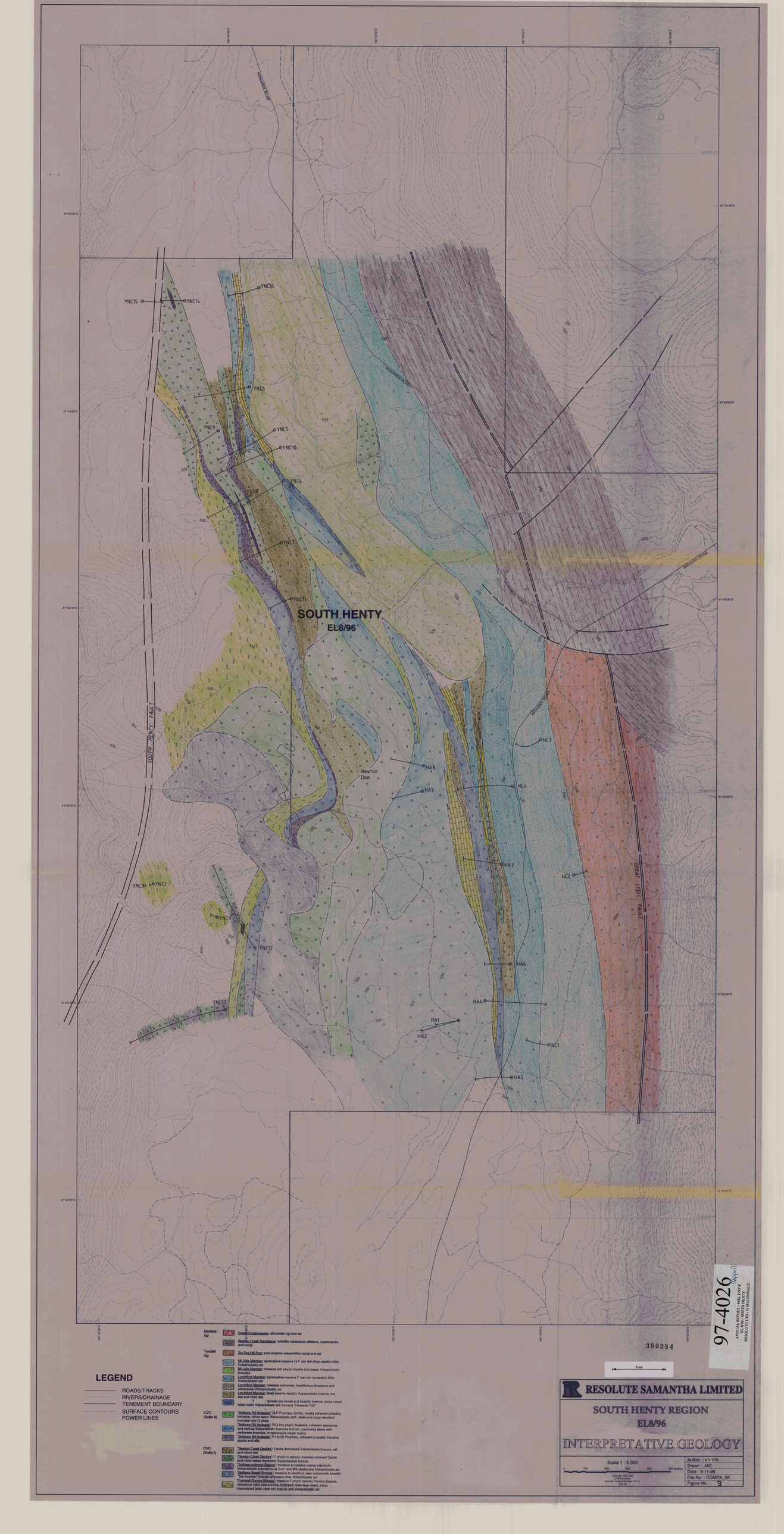
Reference No: P62094 **ATTN: G McDONALD** Page: 1

	Au ppm	Au(R1) ppm	Au(R2) ppm
Detn Limit	0.01	0.01	0.01
MV	0.67		
MZ	0.29		
MQ-A	49.4	46.4	49.1
MQ-B	71.1		

****

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

END OF REPORT


SOUTH HENTY
EL8/96
SOUTH HENTY FAULT
HOWARDS ROAD
ANTHONY ROAD
Newton Dam
YNC16
YNC15
YNC14
YNC6
YNC9
YNC5
YNC10
YNC4
YNC8
YNC7
YNC11
YNC3
YNC2
YNC1
YNC12
YNC13
NC3
NC4
NC2
NC1
HA8
HA7
HA3
HA6
HA4
HA1
HA2
HA5
LEGEND
ROADS/TRACKS
RIVERS/DRAINAGE
TENEMENT BOUNDARY
SURFACE CONTOURS
POWER LINES
Denison Gp
Clews Conglomerate: siliciclastic cgl and sst
Newton Creek Sandstone: turbiditic micaceous siltstone, quartzwacke and congl
Tyndall Gp
Zig Zag Hill Fmn: post eruptive volcanolithic congl and sst
Mt Julia Member: synerupitive massive Q-F xtal rich (rhyo-dacitic) lithic Volcaniclastic sst
Mt Julia Member: massive Q-F phyric rhyolite and assoc Volcaniclastic breccias
Lynchford Member: synerupitive massive F xtal rich (andesitic) lithic Volcaniclastic sst
Lynchford Member: massive carbonate, fossiliferous limestone and calcareous (Volcaniclastic) sst
Lynchford Member: felsic (mainly dacitic) Volcaniclastic breccia, sst, slst and chert slst
fgr/vesicular basalt and basaltic breccia; some mixed felsic-matic Volcaniclastic sst, formerly "Howards Tuff"
CVC (Suite II)
"Anthony Rd Andesite": Q-F Porphyry; dacitic, mostly coherent probably intrusive, minor assoc Volcaniclastic sst?, distinctive large resorbed inclusion rich Q phats
"Anthony Rd Andesite": FIQ-Hb1 phyric Andesite; coherent extrusives and various Volcaniclastic breccias and sst, commonly assoc with carbonate breccias, or calcareous clastic matrix
"Anthony Rd Andesite": F-Hb1Qi Porphyry, coherent probably intrusive stocks and sills
CVC (Suite I)
"Newton Creek Dacites": Dacite dominated Volcaniclastic breccia, sst and minor slst
"Newton Creek Dacites": F phyric to aphyric massive coherent Dacite and minor assoc monomict (hyaloclastite) breccia
"Sollfrenz ashmist Breccia": massive to bedded coarse polymictic Volcaniclastic breccia-congl (incl. rare MS clasts) and Volcaniclastic sst
"Sollfrenz Basalt Breccia": massive to stratified, near monomictic basaltic "fire fountain" breccia and assoc finer Volcaniclastic sst
"Fontesil Pumice Breccia": massive F phyric sericitic Pumice Breccia, ubiquitous relict tube pumice, local pink felsic lava clasts, minor intercalated felsic clast rich breccia and Volcaniclastic sst
390284
5 cm
RESOLUTE SAMANTHA LIMITED
SOUTH HENTY REGION
EL8/96
INTERPRETATIVE GEOLOGY
Scale 1 : 5 000
0 100 200 300 400 500 metres
Australian Map Grid
Projection: Transverse Mercator
Zone 55, Central Meridian 147° E
AGD 66
Author : WH/GMc
Drawn : JMC
Date : 5-11-96
File No. : COMPX_5K
Figure No. : 3
97-4026
ANNUAL REPORT - VOL 2 OF 5
EL 8/96 SOUTH HENTY
RESOLUTE LTD / CRA EXPLORATION

380000mE

381000mE

5360000mN

10500mN

10350mN

10200mN

10150mN

10000mN

9750mN

9500mN

Si loss

?

Si loss

?

?

5359000mN

Si loss

Aeromagnetic Low

slight
Si gains

5358000mN

ALTERATION

Intensity	Type	Description
→	1	Ser (+/- Qtz, Ks, Py) alteration with strong Na depletion and K gain but no MnCb; VHMS footwall type?, in part assoc with margins of Suite II QFP intrusive bodies.
	2	Ser + Ks + (Mn)Cb alteration with strong Na depletion and K gain but insignificant Py; possible weak, peripheral zones of VHMS systems??
	3	Qtz + ser + Py without strong Na depletion and plagioclase destruction, some Ca depletion; usually assoc with faults and shear zones, especially South Henty Fault.
	4	Henty MQ and Comstock Chert: extreme silicification with total feldspar destruction and removal of Al, Mg, Na and K, some Henty samples retain Ca (possibly in Cb veinlets?), variable sulphide and anomalous Au. Ti and Zr data suggest alteration of precursor volcanics, depletion of Al is atypical of VHMS.

0 100 200 300 400 500
metres

390285

5 cm

97-4026 Appx1

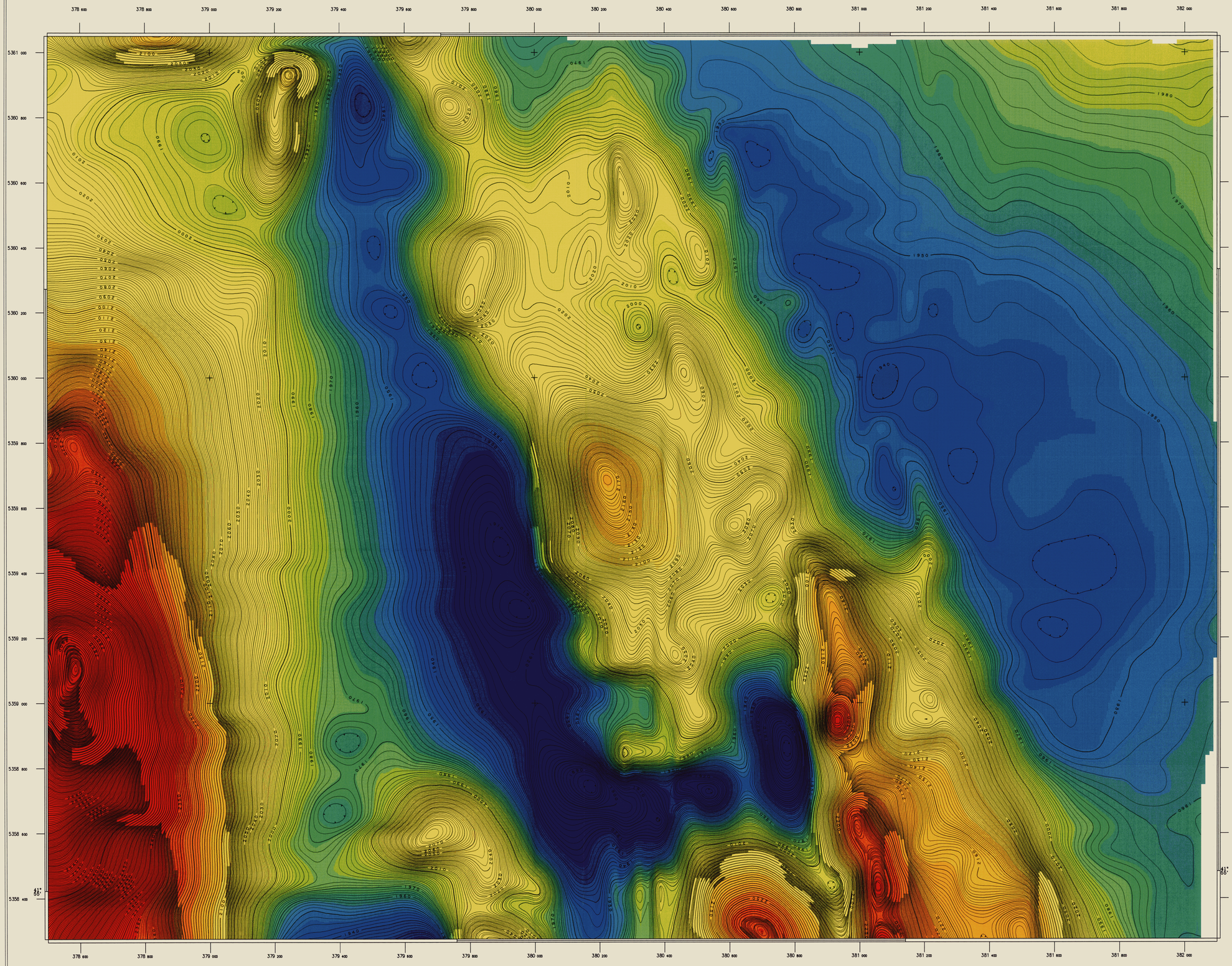
ANNUAL REPORT - **VOL 2 OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Alteration Overlay (to fig 3a)

Compiled	WH	Scale	1:5000
Drawn	DKH	Checked	
Date	Jul1996	Plan No.	

FIGURE 3b



SURVEY SPECIFICATIONS

Contractor	:	GeoInstruments Pty Ltd
Aircraft	:	
Instrumentation	:	
Survey Date	:	1990
Sample Interval	:	approx 15 metres
Flight Line Spacing	:	100 metres
Flight Line Direction	:	090-270 degrees
Tie Line Spacing	:	1000 metres
Mean Terrain Clearance	:	80 metres
Navigation	:	

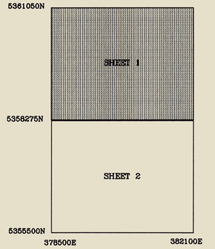
PLOT SPECIFICATIONS

First Level Contours	:	2 nT
Second Level Contours	:	10 nT
Third Level Contours	:	50 nT
Fourth Level COntours	:	250 nT

Grid Cell Size : 12.5 mE x 12.5 mN

PROCESSING DETAILS

Processing : Southern Geoscience
Supervision : J. Ashley



SCALE 1: 5000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

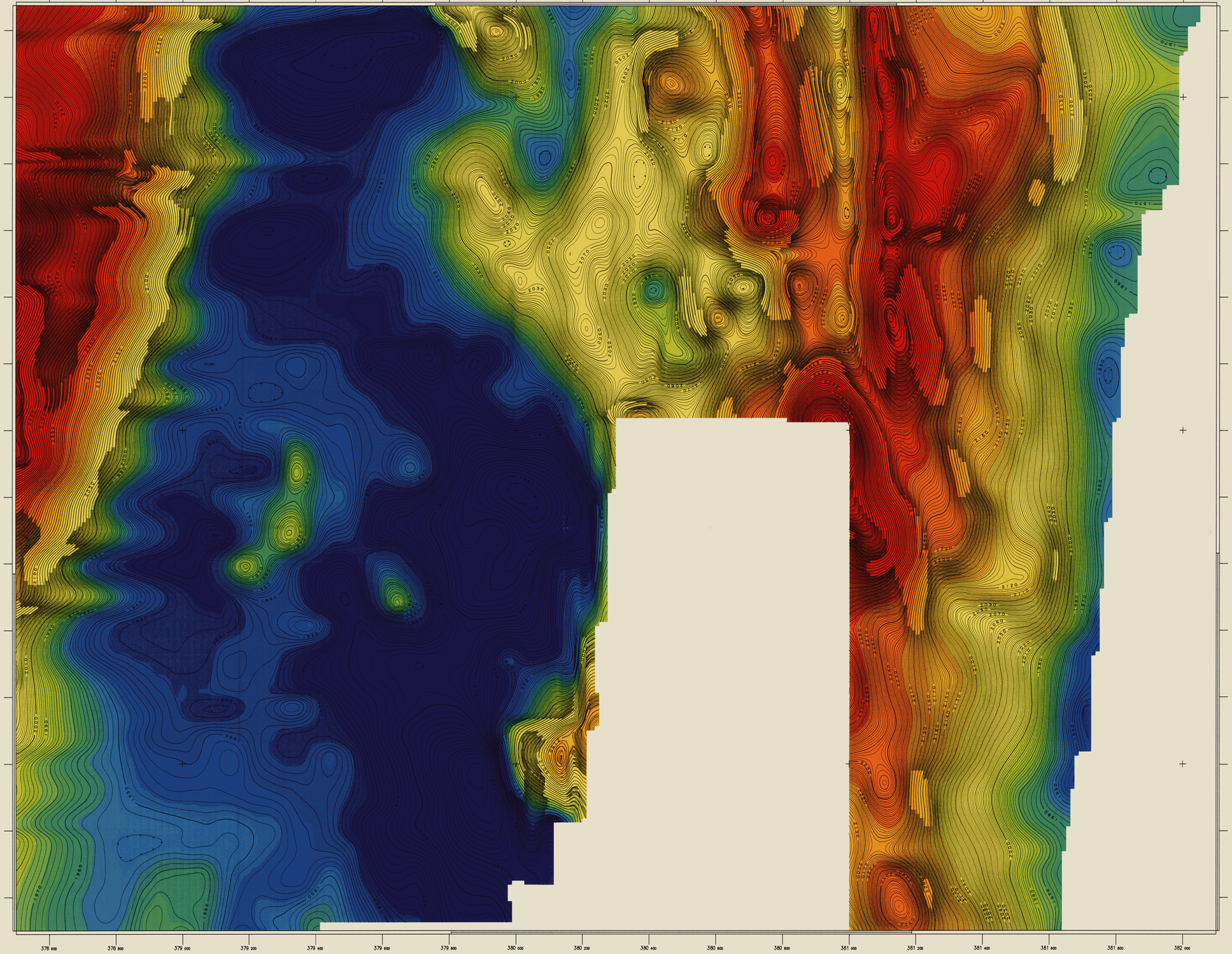
97-4026

ANNUAL REPORT - VOL 2 OF 2 (APP x)
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

390286

SOUTHERN GEOSCIENCE CONSULTANTS	
RESOLUTE SAMANTHA GROUP HENTI SOUTH, TASMANIA AIRBORNE GEOPHYSICAL SURVEY TOTAL MAGNETIC INTENSITY COLOUR IMAGE/CONTOUR MAP SHEET 1 OF 2	
SCALE 1: 5,000	J. ASHLEY
DATE 27-08-1996	FIGURE 4a.

5 cm



SURVEY SPECIFICATIONS

Contractor	:	GeoInstruments Pty Ltd
Aircraft	:	
Instrumentation	:	
Survey Date	:	1990
Sample Interval	:	approx 15 metres
Flight Line Spacing	:	100 metres
Flight Line Direction	:	090-270 degrees
Tie Line Spacing	:	1000 metres
Mean Terrain Clearance	:	80 metres
Navigation	:	

PLOT SPECIFICATIONS

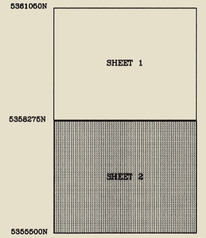
First Level Contours	:	2 nT
Second Level Contours	:	10 nT
Third Level Contours	:	50 nT
Fourth Level COntours	:	250 nT

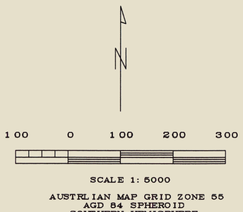
Grid Cell Size : 12.5 mE x 12.5 mN

PROCESSING DETAILS

Processing : Southern Geoscience
Supervision : J. Ashley

2487.50
2359.10
2284.40
2220.00
2176.50
2131.70
2095.30
2067.20
2047.00
2031.20
2016.00
2007.00
1995.90
1985.50
1976.90
1970.30
1965.00
1960.00
1956.20
1952.50
1949.30
1946.70
1944.10
1939.60
1931.50
1924.80
1914.20





SCALE 1: 5000

AUSTRLIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

97-4026 (P)

ANNUAL REPORT - VOL 2 OF 5
HENTY - SOUTH WEST
RESOLUTE LTD - G MACDONALD

390287

SOUTHERN GEOSCIENCE CONSULTANTS

RESOLUTE SAMANTHA GROUP
HENTI SOUTH, TASMANIA
AIRBORNE GEOPHYSICAL SURVEY
TOTAL MAGNETIC INTENSITY
COLOUR IMAGE/CONTOUR MAP
SHEET 2 OF 2

SCALE 1: 5, 000	J. ASHLEY
DATE 27-08-1996	FIGURE 4b

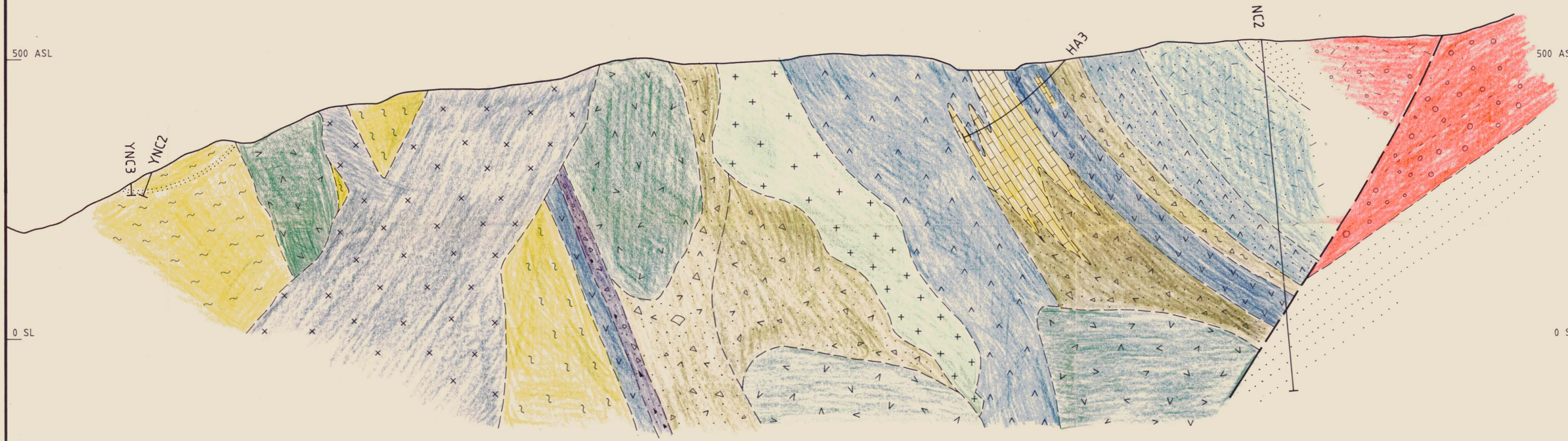
5 cm

380000E

381000E

500 ASL

0 SL



390288

5 cm

97-4026 Appx 1

ANNUAL REPORT - **VOL 2 OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Geological Cross Section 5358150N

Compiled		Scale 1: 5000	FIGURE 6
Drawn	DKH	Checked	
Date	Nov 1996	Plan No. FIG. 6	

380000E

381000E

500 ASL

0 SL

-500

LAKE NEWTON

HAB

NC4

NC3

GLF

SOUTH HENTY FAULT

390289

5 cm

97-4026

APPX 1

ANNUAL REPORT - **VOL 2 OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Geological Cross Section 5358600N

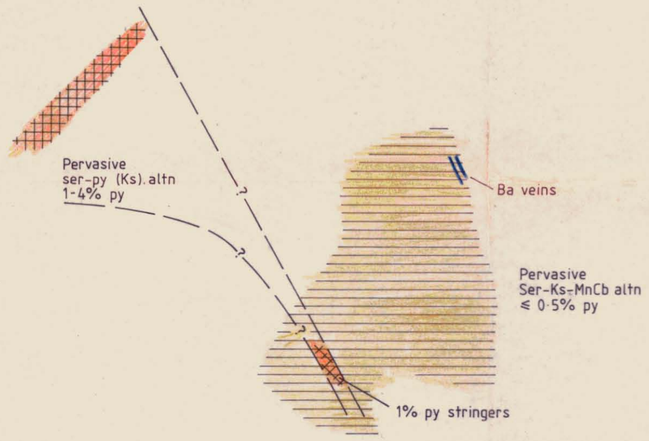
Compiled		Scale 1: 5000	
Drawn	DKH	Checked	
Date	Nov 1996	Plan No. FIG 7	FIGURE 7a

3800000E

3810000E

500 ASL

500 ASL



0 SL

0 SL

-500

-500

390290

5 cm

97-4026 APPX 1

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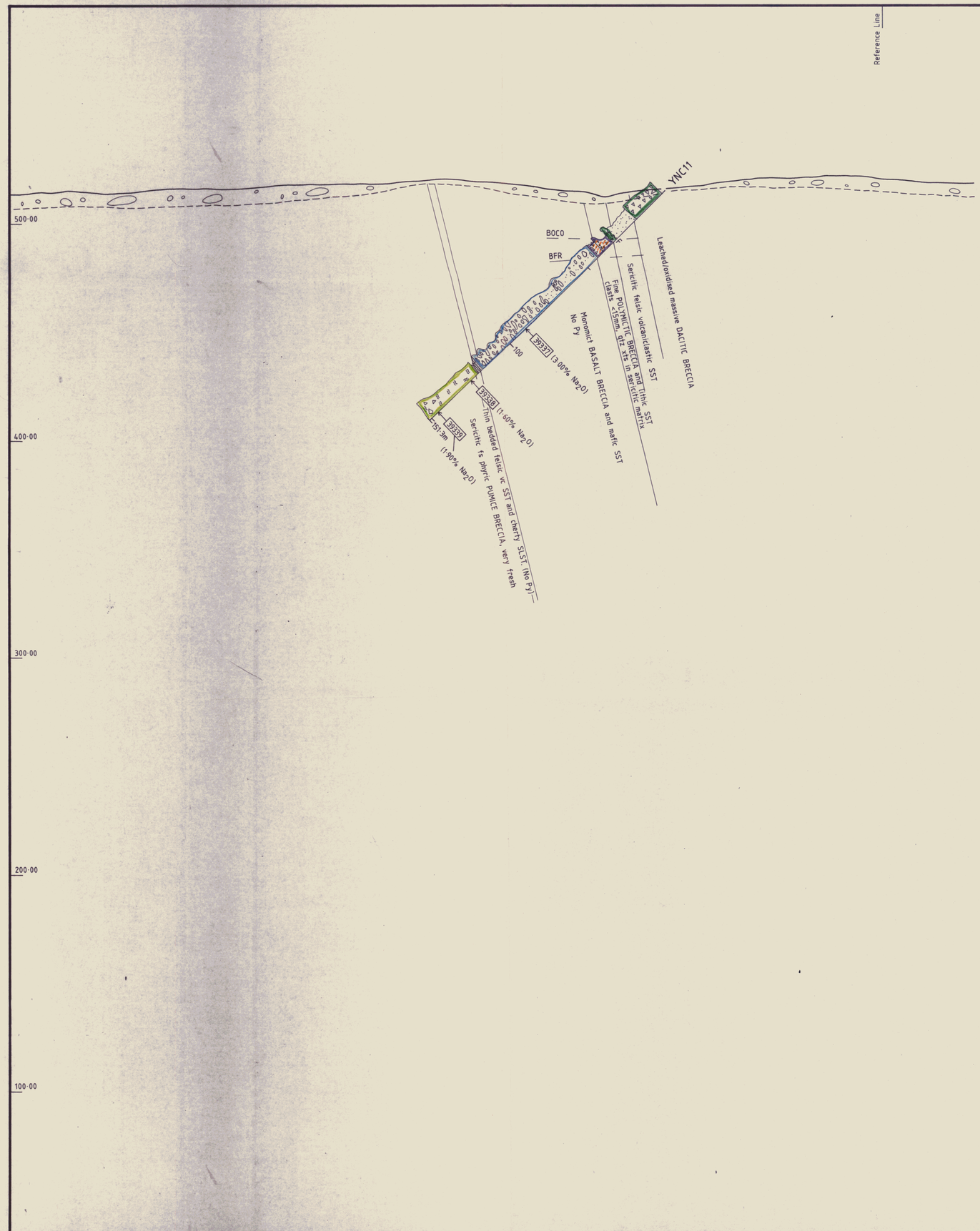
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Geological Cross Section 5358600N
Alteration Overlay

Compiled		Scale 1:5000	FIGURE 7b
Drawn	DKH	Checked	
Date	Nov 1996	Plan No.	



390291

5 cm

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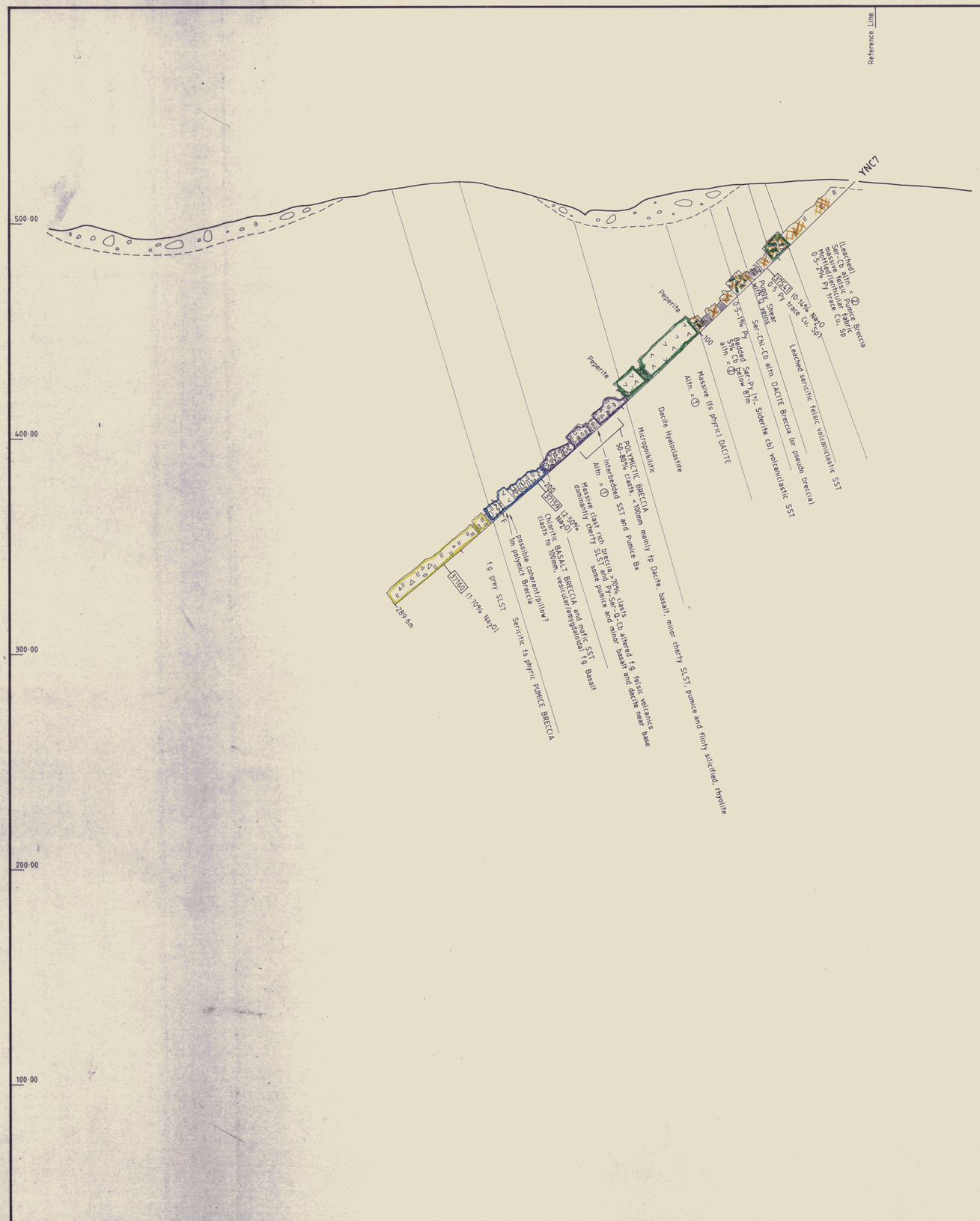
RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 9500N

Compiled	WH	Scale	1:1000
Drawn	DKH	Checked	
Date	Oct 1996	Plan No.	FIG. 8

YNC11 FIG 8



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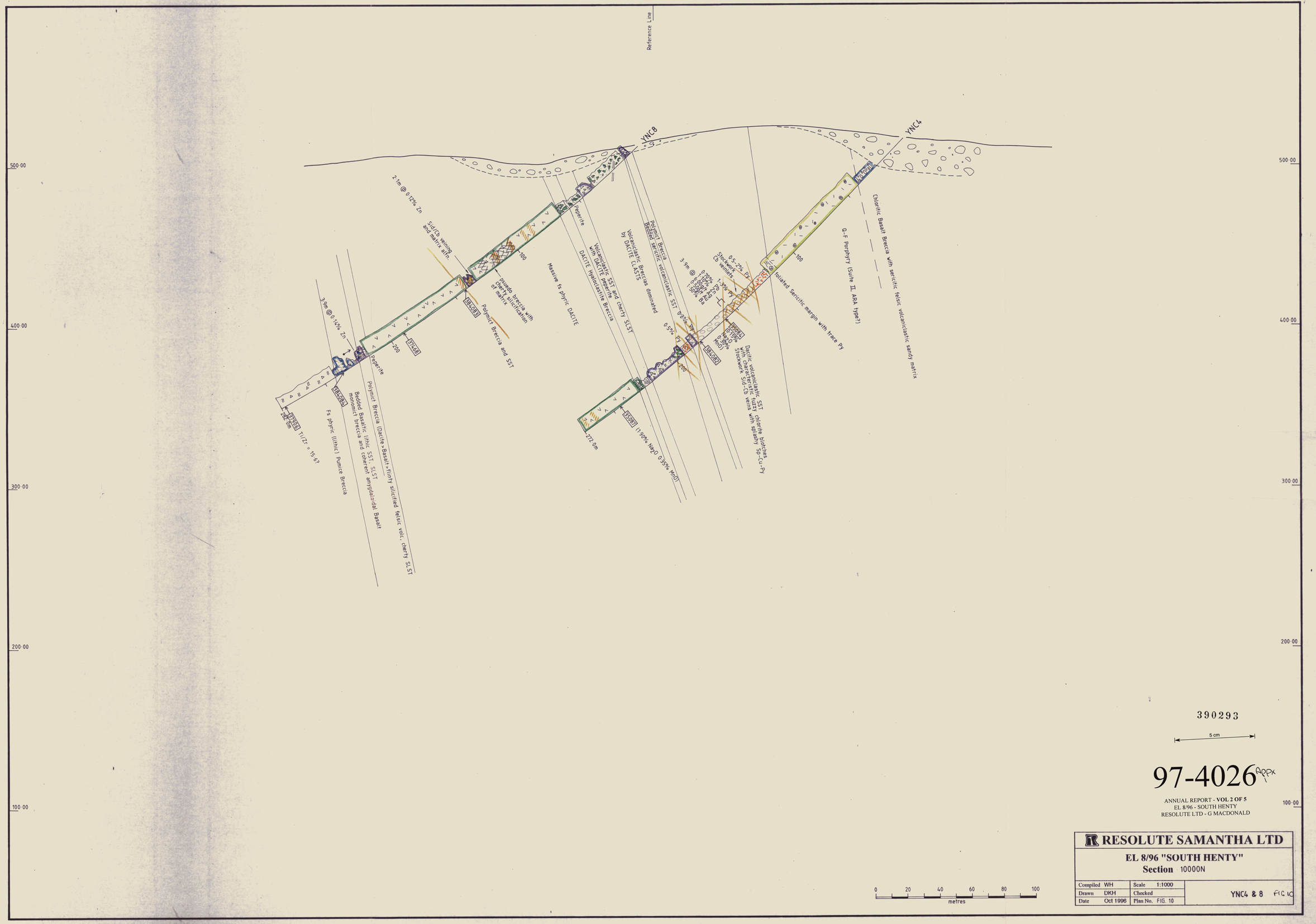
390282

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 9750N

Compiled WH	Scale 1:1000	YNC7 FIG 9
Drawn DKH	Checked	
Date Oct 1996	Plan No. FIG. 9	



390293

5 cm

97-4026 Appx i

ANNUAL REPORT - **VOL 2 OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

0 20 40 60 80 100
metres

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 10000N

Compiled	WH	Scale	1:1000	YNC4 & 8 FIG 10
Drawn	DKH	Checked		
Date	Oct 1996	Plan No.	FIG. 10	

390294

5 cm

97-4026 Appx

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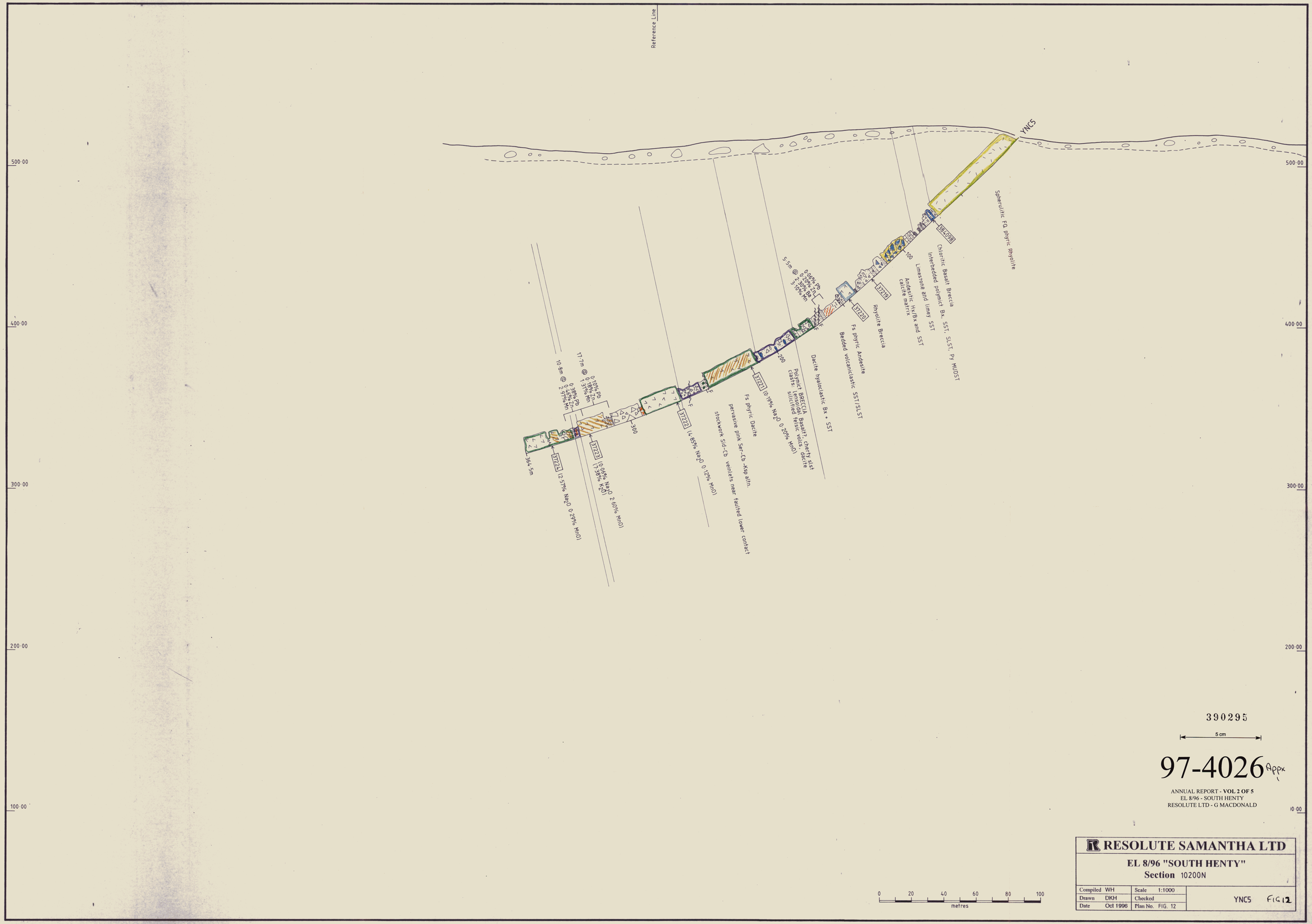
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 10150N

Compiled	WH	Scale	1:1000	YNC10 FIG 11
Drawn	DKH	Checked		
Date	Oct 1996	Plan No.	FIG. 11	



390295

5 cm

97-4026 Appx

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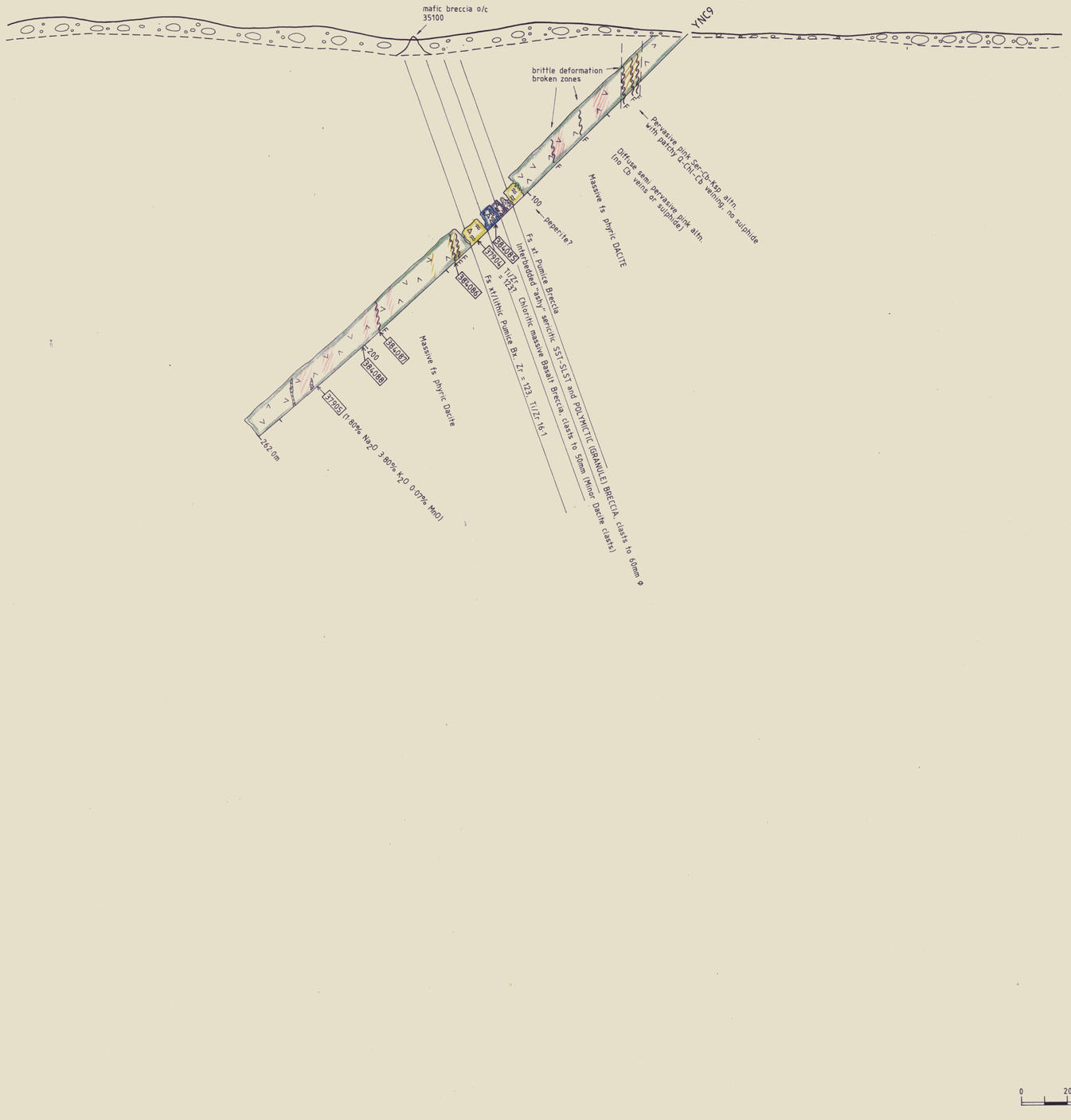
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 10200N

Compiled	WH	Scale	1:1000
Drawn	DKH	Checked	
Date	Oct 1996	Plan No.	FIG. 12

YNC5 FIG 12



390296

5 cm

97-4026 Appx 1

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EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 10350N

Compiled WH		Scale 1:1000	YNC9 FIG 13
Drawn DKH		Checked	
Date Oct 1996		Plan No. FIG. 13	

Reference Line

500·00

400·00

300·00

200·00

100·00

YNG6

1.3m @ 0.27% 0.24% Cu

Graded

Massive fs +/- rich lithic SST (5-10% clasts to 20mm)

Sericitic bedded SST and fractured cherty SLST

Interbedded polymictic breccia units

Interbedded black SLST, lithic SST and thin graded polymictic breccia units

Pale brown SST in veinlets

Massive to nodular limestone and limy/sericitic SST

Monomict Dacite Breccia and SST

Sericitic/chert SLST and SST

Fs phyric Dacite (chloritic)

Pumiceous SST with polymict clasts incl. massive Py at base

Hematitic ANDESITE Breccia and sandy volcaniclastic LIMESTONE (Suite II ARA type)

"Ashy" pumiceous SST and minor cherty SLST

Peperite below 108m

Fs phyric DACITE

100

200

300

400

Trace Py associated with Cb veins

Minor patchy/pervasive pink Ser-Cb-Kfsp? alt'n with 2°to Sil-Cb veinlets partly related to brittle fracture zones

Pale pink-grey buff pervasive alt'n/bleaching associated with brittle fracture zones No Py, trace Cb

Peperite in grey cherty SLST

Tr Py

Interbedded polymict Breccia and SST

Heat monomict Basalt Breccia 5-30mm clasts @ several Loads to 1500m @

Sericitic fs +/- (lithic) Pumice Breccia

4516m

0 20 40 60 80 100

metres

390297

5 cm

97-4026 Appx

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EL 8/96 - SOUTH HENTY
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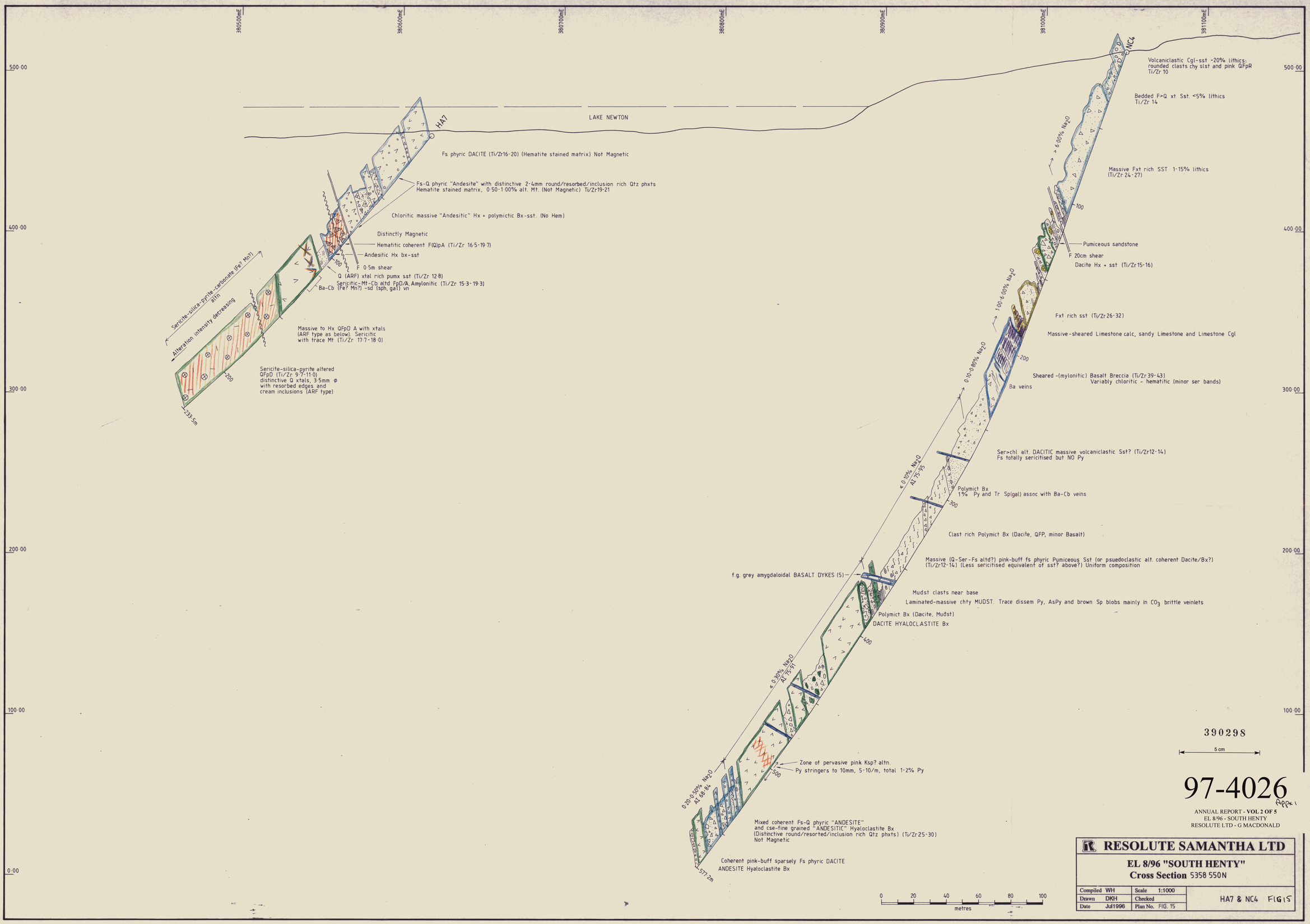
RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Section 10500N

Compiled WH		Scale 1:1000	YNC6 FIG 14
Drawn DKH		Checked	
Date Oct 1996		Plan No. FIG. 14	



390298

5 cm

97-4026

Appx 1

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EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"
Cross Section 5358 550N

Compiled	WH	Scale 1:1000	HA7 & NC4 FIG15
Drawn	DKH	Checked	
Date	Jul1996	Plan No. FIG. 15	

380700mE | 380800mE | 380900mE | 381000mE | 381100mE | 381200mE

500·00 | 400·00 | 300·00 | 200·00 | 100·00 | 0·00 | -100·00 | -200·00 | -300·00

HA1
HA2

Fp Andesite

Fp Andesite breccia
2%-5% Py — zone of cataclasites/shears associated with Q-ser-py altn

Fp Andesite

2%-5% Py
0·08 g/t Au

1%-2% Py
minor shear 35°-40°

Peperitic mixtite of FpA and f.g.-mg cherty-sericitic slt-sst with sparse Q xtals

13m @ 0·125 g/t Au

197·5m

Fp Andesite - rare Q xtals (ARF type)

259·3m

NC1

F Q ± Mt (to 2%) xtal sst with occasional clasts of slt (ang) to ±75m, QFpR to ±45m and FpD below ±45m to 110m
Mottled alb>chl altn (Ti/Zr 7·4-13·8)

100

Series of well graded volcaniclastic (bx)-sst-slt beds, xtal rich varying from F > Q to F >> Q. Variable but common Mt t/o (detrital) but particularly in fine beds (1-3mm) at tops of graded slt. Clasts (gly <5%) variable as shown but are either slt, QFpR or FpD. (Ti/Zr 12·3-27·0)

S_0

200

S_0

S_0

Volcaniclastic polymict bx-sst-slt. Clasts of QFpR, slt and FpD and Cb (interpreted as clasts not discrete lenses) in F Q (Mt) mx (as above). Probably soft-sed slump bx grading up into overlying sst-slt. Some cb is bxd and healed by later cb. Fn increases downhole towards fault. (Ti/Zr 13·5-20·0)

300

Volcaniclastic bx, sy foliated with Andesite/basalt, FpD and slt clasts in cb, hmt and ser overprint
Ti/Zr =36·0 — after mafic clasts?

Volcaniclastic bx. Sy hmt-cb±chl altd with hmt clasts of Fp A/B in F xtal mx. Occasional Q xtals in mx. (Ti/Zr gly 34·7-40·4 + 21·0)

Volcaniclastic bx derived from underlying Andesite/basalt. Strongly foliated cb-hmt altd. Clast rich F (Hb?) p Andesite/basalt in F xtal mx (Ti/Zr 34·8-39·3)

Sy foliated cb hmt altd F (Hb?) p Andesite/basalt with cb-hmt filled amygdales (Ti/Zr 43·9-45·5)

Sy foliated bxd (?) F (Hb?) p Andesite/basalt with mod cb-hmt altn. Cb zone interpreted as intraclast.
Ti/Zr 43·8-44·9

Limestone, wt to p pink with fine grained slt beds
Gn slt bed in limestone
Limestone (as above)
Limestone in bx-sst
Limestone/slt - mainly slt
Ti/Zr 24·4-37·0

S_0 arbitrary boundary

Ti/Zr 40·4

Bx with wispy f.g. hmt or ser/chl altd andesite/basalt clasts in cb mx

Appears to be cb at graded top of Andesite/basalt bx but (Ti/Zr 20·5)

Fp Andesite/basalt lava bx. Monomict. Clasts andesite/basalt derived mx. Cb-hmt vng. (Ti/Zr 34·5 to =490m, 42·6-47·7 below 490m)

500

Zone of cb interpreted as clasts (as well as later vng)

600

Zone with minor angular slt clasts

Strongly pyritic zone with pyrite in anastomising veins around sericific clasts Cb bx zone in middle (1m). Occasional Q xtals in matrix towards base.
Ti/Zr each 1m, 40·0-46·1 except 51·8 and 35·0

Ti/Zr 11·5-12·2

Volcaniclastic bx sst with FpD clasts >> Andesite basaltic clasts
F xtal volcaniclastic sst with rare rdd Fpd clasts. Wk q-ser altn with 3% py

Interpreted initially as FpD clasts but probably Andesitic/basaltic intrusive similar to below (Ti/Zr part of 17·9)
Andesitic/basaltic lava bx - not jigsaw fit but possibly derived from underlying andesite. (Ti/Zr 15·3 at top =3m else 44·4-46·1)

Massive Andesite/basalt. F hard to see looks more like Dacite but (Ti/Zr 44·1-46·3)

700

F xtal sst. Murky but rare lithics FpD?

Mafic dyke Sub II core (Ti/Zr 11·8-12·5)

390299

F xtal sst
FpD with mafic dykes Sub II core. Glomeroporph F (Ti/Zr probably not relevant)

Dacite lava bx but may be pseudoclastic monomict (Ti/Zr 15·0 but overlaps lower

Volcaniclastic bx-sst. Rafts of gy slt-soft sed. Becomes more FpD clast rich down
Mafic dykes Sub II to core. 1-2% py (Ti/Zr 12·2-15·2)

Shears mark contacts

5 cm

800

Interpreted as F xtal sst with rare lithics but could conceivably be FpD in parts
Mafic dykes Sub II to core (Ti/Zr 14·2-28·3, mixing D and dykes)

829·30m EOH

0 20 40 60 80 100
metres

RESOLUTE SAMANTHA

EL 8/96 "SOUTH HENTY"
Cross Section 5357 400N

Compiled	WH/GM	Scale	1:1000	HA1, HA2 & NC1 FIG 16
Drawn	DKH	Checked		
Date	Jul1996	Plan No.		

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RESOLUTE LTD - G MACDONALD

380800mE
380900mE
381000mE
381100mE
500·00
400·00
300·00
ROAD
TC4
TYNDALL CREEK
HA5
Ti/Zr 47·4
F xtal sst with Mt. Lithics inc FpD
Ti/Zr 38·9
50·2m
Ti/Zr 35·9
100
Ti/Zr 35·6
Ti/Zr 25·9
200
Ti/Zr 31·9
Ti/Zr 34·1
Ti/Zr 15·4
Ti/Zr 17·2
297·5m
FHbpA
Sy q-ser-py altd sst (?)
No core - fault
Lithic rich bx with clasts monomict, andesite derived, with mn mx
F > Mt >> Hb sst. To 5% Mt
F >> Hb xtal sst with Mt and ocl lithics FpD, p pk org fc volcaniclastic (?)
Ocl mott. Alb or Epialtn
Slt, mn dsd py
F xtal sst with Mt and ocl lithics at base (FpD?)
F >> Q xtal sst
FHbpA intrusive, contacts in broken core
F > Q > Hb xtal sst with Mt. Ocl lithics FpD? (or FHbpA)
F >> Hb > Q xtal sst with Mt. Clasts of FpD and slt
F >> Hb xtal sst with Mt. Mn py dsn's. Glomeroporph F (and Hb?) ≈72m
mn Ba vng
Ti/Zr > 26·6
Ti/Zr 24·4
Sy foliated chl-hmt altd F > Q xtal sst (c.f. TCI -5)
Zones of strong q-ser-py in stringers but not ll to foliation
clasts
FpD(?) (felsic volcaniclastics)
Massive hmt
F ≥ Q xtal sst with Mt. Ang lithic rich base - fc volcaniclastic, slt
Ti/Zr 21·4
clast QFpR
p gy slt
F ≥ Q xtal sst/bx with ab. Mt Lithics slt, QFpR, fc volcaniclastic
F >> Q xtal sst
Mod ser-py altd Andesitic bx with clasts Mt altd and py wrapping around clasts. Strong foliated (c.f. py-ser altn with NC-1)
FHbpA
FHbpA
FHbpA
FHbpA
FHbpA
FHbpA

390300

5 cm

97-4026

Appx 1

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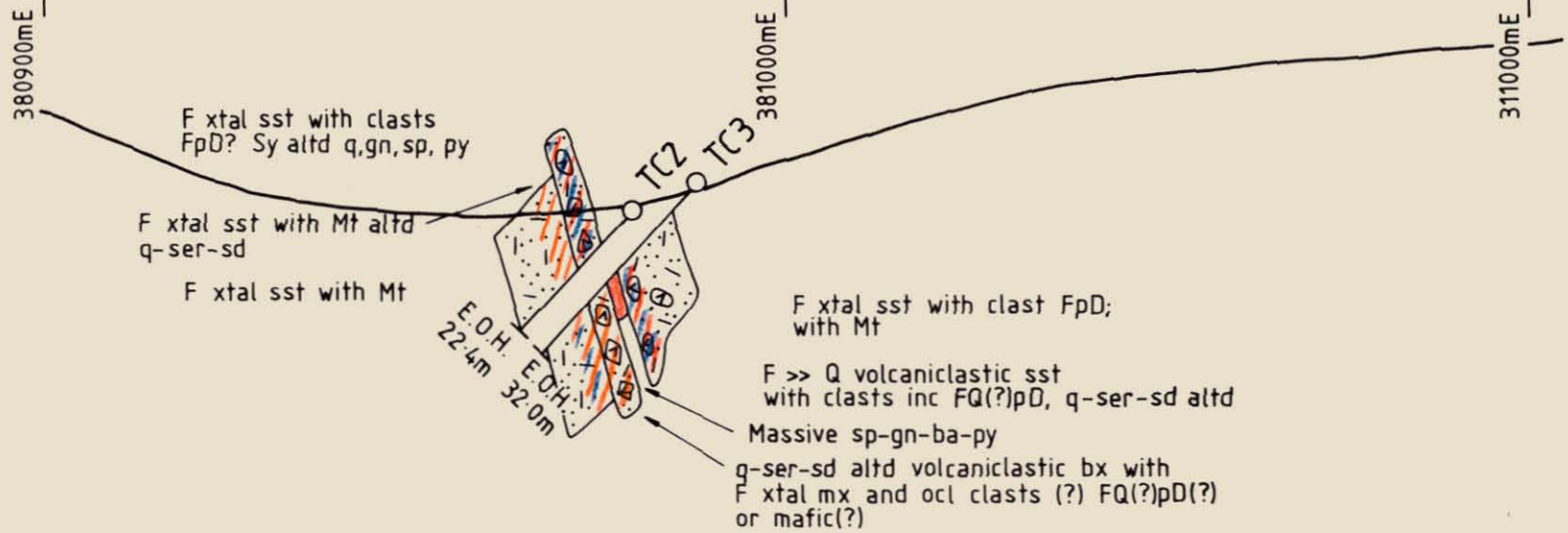
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED			
EL 8/96 "SOUTH HENTY" **Tyndall Creek** **Section** 5357160N			
Compiled	GM	Scale 1:1000	TC4 & HA5 FIG 17
Drawn	DKH	Checked	
Date	Apr 1997	Plan No.	

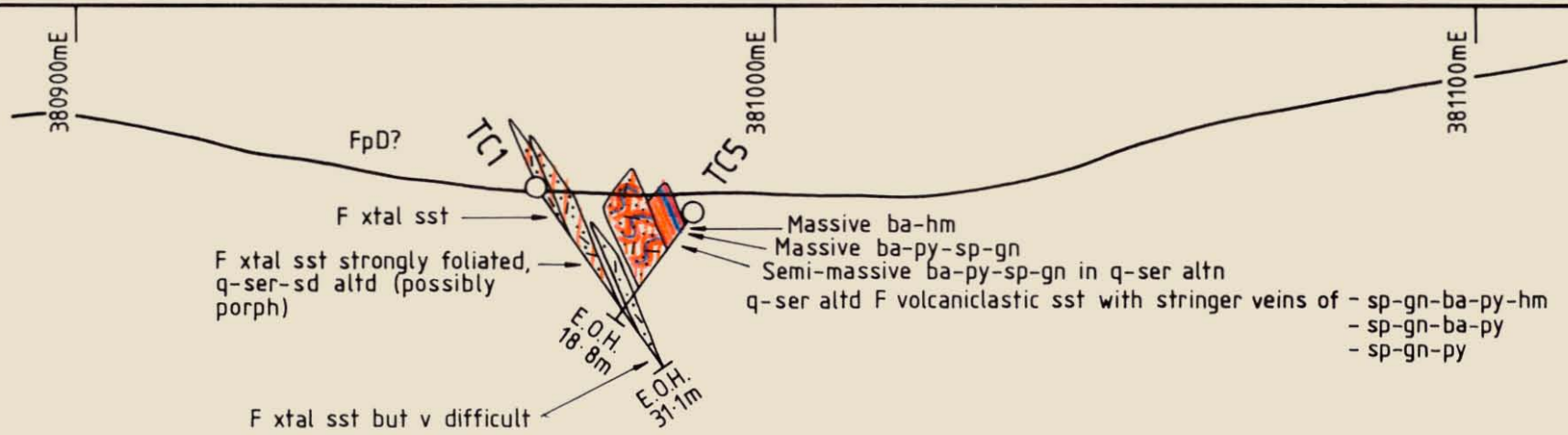


390301

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Tyndall Creek
Section 5357120N

Compiled	GM	Scale 1:1000	TC2 & TC3 FIG 18
Drawn	DKH	Checked	
Date	May 1997	Plan No.	



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EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED			
EL 8/96 "SOUTH HENTY" **Tyndall Creek** **Section** 5357100N			
Compiled	GM	Scale 1:1000	TC1 & TC5 FIG 19
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

390302

381000mE

5357400mN

5357200mN

5357000mN

F > Q Hb (?) xtal sst with Mt: and F > Hb p (?) A; Mt after Hb

F > Q Hb (?) xtal rich sst/bx with clasts F > QpR, gn gy FpD; with Mt

F > Q xtal sst with Mt

F > Q xtal sst/bx with clasts QFpR sim. lg. also wt sim. HAS; det Mt

Py (~4%) in my sil F volcanic

F (75 to 055)

NC1

TYNDALL CREEK

HAS

F Q xtal sst/bx clasts FpD or QFpR

TC4

F >> Q xtal sst/bx clasts inc. F > Qp D(?); det Mt

F xtal sst with Mt

F xtal sst rare FpD clasts

TC3

TC2

F xtal sst/bx

TC5

TC1

F xtal sst/bx det Mt

Ba-gn vng in ser F xtal volcaniclastic

F xtal sst

slt and F > Q xtal sst

F Q(?) sst/bx clasts F > Qp D(?); det Mt

F > Q xtal sst/bx clasts QFpR

390303

5 cm

97-4026 Appx1

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EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Tyndall Creek Area - Outcrop Geology

Compiled	GM	Scale 1:2500	FIGURE 20
Drawn	DKH	Checked	
Date	Apr1997	Plan No.	

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MINERAL RESOURCES
- 9 JUL 1997
TASMANIA

E.L. 8/96 "SOUTH HENTY"

Annual Report on Exploration
June '96 to June '97

Resolute Limited

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See folio 54

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FICHE No. 014502-26

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RESOLUTE LTD - G MACDONALD

Grant MacDonald BSc (Hons)
Project Geologist
July 1997

Appendix B

Sample record sheets

RESOLUTE SAMANTHA GROUP

390306

Project Name: SOUTH HENTY. Prospect Name: _____ Tenement No.: EL 8/96.

Sampler: _____ Sample Type: _____ Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384001	YNC16	83.5_	foss:l:ferous (?) carbonate		
2	"	93.3_	foss:l:ferous (?) carbonate		
3	"	122.9_	foss:l:ferous (?) carbonate		
4					
5					
6					
7					
8					
9					
s 384010					
1					
2					
3					
4					
5					
6					
7					
8					
9					
384020					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384030					

RESOLUTE SAMANTHA GROUP

390007

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: EL8/96

Sampler: WERRMANN Sample Type: SPLIT CORE / Outcrop Sample Submission No.: _____
(10-30 cm length, 0.3 to 2.0 kg wt.)

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 8 / 96

Sample No.	Drillhole	Interval (m)	Description	Coordinates N	Coordinates E
s 384031	HA2	18.9m			
2	"	36.6			
3	"	63.0			
4	"	78.2			
5	"	110.4			
6	"	159.8			
7	HA7	174.7			
8	HA8	197.3			
9	"	204.4			
s 384040	NC1	642.1	Ser-Py alt. Dacite 3/ dissPy relict FS		
1	"	642.8	(Ser-chl) relatively unalt. Dacite <0.1% Py, porphyritic?		
2	"	662.6	Chloritic relatively unaltered Basalt. <0.5% Py		
3	"	663.1	varies unalt Basalt ~30%, vein in ser-py alt/chl Basalt 2% Py		
4	"	667.4	Chl. pervasively alt (Ser-Py) in Basalt, ~5% Py.		
5	NC13	432.1	White Ser-chl alt. Dacite? ~0.2% Py		
6	"	470.3	Ser-Si alt? = Z? Dacite? ~1% Py		
7	"	483.1	Ser-Si alt = 2-3 Dacite? ~ 1-2% Py		
8	NC14	40.3	Ser-chl white alt. FS phyric Dacite <0.1% Py		
9	"	41.0	Pink bleached FS p. Dacite, <0.1% Py. trace Cpy??		
384050	"	44.3	Grey Ser-Sil-Py alt. FS p Dacite, ~2% Py. Above & below.		
1	*		STANDARD RH1 *		
2	C70	?	Comfort Chert (GMD.: C70(63)		
3	S/C		Q-Ser)Py alt. Volcaniclastic? Comfort Mullock 40m west of MS Lens.		
4	HENTY		MASSIVE QUARTZ (71.1 g/t sample)	REE	
5	HENTY		MASSIVE QUARTZ (48.3 g/t sample)		
6	HENTY		M.V. - quartz sericite alteration		
7	HENTY		M.Z. - quartz sericite pyrite alteration		
8	NC3	377.5	limestone - pale creamy pink	REE	
9	NC3	550.0	limestone - pale creamy pink & fine silty mx		
s 384060	NC3	740.6	limestone - hard - doesn't fizz		

RESOLUTE SAMANTHA GROUP

390308

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: EL 5/96

Sampler: W.H. Sample Type: Split Core Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 23/8/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
384061	HA5	57.0	silica-sericite-pyrite (1%) alt^{n}		
2	HA5	146.0	feldspar xtal sst ± Mt		
3	HA5	113.5	" "		
4	HA5	215.8			
5	HA5	85.8	feldspar xtal sst ± Mt		
6	HA5	28.9	ser altd FG xtal sst		
7	HA6	77.5	strongly foliated carbonate altd hem chloritic basalt breccia		
8	HA6	76.0	" "		
9	HA6	111.0	sy fol silty limestone		
384070	HA6	178.0	pale cmy pink limestone REE T. Zr		
1	HA5	190.0	F xtal sst ± Mt T. Zr		
2	HA5	54.0	pale cmy REE T. Zr		
3	HA5	273.7	T. Zr		
4	HA5	251.0			
5	HA5	213.8			
6	TC3	17.6	REE T. Zr		
7	TC3	27.6	F xtal sst - no Mt T. Zr.		
8	TC3	14.0	hmt-ser-ba? alt^{n} - sy fol.		
9	TC3	25.3	sy altd F xtal sst.		
384080	TC2	~~7.2~~			
1	TC5	12.2			
2	YNC4	180.2			
3	YNC8	140.6			
4	"	235.6			
5	YNC9	120.8			
6	"	144.6			
7	"	190.7			
8	"	201.0			
9	YNC10	13.7			
384090	"	187.4			

RESOLUTE SAMANTHA GROUP 390309

Project Name: South Henty Prospect Name: _____ Tenement No.: EL 8/96

Sampler: WH Sample Type: Split Core Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 23/8/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384091	YNC 10	226.6			
2	"	271.7			
3	"	312.5			
4	"	397.7			
5	"	469.4			
6	"	503.0			
7	YNC 16	630			
8	YNC5	73A			
9	TC1	11.3	sy fel sy ser altd ± F xtals		
s 384100	TC5	9.6	altd F xtal lth? volcaniclastic sst.		
1	TC4	43.3	F xtal sst ± mt.		
2	TC4	10.0	F xtal sst ± pk volc clast + Mt		
3	TC5	3.5	Msv ba-h.mt.		
4	TC5	4.4	~~Feldspar xtal sst ± pk volcanic clast~~ Massive sst-ba.		
5					
LVPCAB! 6			C-HORIZON	57400	79880
7			"	57400	79743
8			"	57400	79826
9			"	57400	79860
s 384110			"	57400	79780
1			Msv basalt ± poss F prd.	57565	79790
2			Msv basalt	57565	79800
3			Msv basalt poss psendo bx	57600	79835
4			Pumice bx	57470	79705
5			QFHb p R/D in A.R.A.	57600	79830
6			Si-ser-py alt± - MTG alt± adj to lge rehab area.	5359780	380490
7			"	"	"
8			"	"	"
9			"	"	"
s 384120			"	"	

RESOLUTE SAMANTHA GROUP

390310

Project Name: South Henty Prospect Name: Tenement No.:

Sampler: Grant / Wally Sample Type: Rock Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
384121			MTC (South Access Rd) ser py? alt'd	359545	350680
2			STANDARD Phyllitic : RM1 (white Rock Suite)		
3			Pumice Bx.	58800	80030
4			Pyritic - Ser - Qtz Altd ? Volcanic	58860	80190
5			Sericitic Q(F) porphyry (Suite II ?)	"	"
6			"SBB" Basalt Breccia	58900	80160
7			FS-Q phyric Andesite (Suite II ?) (fresh)	58680	80240
8	YNC7	14.6	Cb-ser altered Pumice Bx?		
9	"	16.5	Ser Pumice Bx? without Cb.		
384130	YNC8	258.3	Sericitic fs xt. Pumice Bx) Ti/Zr/P2O5 only.		
1	YNC9	130.0	" " " "		finalcheck 1226
*2	(N40)		Quartz silicified Dacitic? V/clastic flecks 0.5/ Py tr. Sp. Gn approx.	58810	35174
*3	(N45)		Silicified. Dacitic V/clastic, bleby 1/ Py 0.5/ Sporadic chl.	58855	38180
4	(N65)		Sil-ser f-m.g. Dacitic V/c SST, trace fine disc Py.	58850	38193
*5	(N9)		Mushy grn grey sil/ser/chl. Dacitic V/c 0.5/ Py.	58845	38202
6	(N10)		Sil. ser Dac? V/clastic ~ 2/ some flinty siliceous clasts ? lmm boundaries ex Py	58875	38180
*7	N12		Sil-ser-alt. Dac? V/clastic ~ 5/ chl. blebs, mfg	58900	38140
8			massive - pisolitic Goethite / ferricrete.	58900	38340
9			" " "	"	"
384140			Dacitic pisolitic gravel from above	"	"
1			Ser-py 5% altd dacitic? volcanic		
2			Altd ser-si-py^te ~ chalky "clasts" - Dacite?		
3			mushy dacitic volcanic or dacitic sediment.		
4			Bleached but ser altd - Dacite?		
5			Altd ser-si-py^te ~ chalky "clasts" - Dacite?		
6			Feldspar > Quartz (<1mm) xtal SSL haematite.		
7			Dacite bx - hyaloclastic or hydrothermal.		
8			Ser-py 0.5% altd "F Q xtal SSL"		
9			Ser-py 0.5% -Si altd Feldspathic rock?		
384150			" "		

RESOLUTE SAMANTHA GROUP

390311

Project Name: SOUTH HENTY, Prospect Name: _____ Tenement No.: _____

Sampler: Crow Sample Type: Rock Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384151	~~HC 044~~		Massive quartz from ~~[illegible] trail~~		
2	~~005~~		" LAKE Newton ~~dump~~		
3	"		" dam wall – actually		
4	"		" probably from ^ King		
5	"		" Power Str tunnel "		
6	"		" Lynch Lead – v sim		
7	"		" grossly to Henty ore.		
8	"		" "		
9	"		" "		
s 384160			chlorite Fp volc ± gn q vn'		
1			chlorite pyrite schist ↑ also	~5357035	380730
2			ferruginous limonite on Access	float ~ 5357035	380730
3			" to Vein 12/13	"	"
4			" "	"	"
5			" "	"	"
6			" "	"	"
7			" "	"	"
8			" "	"	"
9			chlorite pyrite schist "	~~5357400mN~~	~~380480mE~~
384170			Fp D ± Mast vngs.	~~FENCE GRID~~ 205mE	100mN
1			spec hmt in FHbpA	5358820mN	380690mE
2			" "	"	"
3			F Hb ~~[illegible]~~ float A ~~rock p or px~~	5358820mN	380565mE
4			spec hmt in FHbpA	5358820mN	380690mE
5			"	5358865mN	"
6			"	5358880mN	"
7			"	"	"
8			"	"	"
9					
s 384180					

RESOLUTE SAMANTHA GROUP

390312

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12436

Note: New Area - New Page & New Sample Type - New Page Date: 2 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384181	NC 1	~~75-85~~	776 - 777		
2			777 - 778		
3			778 - 779		
4			779 - 780		
5			780 - 781		
6			781 - 782		
7			782 - 783		
8			783 - 784		
9			784 - 785		
s 384190			785 - 786		
1			786 - 787		
2			787 - 788		
3			788 - 789		
4			789 - 790		
5			790 - 791		
6			791 - 792		
7			792 - 793		
8			793 - 794		
9			794 - 795		
s 384200			795 - 796		
1			796 - 797		
2			797 - 798		
3			798 - 799		
4			799 - 800		
5			800 - 801		
6			801 - 802		
7			802 - 803		
8			803 - 804		
9			804 - 805		
s 384210					

RESOLUTE SAMANTHA GROUP

390313

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12436

Note: New Area - New Page & New Sample Type - New Page Date: 2 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384211	HA 2		30 - 31		
2			31 - 32		
3			32 - 33		
4			33 - 34		
5			34 - 35		
6			35 - 36		
7			36 - 37		
8			37 - 38		
9			38 - 39		
s 384220			39 - 40		
1			40 - 41		
2			41 - 42		
3			42 - 43		
4			43 - 44		
5			44 - 45		
6			45 - 46		
7					
8					
9					
s 384230					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384240					

390314

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12457

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
384241	HA2		102 - 103		
2			103 - 104		
3			104 - 105		
4			105 - 106		
5			106 - 107		
6			107 - 108		
7			108 - 109		
8			109 - 110		
9			110 - 111		
384250			111 - 112		
1			112 - 113		
2			113 - 114		
3			114 - 115		
4					
5					
6					
7					
8					
9					
384260					
1					
2					
3					
4					
5					
6					
7					
8					
9					
384270					

390315

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: GRANT Sample Type: ROCK Sample Submission No.: 12457

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384271	Henty		Henty ore & foam, old dumps off Anthony Rd		
2	Silt Zone		" "		
3	ore.		" "		
4			" "		
5			" "		
6			" "		
7			" "		
8			Si-ser-py alt " "		
9			Barite mullocky adj to Tyn Ck pit		
s 384280			[illegible]		
1			"		
2			"		
3			"		
4			"		
5			"		
6			Ba-sd [illegible] in Tyn Ck		
7			" " 50m below Anthony		
8			" Rd bridge		
9			"		
s 384290			"		
1			"		
2			"		
3			"		
4			ofc in Tyn Ck bk of ba sd rng	5357180	380977
5			in ser sks vols		
6					
7					
8					
9					
s 384300					

390316

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: TYNDALL CK Tenement No.: EL 8/96

Sampler: JAMES/NICK TOTTOCC Sample Type: "WACKER" C-402120 Sample Submission No.: 12488

Note: New Area - New Page & New Sample Type - New Page Date: 9/10/11/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384301		4·5m	lclc org br cy ī mn cng q frags	57552 ~~57600~~	80887·5
2		5m	al br/gn cy ī v acl ng q xtals.	57552 ~~57600~~	80875
3		4·5m	org br cy ī Owen pebbles. (RS)	57552 ~~57600~~	80862·5
4		2·5m	org by cy	57552 ~~57600~~	80850
5		3·4m	dl gn cy	57552 ~~57600~~	80837·5
6		1m	dl gn cy alt andesite? Fp	57462 950	80674 000
7		1·6m	dl gn gy cy ~~sl~~(lcd rk) ~~cg~~ ī cng q frag 57453	~~1000~~ 937·5 ~~950~~	806~~7~~565 000
8		1·1	dl gn cy ī Owen pebbles (RS)	57444 925	80656 000
9		7m	org cy	57433 912·5	80648 000
s 384310		6·4m	org cy	57426 900	80640 000
1		1·2m	dl gn cy clc.	57551 950	80627 100E
2		0·8m	"	57544 937·5	80619 100 E
3		1·2m	red br (org (hmt) ī glassy q + clc ī fg py	57535 925	806~~1~~1 100 E
4		1·4m	FpD/A + red br (org	57525 912·5	80602 100 E
5		1m	clc schist + org cy	57516 900	80594 100 E
6		0·6m	dl gn cy clc	57348 ~~57400~~	80712·5
7		0·4m	dl gn clc ī tc dsd py	57348 ~~57400~~	80700
8		1m	dl gn cy clc ī tc dsd py	57348 ~~57400~~	80690
9		0·8m	mottled org + dl gn cy	57348 ~~57400~~	80650
384320		1·1m	clc gn volcanic ī mg dsd py + glassy q	~~57400~~ mg 57348	80637·5
1		0·2m	Hb p A	57348 ~~57400~~	80625
2		0·5m	Hb p A clasts in poss fragmental.	57348 ~~57400~~	80612·5
3		1m	gn volc - (like eastern nr HA1/2) - FpD/A.	57348 ~~57400~~	80600
4		1m	gn clc cy	57348 ~~57400~~	80587·5
5		0·4m	gn cy	57348 ~~57400~~	80575
6		0·4m	gn volcanic	57348 ~~57400~~	80562·5
7		0·4m	"	57348 ~~57400~~	80460
8		0·1m	alb/cl altd volc?	57348 ~~57400~~	80435
9		0·6m	FpD/A.	57348 ~~57400~~	80412·5
s 384330		1m	Fextal v/clastic?	57348 ~~57400~~	80387·5

390317

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: TYNDALL CK Tenement No.: EL 8/96

Sampler: JAMES / NICK POLTOCK Sample Type: "WACKER" C-HORIZON Sample Submission No.: 12488

Note: New Area - New Page & New Sample Type - New Page Date: 9+10/11/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384331		1·1m ~~1·1m~~	gn cy ī ocl cg ϕ xtals. 57348	~~57460~~	80362·5
2		3m	cg cy	57348 ~~57460~~	80337·5
3		3m	cg cy ī cg ϕ xtals	57348 ~~57460~~	80325
4		3m	cg ~~cy~~ gn mottled cy	57348 ~~57460~~	80300
5		1·5	~~cg gn mottled cy~~ FpD/A ī @ (xtals.) "		80285
6		1·6m	gn FpD/A ī poss sn Quen frag	57348 ~~57460~~	80275
7		1·5m	gn cy ī Quen frag	57348 ~~57460~~	80262·5
8		3·5m	n	57348 ~~57460~~	80250
9		1·1m	mottled bn soil	57348 ~~57460~~	80237·5
384340		1m	n ī glacial pebbles	57348 ~~57460~~	80225
1		0·8m	cg cy ī ϕ frag (poss s.l pebbles	57348 ~~57460~~	80212·5
2			outcrop)	57348 ~~57460~~	80662·5
3			OUTCROP	57348 ~~57460~~	80675
4			FLOAT ?	57348 ~~57460~~	80387·5
5					
6					
7					
8					
9					
384350					
1					
2					
3					
4					
5					
6					
7					
8					
9					
384360					

RESOLUTE SAMANTHA GROUP

390318

Project Name: SOUTH HEATH Prospect Name: _____ Tenement No.: 8/96

Sampler: Wick Poltock / Mac Donald Sample Type: WACKER & C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384361		1m	gn s.l clk ± tc dsd pg. 3m SW-OFF ROAD	59700	80650
2		1m	rdd s.l gl pebbles almost all in cm sandy cy	59700	80637.5
3		4m	cm s.l? ± q xtals (MTR?)	59700	80625
4		4.8m	clk vole ± q xtals?	59700	80612.5
5		1.5m	gl frags in p gn cy - probably all gl.	59700	80600
6		0.5m	s.l clk vole ± tedsd pg.	59700	80587.5
7		3.5m	cm sandy cy ± s.l clk vole. GRAVEL	59700	80575
8		1.5m	gy bn sandy cy	59700	80562.5
9		0.5m	MTG ssl.	59700	80550
s 384370		0.5m	" SAND + GRAVEL (POS. - NOT INSITU)	59700	80537.5
1		1.2m	"	59700	80525
2		2m	MJR (poss MTG)	59700	80512.5
3		1.5m	MJR	59700	80500
4		2.5m	MJR	59700	80487.5
5		6.5m	gy bn sandy - possibly gl.	59700	80475
6		5.4m	Sy fol	59700	80462.5
7		1.3m	some like gl ssl brk some sy fol s.l	59700	80450
8		2.8m	x gl pebbles	59800	80425
9		1m	x SAND + GRAVEL	59800	80437.5
384380		1.8m	bn sandy - gl?	59800	80462.5
1		0.8m	x gl	59800	80487.5
2		0.5m	s.l clk vole.	59800	80500
3		0.5m	s.l vole? or gl?	59800	80512.5
4		0.6m	fol s.l ser altd.	59800	80525
5		1m	MJR mav + bx?	59800	80537.5
6		1.2m	" / MTG ssl	59800	80550
7		5m	x rehab material. NEXT TO/IN REHAB	59400	80612.5
8		2.5m	x Sy fol gy blk sltst but in rehab.	59400	80625
9		3.6m	gn clk cy after D/A	59400	80637.5
s 384390		0.5m	clastic v/calcite.	59400	80662.5

RESOLUTE SAMANTHA GROUP

390319

Project Name: SOUTH HEATH Prospect Name: _____ Tenement No.: 8/96

Sampler: Nick Pelton, Gerald Mac Donald Sample Type: Hacker Chertson Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384391		0.5m	org bn cy ī qz frags (xtals)	59400	80687.5
2		0.2m	Fp D.	59400	80712.5
3		0.2m	Andesite msv	59400	80725
4		0.3m	fol Andesite ī fe ox vugs	59400	80737.5
5		0.2m	wea mt (And?) volc	59400	80762.5
6		0.5m	bn cy	59400	80787.5
7		0.8m	cmy bn cy aft sed? volc	59400	80812.5
8		1m	dacite v/textural / MTG?/	59400	80837.5
9		1.5m	gl frag in cy.	59400	80862.5
384400		1.2m	org gn cy aft dacite.	59400	80887.5
1		0.6m	MTG SSt	59300	80950
2		0.6m	cy aft MTG SSt?	59300	80937.5
3		0.6m	MTG SSt or MTR	59300	80925
4		1.2m	org cy aft MTG	59300	80912.5
5		1.3m	F xtal SSt	59300	80900
6		1.2m	" MTG?	59300	80887.5
7		1.5m	d bn cy ī frag + gl cy fol SSh possibly all gl.	59300	80875
8		1.3m	d red bn wy	59300	80862.5
9		4.8m	fol FSD clt volc	59300	80850
384410		5.8m	int volc also gl pebble	59300	80837.5
1		1.6m	x gl	59300	80825
2		0.6m	Andesite ī fe ox vugs.	59300	80812.5
3		0.3m	wea int volc - (MTG?)	59300	80800
4		0.5m	wea And ī	59300	80787.5
5		0.5m	wea porph And ī or F volc fe ox clots.	59300	80775
6		0.6m	F xtal ~~tuff~~ volc ī ppl mx - fe ox clots.	59300	80762.5
7		QC 0.5m	F xtal SSt	59300	80750
8		0.4m	Fp A ī F xtal volc.	59300	80737.5
9		1m	ol bn cy aft Fxtal SSt?	59300	80725
384420		0.8m	MTG SSt	59300	80712.5

RESOLUTE SAMANTHA GROUP

390320

Project Name: SOUTH HEATH. Prospect Name: _____ Tenement No.: E8/96

Sampler: Nick Poltock / G Macdonald Sample Type: Wacker C-horizon Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 1 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
S 384421		1.4m	Qtz + wt cy	59300	80700
2		1.2m	" alt cmy slt (Qwz?)	59300	80687.5
3		0.5m	MTR. (clast?)	59300	80675
4		1.1m	" "	59300	80662.5
5		0.4m	"	59300	80650
6		4.5m	x shales / qtzite : glacial. WASTE DUMP	59500	80600
7		2.4m	x gl.	59500	80612.5
8		1.6m	x gl.	59500	80625
9		2.8m	x gl.	59500	80637.5
S 384430		5.4m	x gl	59500	80650
1		0.8m	~~F.D.~~ F Hbp A	59500	80662.5
2		0.5m	F Hbp A or volcaniclastic.	59500	80675
3		0.5m	and v/clastic so probly too.	59500	80687.5
4		1.6m	gl. but some gn cy too	59500	80700
5		1.4m	cy alt mc/int volc.	59500	80712.5
6		1.5m	gn cy alt dacite ?	59500	80725
7		2.8m	gn s.l fg dacite (basalt.	59500	80737.5
8		1m	p lcd cy.	59500	80750
9		0.8m	"	59500	80762.5
384440		0.6m	sid ± cg q prd + fsp.	59500	80775
1		1.4m	q (don't know if ~~ATA~~ type) ± volcaniclastic.	59500	80787.5
2		2.3m	org bn sandy cy	59500	80800
3		2.5m	" alt mc/int volc	59500	80812.5
4		3.2m	" "	59500	80825
5		0.8m	pk/gn cy alt fsp volc.	59500	80837.5
6		1.4m	"	59500	80850
7		1.5m	x ~~gn ck F (Hb?) volc.~~ gl.	59500	80862.5
8		1.6m	gn ck F (Hb?) volc.	59500	80875
9			x NO SAMPLE	59500	80887.5
S 384450		3.5m	x gl.	59500	80900

390321

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: Nick Foltock / (+ Mark Dodd) Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 1 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384451		1·2m	probably GL	58900	80000
2		2·5m	? cm gn silty ? poss gl	58900	80012·5
3		2·7m	gl.	58900	80025
4		1·5m	gl.	58900	80037·5
5		1m	gn cm sft dark	58900	80050
6		0·7m	sy fel gn vck.	58900	80062·5
7		0·8m	sy fel cm cy	58900	80075
8		0·9m	"	58900	80087·5
9		1·2m	vfel cm cy.	58900	80100
384460		1·5m	fel " "	58900	80112·5
1		1·7m	gl	58900	80125
2		0·5m	SE schist ~ dsd oy	58900	80137·5
3		0·6m	"	58900	80150
4		0·5m	chl si sltc ~ dsd oy	58900	80162·5
5		0·4m	si ser (~) sltc (kd + blkd)	58900	80175
6		0·7m	cm cy	58900	80187·5
7		0·3m	f xtal sst	58900	80200
8		1·3m	FpD.	58900	80212·5
9		2m	sl gn cy but ~ gl frag?	58900	80225
384470		2·2m	" SAND + GRAVEL	58900	80237·5
1		1·4m	sg QFpD	58900	80250
2		0·5m	wed but pickly	59000	80237·5
3		1·5m	f gy gn cy	59000	80212·5
4		0·4m	gn cy sltc D	59000	80187·5
5		0·5m	"	59000	80162·5
6		0·5m	Vck sst?	59000	80137·5
7		1m	gn cy sltc dark	59000	80112·5
8		1·2m	gl	59000	80087·5
9		1·3m	gl	59000	80062·5
384480		2·7m	gl. SANDY GRAVEL	59000	80037·5

390322

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: E.M. Nick Pollock / C. MacDonald Sample Type: WACKER (C-HORIZON) Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 1 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384481		1·4m	× gl SANDY GRAVEL	59000	80025
2		1·3m	gn cy clayish	59000	79750
3		1·8m	f cln cy	59000	79775
4		1·5m	Es cy alt clayish?	59000	79800
5		2·2m	"	59000	79825
6		1·7m	× gl	59000	79850
7		1·5m	cln sandy cy.	59000	79875
8		0·6m	Fol clayish vole.	59000	79900
9		1m	cln cy	59000	79925
384490		1·2m	cy ± gl frag	59000	79950
1		1·2m	× gl	59000	79975
2		1·6m	× gl SANDY GRAVEL	59000	80000
3		0·5m	F Hb(?) p A 57819	~~57865~~ 1025	~~80~~ ~~2448~~ 400 W
4		0·5m	SEVERAL ATTEMPTS F Hb p A 57810	~~57865~~ 1012·5	~~80~~ ~~0440~~ 400 W
5		0·6m	FHbp indesite (1 gl pebble) 57800	~~57865~~ 1000	~~80~~ ~~0430~~ 400 W
6		0·2m	FHbp A ± ferruginous vugs 57792	~~57865~~ 987·5	~~80~~ ~~0422~~ 400 W
7		0·3m	bn weed And. 57783	~~57865~~ 975	~~80~~ ~~0413~~ 400 W
8		1·2m	gn cy alt And. 57774	~~57865~~ 962·5	~~80~~ ~~0404~~ 400 W
9		3·4m	And 57765	~~57865~~ 950	~~80~~ ~~0396~~ 400 W
384500		1·6m	gl 57755	~~57865~~ 937·5	~~80~~ ~~0387~~ 400 W
1		0·5m	And MC ± ferrug alt cy 57745	~~57865~~ 925	~~80~~ ~~0379~~ 400 W
2		4·6m	gn ck cy ± ferrug pebbles. 57736 glassy rd qtz pebbles) pbdo in situ	~~57865~~ 912·5	~~80~~ ~~0370~~ 400 W
3		5·6m	gl 57727	~~57865~~ 900	~~80~~ ~~0363~~ 400 W
4		4·3m	and poss some epi alt 57717	~~57865~~ 887·5	~~80~~ ~~0355~~ 400 W
5		3·2m	pl and. 57707	~~57865~~ 875	~~80~~ ~~0347~~ 400 W
6		1·5m	org weed And. 57697	~~57865~~ 862·5	~~80~~ ~~0339~~ 400 W
7		3·4m	pale bn wed And. 57688	~~57865~~ 850	~~80~~ ~~0331~~ 400 W
8		0·5m	Qp A. 57678	~~57865~~ 837·5	~~80~~ ~~0323~~ 400 W
9		1·2m	Qp A. 57669	~~57865~~ 825	~~80~~ ~~0315~~ 400 W
S 384510		0·4m	Qp A. 57659	~~57865~~ 812·5	~~80~~ ~~0307~~ 400 W

RESOLUTE SAMANTHA GROUP

390323

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, G. MACDONALD Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
S 384511		1m	And MC wall (no Q) 57650	~~57200~~ 800	~~807000~~ 298 400 W
2		1·2m	mixed gn cy - glacial pebbles 57640	~~57650~~ 787·5	~~807000~~ 291 400 W
3		0·8m	pl gn cy 57630	~~57650~~ 775	~~807000~~ 282 400 W
4		1·4m	gn sandy cy 57602	~~57650~~ 737·5	~~807000~~ 257 400 W
5		1·2m	QFpD 57592	~~57650~~ 725	~~807000~~ 250 400 W
6		3·6m	" 57533	~~57650~~ 712·5	~~807000~~ 241 400 W
7		2·5m	" 57573	~~57650~~ 700	~~807000~~ 237 400 W
8		2·3m	FHbpA but only a few flecks of Hb in sample, Q x In? 57563	~~57650~~ 687·5	~~807000~~ 225 400 W
9		3·3m	QFpD cg weath. 57581	800	~~807000~~ 325 300 W
S 384520		0·5m	QFpD 57591	812·5	~~807000~~ 382 300 W
1		1·5m	QFpD	57602 825	~~807000~~ 390 300 W
2		2·4m	QFpD	57612 837·5	~~807000~~ 398 300 W
3		0·4m	QFpD cg weathered	57622 850	~~807000~~ 406 300 W
4		3·8m	"	57631 862·5	~~807000~~ 413 300 W
5		1m	fol F(Hb?)pA	57640 875	~~807000~~ 422 300 W
6		1·2m	dcg cy	57650 887·5	~~807000~~ 429 300 W
7		1·3m	tan cy A (?)	57660 900	~~807000~~ 437 300 W
8		1·3m	fol org cy	57670 912·5	~~807000~~ 445 300 W
9		0·3m	Hb pA (or dr weathering)	57681 925	~~807000~~ 454 300 W
384530		0·9m	"	57692 937·5	~~807000~~ 463 300 W
1		1·3m	pl gn cy	57703 950	~~807000~~ 471 300 W
2		0·8m	Hb pA	57714 962·5	~~807000~~ 479 300 W
3		0·4m	"	57724 975	~~807000~~ 487 300 W
4		2·8m	"	57734 987·5	~~807000~~ 495 300 W
5		1·2m	fol mc	57744 1000	~~807000~~ 502 300 W
6		1m	F Hb(?) hard ppl A.	57753 1012·5	~~807000~~ 511 300 W
7		0·1m	VERY HARD, SEVERAL ATTEMPTS (o/c) marky Hb pA.	57763 1025	~~807000~~ 520 300 W
8		0·4m	o/c marky Hb pA (hard)	57772 1037·5	~~807000~~ 528 300 W
9		0·5m	hard ppl Hb pA marky	57781 1050	~~807000~~ 537 300 W
384540		3·7m	SEVERAL ATTEMPTS - bleached ppl cy	57852 1150	~~807000~~ 605 300 W

390324

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK & G. MACDONALD Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384541		6.6m	org / pale cy	57870 1175	80~~377~~623 300 W
2		4.5m	~~foliated fine cy~~ p gr/by cy	57~~9~~53 1200	80~~3~~641 300 W
3		1.7m	foliated gn ~~Sandy v/clastic~~ vck ī dsd py (~3%)	57906 1225	80~~3~~687 300 W
4		1.5m	sy, foliated gn vck ī dsd py (~3%)	57924 1250	~~80324687~~ 300~~80675~~
5		1.8m	fol wod F Hb(?) p A	57862 1250	80767 200 W
6		2.6m	org cy alte ms vck.	57843 1225	80750 200 W
7		1.2m	gn F sil cy	57824 1200	80733 200 W
8		1.4m	Fp D?	57806 1175	80716 200 W
9		0.5m	v/clastic ms	57~~7~~87 1150	80700 200 W
s 384550		1.4m	Hb p A wod	57768 1125	80693 200 W
1		2.4m	hard ppl gn F Hb p A. 57687	~~57~~746 1025	80619 200 W
2		0.5m	foliated tan cy	57677 1012.5	80600 200 W
3		0.3m	fol Hb p A (or derived v/clastic)	57667 1000	80591 200 W
4		0.3m	hard ppl/gn Hb p A (marby)	57656 987.5	80582 200 W
5		3m	pseudoclastic(?) A F(Hb?)	57646 975	80572 200 W
6		1.4m	Hb p A	57635 962.5	80563 200 W
7		0.5m	" - foliated	57625 950	80553 200 W
8		1.2m	gn vck ī ocl Q xtals	57615 937.5	80543 200 W
9		1.0m	fol Hb p A (or derived v/clastic)	57605 925	80535 200 W
s 384560		1.2m	ol gn/by cy	57594 912.5	80525 200 W
1		3m	fol pseudoclastic (like 384555) ī hmt in fm	57584 900	80516 200 W
2		1.5m	~~Sdy~~ fol ī ocl ADA Q xtals	57574 887.5	80507 200 W
3		1.8m	hard ppl/gn Hb p A (marby)	57564 875	80498 200 W
4		2m	org bn cy	57553 862.5	80488 200 W
5		2.4m	fol Hb p A (or derived v/clastic)	57543 850	80478 200 W
6		1.5m	Sandy gn cy → probably similar	57533 837.5	80467 200 W
7		1m	Hb p A - hard a dk gn fol	57523 825	80456 200 W
8		2.4m	foliated org cy	57513 812.5	80446 200 W
9		3.6m	poss gn v/clastic ī ocl Q xtals	57504 800	80436 200 W
s 384570		1.5m	~~org~~ ol gn aft wod and ?	57444 800	80525 100 W

RESOLUTE SAMANTHA GROUP

390325

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384571		3.5m	~~org cy~~ sy foliated fg sand?	57454 812.5	80533 100 W
2		4.5m	org cy	57463 825	80542 100 W
3		1.6m	ol gn cy	57472 837.5	80551 100 W
4		1.5m	outcrop F D/A. no obvious vrg orsd	57481 850	80560 100 W
5		0.6m	chloritic D/A? wly sts	57490 862.5	80569 100 W
6		3.2m	dl gn wed and?	57499 875	80577 100 W
7		3m	dl gn cy	57508 887.5	80586 100 W
8		3.2m	tan cy	57517 900	80594 100 W
9		4m	org cy	57526 912.5	80603 100 W
s 384580		4.3m	org cy	57535 925	80612 100 W
1		1.6m	mwly dl gn F Hbp A.	57544 937.5	80620 100 W
2		3.2m	"	57553 950	80629 100 W
3		1.6m	brn cy alt FHbpA	57562 962.5	80636 100 W
4		1.2m	Andesite (ppl)	57572 975	80644 100 W
5		1.2m	ferrug F p volcanic	57583 987.5	80652 100 W
6		1.4m	F(Hb?) p A	57593 1000	80659 100 W
7		1.2m	fol cvg sil vcls ī ~~brnly~~ g m	57603 1012.5	80666 100 W
8		0.5m	sandy F xtal v/clastic?	57614 1025	80673 100 W
9		2.0m	cy ī gl pebbles poss mixed prov	EASTING 80387.5 E	NORTHING 60000 N
s 384590		1.4m	" " —	80375 E	60000 N
1		1.5m	x gl	80362.5 E	60000 N
2		3.5m	x gl	80337.5 E	60000 N
3		3.6m	x gl	80312.5 E	60000 N
4		3.6m	cy ī gl pebbles, poss mixed prov	80287.5 E	60000 N
5		1.5m	x gl	80262.5 E	60000 N
6		2.4m	fine dacitic ashy slt/sst	80475 E	59900 N
7		2.6m	cy ī glacial pebbles - prob mixed	80462.5 E	59900 N
8		3.5m	" " — poss mixed	80450 E	59900 N
9		3.2m	wed ol gn/bn F v/clastic	80437.5 E	59900 N
s 384600		5.5m	cy ī glacial pebbles - prob mixed.	80425 E	59900 N

RESOLUTE SAMANTHA GROUP

390326

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384601		5.2m	cg ī glacial pebbles – prob mixed prov	59900	80412.5
2		5.5m	" "	59900	80400
3		1.5m	x gl	59900	80387.5
4		2.5m	cg ī glacial pebbles poss mixed prov	59900	80375
5		1.2m	dacitic fg F sst.	59900	80362.5
6		1.4m	x gl	59900	80350
7		1.1m	x gl	59900	80337.5
8		1m	x gl	59900	80325
9		1.5m	dacitic v/clastic	59900	80312.5
384610		1.4m	MJR	59900	80300
1		1.2m	fg d gy mx, Fxtals poss Hb? ∴ B/D/A?	59600	80750
2		0.6m	s.im to ↑ mx – slt	59600	80737.5
3		1.5m	Fxtal sst.	59600	80712.5
4		0.5m	MJR lava bx / mFxtal mx	59600	80687.5
5		1.2m	silt s.m to 384612 also dl gy slt	59600	80675
6		1.3m	Fxtal volcanic – ~~probably~~ ser s.l mx	59600	80662.5
7		1.4m	" ser s.l mx, probably v/clastic	59600	80650
8		1.2m	x gl cg ī pebbles.	59600	80637.5
9		3.6m	x cg ī pebbles poss mixed	59600	80625
384620		5.6m	" "	59600	80612.5
1		8.2m	" "	59600	80600
2		0.6m	wy ser F pumiceous v/clastic	59600	80587.5
3		2.2m	fg volcanic – ashy slt?	59600	80575
4		7m	cg ī gl pebbles, poss mixed prov	59200	79750
5		7.2m	" "	59200	79775
6		5.6m	dl bn cg ī gl pebbles, prob mixed prov	59200	79825
7		6.6m	x gl	59200	79850
8		4.6m	x gl	59200	79875
9		2.1m	gn cg ī gl pebbles, poss mixed prov	59200	79900
s 384630		3.8m	x gl	59200	79925

RESOLUTE SAMANTHA GROUP 390327

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC196

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384631		3.3m ~~6m~~	x gl cy ī gl pebbles	59200	79950
2		1.8m	x gl bn cy ī gl pebbles	59200	79975
3		1.3m	sandy cy gl?	59200	80012.5
4		1.3m ~~6.5m~~	bn cy ī gl pebbles	59200	80037.5
5		0.5m	mottled s.f dac. ī ferrug dots	59200	80062.5
6		0.5m ~~6.5m~~	sil alt.	59200	80087.5
7		0.3m	!! schistose serc alt ī AQA type Q	59200	80112.5
8		0.3m	mod gn cy ī AQA type Q	59200	80125
9		1.3m ~~6.1m~~	gl	59200	80137.5
384640		6.1m ~~7.9m~~	dkg cy ī AQA type Q.	59200	80150
1		1.9m ~~8.5m~~	ppl cy - wed volc.	59200	80162.5
2		0.5m ~~8.5m~~	dl gn - org cy	59200	80187.5
3		0.5m ~~9.0m~~	gn gy volc (dac.) ī m mast	59200	80212.5
4		2.1m ~~11.1m~~	gn gy cy ferrug clots	59200	80237.5
5		0.4m ~~11.5m~~	gn gy dac.hic volc my foliated	59200	80262.5
6		0.8m ~~12.3m~~	Fp volcanic, ppl mx - poss A/D	59200	80287.5
7		1.3m ~~13.6m~~	~~SEVERAL ATTEMPTS~~ gn cy alter D?	59200	80312.5
8		0.7m	SEVERAL ATTEMPTS ? clastn ī fg F ± hm.t?	59200	80337.5
9		0.8m	dl gn cy - dacitic.	59100	80250
384650		4.8m	gn cy alt Fp D(?)	59100	80237.5
1		4.8m	TWO TRIES sim cy ? but also gl pebbles	59100	80225
2		4.3m	cy ī gl pebbles, poss mixed prov.	59100	80212.5
3		1.4m	x gl	59100	80200
4		4.3m	gn cy alt F volcanic - dac.hm?	59100	80187.5
5		1m	TWO TRIES x gl	59100	80175
6		1.3m	" " x gl	59100	80162.5
7		1.5m	~~gl~~ v humic bn cy ī gl pebbles	59100	80150
8		1.7m	~~alt~~ cy ī gl pebbles, prob mixed prov	59100	80137.5
9		6.8m	VERY HARD n , poss n	59100	80125
s 384660		1.8m	n n	59100	80112.5

RESOLUTE SAMANTHA GROUP

390328

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: E/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 196

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384661		3.5m	gn cy ī gl pebbles, poss mixed prov.	59100	80100
2		0.8m	x gl	59100	80087.5
3		3.3m	gn cy ī gl pebbles, poss mixed prov.	59100	80075
4		3.4m	" "	59100	80062.5
5		3m	" "	59100	80050
6		3.9m	" "	59100	12.5 800~~25~~
7		4m	x gl	59100	80000
8		3m	cy ī gl pebbles, poss mixed prov	59100	79987.5
9		4m	" "	59100	79975
384670		1.5m	" "	59100	79962.5
1		1.6m	x gl.	59100	79950
2		3m	org cy	59300	80175
3		6.4m	org cy	59300	80162.5
4		3.5m	pl gn cy	59300	80150
5		1.5m	? tn/pst cy	59300	80137.5
6		1.5m	cm sand	59300	80125
7		1.2m	pale leached schist	59300	80112.5
8		1.2m	cm cy ī small rotd glacial? pebbles	59300	80100
9		1.4m	cm cy aft schist.	59300	80087.5
384680		0.8m	cm cy + sil rock (? gl?)	59300	80075
1		1m	cm cy	59300	80062.5
2		0.6m	fg ser schist	59300	80050
3		0.5m	gl	59300	80037.5
4		0.6m	gl	59300	80025
5		4.5m	gl	59300	80012.5
6		4m	gl	59300	80000
7		4.2m	cy ī gl pebbles, prob mixed prov	59300	79987.5
8		4.6m	cy ol gn ī gl pebbles, prob mixed prov	59300	79975
9		1.2m	x gl	59400	79950
384690		1.2m	cy, fol after dacite vole?	59400	79962.5

RESOLUTE SAMANTHA GROUP

390329

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC196

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384691		1.4m	fol cm/org cy	59400	79975
2		1m	p bn cy	59400	79987.5
3		1.5m	wea ser shist	59400	80012.5
4		1.4m	cm sandy cy ~ gl grit	59400	80037.5
5		1.6m	gl	59400	80062.5
6		1.2m	F gn gy cy (~~dacitic~~ ?) ARA qtz Q+ porph	59400	80087.5
7		1.3m	cy ~ ARA tr Q xtals	59400	80112.5
8		4.7m	F> Q xtal sst (pk alb alt?) tr gl Doesn't look like QFp	59400	80137.5
9		2.4m	p bn cy ~ sm gl poss QFp Qxtals	59400	80162.5
s 384700		2.6m	p org bn cy ~ gl grit	59400	80187.5
1		4.5m	p org bn cy (no Q)	59400	80212.5
2		1.4m	gl	59400	80237.5
3		1.2m	org wea mc	57635 1050	80699 100 W
4		1.6m	org wea F(Hb?) A	57656 1075	80704 100 W
5		3.6m	tan wea F (Hb?) p volcanic	57676 1100	80719 100 W
6		3.6m	"	57697 1125	80734 100 W
7		6m	gn cy ~ sm cy gy/wt q vnt	57717 1150	80749 100 W
8		6m	p gn cy	57737 1175	80763 100 W
9		7.9m	"	57757 1200	80779 100 W
s 384710		2m	"	57776 1225	80796 100 W
1		3m	org cy	57794 1250	80813 100 W
2		4.2m	cm cy F xtal rich v/clastic	57747 ~~57800~~	80862.5
3		3.4m	foliated fg F + Hb volcanic or v/clastic	57747 ~~57800~~	80837.5
4		4.6m	sandy F xtal + Hb(?) v/clastic	57747 ~~57800~~	80812.5
5		2.2m	gn cy	57747 ~~57800~~	80787.5
6		2.2m	fol fg v/clastic F xtals	57747 ~~57800~~	80762.5
7		9.2m	gn cy	57747 ~~57800~~	80737.5
8		5.8m	dl gn cy	57747 ~~57800~~	80712.5
9		3.6m	gn cy (F xtals)	57747 ~~57800~~	80687.5
s 384720		0.6m	fol F Hb? volcanic. 4.1m to 384721	57747 ~~57800~~	80675

RESOLUTE SAMANTHA GROUP

390330

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
384721		0.4m	F Hb p A.	57747	80662.5
2		2.5m	× gl	57747	80637.5
3		1.3m	P gr/pk vy alt A.	57747	80612.5
4		2.4m	org vy	57953	80812.5
5		4.5m	SNAPPED STARTER ROD F volcanic org c) vy	57953	80787.5
6		3.5m	F xtal v/clastic/org vy prob v/clastic	57953	80762.5
7		4.5m	"	57953	80737.5
8		4m	F Hb p A	57953	80712.5
9		1.4m	× gl	57953	80700
384730		1.4m	F Hb(?) p A	57953	80687.5
1		0.4m	pk alb altd F Hb p A?	57953	80675
2		1.8m	humic vy	57953	80662.5
3		5.5m	ol gn vy	57953	80637.5
4		1m	4 ATTEMPTS UNABLE TO PENETRATE org bn vy c gl pebble	57953	80625
5		9.2m	org vy aft F (Hb?) volcanic	57953	80612.5
6		6.5m	org vy alt A	57953	80587.5
7		2.6m	"	57953	80575
8		3.4m	"	57953	80562.5
9		6.6m	"	57953	80537.5
384740		4.0m	pol vy aft A	57953	80512.5
1		1.2m	F Hb p A mvy	57363 812.5	80579 000 E
2		1.4m	" vy	57381 837.5	80596 000 E
3		1.6m	ol gn vy	57399 862.5	80612 000 E
4		4m	org vy	57417 887.5	80631 000 E
5		1m	× d bn humic material + glacials.	57471 962.5	80682 000 E
6		1.5m	P cm/org vy	57489 987.5	80700 000 E
7		1m	Sandy cmy org c gl grit	57507 1012.5	80717 000 E
8		2.2m	cmy vy aft v volcanic or v/clastic	57525 1037.5	80735 000 E
9		0.8m	" " " "	57543 1062.5	80752 000 E
384750					

RESOLUTE SAMANTHA GROUP

390331

Project Name: SOUTH HENRY Prospect Name: LAKE VENTON Tenement No.: 8/96

Sampler: GRANT Sample Type: Rock Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: Mar 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
384751			~~F xtal v/clastic x bmt mx ī pass mi~~	~~59300~~	~~38C~~
2			" bmt det mi	n	38C820
3			dacitic pumiceous v/clastic	59400	380715
4			andesitic v/clastic ī chl altd	n	380700
5			dacitic lithic (mwbg gg) pumiceous v/clastic	59100	38C770
6			pumiceous dacitic v/clastic	n	380810
7			v/clastic - chl mx else like 384751, 2	5359450	380580
8			silicified rhyolite	5359580	380660
9			F xtal / lithic (gg silt?) v/clastic	5359580	380660
384760			sts, serc, ī rdd p gg-cm lithics n	5359025	380705
1			sts, ~~fol~~ F xtal v/clastic F xtal rich mx.	5358980	380780
2			F xtal volcanic FpD? ī vngs alt	5358910	380700
3			FpD bx.	5358910	380785
4					
5					
6					
7					
8					
9					
384770					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384780					

RESOLUTE SAMANTHA GROUP

390332

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: EL 5/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ DRILL CORE Sample Submission No.: 12544

Note: New Area - New Page & New Sample Type - New Page Date: 29 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 385501	SHD1	664-665			
2		665-666			
3		666-667			
4		667-668			
5		668-669			
6		669-670			
7		670-671			
8		671-672			
9		672-673			
S 385510		673-674			
1		674-675			
2		675-676			
3		676-677			
4		677-678			
5		678-679			
6		679-680			
7		680-681			
8		681-682			
9		682-683			
385520		683-684			
1		684-685			
2		685-686			
3		686-687			
4		687-688			
5		688-689			
6		689-690			
7		690-691			
8		691-692			
9		692-693			
S 385530		693-694			

RESOLUTE SAMANTHA GROUP

390333

Project Name: South Henty Prospect Name: Lake Newton Tenement No.: 8/91

Sampler: G. MacDonald Sample Type: ½ NQ Core Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: 29/11/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 385531	SHD1	694-695			
2		695-696			
3		696-697			
4		697-698			
5		698-699			
6		699-700			
7		700-701			
8		701-702			
9		702-703			
S 385540		703-704			
1		704-705			
2		705-706			
3		706-707			
4		707-708			
5		708-709			
6		709-710			
7		710-711			
8		711-712			
9		712-713			
S 385550		713-714			
1		714-715			
2		715-716			
3		716-717			
4		717-718			
5		718-719			
6		719-720			
7		720-721	↑ 12544		
8		721-722	↓ 12563		
9		722-723			
S 385560		723-724			

RESOLUTE SAMANTHA GROUP

390334

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385561	SHD 1	724-725			
2		725-726			
3		726-727			
4		727-728			
5		728-729			
6		729-730			
7		730-731			
8		731-732			
9		732-733			
s 385570		733-734			
1		734-735			
2		735-736			
3		736-737			
4		737-738			
5		738-739			
6		739-740			
7		740-741			
8		741-742			
9		742-743			
s 385580		743-744			
1		744-745			
2		745-746			
3		746-747			
4		747-748			
5		748-749			
6		749-750			
7		750-751			
8		751-752			
9		752-753			
s 385590		753-754			

RESOLUTE SAMANTHA GROUP

0335

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385591	SHD1	754-755			
2		755-756			
3		756-757			
4		757-758			
5		758-759			
6		759-760			
7		760-761			
8		761-762			
9		762-763			
s 385600		763-764			
1		764-765			
2		765-766			
3		766-767			
4		767-768			
5		768-769			
6		769-770			
7		770-771			
8		771-772			
9		772-773			
s 385610		773-774			
1		774-775			
2		775-776			
3		776-777			
4		777-778			
5		778-779			
6					
7					
8					
9					
s 385620					

RESOLUTE SAMANTHA GROUP

390336

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: E5/96

Sampler: GRANT MADDEN Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385621	SHD1	203.0 - 203.6			
2		224.1 - 224.6			
3		236.35 - 236.85			
4		262.2 - 262.4			
5		263.4 - 263.7			
6		265.5 - 265.8			
7		273.6 - 274			
8		274.7 - 274.9			
9		314.7 - 315.0			
s 385630		317 - 318			
1		332 - 333			
2		348 - 349			
3		360 - 361			
4		377 - 378			
5		359 - 360			
6		395 - 396			
7		418 - 419			
8		434 - 435			
9		493 - 494			
385640		475 - 476			
1		483 - 484			
2		489 - 490			
3		502 - 503			
4		513 - 514			
5		527 - 528			
6		543 - 544			
7		557 - 558			
8		574 - 575			
9		592 - 593			
s 385650		602 - 603			

RESOLUTE SAMANTHA GROUP

390337

Project Name:_____ Prospect Name:_____ Tenement No.:_____

Sampler:_____ Sample Type:_____ Sample Submission No.:12563

Note: New Area - New Page & New Sample Type - New Page Date:__/__/__

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s385651	SHD1	622-623			
2		636-637			
3		644-645			
4		440.3-441			
5					
6					
7					
8					
9					
s385660					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s385670					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s385680					

390338

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: JAMES. Sample Type: ± NQ CORE Sample Submission No.: 12589

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385681	SHD1	394- 395			
2		396-397			
3		397-398			
4		398- 459	459- 460		
5		460- 461	460- 461		
6		461- 462	461- 462		
7		462- 463	462- 463		
8		463- 464	463- 464		
9		464- 465	464- 465		
s 385690		465- 466	465- 466		
1		466- 467	466- 467		
2		467- 468	467- 468		
3		468- 469	468- 469		
4		469- 470	469- 470		
5		470- 471	470- 471		
6		471- 472	471- 472		
7		472- 473	472- 473		
8		473- 474	473- 474		
9		474- 475	474- 475		
s 385700		475- 476	476- 477		
1		476- 477	477- 478		
2		477- 478	478- 479		
3		478- 479	479- 480		
4		479- 480	480- 481		
5		480- 481	481- 482		
6		482- 483	482- 483		
7		483- 484	484- 485		
8		484- 485	485- 486		
9		485- 486	486- 487		
s 385710			487- 488		

RESOLUTE SAMANTHA GROUP

390339

Project Name: Sth Henry Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: 12589

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
385711		488 - 489			
2		~~489 - 490~~	490 - 491		
3		~~490 - 491~~	491 - 492		
4		~~491 - 492~~	497.7 - 498.7		
5			546.5 - 547.0		
6			547.0 - 547.7		
7			553.8 - 554.4		
8			559 - 559		
9		580 - 581			
385720		581 - 582			
1		582 - 583			
2		583 - 584			
3		584 - 585			
4		590 - 591			
5		607 - 608			
6		616 - 617			
7		627 - 628			
8		633 - 634			
9		639 - 640			
385730		640 - 641			
1		641 - 642			
2		642 - 643			
3		643 - 644			
4		~~644 - 645~~	645 - 646		
5		~~646 - 647~~	646 - 647		
6		~~647 - 648~~	647 - 648		
7		~~648 - 649~~	648 - 649		
8		~~649 - 650~~	649 - 650		
9		~~650 - 651~~	650 - 651		
385740		~~651 - 652~~	651 - 652		

RESOLUTE SAMANTHA GROUP

390340

Project Name: SOUTH HENTY. Prospect Name: LAKE NEWTON Tenement No.: 8/96.

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: 12589

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
385741		652–653			
2		653–654			
3		654–655			
4		655–656			
5		656–657			
6		657–658			
7		658–659			
8		659–660			
9		660–661			
385750		661–662			
1		662–663	↑ 12627		
2		663–664	↓		
3					
4					
5					
6					
7					
8					
9					
385760					
1					
2					
3					
4					
5					
6					
7					
8					
9					
385770					

RESOLUTE SAMANTHA GROUP

390341

Project Name: SOUTH HENTY Prospect Name: ~~CATENEY~~ SPILLWAY Tenement No.: 8/96

Sampler: GRANT Sample Type: ½ NQ CORE Sample Submission No.: 12627.

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385771	SHD2	264.8-266			
2		266-267			
3		267-268			
4		268-269			
5		269-270			
6		270-271			
7		271-272			
8		272-273			
9		273-274			
s 385780		274-275			
1		275-276			
2		276-277			
3		277-278			
4		278-279			
5		279-280			
6		280-281			
7		281-282			
8		282-283			
9		283-284			
s 385790		284-285			
1		285-286			
2		286-287			
3		287-288			
4		288-289			
5		289-290			
6		290-291			
7		291-292			
8		292-293			
9		293-294			
s 385800		294-295			

RESOLUTE SAMANTHA GROUP

390342

Project Name:_____ Prospect Name:_____ Tenement No.:_____

Sampler:_____ Sample Type:_____ Sample Submission No.: 12627 / 12686

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
385801	SHDZ	295-296	↑		
2		296-297	12627		
3		297-298			
4		298-299			
5		299-300			
6		300-301			
7		301-302			
8		302-303			
9		303-304			
385810		304-305			
1		305-306			
2		306-307			
3		307-308			
4		308-309			
5		309-310			
6		310-311			
7		311-312			
8		312-313			
9		313-314			
385820		314-315			
1		315-316			
2		316-317			
3		317-318			
4		318-319			
5		319-320	$		
6		320-321	↑ 12627.		
7		321-322			
8		322-323	↓ 12686		
9		323-324			
385830		324-325			

RESOLUTE SAMANTHA GROUP

390343

Project Name: SOUTH TENT, Prospect Name: SPILLWAY, Tenement No.: 8/96

Sampler: GRANT, Sample Type: ½ NQ CORE Sample Submission No.: 12686

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
385831	SHD2	325-326	↑		
2		326-327			
3		369-~~370~~			
4		370-~~371~~	12686		
5		371-372.3			
6		372.3-~~373~~ 372.8			
7		372.8-374	↓		
8		327-328			
9		328-329			
S 385840		329-330			
1		330-331			
2		331-332			
3		332-333			
4		333-334			
5		334-335			
6		336-336			
7		336-337			
8		337-338			
9		338-339			
S 385850		339-340			
1		340-341			
2		341-342			
3		342-343			
4		343-344			
5		344-345			
6		345-346			
7		346-347			
8		~~347~~ 347-348			
9		348-348.9			
S 385860		348.9-350.2			

300344

RESOLUTE SAMANTHA GROUP

Project Name: STH HENTY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 385861	SHD-2	350.2 – 351			
2		351 – 352			
3		352 – 353			
4		353 – 354			
5		354 – 355			
6		355 – 356			
7		356 – 357			
8		357 – 358			
9		358 – 359			
S 385870		359 – 360			
1		360 – 361			
2		361 – 362			
3		362 – 363			
4		363 – 364			
5		364 – 365			
6		365 – 366			
7		366 – 367			
8		367 – 368			
9		368 – 369			
385880		374 – 375			
1		375 – 376.45			
2		376.45 – 377.1			
3		377.1 – 378			
4		378 – 379			
5		379 – 380			
6		380 – 381			
7		381 – 382			
8		382 – 383			
9		383 – 384			
S 385890		384 – 385			

390345

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ± NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385891	SHD-2	385-386			
2		386-387			
3		387-388			
4		388-389			
5		389-390			
6		390-391			
7		391-392			
8		392-393			
9		393-394			
s 385900		394-395			
1		395-396			
2		396-397			
3		397-398			
4		398-399			
5		399-400			
6		400-401			
7		401-402			
8		486.5 - 487			
9		487 - 488			
385910		488-489			
1		489-490			
2		490-491			
3		491-492			
4		492-493			
5		493-494			
6		494-495			
7		495-496			
8		496-497			
9		497-498			
s 385920		498-499			

390346

RESOLUTE SAMANTHA GROUP

Project Name: STH ITENTY. Prospect Name: SPILLWAY Tenement No.: 8/96.

Sampler: JAMES Sample Type: ± NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 385921	SHD-2	499-500			
2		500-501			
3		501-502			
4		502-503			
5		503-504			
6		504-505			
7		505-506			
8		506-507			
9		507-508			
S 385930		508-509			
1		509-510			
2		510-511			
3		511-512			
4		512-513			
5		513-514			
6		514-515			
7		515-516			
8		516-517			
9		517-518			
385940		518-519			
1		519-520			
2		520-521			
3		521-522			
4		522-523			
5		523-524			
6		524-525			
7		525-526			
8		526-527			
9		527-528			
S 385950		528-529			

390347

RESOLUTE SAMANTHA GROUP

Project Name: SOUTHERN Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 385951	SHD-2	529-530			
2		530-531			
3		531-532			
4		532-533			
5		533-534			
6		534-535			
7		535-536			
8		536-537			
9		537-538			
S 385960		538-539			
1		539-540			
2		540-541			
3		541-542			
4		542-543			
5		543-544			
6		544-545			
7		545-546			
8		546-547			
9		547-548			
385970		548-549			
1		549-550			
2		550-551			
3		551-552			
4		552-553			
5		553-554			
6		554-555			
7		555-556			
8		556-557			
9		557-558			
S 385980		558-559			

390348

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENRY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
385981	SHD-2	559-560			
2		560-561			
3		561-562			
4		562-563			
5		563-564			
6		564-565			
7		565-566			
8		566-567			
9		567-568			
385990		568-569			
1		569-570			
2		570-571			
3		571-572			
4		572-573			
5		573-574			
6		574-575			
7		575-576			
8		576-577			
9		577-578			
386000		578-579			
1					
2					
3					
4					
5					
6					
7					
8					
9					
386010					

390349

RESOLUTE SAMANTHA GROUP

Project Name: SOUTH HENTY Prospect Name: TYNDALL CREEK Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ BQ CORE Sample Submission No.: ~~244~~/96

Note: New Area - New Page & New Sample Type - New Page Date: 24/1/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386011	SHD-4	46-47			
2		47-48			
3		48-49			
4		49-50			
5		50-51			
6		51-52			
7		52-53			
8		53-54			
9		54-55			
s 386020		55-56			
1		56-57.65	(PROB IS ACTUALLY 57.4)		
2					
3					
4					
5					
6					
7					
8					
9					
386030					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386040					

RESOLUTE SAMANTHA GROUP

390350

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM + DOUG Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 30 / 1 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
386041	SHD-5	2-3			
2		3-4			
3		4-5			
4		5-6			
5		6-7			
6		7-8			
7		8-9			
8		9-10			
9		10-11			
386050		11-12			
1		12-13			
2		13-14			
3		14-15			
4		15-16			
5		16-17			
6		17-18			
7		18-19			
8		19-20			
9		20-21			
386060		21-22			
1		22-23			
2		23-24.5			
3		~~24.5-25~~	24.5-25		
4		~~25-26~~	26-27 BQ CORE		
5		~~26-27~~	27-28		
6		~~27-28~~	28-29		
7		~~28-29~~	29-30		
8		~~29-30~~	30-31		
9		~~30-31~~	31-32		
386070		~~31-32~~	32-33		

RESOLUTE SAMANTHA GROUP

390351

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 9/96

Sampler: JIM + DAVE Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 386071	SHD-5	33-34			
2		34-35			
3		35-36			
4		36-37			
5		37-38			
6		38-39			
7		39-40			
8		40-41			
9		41-42			
S 386080		42-43			
1		43-44			
2		44-45			
3		45-46			
4		46-47.2			
5					
6					
7					
8					
9					
S 386090					
1					
2					
3					
4					
5					
6					
7					
8					
9					
S 386100					

RESOLUTE SAMANTHA GROUP

390352

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 11 / 2 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386101	SHD-6	153·8 –	154·4		
2		154·4 –	156		
3		156 –	157		
4		157 -	158·6		
5		158·6 –	159·6		
6		159·6 –	160·6		
7		160·6 –	161·6		
8		161·6 –	162·7		
9					
s 386110					
1	SHD-8	12 - 13			
2		13 - 14	×		
3		14 - 15			
4		15 - 16	×		
5		16 - 17			
6		17 - 18			
7		18 - 19			
8		19 - 20	×		
9		20 - 21			
386120					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386130					

RESOLUTE SAMANTHA GROUP

390353

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE + BQ Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 11/2/97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
386131	SHD-8	1-2			
2		2-3			
3		3-4			
4		4-5			
5		5-6			
6		6-7			
7		7-8			
8		8-9			
9		9-10			
386140		10-11			
1		11-12			
2		21-22			
3		22-23	x		
4		23-24			
5		24-25			
6		25-26			
7		26-27			
8		27-28			
9		28-29			
386150		29-30	x		
1		30-31			
2		31-32			
3		32-33			
4		33-34	BQ ↓		
5		34-35			
6		35-36			
7		36-37			
8		37-38			
9		38-39			
386160		39-40	x		

RESOLUTE SAMANTHA GROUP

390354

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 12/2/97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
386161	SHD-8	40-41			
2		41-42			
3		42-43			
4		43-44			
5		44-45	X		
6		45-46			
7		46-47			
8		47-48			
9		48-49			
386170		49-50			
1		50-51			
2		51-52			
3		52-53	X		
4		53-54			
5		54-55			
6					
7					
8					
9					
386180					
1					
2					
3					
4					
5					
6					
7					
8					
9					
386190					

RESOLUTE SAMANTHA GROUP

390355

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 3/96

Sampler: JM Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 2 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
386191	SHD-9	1.2-2			
2		2-3			
3		3-4			
4		4-5			
5		5-6			
6		6-7			
7		7-8			
8		8-9			
9		9-10			
386200		10-11			
1		11-12			
2		12-13			
3		13-14.2			
4		14.2-16			
5		[redacted]	16-17		
6		17-18			
7		18-19			
8		19-20			
9		20-21			
386210		21-22			
1		22-23			
2		23-24			
3		24-25			
4		25-26			
5		26-27			
6		27-28.2			
7		28.2-30			
8		30-31			
9		31-32			
386220		32-33			

RESOLUTE SAMANTHA GROUP

390356

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 6196

Sampler: JIM Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386221	SHD-9	33-34			
2		34-35			
3		35-36			
4		36-37			
5		37-38			
6		38-39			
7		39-40.6			
8		40.6-42			
9		42-43			
s 386230		43-44			
1		44-45			
2		45-46			
3		46-47.5			
4	SHD7	29.0-30.0			
5		30.0-31.0			
6		23.3-24.5			
7		36.7-37.9			
8		37.9-38.8			
9					
s 386240					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386250					

RESOLUTE SAMANTHA GROUP

390357

Project Name: SOUTH HENTY Prospect Name: MUSHROOM Tenement No.: S/96

Sampler: GRANT Sample Type: ½ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: FEB '97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 386251	SHD11	8.5-9.0			
2	"	24.3-24.8			
3	"	39.4-40.1			
4	"	54.9-55.4			
5	SHD2	75.5-76.0			
6	SHD2	164.5-165			
7	SHD2	252.5-253			
8	SHD2	651.4-651.8	ts silt		
9	"	638.4-638.9	"		
S 386260	"	630.7-631	"		
1	"	615.2-615.5	"		
2	"	605.7-606.0	"		
3	"	587.5-587.9	"		
4	"	478.3-478.8	basalt		
5	"	434.4-434.6	"		
6	"	409.0-409.5	dacite bx		
7	SHD6	248.5-248.9	basalt (Howards)		
8	"	246.1-246.4	"		
9	SHD2		lst/cb		
386270					
1					
2					
3					
4					
5					
6					
7					
8					
9					
S 386280					

RESOLUTE SAMANTHA GROUP

390358

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIMBO Sample Type: ½ NQ - ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 6 / 3 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 386281	SHD-11	0.5 -	2.0		
2		2.0 -	4.0		
3		4.0 -	6.0		
4		6.0 -	8.5		
5		9.0 -	11.0		
6		11.0 -	13.0		
7		13.0 -	15.0		
8		15.0 -	17.0		
9		17.0 -	19.0		
S 386290		19.0 -	21.0		
1		21.0 -	23.0		
2		23.0 -	24.3		
3		24.8 -	27.0		
4		27.0 -	29.0		
5		29.0 -	31.0		
6		31.0 -	33.0		
7		33.0 -	35.0		
8		35.0 -	37.0		
9		37.0 -	39.4		
386300		40.1 -	42.0		
1		42.0 -	44.0		
2		44.0 -	46.0		
3		46.0 -	48.0		
4		48.0 -	50.0		
5		50.0 -	52.0		
6		52.0 -	54.9		
7		55.4 -	56.5 E.O.H.		
8					
9					
S 386310					

RESOLUTE SAMANTHA GROUP

390359

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ - CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 386311	SHD12	552.45 -554			
2		554 -555	*		
3		555 -556			
4		556 - 557			
5		557 -558			
6		558 -559			
7		559 -560			
8		560 -561			
9		561 -562			
S 386320		562 -563			
1		563 -564			
2		564 -565			
3		565 -566			
4		566 -567			
5		567 -568			
6		568 -569			
7		569 -570	*		
8		570 -571			
9		571 -572			
386330		572 -573			
1		573 -574			
2		574 -575			
3		575 -576			
4		576 -577			
5		577 -578			
6		578 -579			
7		579 -580			
8		580 -581			
9		581 -582			
S 386340		582 -583	*		

RESOLUTE SAMANTHA GROUP 390360

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ - CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386341	SHD12	583 -584			
2		584 -585			
3		585 -586			
4		586 -587			
5		587 -588			
6		588 -589			
7		589 -590			
8		590 -591			
9		591 -592			
s 386350		592 -593			
1		593 -594			
2		594 -595			
3		595 -596			
4		596 -597	*		
5		597 -598			
6		598 -599			
7		599 -600			
8		600 -601			
9		601 -602			
s 386360		602 -603			
1		603 -604	*		
2		604 -605			
3		605 -606			
4		606 -607			
5		607 -608			
6		608 -609	*		
7		609 -610			
8		610 -611			
9		611 -612			
s 386370		612 -613			

RESOLUTE SAMANTHA GROUP

390361

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ- CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
S 386371	SHD12	613 -614			
2		614 -615			
3		615 -616			
4		616 -617	*		
5		617 -618			
6		~~618 -619~~	618 -619		
7		619 -620			
8		620 -621			
9		621 -622			
S 386380		622 -623			
1		623 -624	*		
2		624 -625			
3		625 -626			
4		626 -627			
5					
6					
7					
8					
9					
386390					
1					
2					
3					
4					
5					
6					
7					
8					
9					
S 386400					

RESOLUTE SAMANTHA GROUP

390362

Project Name: SOUTH HENTY. Prospect Name: _____ Tenement No.: EL 8/96.

Sampler: _____ Sample Type: _____ Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384001	YNC16	83.5_	fossiliferous (?) carbonate		
2	"	93.3_	fossiliferous (?) carbonate		
3	"	122.9_	fossiliferow (?) carbonate		
4					
5					
6					
7					
8					
9					
s 384010					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384020					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384030					

RESOLUTE SAMANTHA GROUP

390363

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: EL 8/96

Sampler: WHEFFMANN Sample Type: SPLIT CORE / Outcrop (10–30 cm length, 0.3 to 2.0 kg wt.) Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 8 / 96

Sample No.	Drillhole	Interval (m)	Description	Coordinates N	Coordinates E
* s 384031	HA2	18.9m			
* 2	"	36.6			
* 3	"	68.0			
4	"	78.4			
* 5	"	110.4			
6	"	159.8			
7	HA7	174.7			
● 8	HA8	197.3			
9	"	204.4			
* s 384040	NC1	642.1	Ser-Py alt. Dacite 3% dis Py, relict Fs		
* 1	"	642.8	(Ser chl) relatively malt. Dacite <0.1% Py, pseudoclastic?		
* 2	"	662.6	Chloritic relatively weathered Basalt. <0.5% Py		
* 3	"	663.1	vermels malt Basalt ~30%; vert in ser-py alt/chl Basalt 2% Py		
* 4	"	667.4	Chl. pervasively alt (Ser-Py) in Basalt, ~5% Py.		
5	YNC13	432.4	wkly Ser-chl alt. Dacite? ~0.2% Py		
6	"	470.8	Ser-Si alt? = 2? Dacite? ~1% Py		
7	"	483.1	Ser-Si alt = 2-3 Dacite? ~1-2% Py		
● 8	YNC14	40.3	Ser-chl wkly alt. Fs phyric Dacite <0.1% Py		
9	"	41.0	Pink bleached fs p. Dacite, <0.1% Py. trace Cpy??		
* s 384050	"	44.3	Grey Ser-Sil-Py alt. fsp Dacite, ~2% Py. Above & below.		
1	*		STANDARD RH1 *		
* 2	C70	?	Comsfork Chert (AMD. : C70 (68)		
* 3	S/C		Q-(Ser)Py alt. Mesonclastic? Comsfork Mullock Quarry 40m west of MS lens.		
4	HENTY		MASSIVE QUARTZ (71.1 g/t sample)	REE/WR/SD?	
5	HENTY		MASSIVE QUARTZ (48.3 g/t sample)		
6	HENTY		M.V. - quartz sericite alteration		
7	HENTY		M.Z. - quartz sericite pyrite alteration		
8	NC3	377.5	limestone - pale creamy pink.	REE/T.E.	
9	NC3	550.0	limestone - pale creamy pink ± fine silty mx.		
s 384060	NC3	740.6	limestone - hard - doesn't fizz		

RESOLUTE SAMANTHA GROUP

390364

Project Name: SOUTH KENTY Prospect Name: _____ Tenement No.: EL 8/96

Sampler: W.H. Sample Type: Split Core Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 23/8/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384061	HA5	57.0	silica-sericite-pyrite (1%) ± alt²		
2	HA5	146.0	feldspar xtal sst ± Mt		
3	HA5	113.5	" "		
4	HA5	215.8	ltc bx ± rare chert clast + Mt		
5	HA5	85.8	feldspar xtal sst ± Mt		
6	HA5	28.9	ser altd FQ xtal sst		
7	HA6	77.5	strongly foliated carbonate altd haematitic chloritic basalt breccia		
8	HA6	76.0	" "		
9	HA6	111.0	sy fol silty limestone		
s 384070	HA6	178.0	pale cmy pink limestone REE/Ti/Zr		
1	HA5	190.0	F xtal sst ± Mt Ti/Zr		
2	HA5	54.0	limestone ? pale cmy REE/Ti/Zr		
3	HA5	273.7	ltc(?) bx ± F xtals + hmt/Zr + Mt		
4	HA5	251.0	?		
5	HA5	213.8	fine ltc + F sst		
6	TC3	17.6	sy fol ser ba? REE/Ti/Zr		
7	TC3	27.6	F xtal sst - no Mt Ti/Zr		
8	TC3	14.0	hmt - ser - ba? alt² - sy fol		
9	TC3	25.3	sy altd F xtal sst		
s 384080	TC2	~~7.2~~	sy fol ba, ser		
1	TC5	12.2	sy my altd F xtal sst?		
2	YNC4	180.2			
3	YNC8	140.6			
4	"	235.6			
5	YNC9	120.8			
6	"	144.6			
7	"	190.7			
8	"	201.0			
9	YNC10	13.7			
s 384090	"	187.4			

RESOLUTE SAMANTHA GROUP

390365

Project Name: South Henty Prospect Name: Tenement No.: EL 8/96

Sampler: WH. Sample Type: Split Core Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: 23/8/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384091	YNC10	226.6	T		
2	"	271.7			
3	"	312.5			
4	"	397.7			
5	"	469.4			
6	"	503.0			
7	YNC16	68.0			
8	YNC5	73.4			
9	TC1	11.3	sy fol sy ser altd ~ F/Xtals		
s 384100	TC5	9.6	altd Fxtal ltc? volcaniclastic sst.		
1	TC4	43.3	Fxtal sst ~ Mt, "		
2	TC4	10.0	Fxtal sst ~ pk volc clast + Mt		
3	TC5	3.5	Msv Eba - hmt. REE / Ti Zr		
4	TC5	4.4	~~Feldspar xtal sst ~ pk volcanic dist~~ Massive sd-ba. T pk.		
5	standard		R+1 Ti/Zr.		
ANALYSIS 12268 ↓ 6			C-HORIZON Ti/Zr	57400	79880
7			" Ti/Zr	57400	79743
8			" Ti/Zr	57400	79826
9			" Ti/Zr	57400	79860
s 384110			" Ti/Zr	57400	79780
ANALYSIS 12268 1			Msv basalt ~ poss F pno. basalt all	57565	79790
2			Msv basalt "	57565	79800
3			Msv basalt poss psendo bx "	57600	79835
4			Pumice bx bull	57470	79705
5			QF Hb p R/D in A.R.A. all	57600	79830
6			Si-ser-py alt - MTG alt adj to lge rehab area.	5359780	380490
7			"	"	"
8		x	"	"	"
9		x	"	"	"
s 384120		x	"	"	"

RESOLUTE SAMANTHA GROUP

390366

Project Name: South Henty Prospect Name: _____ Tenement No.: _____

Sampler: Grant / Wally Sample Type: Rock Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384121			MTC (South Access Rd) ser py? altd	359545	380680
std 2			STANDARD Rhyolitic: RM1 (Whole Rock Suite)		
A 3			Pumice Bx.	58800	80050
B 4	*	Cu Pb Zn Au Ag	Pyritic-Ser-Qtz Altd ? Volcanic	58860	80180
C 5			Sericitic Q(F) porphyry (Suite II?)	"	"
D 6			"SBB" Basalt Breccia	58900	80160
E 7			Fs-Q phyric Andesite (Suite II?) (fresh)	58880	80240
F 8	YNC7	14.6	Chl-ser altered Pumice Bx?		
G 9	"	16.5	Ser Pumice Bx? with out Chl.		
s 384130	YNC8	258.3	Sericitic fs xt. Pumice Bx) Ti/Zr/P2O5	only.	
I 1	YNC9	130.0	" " ")		Analabs 12268
*2	(N6)		Cherty silicified Dacitic? V/clastic fleeks 5% qtz chlorite 0.5% Py tr. Sp, Cu approx.	58850	38174
*3	(N5)		Silicified. Dacitic V/clastic bleby 1% Py 0.5% Sp+Cu, chl.	58855	38180
4	(N8)		Sil-ser f-m.g. Dacitic V/c SST, trace fine dis. Py.	58850	38193
*5	(N9)		Murky grn grey sil/ser/chl. Dacitic V/c 0.5% Py.	58845	38202
6	(N10)		Sil. ser Dac? V/clastic ~ 2% some flinty silic clasts ? lim bxwlets ex Py	58875	38180
*7	N12		Sil-ser alt. Dac? V/clastic ~ 5% chl. blebs, mPy	58900	38140
8			massive - pisolitic Goethite/ferricrete.	58900	38340
9			" " "	"	"
s 384140			Ferruginous pisolitic gravel from above	"	"
✓ 1	G		Ser-py 5% altd, dacitic? volcanic		
2	J		Altd ser-si-py^tc ~ cherty "clasts" - Dacite?		
3	K		murky dacitic volcanic or dacitic sediment.		
4	L		Bleached but ser altd - Dacite?		
5	M		Altd ser-si-py^tc ~ cherty "clasts" - Dacite?		
6	N		Feldspar > Quartz (<1mm) xtal SSt - haematite.		
7	O	Ti/Zr.	Dacite bx - hyaloclastic or hydrothermal.		
✓ 8	B.		Ser-py 0.5% altd FQ xtal SST.		
✓ 9	I-b		Ser-py 0.5% si altd Feldspathic rock?		
s 384150	I(a)		" "		

RESOLUTE SAMANTHA GROUP

390367

Project Name: SOUTH HENTY, Prospect Name: _____ Tenement No.: _____

Sampler: Grant Sample Type: Rock Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384151	~~HENTY~~		Massive quartz from ~~possible track~~		
2	~~005~~		" LAKE Newton ~~dump~~		
3	"		" dam wall - actually		
4	"		" probably from ~ King		
5	"		" Power Str tunnel "		
6	"		" Lynch Lord - v sim		
7	"		" grossly to Henty ore.		
8	"		" "		
9	"		" "		
s 384160			chlorite Fp volc ± gn q vn'		
1			chlorite pyrite schist ↑ also	5357035	380730
2			ferruginous limonite on Access	float 5357035	380730
3			" " to YVC12/13	"	"
4			" " "	"	"
5			" " "	"	"
6			" " "	"	"
7			" "	"	"
8			" "	"	"
9			chlorite pyrite schist. "	"	"
s 384170			Fp D ± Mast vugs.	~~5357400mN~~ PANEL GRID 305mN	~~380450mE~~ 100mW
1			spec hmt in FHbpA	5358820mN	380690mE
2			" "	"	"
3			F Hb ~~$$~~ ~~float~~ A ~~volc p or px~~	5358820mN	380565mE
4			spec hmt in FHbpA	5358820mN	380690mE
5			" "	5358865mN	"
6			" "	5358880mN	"
7			" "	"	"
8			" "	"	"
9					
s 384180					

RESOLUTE SAMANTHA GROUP

390368

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12436

Note: New Area - New Page & New Sample Type - New Page Date: 2 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384181	NC 1	[illegible]	776 - 777		
2			777 - 778		
3			778 - 779		
4			779 - 780		
5			780 - 781		
6			781 - 782		
7			782 - 783		
8			783 - 784		
9			784 - 785		
s 384190			785 - 786		
1			786 - 787		
2			787 - 788		
3			788 - 789		
4			789 - 790		
5			790 - 791		
6			791 - 792		
7			792 - 793		
8			793 - 794		
9			794 - 795		
s 384200			795 - 796		
1			796 - 797		
2			797 - 798		
3			798 - 799		
4			799 - 800		
5			800 - 801		
6			801 - 802		
7			802 - 803		
8			803 - 804		
9			804 - 805		
s 384210					

RESOLUTE SAMANTHA GROUP

390369

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12436

Note: New Area - New Page & New Sample Type - New Page Date: 2 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384211	HA 2		30 - 31		
2			31 - 32		
3			32 - 33		
4			33 - 34		
5			34 - 35		
6			35 - 36		
7			36 - 37		
8			37 - 38		
9			38 - 39		
s 384220			39 - 40		
1			40 - 41		
2			41 - 42		
3			42 - 43		
4			43 - 44		
5			44 - 45		
6			45 - 46		
7					
8					
9					
s 384230					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384240					

RESOLUTE SAMANTHA GROUP

390370

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: SPLIT CORE Sample Submission No.: 12457

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384241	HA2		102 - 103		
2			103 - 104		
3			104 - 105		
4			105 - 106		
5			106 - 107		
6			107 - 108		
7			108 - 109		
8			109 - 110		
9			110 - 111		
s 384250			111 - 112		
1			112 - 113		
2			113 - 114		
3			114 - 115		
4					
5					
6					
7					
8					
9					
s 384260					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384270					

RESOLUTE SAMANTHA GROUP

390371

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: GRANT Sample Type: ROCK Sample Submission No.: 12457

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384271	Henty		Henty ore & from old dump off Anthony Rd		
2	Sill	Zone	" leave this page		
3	ore		" for Grant		
4			" "		
5			" "		
6			" "		
7			" "		
8			Si-ser-py alt " "		
9			Barite mullocks adj to Tyn Ck pit		
s 384280			Tc alt near pit		
1			"		
2			"		
3			"		
4			"		
5			"		
6			Ba-sd Tgas alt in Tyn Ck		
7			" " 50m below Anthony		
8			" Rd bridge		
9			"		
s 384290			"		
1			"		
2			"		
3			"		
4			o/c ck Tyn Ck cut ba sd rng	5357180	380977
5			in ser sts volc		
6					
7					
8					
9					
s 384300					

RESOLUTE SAMANTHA GROUP

390372

Project Name: SOUTH HENTY Prospect Name: TYNDALL CK Tenement No.: EL 8/96

Sampler: JAMES/NICK ~~ROLTOCC~~ Sample Type: "WACKER" C-HQR120 Sample Submission No.: 12488

Note: New Area - New Page & New Sample Type - New Page Date: 9/10/11/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384301		4·5m	pale org bn cy ī mn cng q frags	57552 ~~57600~~	80987·5
2		5m	ol bn/gn cy ī v ocl ng q xtals.	57552 ~~57600~~	80875
3		4·5m	org bn cy ī Qwer pebbles. (RS)	57552 ~~57600~~	80862·5
4		2·5m	org by cy.	57552 ~~57600~~	80850
5		3·4m	d gn cy	57552 ~~57600~~	80837·5
6		1m	d gn cy alt andesite? Fp	57462 950	80674 000
7		1·6m	p gn gy cy ~~f~~ (lcd rk) ~~fg~~ ī cng q frag	57453 ~~937·5~~ ~~950~~	80665 000
8		1·1	d gn cy ī Qwer pebbles (RS)	57444 925	80656 000
9		7m	org cy	57435 912·5	80648 000
s 384310		6·4m	org cy	57426 900	80640 000
1		1·2m	d gn cy clc.	57551 950	80627 100E
2		0·8m	"	57544 937·5	80619 100 E
3		1·2m	red bn ferrug (hmt) ī glassy q + clc ī fg py	57535 925	80611 100 E
4		1·4m	Fp D/A + red bn ferrug	57525 912·5	80602 100 E
5		1m	clc schist + org cy	57516 900	80594 100 E
6		0·6m	d gn cy clc	57348 ~~57400~~	80712·5
7		0·4m	d gn clc ī fc dsd py	57348 ~~57400~~	80700
8		1m	d gn cy clc ī fc dsd py	57348 ~~57400~~	80690
9		0·8m	mottled org + ol gn cy	57348 ~~57400~~	80650
s 384320		1·1m	clc gn volcanic ī mg dsd py + glassy q	~~57400~~ mg 57348	80637·5
1		0·2m	Hb p A	57348 ~~57400~~	80625
2		0·5m	Hb p A clasts in poss fragmental.	57348 ~~57400~~	80612·5
3		1m	gn volc – (like ~~costeen~~ or HA1/2) – Fp D/A.	57348 ~~57400~~	80600
4		1m	gn clc cy	57348 ~~57400~~	80587·5
5		0·4m	gn cy	57348 ~~57400~~	80575
6		0·4m	gn volcanic	57348 ~~57400~~	80562·5
7		0·4m	"	57348 ~~57400~~	80460
8		0·1m	alb/cl altd volc?	57348 ~~57400~~	80435
9		0·6m	Fp D/A.	57348 ~~57400~~	80412·5
s 384330		1m	F xtal v/clastic. ?	57348 ~~57400~~	80387·5

RESOLUTE SAMANTHA GROUP

390373

Project Name: SOUTH HENTY Prospect Name: TYNDALL CK Tenement No.: EL 8/96

Sampler: JAMES / NICK POLTOCK Sample Type: "WACKER" C-HORIZON Sample Submission No.: 12488

Note: New Area - New Page & New Sample Type - New Page Date: 9+10/11/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384331		1.1m ~~1.6m~~	gn cy ī od cg ϕ xtals. 57348	~~57460~~	80362.5
2		3m	org cy	57348 ~~57400~~	80337.5
3		3m	org cy ī cg ϕ xtals	57348 ~~57400~~	80325
4		3m	org ~~cy~~ gn mottled cy	57348 ~~57400~~	80300
5		1.5	~~org gn mottled cy~~ FpD/A ī Q (xtals) "		80285
6		1.6m	gn FpD/A ī pose mn Qvein frag	57348 ~~57400~~	80275
7		1.5m	gn cy ī Qvein frag	57348 ~~57400~~	80262.5
8		3.5m	n	57348 ~~57400~~	80250
9		1.1m	mottled bn soil	57348 ~~57400~~	80237.5
s 384340		1m	n ī glacial pebbles	57348 ~~57400~~	80225
1		0.8m	org cy ī ϕ frag (pose s.l pebbles)	57348 ~~57400~~	80212.5
2			outcrop	57348 ~~57400~~	80662.5
3			OUTCROP	57348 ~~57400~~	80675
4			FLOAT?	57348 ~~57400~~	80387.5
5					
6					
7					
8					
9					
s 384350					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384360					

RESOLUTE SAMANTHA GROUP

390374

Project Name: SOUTH HEATH Prospect Name: _____ Tenement No.: 8/96

Sampler: Wick Bolton / G MacDonald Sample Type: WACKER & C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC / 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384361		1m	gn sil clc ī tc dsd pg. 3m SW-OFF ROAD	59700	80650
2		1m	rdd sil gl pebbles almost definitely gl in cm sandy cy	59700	80637·5
3		4m	cm sil? ī q xtals (MJR?)	59700	80625
4		4·8m	clc vole ī q xtals?	59700	80612·5
5		1·5m	gl frags in p gn cy - probly all gl.	59700	80600
6		0·5m	sil clc vole ī tedsd pg.	59700	80587·5
7		3·5m	cm sandy cy ī sil clc vole. GRAVEL	59700	80575
8		1·5m	gy bn sandy cy.	59700	80562·5
9		0·5m	MTG sst.	59700	80550
s 384370		0·5m	" SAND + GRAVEL (POS. - NOT INSITU)	59700	80537·5
1		1·2m	"	59700	80525
2		2m	MJR (poss MTG)	59700	80512·5
3		1·5m	MJR	59700	80500
4		2·5m	MJR	59700	80487·5
5		6·5m	gy bn sandy - possibly gl.	59700	80475
6		5·4m	cy fol	59700	80462·5
7		1·3m	some like gl sst but some cy fol sil	59700	80450
8		2·8m	x gl pebbles	59800	80425
9		1m	x SAND + GRAVEL	59800	80437·5
s 384380		1·8m	bn sandy - gl?	59800	80462·5
1		0·8m	x gl	59800	80487·5
2		0·5m	sil clc vole.	59800	80500
3		0·5m	sil vole? or gl?	59800	80512·5
4		0·6m	fol sil ser altd.	59800	80525
5		1m	MJR mav + bx?	59800	80537·5
6		1·2m	" / MTG sst	59800	80550
7		5m	x rehab material. NEXT TO/IN REHAB	59400	80612·5
8		2·5m	x cy fol gy blk slt but in rehab.	59400	80625
9		3·6m	gn clc cy altd D/A	59400	80637·5
s 384390		0·5m	clacitic v/calcite.	59400	80662·5

RESOLUTE SAMANTHA GROUP

390375

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: Nick Pollock, G MacDonald Sample Type: Lateritic Chorizon Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384391		0.5m	org bn cy ī qz frag's (xtals?)	59400	80687.5
2		0.2m	Fp D.	59400	80712.5
3		0.2m	Andesite msv	59400	80725
4		0.3m	fol Andesite ī fe ox vugs	59400	80737.5
5		0.2m	wed mt (And?) volc.	59400	80762.5
6		0.5m	bn cy	59400	80787.5
7		0.8m	cmy bn cy aft s.d? volc	59400	80812.5
8		1m	dacite v/fetatic (MTG?)	59400	80837.5
9		1.5m	gl frag in cy	59400	80862.5
s 384400		1.2m	org gn cy aft dacite.	59400	80887.5
1		0.6m	MTG SSt.	59300	80950
2		0.6m	cy aft MTG sst?	59300	80937.5
3		0.6m	MTG SSt or MJR	59300	80925
4		1.2m	org cy aft MTG	59300	80912.5
5		1.3m	F xtal SSt	59300	80900
6		1.2m	" MTG?	59300	80887.5
7		1.5m	d bn cy ī frag + gl sy fol sh so possibly all gl.	59300	80875
8		1.3m	d red bn cy.	59300	80862.5
9		4.8m	fol Fsp dc volc	59300	80850
s 384410		5.8m	int volc also gl pebble.	59300	80837.5
1		1.6m	x gl	59300	80825
2		0.6m	Andesite ī fe ox vugs.	59300	80812.5
3		0.3m	wed mt volc - (MTG?)	59300	80800
4		0.5m	wed And?	59300	80787.5
5		0.5m	wed porph And or F volc ī fe ox clots.	59300	80775
6		0.6m	Fp ~~F xtal~~ volc ī ppl mx - fe ox clots.	59300	80762.5
7		0.5m dlc	F xtal SSt	59300	80750
8		0.4m	Fp A or F xtal volc.	59300	80737.5
9		1m	ol bn cy aft F xtal sst?	59300	80725
s 384420		0.8m	MTG SSt	59300	80712.5

RESOLUTE SAMANTHA GROUP

390376

Project Name: SOUTH HENTY. Prospect Name: _____ Tenement No.: 8/96

Sampler: Nick Pollock/ G MacDonald Sample Type: Wacker C-horizon Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 1 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384421		1.4m	org ± wt cy	59300	80700
2		1.2m	" aft cmy slt (Owen?)	59300	80687.5
3		0.5m	MJR. (clast?)	59300	80675
4		1.1m	" "	59300	80662.5
5		0.4m	"	59300	80650
6		4.5m	* shales / qtzite :. glacial. WASTE DUMP	59500	80600
7		2.4m	* gl.	59500	80612.5
8		1.6m	* gl.	59500	80625
9		2.8m	* gl.	59500	80637.5
s 384430		5.4m	* gl.	59500	80650
1		0.8m	~~FpD~~. F Hbp A.	59500	80662.5
2		0.5m	F Hbp A or volcaniclastic.	59500	80675
3		0.5m	ad v/clastic so probly too	59500	80687.5
4		1.6m	gl. but some gn cy too	59500	80700
5		1.4m	cy aft mc/int volc.	59500	80712.5
6		1.5m	pl gn cy aft dacite ?	59500	80725
7		2.8m	gn silty dacite (basalt.	59500	80737.5
8		1m	p lcd cy.	59500	80750
9		0.8m	"	59500	80762.5
s 384440		0.6m	sid ± cg q pnk + fsp.	59500	80775
1		1.4m	q (? don't know if ~~AFA~~ type) ± volcaniclastic	59500	80787.5
2		2.3m	org bn sandy cy	59500	80800
3		2.5m	" aft mc/int volc	59500	80812.5
4		3.2m	" "	59500	80825
5		0.8m	pk/gn cy aft fsp volc.	59500	80837.5
6		1.4m	"	59500	80850
7		1.5m	* ~~gn ck F (Hb?) volc.~~ gl.	59500	80862.5
8		1.6m	gn ck F (Hb?) volc.	59500	80875
9			* NO SAMPLE.	59500	80887.5
s 384450		3.5m	* gl.	59500	80900

RESOLUTE SAMANTHA GROUP

390377

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: Nick Foltock/ G MacDonald Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: Dec / 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384451		1·2m	probably GL	58900	80000
2		2·5m	f cm gn silty ? poss gl	58900	80012·5
3		2·7m	gl.	58900	80025
4		1·5m	gl.	58900	80037·5
5		1m	gn cy aft dark.	58900	80050
6		0·7m	sy fol gn vok.	58900	80062·5
7		0·8m	sy fol cm cy	58900	80075
8		0·9m	"	58900	80087·5
9		1·2m	unfol cm cy.	58900	80100
s 384460		1·5m	fol " "	58900	80112·5
1		1·7m	gl	58900	80125
2		0·8m	ser schist ~ dsd py	58900	80137·5
3		0·6m	" ?	58900	80150
4		0·5m	chl si alt ~ dsd py	58900	80162·5
5		0·4m	si ser (~) alt (kd - blkd)	58900	80175
6		0·7m	cm cy	58900	80187·5
7		0·3m	f xtal sst	58900	80200
8		1·3m	FpD.	58900	80212·5
9		2m	ol gn cy but ~ gl frag?	58900	80225
s 384470		2·2m	" SAND + GRAVEL	58900	80237·5
1		1·4m	g QFpD	58900	80250
2		0·5m	wed but probly	59000	80237·5
3		1·5m	f gy gn cy	59000	80212·5
4		0·4m	gn cy alt D	59000	80187·5
5		0·5m	"	59000	80162·5
6		0·5m	Vok sst?	59000	80137·5
7		1m	gn cy alt dacitic	59000	80112·5
8		1·2m	gl	59000	80087·5
9		1·3m	gl	59000	80062·5
s 384480		2·7m	gl. SANDY GRAVEL	59000	80037·5

RESOLUTE SAMANTHA GROUP

390378

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: G.M. Nick Pollock / C. MacDonald Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384481		1·4m	× gl SANDY GRAVEL	59000	80025
2		1·3m	gn cy dacite.	59000	79750
3		1·8m	p cm cy.	59000	79775
4		1·5m	org cy alt dacite?	59000	79800
5		2·2m	"	59000	79825
6		1·7m	× gl	59000	79850
7		1·5m	cm sndy cy.	59000	79875
8		0·6m	fol dacite volc.	59000	79900
9		1m	cm cy	59000	79925
s 384490		1·2m	cy ī gl frag	59000	79950
1		1·2m	× gl	59000	79975
2		1·6m	× gl SANDY GRAVEL	59000	80000
3		0·5m	F Hb(?) p A 57819	~~57365~~ 1025	80~~32~~448 400 W
4		0·5m	SEVERAL ATTEMPTS F Hb p A 57810	~~57363~~ 1012·5	80~~30~~440 400 W
5		0·6m	F Hb p andesite (1 gl pebble) 57800	~~57349~~ 1000	80~~20~~430 400 W
6		0·2m	F Hb p A ī ferruginous rugs. 57792	~~57340~~ 987·5	80~~29~~422 400 W
7		0·3m	bn wed And. 57783	~~57332~~ 975	80~~27~~413 400 W
8		1·2m	gn cy alt And. 57774	~~57322~~ 962·5	80~~26~~404 400 W
9		3·4m	And 57765	~~57313~~ 950	80~~26~~396 400 W
s 384500		1·6m	gl 57755	~~57307~~ 937·5	80~~22~~387 400 W
1		0·5m	And ML ī ferrug alt py 57745	~~57297~~ 925	80~~30~~379 400 W
2		4·6m	gn clr cy ī ferrug patches. 57736 glassy rd qtz pebbles) ptdo ins tu 57727	~~57288~~ 912·5	80~~30~~370 400 W
3		5·6m	gl	~~57277~~ 900	80~~35~~363 400 W
4		4·3m	and poss some epi alt ī 57717	~~57265~~ 887·5	80~~35~~355 400 W
5		3·2m	ppl and. 57707	~~57255~~ 875	80~~30~~347 400 W
6		1·5m	org wed And. 57697	~~57245~~ 862·5	80~~36~~339 400 W
7		3·4m	pale bn wed And. 57688	~~57236~~ 850	80~~40~~331 400 W
8		0·5m	Qp A. 57678	~~57227~~ 837·5	80~~35~~323 400 W
9		1·2m	Qp A. 576~~69~~	~~57217~~ 825	80~~35~~315 400 W
s 384510		0·4m	Qp A. 57659	~~57207~~ 812·5	80~~35~~307 400 W

RESOLUTE SAMANTHA GROUP 390379

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, G. MACDONALD Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384511		1m	And v/c ? weil (no Q) 57650	800	400 W
2		1·2m	mixed gn cy - glacial pebbles 57640	787·5	400 W
3		0·8m	pl gn cy 57630	775	400 W
4		1·4m	gn sandy cy 57602	737·5	400 W
5		1·2m	QFpD 57592	725	400 W
6		3·6m	" 57583	712·5	400 W
7		2·5m	" 57573	700	400 W
8		2·3m	FHbpA but only a few pieces of sample ARA? Q x tr 57563	687·5	400 W
9		3·3m	QFpD org weed. 57581	800	300 W
s 384520		0·5m	QFpD 57591	812·5	300 W
1		1·5m	QFpD	57602 825	300 W
2		2·4m	QFpD	57612 837·5	300 W
3		0·4m	QFpD org weathered.	57622 850	300 W
4		3·8m	"	57631 862·5	300 W
5		1m	fol F(Hb?) p A	57640 875	300 W
6		1·2m	org cy	57650 887·5	300 W
7		1·3m	tan cy A (-)	57660 900	300 W
8		1·3m	fol org cy	57670 912·5	300 W
9		0·3m	Hb p A (or dr w/clasts)	57681 925	300 W
384530		0·9m	"	57692 937·5	300 W
1		1·5m	ol gn cy	57703 950	300 W
2		0·8m	Hb p A	57714 962·5	300 W
3		0·4m	"	57724 975	300 W
4		2·8m	"	57734 987·5	300 W
5		1·2m	fol m.c	57744 1000	300 W
6		1m	F Hb(?) hard ppl A.	57753 1012·5	300 W
7		0·1m	VERY HARD, SEVERAL ATTEMPTS (o/c) marking Hb p A.	57763 1025	300 W
8		0·4m	o/c marky Hb p A (hard)	57772 1037·5	300 W
9		0·5m	hard ppl Hb p A marky	57781 1050	300 W
384540		3·7m	SEVERAL ATTEMPTS - bleached ppl cy	57852 1150	300 W

RESOLUTE SAMANTHA GROUP

390380

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK & G. MACDONALD Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384541		6.6m	org / pale cy	57870 1175	80~~577~~623 300 W
2		4.5m	~~foliated tan cy~~ p gr/by cy	57888 1200	80~~600~~641 300 W
3		1.7m	foliated gr ~~sandy v/clastic~~ vok ī dsd py (~3%)	57906 1225	80~~642~~657 300 W
4		1.5m	sy foliated gr vok ī dsd py (~3%)	57924 1250	~~80624 80657~~ 300 ~~80675~~
5		1.8m	fol wed F Hb(?) p A	57862 1250	80767 200 W
6		2.6m	org cy after me vok.	57843 1225	80750 200 W
7		1.2m	gr F rich cy	57824 1200	80733 200 W
8		1.4m	Fp D?	57806 1175	80716 200 W
9		0.5m	v/clastic me	57~~7~~87 1150	80700 200 W
s 384550		1.4m	Hbp A wed	57768 1125	80683 200 W
1		2.4m	hard ppl gr F Hbp A. 57687	~~57746~~ 1025	80619 200 W
2		0.5m	foliated tan cy	57677 1012.5	80600 200 W
3		0.3m	fol Hbp A (or derived v/clastic)	57667 1000	80591 200 W
4		0.3m	hard ppl/gr Hbp A (mafic)	57656 987.5	80582 200 W
5		3m	pseudoclastic(?) A F(Hb?)	57646 975	80572 200 W
6		1.4m	Hbp A	57635 962.5	80563 200 W
7		0.5m	" - foliated	57625 950	80553 200 W
8		1.2m	gr vok ī ocl Q xtals	57615 937.5	80543 200 W
9		1.0m	fol Hbp A (or derived v/clastic)	57605 925	80535 200 W
s 384560		1.2m	ol gr/by cy	57594 912.5	80525 200 W
1		3m	fol pseudoclastic (like 384555) ī mafic in fm	57584 900	80516 200 W
2		1.5m	~~sy~~ fol ī ocl A?A Q xtals	57574 887.5	80507 200 W
3		1.8m	hard ppl/gr Hbp A (mafic)	57564 875	80498 200 W
4		2m	org bn cy	57553 862.5	80488 200 W
5		2.4m	fol Hbp A (or derived v/clastic)	57543 850	80478 200 W
6		1.5m	sandy gr cy ⇒ probably similar	57533 837.5	80467 200 W
7		1m	Hbp A - hard & dk gr fol	57523 825	80456 200 W
8		2.4m	foliated org cy	57513 812.5	80446 200 W
9		3.6m	poss gr v/clastic ī ocl Q xtals	57504 800	80436 200 W
s 384570		1.5m	~~org~~ pl gr cy aft wed and?	57444 800	80525 100 W

RESOLUTE SAMANTHA GROUP

390381

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384571		3.5m	~~org cy~~ foliated fg^ sand?	57454 812.5	80533 100 W
2		4.5m	org cy	57463 825	80542 100 W
3		1.6m	dl gn cy	57472 837.5	80551 100 W
4		1.5m	outcrop FpD/A. no obvious vrg or sd	57481 850	80560 100 W
5		0.6m	chloritic D/A? bdy sts	57490 867.5	80568 100 W
6		3.2m	dl gn wed and?	57499 875	80577 100 W
7		3m	dl gn cy	57508 887.5	80586 100 W
8		3.2m	tan cy	57517 900	80594 100 W
9		4m	org cy	57526 912.5	80603 100 W
s 384580		4.3m	org cy	57535 925	80612 100 W
1		1.6m	mwly d gn F Hbp A.	57544 937.5	80620 100 W
2		3.2m	"	57553 950	80629 100 W
3		1.6m	bn cy alt FHbpA	57562 962.5	80636 100 W
4		1.2m	Andesite (ppl)	57572 975	80644 100 W
5		1.2m	ferrug F p volcanic	57583 987.5	80652 100 W
6		1.4m	F(Hb?) p A	57593 1000	80658 100 W
7		1.2m	fol wy ser volc ī ~~bowly~~ gl m	57603 1012.5	80666 100 W
8		0.5m	sandy F xtal v/clastic?	57614 1025	80673 100 W
9		2.0m	cy ī gl pebbles poss mixed prov	EASTING 80387.5 E	NORTHING 60000 N
s 384590		1.4m	n n ——	80375 E	60000 N
1		1.5m	x gl	80362.5 E	60000 N
2		3.5m	x gl	80337.5 E	60000 N
3		3.6m	x gl	80312.5 E	60000 N
4		3.6m	cy ī gl pebbles, poss mixed prov	80287.5 E	60000 N
5		1.5m	x gl	80262.5 E	60000 N
6		2.4m	fine dacitic ashy slt/sst	80475 E	59900 N
7		2.6m	cy ī glacial pebbles - prob mixed	80462.5 E	59900 N
8		3.5m	n n — poss mixed	80450 E	59900 N
9		3.2m	wed dl gn/bn F v/clastic	80437.5 E	59900 N
s 384600		5.5m	cy ī glacial pebbles - prob mixed	80425 E	59900 N

RESOLUTE SAMANTHA GROUP

390382

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC196

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384601		5.2m	cg ~ glacial pebbles – prob mixed! prov	59900	80412.5
2		5.5m	" "	59900	80400
3		1.5m	x gl	59900	80387.5
4		2.5m	cg ~ glacial pebbles poss mixed prov	59900	80375
5		1.2m	dacitic fg ± sst.	59900	80362.5
6		1.4m	x gl	59900	80350
7		1.1m	x gl	59900	80337.5
8		1m	x gl	59900	80325
9		1.5m	dacitic v/clastic	59900	80312.5
s 384610		1.4m	MJR	59900	80300
1		1.2m	fg d gy mx, Fxtals poss Hb? ∴ B/D/A?	59600	80750
2		0.6m	sim to ↑ mx – slt	59600	80737.5
3		1.5m	Fxtal sst.	59600	80712.5
4		0.5m	MJR lava bx / in Fxtal mx	59600	80687.5
5		1.2m	silt s.m to 384612 also d gy slt.	59600	80675
6		1.3m	Fxtal volcanic – ~~probably~~ ser s.l mx	59600	80662.5
7		1.4m	" ser, s.l mx, probably v/clastic	59600	80650
8		1.2m	x gl cg ~ pebbles.	59600	80637.5
9		3.6m	x cg ~ pebbles poss mixed	59600	80625
s 384620		5.6m	" "	59600	80612.5
1		8.2m	" "	59600	80600
2		0.6m	wy ser F pumiceous v/clastic	59600	80587.5
3		2.2m	fg volcanic – ashy slt?	59600	80575
4		7m	cg ~ gl pebbles, poss mixed prov	59200	79750
5		7.2m	" "	59200	79775
6		5.6m	ol bn cg* ~ gl pebbles, prob mixed prov	59200	79825
7		6.6m	x gl	59200	79850
8		4.6m	x gl	59200	79875
9		2.1m	gn wy ~ gl pebbles, poss mixed prov	59200	79900
s 384630		3.8m	x gl	59200	79925

RESOLUTE SAMANTHA GROUP

390383

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384631		3.3m ~~1.8m~~	x gl cy ī gl pebbles	59200	79950
2		1.8m	x gl bn cy ī gl pebbles	59200	79975
3		1.3m	sandy cy gl?	59200	80012.5
4		1.3m ~~0.5m~~	bn cy ī gl pebbles	59200	80037.5
5		0.5m	mottled sil dac ī ferrug dots	59200	80062.5
6		0.5m ~~0.3m~~	sil alt ī	59200	80087.5
7		0.3m	!! schistose sericite alt ī ~~ARA~~ type Q	59200	80112.5
8		0.3m	dkd gn cy ī ARA type Q	59200	80125
9		1.3m ~~6.1m~~	gl	59200	80137.5
s 384640		6.1m ~~7.9m~~	org cy ī ARA type Q.	59200	80150
1		1.9m ~~2.5m~~	ppl cy + wcd volc.	59200	80162.5
2		0.5m ~~0.5m~~	ol gn - org cy	59200	80187.5
3		0.5m ~~2.1m~~	gn gy volc(dac ī) ī mn matr	59200	80212.5
4		2.1m ~~0.4m~~	gn gy cy ferrug clots.	59200	80237.5
5		0.4m ~~0.8m~~	gn gy dacitic volc my foliated	59200	80262.5
6		0.8m ~~1.3m~~	Fp volcanic, ppl mx - poss A/D	59200	80287.5
7		1.3m ~~0.7m~~	~~SEVERAL ATTEMPTS~~ gn cy after D?	59200	80312.5
8		0.7m	SEVERAL ATTEMPTS vf clastn ī fg F + hm?	59200	80337.5
9		0.8m	ol gn cy - dacitic.	59100	80250
s 384650		4.8m	gn cy alt Fp D(?)	59100	80237.5
1		4.8m	TWO TRIES sim cy ↑ but also gl pebbles	59100	80225
2		4.3m	cy ī gl pebbles, poss mixed prov.	59100	80212.5
3		1.4m	x gl	59100	80200
4		4.3m	gn cy alt F volcanic - dacitic?	59100	80187.5
5		1m	TWO TRIES x gl	59100	80175
6		1.3m	" " x gl	59100	80162.5
7		1.5m	~~x gl~~ v humic bn cy ī gl pebbles	59100	80150
8		1.7m	~~x gl~~ cy ī gl pebbles, prob mixed prov	59100	80137.5
9		6.8m	VERY HARD " , poss "	59100	80125
s 384660		1.8m	" "	59100	80112.5

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390384

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WALKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC 196

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384661		3.5m	gn cy ī gl pebbles, poss mixed prov.	59100	80100
2		0.8m	x gl	59100	80087.5
3		3.3m	gn cy ī gl pebbles, poss mixed prov.	59100	80075
4		3.4m	" "	59100	80062.5
5		3m	" "	59100	80050
6		3.9m	" "	59100	12.5 800
7		4m	x gl	59100	80000
8		3m	cy ī gl pebbles, poss mixed prov	59100	79987.5
9		4m	" "	59100	79975
s 384670		1.5m	" "	59100	79962.5
1		1.6m	x gl.	59100	79950
2		3m	org cy	59300	80175
3		6.4m	org cy	59300	80162.5
4		3.5m	pl gn cy	59300	80150
5		1.5m	p tn/ppl cy	59300	80137.5
6		1.5m	cm sand	59300	80125
7		1.2m	pale leached schist	59300	80112.5
8		1.2m	cm cy ī small rded glacial? pebbles	59300	80100
9		1.4m	cm cy aft schist,	59300	80087.5
s 384680		0.8m	cm cy, sil rock (? gl?)	59300	80075
1		1m	cm cy	59300	80062.5
2		0.6m	fg serc schist	59300	80050
3		0.5m	gl	59300	80037.5
4		0.6m	gl	59300	80025
5		4.5m	gl	59300	80012.5
6		4m	gl	59300	80000
7		4.2m	cy ī gl pebbles, prob mixed prov	59300	79987.5
8		4.6m	cy ol gn ī gl pebbles, prob mixed prov	59300	79975
9		1.2m	x gl	59400	79950
s 384690		1.2m	cy, fol after dacite vole?	59400	79962.5

RESOLUTE SAMANTHA GROUP

390385

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1DEC/96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384691		1.4m	fol cm/org cy	59400	79975
2		1m	p br cy	59400	79987.5
3		1.5m	wed serc schist	59400	80012.5
4		1.4m	cm sandy cy ī gl grit	59400	80037.5
5		1.6m	gl	59400	80062.5
6		1.2m	p gn gy cy (~~dac~~ fic ?) ARA qtz QFporp	59400	80087.5
7		1.3m	cy ī ARA tuff Q xtals	59400	80112.5
8		4.7m	F> Q xtal sst (pl alb alt?) +bone gl Does not look like QFp	59400	80137.5
9		2.4m	p br cy ī some gl poss QFp Qxtals	59400	80162.5
s 384700		2.6m	p org br cy ī gl grit	59400	80187.5
1		4.5m	p org br cy (no Q)	59400	80212.5
2		1.4m	gl	59400	80237.5
3		1.2m	org wed mc	57635 1050	80689 100 W
4		1.6m	org wed F(Hb?) A	57656 1075	80704 100 W
5		3.6m	tan wed F (Hb?) p volcanic	57676 1100	80719 100 W
6		3.6m	"	57697 1125	80734 100 W
7		6m	gn cy ī smdy gy/wt q vnt	57717 1150	80748 100 W
8		6m	p gn cy	57737 1175	80763 100 W
9		7.9m	"	57757 1200	80779 100 W
s 384710		2m	"	57776 1225	80796 100 W
1		3m	org cy	57794 1250	80813 100 W
2		4.2m	cmy cy F xtal rich v/clastic	57747 ~~57800~~	80862.5
3		3.4m	foliated fg F + Hb volcanic or v/clastic	57747 ~~57800~~	80837.5
4		4.6m	sandy fg F xtal + Hb(?) v/clastic	57747 ~~57800~~	80812.5
5		2.2m	gn cy	57747 ~~57800~~	80787.5
6		2.2m	fol fg + vfg v/clastic Fxtals	57747 ~~57800~~	80762.5
7		9.2m	gn cy	57747 ~~57800~~	80737.5
8		5.8m	ol gn cy	57747 ~~57800~~	80712.5
9		3.6m	gn cy (F xtals)	57747 ~~57800~~	80687.5
s 384720		0.6m	fol F Hb? volcanic 4.1m to 384721	57747 ~~57800~~	80675

RESOLUTE SAMANTHA GROUP

390386

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: NICK POLTOCK, D. GREEN Sample Type: WACKER C-HORIZON Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 1 DEC 96

Sample No.	Drillhole	~~Interval~~ DEPTH	Description	Coordinates N	Coordinates E
s 384721		0.4m	F Hb p A.	57747	80662.5
2		2.5m	x gl	57747	80637.5
3		1.3m	P gr/pk cy aft A.	57747	80612.5
4		2.4m	org cy	57953	80812.5
5		4.5m	SNAPPED STARTER ROD F volcanic org cy	57953	80787.5
6		3.5m	F xtal v/clastic/org cy prob v/clastic	57953	80762.5
7		4.5m	"	57953	80737.5
8		4m	F Hb p A	57953	80712.5
9		1.4m	x gl	57953	80700
s 384730		1.4m	F Hb(?) p A	57953	80687.5
1		0.4m	pk alb altd F Hb p A?	57953	80675
2		1.8m	humic cy	57953	80662.5
3		5.5m	ol gn cy	57953	80637.5
4		1m	4 ATTEMPTS UNABLE TO PENETRATE org bn cy c gl pebble	57953	80625
5		9.2m	org cy aft F (Hb?) volcanic	57953	80612.5
6		6.5m	org cy aft A	57953	80587.5
7		2.6m	"	57953	80575
8		3.4m	"	57953	80562.5
9		6.6m	"	57953	80537.5
s 384740		4.0m	pgl cy aft A	57953	80512.5
1		1.2m	F Hb p A mrky	57363 812.5	80579 000E
2		1.4m	" cy	57381 837.5	80596 000E
3		1.6m	ol gn cy	57399 862.5	80612 000E
4		4m	org cy	#57417 887.5	80631 000E
5		1m	x d bn humic material + glacials.	57471 962.5	80682 000E
6		1.5m	P cm/org cy	57489 987.5	80700 000E
7		1m	Sandy cmy cy c gl grit	57507 1012.5	80717 000E
8		2.2m	cmy cy altd volcanic or v/clastic	57525 1037.5	80735 000E
9		0.8m	" " " "	57543 1062.5	80752 000E
s 384750					

RESOLUTE SAMANTHA GROUP

390387

Project Name: SOUTH HENTY Prospect Name: LAKE VENTON Tenement No.: 8/96

Sampler: GRANT Sample Type: Rock Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: MAR 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 384751			~~F xtal v/clastic ↑ bmt mx ī poss mc~~	~~59300~~	~~380~~
2			" bmt def mc	n	380820
3			dacitic pumiceous v/clastic	59400	380715
4			andesitic v/clastic ī chl altd	n	380700
5			dacitic lithic (mnrly gg) ↑ pumiceous v/clastic.	59100	380770
6			pumiceous ↑ dacitic v/clastic	n	380810
7			v/clastic - chl mx else like 384751, 2	5359490	380580
8			silicified rhyolite	5359580	380660
9			F xtal / lithic (gy slt?) v/clastic	5359580	380660
s 384760			sts, serc, ī rdd p gg-cm lithics n	5359025	380705
1			sts, ~~fol~~ F xtal v/clastic F xtal rich mx.	5358980	380780
2			F xtal volcanic FpD? ī vngs alt	5358910	380700
3			FpD bx.	5358910	380785
4					
5					
6					
7					
8					
9					
s 384770					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 384780					

RESOLUTE SAMANTHA GROUP

390388

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: EL 8/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ DRILL CORE Sample Submission No.: 12544

Note: New Area - New Page & New Sample Type - New Page Date: 29 / 11 / 96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385501	SHD1	664-665			
2		665-666			
3		666-667			
4		667-668			
5		668-669			
6		669-670			
7		670-671			
8		671-672			
9		672-673			
s 385510		673-674			
1		674-675			
2		675-676			
3		676-677			
4		677-678			
5		678-679			
6		679-680			
7		680-681			
8		681-682			
9		682-683			
s 385520		683-684			
1		684-685			
2		685-686			
3		686-687			
4		687-688			
5		688-689			
6		689-690			
7		690-691			
8		691-692			
9		692-693			
s 385530		693-694			

RESOLUTE SAMANTHA GROUP

390389

Project Name: South Henty Prospect Name: Lake Newton Tenement No.: 8/91

Sampler: G. MacDonald Sample Type: ½ NQ Core Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: 29/11/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385531	SHD1	694-695			
2		695-696			
3		696-697			
4		697-698			
5		698-699			
6		699-700			
7		700-701			
8		701-702			
9		702-703			
s 385540		703-704			
1		704-705			
2		705-706			
3		706-707			
4		707-708			
5		708-709			
6		709-710			
7		710-711			
8		711-712			
9		712-713			
s 385550		713-714			
1		714-715			
2		715-716			
3		716-717			
4		717-718			
5		718-719			
6		719-720			
7		720-721	↑ 12544		
8		721-722	↓ 12563		
9		722-723			
s 385560		723-724			

RESOLUTE SAMANTHA GROUP

390390

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385561	SHD 1	724-725			
2		725-726			
3		726-727			
4		727-728			
5		728-729			
6		729-730			
7		730-731			
8		731-732			
9		732-733			
s 385570		733-734			
1		734-735			
2		735-736			
3		736-737			
4		737-738			
5		738-739			
6		739-740			
7		740-741			
8		741-742			
9		742-743			
s 385580		743-744			
1		744-745			
2		745-746			
3		746-747			
4		747-748			
5		748-749			
6		749-750			
7		750-751			
8		751-752			
9		752-753			
s 385590		753-754			

RESOLUTE SAMANTHA GROUP

390391

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385591	SHD1	754-755			
2		755-756			
3		756-757			
4		757-758			
5		758-759			
6		759-760			
7		760-761			
8		761-762			
9		762-763			
s 385600		763-764			
1		764-765			
2		765-766			
3		766-767			
4		767-768			
5		768-769			
6		769-770			
7		770-771			
8		771-772			
9		772-773			
s 385610		773-774			
1		774-775			
2		775-776			
3		776-777			
4		777-778			
5		778-779			
6					
7					
8					
9					
s 385620					

RESOLUTE SAMANTHA GROUP

390392

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: E/96

Sampler: GRANT MACDONALD Sample Type: ½ NQ CORE Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385621	SHD1	203.0 - 203.6	Dacite / basalt?		
2		224.1 - 224.6	"		
3		236.35 - 236.75	"		
4		262.2 - 262.4	basaltic? s/t		
5		263.4 - 263.7	hmt lst / basalt bx		
6		265.5 - 265.8	"		
7		273.6 - 274	basaltic s/t		
8		274.7 - 274.9	dacite		
9		314.7 - 315.0	lst.		
s 385630		317 - 318			
1		332 - 333			
2		348 - 349			
3		360 - 361			
4		377 - 378			
5		389 - 390			
6		395 - 396	mzd.		
7		412 - 413			
8		434 - 435			
9		493 - 494			
s 385640		475 - 476			
1		483 - 484			
2		489 - 490			
3		502 - 503			
4		513 - 514			
5		527 - 528			
6		543 - 544			
7		557 - 558			
8		574 - 575			
9		592 - 593			
s 385650		602 - 603			

RESOLUTE SAMANTHA GROUP

390393

Project Name:_____ Prospect Name:_____ Tenement No.:_____

Sampler:_____ Sample Type:_____ Sample Submission No.: 12563

Note: New Area - New Page & New Sample Type - New Page Date:___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385651	SHD1	622 -623			
2		636 -637			
3		644 -645			
4		440.3 -441.	mzd.		
5					
6					
7					
8					
9					
s 385660					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 385670					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 385680					

RESOLUTE SAMANTHA GROUP

390394

Project Name: SOUTH HENTY Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: JAMES. Sample Type: ½ NQ CORE Sample Submission No.: 12589

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385681	SHD1	394-395			
2		[redacted]-397			
3		[redacted]-398			
4		397-398	459-460		
5		460-461	460-461		
6		461-462	461-462		
7		462-463	462-463		
8		463-464	463-464		
9		464-465	464-465		
s 385690		465-466	465-466		
1		466-467	466-467		
2		467-468	467-468		
3		468-469	468-469		
4		469-470	469-470		
5		470-471	470-471		
6		471-472	471-472		
7		472-473	472-473		
8		473-474	473-474		
9		474-475	474-475		
s 385700		475-476	476-477		
1		476-477	477-478		
2		477-478	478-479		
3		478-479	479-480		
4		479-480	480-481		
5		480-481	481-482		
6		481-482	482-483		
7		482-483	484-485		
8		483-484	485-486		
9		484-485	486-487		
s 385710			487-488		

RESOLUTE SAMANTHA GROUP 390395

Project Name: Sth Henry Prospect Name: LAKE NEWTON Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: 2589

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385711		488-489			
2		~~489-490~~	490-491		
3		~~490-491~~	491-492		
4		~~491-492~~	497.7-498.7		
5			546.3-547.0		
6			547.0-547.7		
7			553.8-554.4		
8			579-~~580~~ 580		
9		580-581			
s 385720		581-582			
1		582-583			
2		583-584			
3		584-585			
4		596-597			
5		607-608			
6		616-617			
7		627-628			
8		633-634			
9		639-640			
s 385730		640-641			
1		641-642			
2		642-643			
3		643-644			
4		~~644-645~~	645-646		
5		~~646-647~~	646-647		
6		~~647-648~~	647-648		
7		~~648-649~~	648-649		
8		~~649-650~~	649-650		
9		~~650-651~~	650-651		
s 385740		~~651-652~~	651-652		

RESOLUTE SAMANTHA GROUP 390396

Project Name: SOUTH HENRY. Prospect Name: LAKE NEWTON Tenement No.: 8/96.

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: 12589

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385741		652–653			
2		653–654			
3		654–655			
4		655–656			
5		656–657			
6		657–658			
7		658–659			
8		659–660			
9		660–661			
s 385750		661–662			
1		662–663	↑ 12627		
2		663–664	↓		
3					
4					
5					
6					
7					
8					
9					
s 385760					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 385770					

RESOLUTE SAMANTHA GROUP

390397

Project Name: SOUTH HENTY Prospect Name: ~~LAKE NEV~~ SPILLWAY Tenement No.: 8/96

Sampler: GRANT Sample Type: ½ NQ CORE Sample Submission No.: 12627.

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385771	SHD2	264.8-266			
2		266-267	X		
3		267-268			
4		268-269			
5		269-270			
6		270-271			
7		271-272			
8		272-273			
9		273-274			
s 385780		274-275			
1		275-276			
2		276-277	X		
3		277-278			
4		278-279			
5		279-280	X		
6		280-281			
7		281-282			
8		282-283			
9		283-284			
s 385790		284-285			
1		285-286			
2		286-287			
3		287-288			
4		288-289	X		
5		289-290			
6		290-291			
7		291-292	X		
8		292-293			
9		293-294			
s 385800		294-295			

RESOLUTE SAMANTHA GROUP 390398

Project Name:_____ Prospect Name:_____ Tenement No.:_____

Sampler:_____ Sample Type:_____ Sample Submission No.: 12627 / 12686

Note: New Area - New Page & New Sample Type - New Page Date:__/__/__

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385801	SHD2	295-296	↑		
2		296-297	12627		
3		297-298			
4		298-299			
5		299-300			
6		300-301			
7		301-302			
8		302-303			
9		303-304			
s 385810		304-305			
1		305-306			
2		306-307			
3		307-308			
4		308-309			
5		309-310			
6		310-311			
7		311-312	X		
8		312-313			
9		313-314			
s 385820		314-315			
1		315-316			
2		316-317			
3		317-318			
4		318-319			
5		319-320	$		
6		320-321	↑ 12627.		
7		321-322			
8		322-323	↓ 12686		
9		323-324			
s 385830		324-325			

RESOLUTE SAMANTHA GROUP 390399

Project Name: SOUTH HENTY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: GRANT Sample Type: ½ NQ CORE Sample Submission No.: 12686

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385831	SHD2	325-326	↑		
2		326-327			
3		~~369-370~~			
4		~~370-371~~	12686		
5		371-372.3			
6		~~372.3-373~~ 372.8			
7		372.8-374	↓		
8		327-328			
9		328-329			
s 385840		329-330			
1		330-331			
2		331-332			
3		332-333			
4		333-334			
5		334-335			
6		335-336			
7		336-337			
8		337-338			
9		338-339			
s 385850		339-340			
1		340-341			
2		341-342			
3		342-343			
4		343-344			
5		344-345			
6		345-346			
7		346-347			
8		~~347~~ 347-348			
9		348-348.9			
s 385860		348.9-350.2			

RESOLUTE SAMANTHA GROUP

390400

Project Name: SIH HENTY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385861	SHD-2	350.2 – 351			
2		351 – 352			
3		352 – 353			
4		353 – 354			
5		354 – 355			
6		355 – 356			
7		356 – 357			
8		357 – 358			
9		358 – 359			
s 385870		359 – 360			
1		360 – 361			
2		361 – 362			
3		362 – 363			
4		363 – 364			
5		364 – 365			
6		365 – 366			
7		366 – 367			
8		367 – 368			
9		368 – 369			
s 385880		374 – 375			
1		375 – 376.45			
2		376.45 – 377.1			
3		377.1 – 378			
4		378 – 379			
5		379 – 380			
6		380 – 381			
7		381 – 382			
8		382 – 383			
9		383 – 384			
s 385890		384 – 385			

RESOLUTE SAMANTHA GROUP

390401

Project Name: SOUTH HENRY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	interval	Description	Coordinates N	Coordinates E
s 385891	SHD-2	385-386			
2		386-387			
3		387-388			
4		388-389			
5		389-390			
6		390-391			
7		391-392			
8		392-393			
9		393-394			
s 385900		394-395			
1		395-396			
2		396-397			
3		397-398			
4		398-399			
5		399-400			
6		400-401			
7		401-402			
8		486.6 - 487			
9		487-488			
s 385910		488-489			
1		489-490			
2		490-491			
3		491-492			
4		492-493			
5		493-494			
6		494-495			
7		495-496			
8		496-497			
9		497-498			
s 385920		498-499			

RESOLUTE SAMANTHA GROUP

390402

Project Name: STH IRENTY. Prospect Name: SPILLWAY Tenement No. 8/96.

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385921	SHD-2	499-500			
2		500-501			
3		501-502			
4		502-503			
5		503-504			
6		504-505			
7		505-506			
8		506-507			
9		507-508			
s 385930		508-509			
1		509-510			
2		510-511			
3		511-512			
4		512-513			
5		513-514			
6		514-515			
7		515-516			
8		516-517			
9		517-518			
s 385940		518-519			
1		519-520			
2		520-521			
3		521-522			
4		522-523			
5		523-524			
6		524-525			
7		525-526			
8		526-527			
9		527-528			
s 385950		528-529			

RESOLUTE SAMANTHA GROUP

390403

Project Name: SOUTHHENRY Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ2 CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385951	SHD-2	529-530			
2		530-531			
3		531-532			
4		532-533			
5		533-534			
6		534-535			
7		535-536			
8		536-537			
9		537-538			
s 385960		538-539			
1		539-540			
2		540-541			
3		541-542			
4		542-543			
5		543-544			
6		544-545			
7		545-546			
8		546-547			
9		547-548			
s 385970		548-549			
1		549-550			
2		550-551			
3		551-552			
4		552-553			
5		553-554			
6		554-555			
7		555-556			
8		556-557			
9		557-558			
s 385980		558-559			

RESOLUTE SAMANTHA GROUP

390404

Project Name: SOUTH HENRI Prospect Name: SPILLWAY Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 385981	SHD-2	559-560			
2		560-561			
3		561-562			
4		562-563			
5		563-564			
6		564-565			
7		565-566			
8		566-567			
9		567-568			
s 385990		568-569			
1		569-570			
2		570-571			
3		571-572			
4		572-573			
5		573-574			
6		574-575			
7		575-576			
8		576-577			
9		577-578			
s 386000		578-579			
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386010					

RESOLUTE SAMANTHA GROUP

390405

Project Name: SOUTH HENTY Prospect Name: TYNDALL CREEK Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ BQ CORE Sample Submission No.: ~~[illegible]~~/96

Note: New Area - New Page & New Sample Type - New Page Date: ~~[illegible]~~/1/96

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386011	SHD-4	46-47			
2		47-48			
3		48-49			
4		49-50			
5		50-51			
6		51-52			
7		52-53			
8		53-54			
9		54-55			
s 386020		55-56			
1		56-57.65	(PROB IS ACTUALLY 57.4)		
2					
3					
4					
5					
6					
7					
8					
9					
s 386030					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386040					

RESOLUTE SAMANTHA GROUP

390406

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM + DOUG Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 30/1/97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386041	SHD-5	2-3			
2		3-4			
3		4-5			
4		5-6			
5		6-7			
6		7-8			
7		8-9			
8		9-10			
9		10-11			
s 386050		11-12			
1		12-13			
2		13-14			
3		14-15			
4		15-16			
5		16-17			
6		17-18			
7		18-19			
8		19-20			
9		20-21			
s 386060		21-22			
1		22-23			
2		23-24.5			
3		~~24.5-25~~	24.5-26		
4		~~25-26~~	26-27 BQ CORE		
5		~~26-27~~	27-28		
6		~~27-28~~	28-29		
7		~~28-29~~	29-30		
8		~~29-30~~	30-31		
9		~~30-31~~	31-32		
s 386070		~~31-32~~	32-33		

RESOLUTE SAMANTHA GROUP

390407

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM + DOUG Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386071	SHD-5	33-34			
2		34-35			
3		35-36			
4		36-37			
5		37-38			
6		38-39			
7		39-40			
8		40-41			
9		41-42			
s 386080		42-43			
1		43-44			
2		44-45			
3		45-46			
4		46-47.2			
5					
6					
7					
8					
9					
s 386090					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386100					

RESOLUTE SAMANTHA GROUP

390408

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: E/96

Sampler: JAMES Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 11 / 2 /97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386101	SHD-6	153.8 –	154.4		
2		154.4 –	156		
3		156 –	157		
4		157 –	158.6		
5		158.6 –	159.6		
6		159.6 –	160.6		
7		160.6 –	161.6		
8		161.6 –	162.7		
9					
s 386110					
1	SHD-8	12 – 13	■		
2		13 – 14	×		
3		14 – 15			
4		15 – 16	×		
5		16 – 17			
6		17 – 18			
7		18 – 19			
8		19 – 20	×		
9		20 – 21			
s 386120					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386130					

RESOLUTE SAMANTHA GROUP

390409

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ NQ CORE + BQ Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 11/2/97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386131	SHD-8	1·2-2			
2		2-3			
3		3-4			
4		4-5			
5		5-6			
6		6-7			
7		7-8			
8		8-9			
9		9-10			
s 386140		10-11			
1		11-12			
2		21-22			
3		22-23	X		
4		23-24			
5		24-25			
6		25-26			
7		26-27			
8		27-28			
9		28-29			
s 386150		29-30	X		
1		30-31			
2		31-32			
3		32-33			
4		33-34	BQ		
5		34-35			
6		35-36			
7		36-37			
8		37-38			
9		38-39			
s 386160		39-40	X		

RESOLUTE SAMANTHA GROUP

390410

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JAMES Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 12 / 2 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386161	SHD-8	40-41			
2		41-42			
3		42-43			
4		43-44			
5		44-45	X		
6		45-46			
7		46-47			
8		47-48			
9		48-49			
s 386170		49-50			
1		50-51			
2		51-52			
3		52-53	X		
4		53-54			
5		54-55			
6					
7					
8					
9					
s 386180					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386190					

RESOLUTE SAMANTHA GROUP

390411

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 2 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386191	SHD-9	1.2-2			
2		2-3			
3		3-4			
4		4-5			
5		5-6			
6		6-7			
7		7-8			
8		8-9			
9		9-10			
s 386200		10-11			
1		11-12			
2		12-13			
3		13-14.2			
4		14.2-16			
5		[redacted]	16-17		
6		17-18			
7		18-19			
8		19-20			
9		20-21			
s 386210		21-22			
1		22-23			
2		23-24			
3		24-25			
4		25-26			
5		26-27			
6		27-28.2			
7		28.2-30			
8		30-31			
9		31-32			
s 386220		32-33			

RESOLUTE SAMANTHA GROUP

390412

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIM Sample Type: ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386221	SHD-9	33-34			
2		34-35			
3		35-36			
4		36-37			
5		37-38			
6		38-39			
7		39-40.6			
8		40.6-42			
9		42-43			
s 386230		43-44			
1		44-45			
2		45-46			
3		46-47.3			
4	SHD7	29.0-30.0			
5		30.0-31.0			
6		23.3-24.5			
7		36.7-37.9			
8		37.9-38.8			
9					
s 386240					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386250					

RESOLUTE SAMANTHA GROUP

390413

Project Name: SOUTH HENTY Prospect Name: MUSHROOM Tenement No.: 8/96

Sampler: GRANT Sample Type: ½ CORE Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: FEB '97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386251	SHD11	8.5-9.0			
2	"	24.3-24.8			
3	"	39.4-40.1			
4	"	54.9-55.4			
5	SHD2	75.5-76.0			
6	SHD2	164.5-165			
7	SHD2	252.5-253			
8	SHD2	651.4-651.8	fs slt		
9	"	638.4-638.9	"		
s 386260	"	630.7-631	"		
1	"	615.2-615.5	"		
2	"	605.7-606.0	"		
3	"	587.5-587.9	"		
4	"	478.3-478.8	basalt		
5	"	434.4-434.6	"		
6	"	409.0-409.5	dacite bx		
7	SHD6	248.5-248.9	basalt (bottowards)		
8	"	246.1-246.4	"		
9	SHD2		lst / cb		
s 386270					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386280					

RESOLUTE SAMANTHA GROUP

390414

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: 8/96

Sampler: JIMBO Sample Type: ½ NQ - ½ BQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 6 / 3 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386281	SHD-11	0.5 -	2.0		
2		2.0 -	4.0		
3		4.0 -	6.0		
4		6.0 -	8.5		
5		9.0 -	11.0		
6		11.0 -	13.0		
7		13.0 -	15.0		
8		15.0 -	17.0		
9		17.0 -	19.0		
s 386290		19.0 -	21.0		
1		21.0 -	23.0		
2		23.0 -	24.3		
3		24.8 -	27.0		
4		27.0 -	29.0		
5		29.0 -	31.0		
6		31.0 -	33.0		
7		33.0 -	35.0		
8		35.0 -	37.0		
9		37.0 -	39.4		
s 386300		40.1 -	42.0		
1		42.0 -	44.0		
2		44.0 -	46.0		
3		46.0 -	48.0		
4		48.0 -	50.0		
5		50.0 -	52.0		
6		52.0 -	54.9		
7		55.4 -	56.5 E.O.H.		
8					
9					
s 386310					

RESOLUTE SAMANTHA GROUP

390415

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ-CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386311	SHD12	582.45 -554			
2		554 -555	*		
3		555 -556			
4		556 - 557			
5		557 -558			
6		558 -559			
7		559 -560			
8		560 -561			
9		561 -562			
s 386320		562 -563			
1		563 -564			
2		564 -565			
3		565 -566			
4		566 -567			
5		567 -568			
6		568 -569			
7		569 -570	*		
8		570 -571			
9		571 -572			
s 386330		572 -573			
1		573 -574			
2		574 -575			
3		575 -576			
4		576 -577			
5		577 -578			
6		578 -579			
7		579 -580			
8		580 -581			
9		581 -582			
s 386340		582 -583	*		

RESOLUTE SAMANTHA GROUP

390416

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ - CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386341	SHD12	583 -584			
2		584 -585			
3		585 -586			
4		586 -587			
5		587 -588			
6		588 -589			
7		589 -590			
8		590 -591			
9		591 -592			
s 386350		592 -593			
1		593 -594			
2		594 -595			
3		595 -596			
4		596 -597	*		
5		597 -598			
6		598 -599			
7		599 -600			
8		600 -601			
9		601 -602			
s 386360		602 -603			
1		603 -604	*		
2		-604 -605			
3		605 -606			
4		606 -607			
5		607 -608			
6		608 -609	*		
7		609 -610			
8		610 -611			
9		611 -612			
s 386370		612 -613			

RESOLUTE SAMANTHA GROUP 390417

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ- CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: ___/___/___

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
s 386371	SHD12	613 -614			
2		614 -615			
3		615 -616			
4		616 -617	*		
5		617 -618			
6		~~618 -620~~	618 -619		
7		619 -620			
8		620 -621			
9		621 -622			
s 386380		622 -623			
1		623 -624	*		
2		624 -625			
3		625 -626			
4		626 -627			
5					
6					
7					
8					
9					
s 386390					
1					
2					
3					
4					
5					
6					
7					
8					
9					
s 386400					

RESOLUTE LIMITED (EXPLORATION)

390418

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 18 / 7 / 97

Sample No.	Drillhole	Interval	Description	Coordinates	
				N	E
85400 1	SHD -13	992.60	– 994		
2		994 –	995		
3		995 –	996		
4		996 –	997		
5		997 –	998		
6		998 –	999		
7		999 –	1000		
8		1000	– 1001		
9		1001 –	1002		
85401 0		1002 –	~~1003.5~~ 1003.35		
1		~~1003.5~~	1003.35 – 1004.20		
2		1004.20	– 1005		
3		1005	– 1006.10		
4		1006.10	– 1007		
5		1007 –	1008		
6		1008	– 1009		
7		1009	– 1010		
8		1010	– 1011		
9		1011	– 1012		
85402 0		1012	– 1013		
1		1013	– 1014		
2		1014	– 1015		
3		1015	– 1016		
4		1016	– 1017		
5		1017	– 1018		
6		1018	– 1019		
7		1019	– 1020		
8		1020	– 1021		
9		1021	– 1022		
85403 0		1022	– 1023		

RESOLUTE LIMITED (EXPLORATION)

390419

Project Name: SOUTH HENTY Prospect Name: _____ Tenement No.: _____

Sampler: JIM Sample Type: ½ NQ CORE Sample Submission No.: _____

Note: New Area - New Page & New Sample Type - New Page Date: 18 / 7 / 97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
854031	SHD -13	1023	- 1024		
2		1024	- 1025		
3		1025	- 1026		
4		1026	- 1027		
5		1027	- 1028		
6		1028	- 1029		
7		1029	- 1030		
8		1030	- 1031		
9		1031	- 1032		
854040		1032	- 1033		
1		1033	- 1034		
2		1034	- 1035		
3		1035	- 1036		
4		1036	- 1037		
5		1037	- 1038		
6		1038	- 1039		
7		1039	- 1040		
8		1040	- 1041		
9		1041	- 1042		
854050		1042	- 1043		
1		1043	- 1044		
2		1044	- 1045		
3		1045	- 1046		
4		1046	- 1047		
5		1047	- 1048		
6		1048	- 1049		
7		1049	- 1050		
8		1050	- 1051 E.O.H.		
9					
854060					

Appendix C

Assay results - ANALABS

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

390421

ANALYTICAL REPORT No. RES202.60.12457

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
12/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	14/01/97	1	37

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384241/53,384271/94	SC Prep : GP033	Au,Au(R)/GG309
384241/53,384271/94	SC Prep : GP033	Cu,Pb,Zn,Ag,Bi,Mn,Sb,As/GA140, As/HA140
384241/53,384271/94	SC Prep : GP033	Zr,Ba,Ti/GX401

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

HA-2
102 – 115

PP

AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384241	0.062	-	-	102	-	782	-	3120	-
2	384242	0.014	-	-	107	-	80	-	1763	-
3	384243	0.016	-	-	89	-	241	-	1519	-
4	384244	0.064	-	-	179	-	45	-	152	-
5	384245	0.100	-	-	209	-	46	-	141	-
[illegible]	384246	0.166	-	-	154	-	80	-	632	-
7	384247	0.176	-	-	615	-	65	-	271	-
8	384248	0.341	-	-	267	-	147	-	105	-
9	384249	0.336	-	-	3072	-	78	-	73	-
10	384250	0.102	-	-	314	-	255	-	220	-
11	384251	0.053	-	-	233	-	609	-	2723	-
12	384252	0.012	0.015	-	121	-	1405	-	3818	-
13	384253	0.012	-	-	183	-	838	-	2285	-
14	384271	46.000	-	-	3922	0.64	>5000	-	195	60
[illegible]	384272	1.517	-	-	2376	-	757	-	55	-
16	384273	121.00	-	-	2051	1.41	>5000	-	681	171
17	384274	9.340	10.100	0.57	>5000	1.19	>5000	-	130	108
18	384275	0.084	-	-	21	-	20	-	5	-
19	384276	6.040	-	-	1594	-	1370	-	78	-
20	384277	15.200	-	-	2027	-	4407	-	154	-
21	384278	0.323	-	-	577	-	569	-	326	-
22	384279	0.826	0.840	-	104	-	2113	-	165	-
23	384280	0.803	-	-	820	1.54	>5000	2.57	>5000	-
24	384281	0.030	-	-	195	0.52	>5000	2.59	>5000	58
25	384282	0.029	-	-	465	0.55	>5000	1.73	>5000	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp.

390423

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384283	0.041	-	-	119	0.86	>5000	-	1436	-
2	384284	0.922	-	-	1021	1.10	>5000	0.70	>5000	-
3	384285	0.915	0.969	-	1512	0.87	>5000	1.57	>5000	-
4	384286	1.641	-	-	2937	1.91	>5000	3.57	>5000	250
5	384287	0.304	-	-	2553	2.78	>5000	4.37	>5000	120
6	384288	0.819	-	-	177	-	4100	-	327	-
7	384289	0.491	-	-	946	0.83	>5000	2.15	>5000	148
8	384290	1.501	-	-	1893	6.62	>5000	3.11	>5000	66
9	384291	3.770	-	-	2882	3.59	>5000	5.24	>5000	175
10	384292	1.198	-	-	270	1.18	>5000	-	3019	-
11	384293	0.055	-	-	145	-	1170	-	386	65
12	384294	2.300	2.420	-	968	2.94	>5000	7.19	>5000	55
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.008	0.008	0.01	2	0.01	3	0.01	2	50
25	UNITS	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- not determined

tS – insufficient sample
SNR – sample not received

AUTHORISED OFFICER

390424

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	3 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384241	<1	<10	1836	45.3	<50	119	1720	1945	<3
2	384242	<1	12	2111	38.0	<50	116	1580	1855	5
3	384243	<1	<10	1441	48.0	<50	139	2570	2290	<3
4	384244	<1	<10	886	37.8	<50	150	3600	2350	<3
5	384245	<1	<10	637	37.0	<50	142	4225	2430	<3
6	384246	<1	<10	1236	34.3	<50	136	4695	2345	5
7	384247	<1	12	1605	21.7	<50	153	4750	2725	<3
8	384248	<1	11	252	38.0	<50	151	11300	2200	3
9	384249	3	32	173	15.7	<50	126	6075	2160	7
10	384250	<1	<10	890	32.0	<50	132	3405	2245	4
11	384251	<1	<10	3870	23.0	<50	144	2195	2125	7
12	384252	<1	11	2828	46.9	<50	145	3730	2130	<3
13	384253	<1	<10	1950	30.4	<50	162	4070	2535	5
14	384271	>50	119	600	4.3	<50	220	44	2395	23
15	384272	9	26	251	<0.5	<50	136	55	1615	<3
16	384273	>50	409	338	12.9	<50	343	29	3695	52
17	384274	>50	450	89	10.3	<50	319	<10	2725	16
18	384275	<1	<10	68	5.3	<50	98	64	515	6
19	384276	28	43	211	4.1	<50	130	38	1390	4
20	384277	37	80	278	7.2	<50	177	36	2050	5
21	384278	3	15	93	41.3	<50	231	282	2650	3
22	384279	11	<10	69	>50.0	123	102	91000	1785	33
23	384280	35	13	64	13.7	<50	115	49000	820	47
24	384281	>50	<10	48	10.0	<50	28	111000	410	29
25	384282	35	<10	56	11.7	<50	21	147000	460	26

Results in ppm unless otherwise specified
- element not determined
IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

390425

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384283	18	<10	57	13.2	<50	37	68000	350	30
2	384284	40	<10	78	>50.0	443	148	73000	2920	209
3	384285	14	<10	71	>50.0	132	87	186000	1270	61
4	384286	>50	<10	317	>50.0	130	43	437000	515	136
5	384287	>50	<10	59	>50.0	106	69	337000	455	83
6	384288	14	<10	160	>50.0	125	134	9000	2345	39
7	384289	>50	<10	132	1.0	539	30	262000	540	78
8	384290	>50	<10	66	>50.0	315	157	307000	530	95
9	384291	>50	<10	57	>50.0	472	65	400000	495	100
10	384292	37	<10	165	>50.0	159	145	12000	2040	61
11	384293	>50	<10	958	37.3	<50	31	117000	570	16
12	384294	>50	<10	72	>50.0	457	68	389000	575	127
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	3	0.5	50	5	10	50	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Beck

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390426

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 112400.60.12204

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P. O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
26/08/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
14	18/09/96	1	75

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384031/384053,384082/384098	RC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../0X408
384031/384053,384082/384098	RC Prep : GP033	G/OM613
384031/384053,384082/384098	RC Prep : GP033	Zr,Ba,Ti/6X401
384031/384033 & others	RC Prep : GP033	Au,Au(R)/6G326
384031/384033 & others	RC Prep : GP033	Cu,Pb,Zn,Ag/6A140

RESULTS TO
Mr Grant MacDonald
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

HA-2
HA-7
HA-8
Nc-1
YNC-13
YNC-14
YNC-4
YNC-8
YNC-9
YNC-10
~~YNC-16~~
YNC-5

PP M.A. Good
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 064

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	1 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		OM013	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1	384031	4.070	2354	-	-	120	1039	-	132	-
2	384032	4.320	2778	-	-	208	1924	-	139	-
3	384033	1.620	2446	-	-	36	270	-	141	-
4	384034	0.410	2667	-	-	-	-	-	144	-
5	384035	5.060	2126	-	-	1242	126	-	127	-
6	384036	1.780	2582	-	-	-	-	-	121	-
7	384037	0.097	1867	-	-	-	-	-	148	-
8	384038	2.380	2240	-	-	-	-	-	164	-
9	384039	1.020	2232	-	-	-	-	-	161	-
10	384040	3.490	3071	-	-	50	20	-	270	-
11	384041	0.026	1843	-	-	21	69	-	150	-
12	384042	1.210	5247	-	-	174	192	-	103	-
13	384043	6.610	6861	-	-	138	70	-	153	-
14	384044	7.480	6291	-	-	139	54	-	158	-
15	384045	0.630	3091	-	-	-	-	-	247	-
16	384046	0.910	2743	-	-	-	-	-	227	-
17	384047	2.990	2814	-	-	-	-	-	230	-
18	384048	0.014	2594	-	-	-	-	-	207	-
19	384049	0.023	3220	-	-	-	-	-	248	-
20	384050	3.090	3022	-	-	21	55	-	235	-
21	384051	0.400	510	-	-	-	-	-	134	-
22	384052	0.410	2402	-	-	180	111	-	122	-
23	384053	2.310	2755	-	-	71	360	-	111	-
24	384082	0.220	2694	-	-	-	-	-	215	-
25	384083	0.049	2734	-	-	-	-	-	261	-

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	2 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		OM613	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1	384084	0.032	6584	-	-	-	-	-	209	-
2	384085	0.077	4093	-	-	-	-	-	98	-
3	384086	0.012	2546	-	-	-	-	-	214	-
4	384087	0.022	2819	-	-	-	-	-	231	-
5	384088	0.041	2680	-	-	-	-	-	236	-
6	384089	0.007	1424	-	-	-	-	-	261	-
7	384090	0.009	2091	-	-	-	-	-	159	-
8	384091	0.018	2343	-	-	-	-	-	170	-
9	384092	0.007	2827	-	-	-	-	-	220	-
10	384093	0.012	2847	-	-	-	-	-	228	-
11	384094	0.140	2990	-	-	-	-	-	252	-
12	384095	0.080	3206	-	-	-	-	-	183	-
13	384096	0.170	5673	-	-	-	-	-	124	-
14	384097	0.013	1219	-	-	-	-	-	199	-
15	384098	0.063	6019	-	-	-	-	-	123	-
16	384058	-	219	-	-	-	-	-	15	-
17	384059	-	104	-	-	-	-	-	7	-
18	384060	-	444	-	-	-	-	-	14	-
19	384070	-	118	-	-	-	-	-	6	-
20	384072	-	133	-	-	-	-	-	<5	-
21	384076	-	-	-	-	-	-	-	34	-
22	384103	-	-	-	-	-	-	-	<5	-
23	384104	-	-	-	-	-	-	-	156	-
24	384061	-	611	-	-	-	-	-	25	-
25	384062	-	3990	-	-	-	-	-	154	-

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	112400.60.12204	18/09/96	GRANT MACDONA	3 OF 14

[redacted]	SAMPLE No.	Sr	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		3MA13	6X401	6X401	6X401	6A140	6A140	HA140	6X401	6X401
[redacted]1	384063	-	4419	-	-	-	-	-	124	-
2	384064	-	5078	-	-	-	-	-	149	-
[redacted]3	384065	-	4022	-	-	-	-	-	112	-
[redacted]4	384066	-	4173	-	-	-	-	-	195	-
[redacted]5	384067	-	3418	-	-	-	-	-	99	-
[redacted]6	384068	-	2773	-	-	-	-	-	85	-
7	384069	-	672	-	-	-	-	-	15	-
[redacted]8	384071	-	4188	-	-	-	-	-	159	-
[redacted]9	384073	-	3116	-	-	-	-	-	181	-
[redacted]10	384074	-	2576	-	-	-	-	-	167	-
[redacted]11	384075	-	4469	-	-	-	-	-	140	-
12	384077	-	5496	-	-	-	-	-	185	-
[redacted]13	384078	-	-	-	-	-	-	-	31	-
[redacted]14	384079	-	2302	-	-	-	-	-	95	-
[redacted]15	384080	-	-	-	-	-	-	-	108	-
[redacted]16	384081	-	2211	-	-	-	-	-	111	-
17	384099	-	2158	-	-	-	-	-	104	-
[redacted]18	384100	-	-	-	-	-	-	-	118	-
19	384101	-	5680	-	-	-	-	-	146	-
[redacted]20	384102	-	6822	-	-	-	-	-	144	-
[redacted]21	384105	-	448	-	-	-	-	-	126	-
22	384054	-	2196	5	506	865	16	4.5	172	7
[redacted]23	384055	-	2034	7	392	1111	113	10.0	169	6
24	384056	-	5679	54	49	12	22	1.0	457	3
[redacted]25	384057	-	1523	32	304	17581	73	29.5	127	64

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Ultratrace

Ultratrace Pty Ltd
ACN 009 191 007

ANALYTICAL DATA

SAMPLE PREP'N	REPORT	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	4 OF 14

	SAMPLE No.	Au	Ag	Cu	Pb	Zn	As	Zr	Mo
METHOD		FA50	AA25	AA14P	AA14P	HA140	GX401	GX401	GX401
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
17									
18									
19									
20									
21									
22									
23									
24	DETECTION	0.005	50	5	20	2	2	0.5	5	3
25	UNITS	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	112400.60.12204	18/09/96	GRANT MACDONA	5 OF 14

[redacted]	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
[redacted]THOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
[redacted]1	384031	1	-	-	-	1193	-	-	-	-
2	384032	3	-	-	-	1004	-	-	-	-
[redacted]3	384033	<1	-	-	-	980	-	-	-	-
4	384034	-	-	-	-	857	-	-	-	-
[redacted]5	384035	2	-	-	-	8013	-	-	-	-
[redacted]6	384036	-	-	-	-	645	-	-	-	-
[redacted]7	384037	-	-	-	-	1216	-	-	-	-
[redacted]8	384038	-	-	-	-	1829	-	-	-	-
9	384039	-	-	-	-	2201	-	-	-	-
[redacted]0	384040	<1	-	-	-	1275	-	-	-	-
[redacted]11	384041	<1	-	-	-	435	-	-	-	-
[redacted]12	384042	<1	-	-	-	178	-	-	-	-
[redacted]3	384043	<1	-	-	-	1375	-	-	-	-
14	384044	<1	-	-	-	1469	-	-	-	-
[redacted]5	384045	-	-	-	-	908	-	-	-	-
[redacted]	384046	-	-	-	-	540	-	-	-	-
[redacted]7	384047	-	-	-	-	764	-	-	-	-
[redacted]8	384048	-	-	-	-	397	-	-	-	-
19	384049	-	-	-	-	571	-	-	-	-
[redacted]0	384050	2	-	-	-	565	-	-	-	-
21	384051	-	-	-	-	1201	-	-	-	-
[redacted]2	384052	<1	-	-	-	4264	-	-	-	-
[redacted]3	384053	1	-	-	-	448	-	-	-	-
24	384082	-	-	-	-	873	-	-	-	-
[redacted]5	384083	-	-	-	-	292	-	-	-	-

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	6 OF 14

	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
METHOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
1	384084	-	-	-	-	543	-	-	-	-
2	384085	-	-	-	-	330	-	-	-	-
3	384086	-	-	-	-	419	-	-	-	-
4	384087	-	-	-	-	623	-	-	-	-
5	384088	-	-	-	-	660	-	-	-	-
6	384089	-	-	-	-	1131	-	-	-	-
7	384090	-	-	-	-	240	-	-	-	-
8	384091	-	-	-	-	923	-	-	-	-
9	384092	-	-	-	-	747	-	-	-	-
10	384093	-	-	-	-	1238	-	-	-	-
11	384094	-	-	-	-	1156	-	-	-	-
12	384095	-	-	-	-	778	-	-	-	-
13	384096	-	-	-	-	1209	-	-	-	-
14	384097	-	-	-	-	581	-	-	-	-
15	384098	-	-	-	-	1285	-	-	-	-
16	384058	-	-	-	0.4	-	12.90	21.30	2.55	8.9
17	384059	-	-	-	0.2	-	10.20	15.50	1.85	5.7
18	384060	-	-	-	0.4	-	6.77	11.40	1.53	5.4
19	384070	-	-	-	<0.2	-	5.08	7.37	1.09	3.1
20	384072	-	-	-	<0.2	-	5.25	10.30	1.38	5.3
21	384076	-	-	-	<0.2	-	0.62	1.07	0.15	0.8
22	384103	-	-	-	<0.2	-	0.08	0.21	<0.05	0.5
23	384104	-	-	-	<0.2	-	<0.05	<0.05	<0.05	0.1
24	384054	7	7	<3	5.5	32	4.57	9.20	1.32	5.2
25	384055	18	6	13	16.8	38	10.90	20.20	2.63	9.4

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ANALYTICAL DATA

390433

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	7 OF 14

	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
METHOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
1	384056	8	12	4	11.4	470	106.00	211.00	24.50	76.5
2	384057	21	7	<3	2.4	193	57.00	101.00	12.60	45.4
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
	DETECTION	1	3	3	0.2	10	0.05	0.05	0.05	0.1
	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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ANALYTICAL DATA

390434

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	8 OF 14

METHOD	SAMPLE No.	Sm GS201	Eu GS201	Gd GS201	Dy GS201	Er GS201	Yb GS201	W GX401	Au GG326	Tl GS201
1	384031	-	-	-	-	-	-	-	13	-
2	384032	-	-	-	-	-	-	-	7	-
3	384033	-	-	-	-	-	-	-	7	-
4	384035	-	-	-	-	-	-	-	253	-
5	384040	-	-	-	-	-	-	-	10	-
6	384041	-	-	-	-	-	-	-	6	-
7	384042	-	-	-	-	-	-	-	6	-
8	384043	-	-	-	-	-	-	-	11	-
9	384044	-	-	-	-	-	-	-	8	-
10	384050	-	-	-	-	-	-	-	10	-
11	384052	-	-	-	-	-	-	-	38	-
12	384053	-	-	-	-	-	-	-	18	-
13	384058	1.6	0.47	1.4	1.3	0.8	0.5	-	-	<0.5
14	384059	1.1	0.35	1.2	0.9	0.6	0.3	-	-	<0.5
15	384060	1.4	0.44	1.6	1.6	0.8	0.5	-	-	<0.5
16	384070	0.7	0.23	0.6	0.5	0.3	0.2	-	-	<0.5
17	384072	1.5	0.36	1.6	1.1	0.5	0.4	-	-	<0.5
18	384076	0.3	0.14	0.3	0.2	0.2	0.1	-	-	19.1
19	384103	0.3	0.29	0.4	0.3	0.1	0.1	-	-	2.2
20	384104	0.2	0.06	0.3	0.3	0.2	0.1	-	-	9.1
21	384054	1.6	0.44	1.8	2.5	1.9	2.1	5	4266	0.0
22	384055	2.0	0.45	2.0	2.2	2.0	2.0	<5	13699	0.0
23	384056	9.8	2.35	5.5	3.7	2.1	2.5	15	1464	2.3
24	384057	8.8	1.62	6.4	2.9	1.6	1.5	7	278	1.2
25										

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ANALYTICAL DATA

390435

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	9 OF 14

METHOD	SAMPLE No.	Sm	Eu	Gd	Dy	Er	Yb	W	Au	Tl
		GS201	GS201	GS201	GS201	GS201	GS201	GX401	GG326	GS201
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.1	0.05	0.1	0.1	0.1	0.1	5	1	0.5
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm

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390436

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	112400.60.12204	18/09/96	GRANT MACDONA	10 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		GA140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
[redacted] 1	384031	200	-	-	16.40	60.50	0.50	7.59	0.14	1.17
2	384032	566	-	-	15.80	62.30	0.48	7.45	0.02	0.47
[redacted] 3	384033	76	-	-	15.30	63.00	0.49	3.81	0.08	4.97
4	384034	-	-	-	16.00	54.30	0.54	5.88	0.22	7.72
[redacted] 5	384035	71	-	-	11.90	63.90	0.38	9.49	0.05	0.82
[redacted] 6	384036	-	-	-	15.90	52.30	0.51	8.82	0.28	8.03
7	384037	-	-	-	14.90	68.10	0.31	3.65	0.22	1.80
[redacted] 8	384038	-	-	-	15.40	66.90	0.37	3.37	0.05	0.41
9	384039	-	-	-	14.60	68.60	0.36	2.49	0.25	1.05
[redacted] 10	384040	73	-	-	18.10	60.70	0.62	6.09	0.03	1.37
[redacted] 11	384041	45	-	-	9.34	73.40	0.32	3.37	0.16	4.59
12	384042	9	-	-	14.30	51.20	0.83	10.59	0.24	6.76
[redacted] 13	384043	62	-	-	23.40	43.00	1.24	12.17	0.06	1.44
14	384044	47	-	-	23.90	40.00	1.27	13.18	0.04	1.60
[redacted] 15	384045	-	-	-	14.90	64.80	0.52	5.31	0.10	2.56
[redacted] 16	384046	-	-	-	13.80	64.40	0.47	6.44	0.08	3.44
17	384047	-	-	-	14.10	64.20	0.49	4.91	0.05	3.61
[redacted] 18	384048	-	-	-	13.80	65.30	0.51	6.60	0.09	2.82
19	384049	-	-	-	16.40	62.00	0.60	5.83	0.07	1.65
[redacted] 20	384050	72	-	-	15.20	64.40	0.60	5.84	0.06	1.40
[redacted] 21	384051	-	-	-	11.40	76.50	0.08	1.72	0.03	0.74
22	384052	47	-	-	0.09	98.30	0.44	0.64	<0.01	<0.01
[redacted] 23	384053	162	-	-	12.60	76.30	0.47	3.08	<0.01	0.04
24	384082	-	-	-	14.00	63.70	0.52	7.49	2.03	0.80
[redacted] 25	384083	-	-	-	14.90	64.00	0.50	5.67	0.15	2.06

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	11 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		SR140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
1	384084	-	-	-	18.40	50.70	1.02	11.27	0.15	3.93
2	384085	-	-	-	15.40	52.80	0.63	7.49	0.17	7.44
3	384086	-	-	-	13.60	67.40	0.48	4.36	0.07	2.54
4	384087	-	-	-	14.10	69.30	0.48	5.52	0.05	1.59
5	384088	-	-	-	14.70	65.70	0.50	5.20	0.07	2.86
6	384089	-	-	-	11.90	77.50	0.24	2.00	0.02	0.07
7	384090	-	-	-	16.00	66.60	0.35	4.28	0.08	1.04
8	384091	-	-	-	16.50	59.60	0.38	4.91	0.13	4.90
9	384092	-	-	-	14.70	64.00	0.52	5.58	0.13	4.17
10	384093	-	-	-	15.00	65.70	0.55	4.75	0.21	3.79
11	384094	-	-	-	15.90	59.20	0.55	7.16	0.55	2.69
12	384095	-	-	-	14.40	64.30	0.58	5.57	0.17	4.23
13	384096	-	-	-	17.50	57.20	0.95	10.29	0.10	1.12
14	384097	-	-	-	11.10	77.50	0.20	3.05	0.04	0.75
15	384098	-	-	-	18.50	55.00	1.14	12.05	0.27	0.28
16	384058	-	-	1.17	-	-	-	-	-	-
17	384059	-	-	1.18	-	-	-	-	-	-
18	384060	-	-	0.92	-	-	-	-	-	-
19	384070	-	-	0.65	-	-	-	-	-	-
20	384072	-	-	0.30	-	-	-	-	-	-
21	384076	-	-	0.08	-	-	-	-	-	-
22	384103	-	-	<0.05	-	-	-	-	-	-
23	384104	-	-	0.00	-	-	-	-	-	-
24	384054	587	<1	5.24	0.47	91.50	0.40	0.83	0.06	3.36
25	384055	261	<1	6.05	0.67	91.30	0.36	0.85	0.04	3.14

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	12 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		GA140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
1	384056	7	<1	36.80	27.90	54.50	1.03	1.29	<0.01	0.26
2	384057	>5000	<1	9.23	6.95	72.70	0.27	6.94	0.04	1.74
3										
4										
5										
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19										
20										
21										
22										
23										
24	DETECTION	3	1	0.05	0.05	0.05	0.01	0.01	0.01	0.01
25	UNITS	ppm	ppm	ppm	%	%	%	%	%	%

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390439

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	13 OF 14

	SAMPLE No.	K2O	MgO	P2O5	SO3	Na2O	LOI	Total	Au(R)	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326	OX408
1	384031	4.00	0.73	0.170	7.48	2.75	5.82	99.90	-	-
2	384032	4.51	0.77	0.204	9.94	1.89	5.81	99.90	-	-
3	384033	3.62	0.54	0.283	3.85	2.92	3.74	98.80	-	-
4	384034	2.88	1.21	0.267	0.97	3.59	6.17	98.90	-	-
5	384035	4.31	1.06	0.136	1.67	<0.05	6.41	98.60	260	-
6	384036	1.52	3.13	0.184	0.22	3.26	6.05	99.90	-	-
7	384037	4.89	0.71	0.139	4.42	0.63	4.19	99.50	-	-
8	384038	8.54	0.40	0.214	4.36	0.12	3.39	99.50	-	-
9	384039	9.01	0.33	0.217	1.87	0.26	2.74	99.80	-	-
10	384040	4.60	0.61	0.171	6.54	2.07	5.10	99.50	-	-
11	384041	1.37	1.20	0.091	0.05	1.81	4.82	100.60	-	-
12	384042	0.62	3.43	0.279	2.66	3.68	6.16	98.10	-	-
13	384043	5.99	1.66	0.185	9.91	1.74	8.14	99.10	-	-
14	384044	7.11	1.46	0.160	9.50	0.30	10.62	99.70	-	-
15	384045	3.45	1.61	0.136	1.27	1.57	3.61	98.50	-	-
16	384046	2.45	1.72	0.125	1.95	1.85	3.92	98.70	-	-
17	384047	3.41	1.43	0.133	6.54	1.38	4.58	98.40	-	-
18	384048	2.37	1.46	0.141	0.02	2.68	4.67	100.50	-	-
19	384049	3.42	1.25	0.171	0.04	2.90	5.92	100.20	-	-
20	384050	3.66	0.97	0.111	5.99	2.70	4.87	99.80	-	-
21	384051	5.87	0.97	<0.005	0.70	0.86	1.32	99.60	-	-
22	384052	0.02	0.02	<0.005	0.91	<0.05	0.34	99.90	37	-
23	384053	3.79	0.20	0.043	5.04	<0.05	3.47	100.10	-	-
24	384082	4.44	0.79	0.144	0.45	0.08	6.38	100.40	-	-
25	384083	1.64	1.31	0.125	0.10	0.13	9.14	99.70	-	-

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390440

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	14 OF 14

	SAMPLE No.	K2O %	MgO %	P2O5 %	SO3 %	Na2O %	LOI %	Total %	Au(R) ppb	P2O5 %
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326	OX408
1	384084	1.43	2.77	0.280	0.06	4.98	5.06	100.00	-	-
2	384085	1.43	2.39	0.085	0.17	4.12	7.37	99.40	-	-
3	384086	3.17	0.88	0.123	0.01	1.44	5.63	99.70	-	-
4	384087	3.43	1.03	0.126	0.04	1.15	3.32	100.10	-	-
5	384088	3.24	0.82	0.131	0.08	2.50	3.95	99.70	-	-
6	384089	2.62	0.41	0.019	<0.01	4.57	0.73	100.10	-	-
7	384090	0.41	2.05	0.169	<0.01	7.73	1.99	100.70	-	-
8	384091	5.38	1.27	0.206	0.03	0.06	5.98	99.30	-	-
9	384092	4.02	0.74	0.138	<0.01	0.10	5.43	99.50	-	-
10	384093	4.07	0.73	0.151	0.02	0.10	4.52	99.60	-	-
11	384094	4.47	0.59	0.149	0.25	2.46	5.32	99.20	-	-
12	384095	3.31	1.50	0.100	0.18	0.75	4.65	99.50	-	-
13	384096	2.64	3.01	0.145	0.33	2.20	4.23	99.50	-	-
14	384097	2.23	0.62	0.017	0.01	4.14	1.15	100.80	-	-
15	384098	6.35	1.97	0.155	0.12	0.10	4.21	100.10	-	-
16	384054	0.16	0.07	-	0.56	<0.05	2.51	99.50	4389	0.025
17	384055	0.22	0.29	-	0.46	<0.05	2.42	99.50	13565	0.017
18	384056	9.43	1.28	-	<0.01	0.11	4.17	100.10	1433	0.159
19	384057	2.37	0.66	-	5.51	<0.05	5.04	98.50	-	0.125
20										
21										
22										
23										
24	DETECTION	0.01	0.01	0.005	0.01	0.05	0.01	0.01	1	0.005
25	UNITS	%	%	%	%	%	%	%	ppb	%

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Analabs Pty. Ltd.
A.C.N. 004 591 664

14 Thirkell St. DODEE TAS 7320
Phone (004) 318837
Fax (004) 318890

390441

ANALYTICAL REPORT No. 132400.60,122468

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Jkstrows
Resolute Resources Limited
P. O. Box 7252
Malsters Square
PERTH WA 6000

ORDER No.: GRANT MACDON
PROJECT:

DATE RECEIVED: 16/09/96
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	12/12/96	1	26

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384111/7,384122/9	DC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO2, .../OX408
384111/7,384122/9	DC Prep : GP033	S/OM613
384111/7,384122/9	DC Prep : GP033	Zr,Ba,Ti/GX401
384116 & others	DC Prep : GP033	Au,Au(R)/GG326
384116 & others	DC Prep : GP033	Cu,Pb,Zn,Ag,Bi,As/GA140

RESULTS TO:
Mr Grant Macdonald
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

Rocks from YNC 12/13 Access track (whole rocks)

Various rocks

Drill core

C-horizon.

pp M.A. Good
AUTHORISED OFFICER

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390442

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	12400.60.12268	12/12/96	GRANT MACDONA	1 OF 5

	SAMPLE No.	P	S	Ti	Cu	Zn	As	As	Zr	Ag
METHOD		GX401	OM613	GX401	GA140	GA140	GA140	HA140	GX401	GA140
1	384111	-	0.005	5334	-	-	-	-	144	-
2	384112	-	<0.005	6081	-	-	-	-	313	-
3	384113	-	<0.005	5882	-	-	-	-	103	-
4	384114	-	<0.005	1963	-	-	-	-	329	-
5	384115	-	<0.005	2409	-	-	-	-	176	-
	384116	-	2.430	1809	8	369	199	-	262	<1
7	384117	-	4.170	2295	5	19	456	-	335	<1
8	384122	-	0.310	455	-	-	-	-	136	-
9	384123	-	<0.005	1809	-	-	-	-	339	-
10	384124	-	3.210	3161	52	4939	77	-	299	1
11	384125	-	0.009	3388	-	-	-	-	262	-
12	384126	-	<0.005	4529	-	-	-	-	68	-
13	384127	-	<0.005	2625	-	-	-	-	133	-
14	384128	-	0.220	2647	-	-	-	-	223	-
15	384129	-	0.210	2864	-	-	-	-	256	-
16	384118	-	-	-	5	22	1258	-	-	<1
17	384119	-	-	-	3	6	<50	18.2	-	<1
18	384120	-	-	-	<2	8	<50	14.4	-	<1
19	384121	-	-	-	<2	12	<50	7.1	-	<1
20	384106	37	-	4011	3	12	<50	1.0	312	<1
21	384107	979	-	3545	33	69	<50	7.8	214	<1
22	384108	63	-	4608	<2	22	<50	0.5	365	<1
23	384109	305	-	3067	8	74	<50	2.3	273	<1
24	384110	47	-	2846	<2	24	<50	<0.5	243	<1
25	384130	208	-	1875	-	-	-	-	307	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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A.C.N. 004 591 664

390443

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDUNA	2 OF 5

	SAMPLE No.	P	S	Ti	Cu	Zn	As	As	Zr	Ag
ETHOD		GX401	OM613	GX401	GA140	GA140	GA140	HA140	GX401	GA140
1	384131	170	-	1821	-	-	-	-	300	-
2										
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	30	0.005	50	2	2	50	0.5	5	1
25	UNITS	DDA	%	DDA	DDA	DDA	DDA	DDA	DDA	DDA

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390444

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	J12400.60.12268	12/12/96	GRANT MACDONA	3 OF 5

	SAMPLE No.	Ba	Au	Pb	Bi	Al2O3	SiO2	TiO2	Fe2O3	MnO
METHOD		GX401	GG326	GA140	GA140	OX408	OX408	OX408	OX408	OX408
1	384111	678	–	–	–	18.40	53.20	0.87	11.92	0.15
2	384112	530	–	–	–	20.10	51.80	1.02	13.10	0.10
3	384113	474	–	–	–	18.40	51.00	0.96	14.74	0.12
4	384114	1080	–	–	–	13.80	73.40	0.38	2.70	0.02
5	384115	1425	–	–	–	19.00	59.10	0.40	7.30	0.25
6	384116	1849	34	28	<10	11.70	75.90	0.33	3.50	<0.01
7	384117	3022	17	9	<10	13.70	69.40	0.42	5.99	<0.01
8	384122	1204	–	–	–	11.40	77.10	0.08	1.69	0.03
9	384123	1158	–	–	–	13.60	73.50	0.38	3.43	0.05
10	384124	806	26	1526	<10	18.30	61.20	0.63	7.31	0.04
11	384125	954	–	–	–	19.90	57.80	0.58	10.20	0.13
12	384126	256	–	–	–	14.90	48.10	0.70	11.55	0.17
13	384127	171	–	–	–	17.60	59.20	0.49	8.72	0.15
14	384128	548	–	–	–	14.60	65.30	0.51	7.05	1.51
15	384129	565	–	–	–	16.60	71.40	0.55	3.14	0.02
16	384118	–	18	16	<10	–	–	–	–	–
17	384119	–	2	6	<10	–	–	–	–	–
18	384120	–	2	11	<10	–	–	–	–	–
19	384121	–	2	8	<10	–	–	–	–	–
20	384106	–	<1	7	<10	–	–	–	–	–
21	384107	–	2	31	<10	–	–	–	–	–
22	384108	–	2	10	<10	–	–	–	–	–
23	384109	–	2	17	<10	–	–	–	–	–
24	384110	–	6	5	<10	–	–	–	–	–
25										

Results in ppm unless otherwise specified
– element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Lood

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A.C.N. 004 591 664

390445

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	4 OF 5

	SAMPLE No.	Ba	Au	Pb	Bi	Al2O3	SiO2	TiO2	Fe2O3	MnO
METHOD		GX401	GG326	GA140	GA140	OX408	OX408	OX408	OX408	OX408
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	10	1	3	10	0.05	0.05	0.01	0.01	0.01
25	UNITS	ppm	ppb	ppm	ppm	%	%	%	%	%

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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A.C.N. 004 591 664

390446

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT : MALDUNA	5 OF 5

	SAMPLE No.	CaO	K2O	MgO	P2O5	SO3	Na2O	LOI	Total	Au(R)
ETHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326
1	384111	0.09	2.06	5.03	0.086	0.02	1.85	5.53	99.30	--
2	384112	0.12	1.55	2.90	0.088	0.02	5.01	3.90	99.60	--
3	384113	0.20	2.05	3.39	0.133	<0.01	3.35	4.45	99.20	--
4	384114	0.03	3.74	1.69	0.030	<0.01	1.01	2.47	99.30	--
5	384115	1.13	4.25	1.64	0.169	<0.01	2.16	3.84	99.20	--
	384116	0.10	1.91	0.34	0.067	5.68	3.23	2.86	100.00	27
7	384117	<0.01	4.08	0.49	0.017	8.77	0.71	4.95	99.70	--
8	384122	0.74	5.88	1.00	<0.005	0.72	0.74	1.38	100.10	--
9	384123	0.89	2.61	1.46	0.041	<0.01	1.07	2.38	99.50	--
10	384124	0.08	5.21	0.59	0.133	6.03	0.08	5.15	99.20	--
11	384125	0.18	4.68	1.21	0.238	0.02	0.07	4.26	99.30	--
12	384126	2.21	0.36	4.75	0.152	<0.01	2.96	8.71	99.60	--
13	384127	0.97	0.42	2.53	0.133	<0.01	7.86	1.97	100.00	--
14	384128	0.31	4.32	0.43	0.134	0.49	<0.05	5.33	99.60	--
15	384129	0.13	4.84	0.42	0.116	0.39	<0.05	2.64	99.90	--
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.01	0.01	0.005	0.01	0.05	0.01	0.01	1
25	UNITS	%	%	%	%	%	%	%	%	ppb

Results in ppm unless otherwise specified
-- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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A.C.N. 004 591 664

390447

ANALYTICAL REPORT No.

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

ORDER No. | PROJECT

DATE RECEIVED | RESULTS REQUIRED

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD

RESULTS TO

RESULTS TO

RESULTS TO

REMARKS

Rocks (Various)
- Alt= around nth shore of lake
- Healy Canal alt=
- Drill core.

pp M.A. Lee

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390448

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.J7339	23/10/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	Fe	Fe	Mn	Mn	Bi
METHOD		GA140	GA140	GA140	GA140	GA140	GA104	GA140	GA104	GA140
1	384132	36	2761	4905	5	2.91	-	233	-	<10
2	384133	16	676	4761	1	4.17	-	>5000	0.62	<10
3	384134	25	704	915	1	1.92	-	469	-	<10
4	384135	8	1683	2659	2	>5.00	5.34	883	-	10
5	384136	38	1204	294	1	3.68	-	651	-	<10
6	384137	12	946	4446	<1	4.56	-	1759	-	<10
7	384138	<2	<3	55	<1	>5.00	52.10	4730	-	<10
8	384139	<2	7	61	<1	>5.00	47.50	>5000	3.44	<10
9	384140	<2	9	54	<1	>5.00	46.50	>5000	1.58	<10
10	384141	33	160	132	6	4.29	-	528	-	<10
11	384142	4	49	73	1	1.79	-	210	-	<10
12	384143	6	25	32	1	1.27	-	111	-	<10
13	384144	8	43	26	1	0.92	-	82	-	10
14	384145	13	122	54	2	1.29	-	97	-	<10
	384146	5	6	40	<1	1.53	-	45	-	<10
16	384147	9	4	114	<1	4.33	-	342	-	<10
17	384148	4	6	29	<1	3.19	-	147	-	<10
18	384149	3	33	18	2	0.98	-	81	-	<10
19	384150	<2	21	21	1	0.88	-	82	-	<10
20	384151	539	19	108	1	0.65	-	251	-	<10
21	384152	3	5	16	<1	0.79	-	353	-	<10
22	384153	3447	30	121	2	1.57	-	731	-	<10
23	384154	1375	26	149	3	0.92	-	406	-	<10
24	384155	165	8	29	1	0.45	-	81	-	<10
25	384156	4	13	29	<1	1.17	-	676	-	<10

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390449

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12339	22/10/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	Fe	Fe	Mn	Mn	Bi
METHOD		GA140	GA140	GA140	GA140	GA140	GA104	GA140	GA104	GA140
1	384157	2071	18	228	10	0.53	-	293	-	<10
2	384158	71	25	288	<1	1.37	-	286	-	<10
3	384159	702	24	64	<1	1.04	-	125	-	<10
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	2	3	2	1	0.01	0.01	3	0.01	10
25	UNITS	ppm	ppm	ppm	ppm	%	%	ppm	%	ppm

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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Analabs Pty. Ltd.
A.C.N. 004 591 664

390450

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RE5202.60.12339	23/10/96	GRANT MALDONA	3 OF 4

	SAMPLE No.	As	As	Au	Au(R)					
METHOD		GA140	HA140	GG309	GG309					
1	384132	312	-	0.017	-					
2	384133	56	-	<0.008	-					
3	384134	95	-	<0.008	-					
4	384135	<50	17.40	<0.008	-					
5	384136	102	-	<0.008	-					
6	384137	<50	12.90	<0.008	-					
7	384138	435	-	<0.008	-					
8	384139	348	-	<0.008	-					
9	384140	287	-	<0.008	-					
10	384141	1574	-	<0.008	-					
11	384142	<50	24.80	<0.008	-					
12	384143	<50	13.40	<0.008	<0.008					
13	384144	<50	2.30	<0.008	-					
14	384145	<50	40.10	<0.008	-					
	384146	<50	3.50	<0.008	-					
16	384147	<50	4.30	<0.008	-					
17	384148	54	-	<0.008	-					
18	384149	51	-	<0.008	-					
19	384150	<50	2.80	<0.008	-					
20	384151	<50	17.40	<0.008	-					
21	384152	<50	2.20	<0.008	-					
22	384153	<50	10.40	0.012	<0.008					
23	384154	<50	22.20	<0.008	-					
24	384155	<50	11.40	<0.008	-					
25	384156	<50	1.70	<0.008	-					

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390451

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.80.12339	22/10/95	GRANT MACDONA	- OF -

	SAMPLE No.	As	As	Au	Au(R)					
METHOD		GA140	HA140	GG309	GG309					
1	384157	90	-	<0.008	<0.008					
2	384158	50	15.70	0.024	-					
3	384159	50	18.70	<0.008	-					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	0.01	0.008	0.008					
25	UNITS	ppm	ppm	ppm	ppm					

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390452

ANALYTICAL REPORT No.

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

ORDER No.

PROJECT

DATE RECEIVED

RESULTS REQUIRED

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD

RESULTS TO

RESULTS TO

RESULTS TO

REMARKS

Rock chips from
" Howards Pt "
& " YNC 12/13 Access RD "

pp M.A. Good

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390453

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12359	23/10/96	GRANT MACDONA	1 OF 1

	SAMPLE No.	Cu	Pb	Zn	Zn	Au	Au(R)			
METHOD		GA140	GA140	GA140	GA104	GG309	GG309			
1	384160	127	2488	1660	-	0.113	0.121			
2	384161	287	2183	>5000	0.86	0.016	-			
3	384162	5	34	1877	-	<0.008	-			
4	384163	5	15	867	-	<0.008	-			
5	384164	15	62	544	-	0.026	-			
6	384165	7	40	1299	-	<0.008	-			
7	384166	47	646	891	-	<0.008	-			
8	384167	6	32	1945	-	<0.008	-			
9	384168	8	26	962	-	<0.008	-			
10	384169	1423	355	1197	-	0.062	-			
11	384170	12	11	104	-	<0.008	-			
12	384171	2	23	144	-	<0.008	<0.008			
13	384172	3	23	124	-	<0.008	-			
14	384173	40	765	358	-	0.022	-			
	384174	4	24	81	-	<0.008	-			
16	384175	2	7	68	-	<0.008	-			
17	384176	<2	<3	25	-	0.020	-			
18	384177	3	<3	16	-	<0.008	-			
19	384178	33	<3	77	-	<0.008	-			
20										
21										
22										
23										
24	DETECTION	2	3	2	0.01	0.008	0.008			
25	UNITS	ppm	ppm	ppm	%	ppm	ppm			

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER PP M.D. Good

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****

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390454

ANALYTICAL REPORT No. RES20z.60.12436

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:	ORDER No.	PROJECT
John Ikstrums Resolute Resources Limited P.O. Box 7232 Cloisters Square PERTH WA 6000	GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
06/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	22/11/96	1	45

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384181/384209,384211/384226	SC Prep : GP033	Au,Au(R)/GG309
384181/384209,384211/384226	SC Prep : GP033	Cu,Pb,Zn,Ag,Fe,Bi,Mn,As/GA140. As/HA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

NCl
~~HA1~~ . HA2
reassay

PP M.L. Good
AUTHORISED OFFICER

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390455

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Fe	Bi	Mn
METHOD		GG309	GG309	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384181	0.029	-	31	36	68	<1	1.45	<10	459
2	384182	0.035	-	42	106	152	1	0.82	<10	212
3	384183	0.024	-	75	38	107	<1	2.15	<10	786
4	384184	<0.008	-	77	65	93	1	0.99	<10	725
5	384185	<0.008	-	50	46	30	<1	0.98	<10	473
6	384186	<0.008	-	55	63	88	1	3.01	<10	927
7	384187	<0.008	-	18	18	122	1	3.74	<10	1086
8	384188	<0.008	-	37	26	81	<1	2.96	<10	912
9	384189	<0.008	-	22	27	100	1	3.62	<10	1153
10	384190	<0.008	<0.008	25	22	77	<1	2.96	<10	933
11	384191	<0.008	-	20	28	91	<1	3.07	<10	824
12	384192	<0.008	<0.008	38	65	150	<1	1.54	<10	658
13	384193	<0.008	-	39	30	51	<1	1.44	<10	758
14	384194	<0.008	-	30	39	50	<1	1.90	<10	622
15	384195	<0.008	-	65	20	93	<1	2.95	<10	1311
16	384196	<0.008	-	57	21	102	<1	2.86	<10	1037
17	384197	<0.008	-	25	26	107	<1	3.09	<10	1298
18	384198	<0.008	-	38	50	102	<1	2.25	<10	938
19	384199	<0.008	-	38	59	107	<1	2.05	<10	1109
20	384200	<0.008	-	40	36	79	<1	1.24	<10	270
21	384201	<0.008	-	24	47	107	<1	2.77	<10	844
22	384202	<0.008	<0.008	28	60	101	<1	2.49	<10	1241
23	384203	<0.008	-	23	46	98	<1	3.41	<10	1280
24	384204	<0.008	-	52	5	115	<1	3.49	<10	1101
25	384205	<0.008	-	33	4	101	<1	2.98	<10	1196

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.L. Good

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390456

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Fe	Bi	Mn
METHOD		GG309	GG309	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384206	<0.008	-	31	21	67	<1	2.54	<10	1404
2	384207	<0.008	-	29	16	90	<1	2.89	<10	1101
3	384208	<0.008	-	43	9	109	<1	3.06	<10	1045
4	384209	<0.008	-	31	28	130	<1	3.26	<10	1335
5	384211	<0.008	-	42	87	162	<1	1.01	<10	302
6	384212	<0.008	-	62	143	704	<1	1.45	<10	754
7	384213	0.010	-	55	109	504	<1	3.61	<10	1490
8	384214	<0.008	-	59	148	262	<1	3.68	<10	1385
9	384215	<0.008	<0.008	60	128	298	<1	4.29	<10	1217
10	384216	<0.008	-	67	273	792	<1	1.35	<10	403
11	384217	<0.008	-	273	223	784	1	2.33	<10	411
12	384218	<0.008	<0.008	92	197	480	<1	2.88	<10	482
13	384219	<0.008	-	111	202	588	<1	3.08	<10	507
14	384220	<0.008	-	45	201	21	<1	3.06	<10	481
15	384221	<0.008	-	56	361	916	<1	1.02	<10	319
16	384222	<0.008	<0.008	49	88	139	<1	1.98	<10	703
17	384223	<0.008	-	46	128	420	<1	1.91	<10	779
18	384224	<0.008	-	52	40	334	1	4.32	<10	1429
19	384225	<0.008	-	38	78	355	<1	2.78	<10	444
20	384226	<0.008	-	46	157	509	<1	1.69	<10	302
21										
22										
23										
24	DETECTION	0.008	0.008	2	3	2	1	0.01	10	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390457

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	As	As							
THOD		HA140	GA140							
1	384181	27.70	<50							
2	384182	23.90	<50							
3	384183	20.10	<50							
4	384184	43.80	<50							
5	384185	25.60	<50							
	384186	14.80	<50							
7	384187	8.60	<50							
8	384188	10.10	<50							
9	384189	12.90	<50							
10	384190	12.20	<50							
11	384191	9.00	<50							
12	384192	17.60	52							
13	384193	14.90	<50							
14	384194	15.70	<50							
15	384195	5.50	<50							
16	384196	4.60	<50							
17	384197	8.10	<50							
18	384198	13.60	<50							
19	384199	10.30	<50							
20	384200	11.20	<50							
21	384201	11.20	<50							
22	384202	15.50	<50							
23	384203	11.80	<50							
24	384204	10.40	<50							
25	384205	11.70	<50							

Results in ppm unless otherwise specified
– element not determined

IS = insufficient sample
SNR = sample not received

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390458

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	As	As								
ETHOD		HA140	GA140								
1	384206	22.00	<50								
2	384207	16.10	<50								
3	384208	8.00	<50								
4	384209	13.10	<50								
5	384211	46.50	<50								
	384212	>50.00	68								
7	384213	49.20	<50								
8	384214	35.20	<50								
9	384215	34.60	<50								
10	384216	>50.00	71								
11	384217	>50.00	60								
12	384218	36.60	<50								
13	384219	46.90	<50								
14	384220	>50.00	62								
15	384221	>50.00	80								
16	384222	>50.00	58								
17	384223	>50.00	68								
18	384224	40.60	<50								
19	384225	>50.00	78								
20	384226	>50.00	84								
21											
22											
23											
24	DETECTION	0.01	50								
25	UNITS	ppm	ppm								

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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390459

ANALYTICAL REPORT No.

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO: John Hestrune
Resolute Resources Limited
[illegible]

ORDER No.: GRANT MACKUN
PROJECT:

DATE RECEIVED: 12/11/96
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	19/11/96	3	37

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
241/53,384271/94	SC Pred : GP033	Au,Au(R)/GG30P
384241/53,384271/94	SC Pred : GP033	Cu,Pb,Zn,Ag,Bi,Mn,Sb,As/GA140, As/HA140
1241/53,384271/94	SC Pred : GP033	Zr,Ba,Ti/GX401

RESULTS TO: Grant Mackintosh
Resolute Resources Limited
PO Box 65
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

- HA2 mt core
- Henty ore
- Tyndall Creek rocks.

PP M.A. Good
AUTHORISED OFFICER

ANALABS

390460

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384241	0.062	-	-	102	-	782	-	3120	-
2	384242	0.014	-	-	107	-	80	-	1763	-
3	384243	0.016	-	-	89	-	241	-	1519	-
4	384244	0.064	-	-	179	-	45	-	152	-
5	384245	0.100	-	-	209	-	46	-	141	-
6	384246	0.166	-	-	154	-	80	-	632	-
7	384247	0.176	-	-	615	-	65	-	271	-
8	384248	0.341	-	-	267	-	147	-	105	-
9	384249	0.336	-	-	3072	-	78	-	73	-
10	384250	0.102	-	-	314	-	255	-	220	-
11	384251	0.053	-	-	233	-	609	-	2723	-
12	384252	0.012	0.015	-	121	-	1405	-	3818	-
13	384253	0.012	-	-	183	-	838	-	2285	-
14	384271	46.000	-	-	3922	0.64	>5000	-	195	60
15	384272	1.517	-	-	2376	-	757	-	55	-
16	384273	121.00	-	-	2051	1.41	>5000	-	681	171
17	384274	9.340	10.100	0.57	>5000	1.19	>5000	-	130	108
18	384275	0.084	-	-	21	-	20	-	5	-
19	384276	6.040	-	-	1594	-	1370	-	78	-
20	384277	15.200	-	-	2027	-	4407	-	154	-
21	384278	0.323	-	-	577	-	569	-	326	-
22	384279	0.826	0.840	-	104	-	2113	-	165	-
23	384280	0.803	-	-	820	1.54	>5000	2.57	>5000	-
24	384281	0.030	-	-	195	0.52	>5000	2.59	>5000	58
25	384282	0.029	-	-	465	0.55	>5000	1.73	>5000	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

390461

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
THOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384283	0.041	-	-	119	0.86	>5000	-	1436	-
2	384284	0.922	-	-	1021	1.10	>5000	0.70	>5000	-
3	384285	0.915	0.969	-	1512	0.87	>5000	1.57	>5000	-
4	384286	1.641	-	-	2937	1.91	>5000	3.57	>5000	250
5	384287	0.304	-	-	2553	2.78	>5000	4.37	>5000	120
	384288	0.819	-	-	177	-	4100	-	327	-
7	384289	0.491	-	-	946	0.83	>5000	2.15	>5000	148
8	384290	1.501	-	-	1893	6.62	>5000	3.11	>5000	66
9	384291	3.770	-	-	2882	3.59	>5000	5.24	>5000	175
10	384292	1.198	-	-	270	1.18	>5000	-	3019	-
11	384293	0.055	-	-	145	-	1170	-	386	65
12	384294	2.300	2.420	-	968	2.94	>5000	7.19	>5000	55
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.008	0.008	0.01	2	0.01	3	0.01	2	50
25	UNITS	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

A N A L A B S

390462

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
ETHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384241	<1	<10	1836	45.3	<50	119	1720	1945	<3
2	384242	<1	12	2111	38.0	<50	116	1580	1855	5
3	384243	<1	<10	1441	48.0	<50	139	2570	2290	<3
4	384244	<1	<10	886	37.8	<50	150	3600	2350	<3
5	384245	<1	<10	637	37.0	<50	142	4225	2430	<3
	384246	<1	<10	1236	34.3	<50	136	4695	2345	5
7	384247	<1	12	1605	21.7	<50	153	4750	2725	<3
8	384248	<1	11	252	38.0	<50	151	11300	2200	3
9	384249	3	32	173	15.7	<50	126	6075	2160	7
10	384250	<1	<10	890	32.0	<50	132	3405	2245	4
11	384251	<1	<10	3870	23.0	<50	144	2195	2125	7
12	384252	<1	11	2828	46.9	<50	145	3730	2130	<3
13	384253	<1	<10	1950	30.4	<50	162	4070	2535	5
14	384271	>50	119	600	4.3	<50	220	44	2395	23
15	384272	9	26	251	<0.5	<50	136	55	1615	<3
16	384273	>50	409	338	12.9	<50	343	29	3695	52
17	384274	>50	450	89	10.3	<50	319	<10	2725	16
18	384275	<1	<10	68	5.3	<50	98	64	515	6
19	384276	28	43	211	4.1	<50	130	38	1390	4
20	384277	37	80	278	7.2	<50	177	36	2050	5
21	384278	3	15	93	41.3	<50	231	282	2650	3
22	384279	11	<10	69	>50.0	123	102	91000	1785	33
23	384280	35	13	64	13.7	<50	115	49000	820	47
24	384281	>50	<10	48	10.0	<50	28	111000	410	29
25	384282	35	<10	56	11.7	<50	21	147000	460	26

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

A N A L A B S

390463

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384283	18	<10	57	13.2	<50	37	68000	350	30
2	384284	40	<10	78	>50.0	443	148	73000	2920	209
3	384285	14	<10	71	>50.0	132	87	186000	1270	61
4	384286	>50	<10	317	>50.0	130	43	437000	515	136
5	384287	>50	<10	59	>50.0	106	69	337000	455	83
6	384288	14	<10	160	>50.0	125	134	9000	2345	39
7	384289	>50	<10	132	1.0	539	30	262000	540	78
8	384290	>50	<10	66	>50.0	315	157	307000	530	95
9	384291	>50	<10	57	>50.0	472	65	400000	495	100
10	384292	37	<10	165	>50.0	159	145	12000	2040	61
11	384293	>50	<10	958	37.3	<50	31	117000	570	16
12	384294	>50	<10	72	>50.0	457	68	389000	575	127
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	3	0.5	50	5	10	50	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
– element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390464

Phone (004) 316837 | 14 Thirkell St, CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12488

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
28/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	02/12/96	1	44

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384301/384344	SO Prep : GP033	Au.Au(R)/6G313
384301/384344	SO Prep :	Cu.Pb.Zn.Ag.Bi.Mn.As/GA140. As/HA140

RESULTS TO

Grant MacDonald
Resolute Resources Limited
PO Box 65
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

"Wacker" Gchorizon
First batch.

pp M.A. Good
AUTHORISED OFFICER

[redacted]

Analabs

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A.C.N. 004 591 664

390465

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	RES202.60.12488	02/12/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Bi	Mn	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	GA140
[redacted] 1	384301	<0.005	-	27	312	118	<1	<10	838	60
2	384302	<0.005	-	256	68	377	<1	<10	444	<50
[redacted] 3	384303	<0.005	-	170	48	269	<1	<10	993	<50
4	384304	<0.005	-	57	58	352	<1	<10	1883	<50
[redacted] 5	384305	<0.005	-	40	19	351	<1	<10	651	<50
[redacted]	384306	0.013	-	961	667	567	<1	<10	203	362
7	384307	0.035	0.033	5	219	48	<1	<10	189	<50
[redacted] 8	384308	0.011	-	9	33	121	<1	<10	565	<50
9	384309	0.012	-	362	137	196	<1	<10	371	106
[redacted] 10	384310	0.014	-	117	1051	239	<1	<10	318	<50
[redacted] 11	384311	<0.005	-	31	15	933	<1	<10	1361	<50
[redacted] 12	384312	<0.005	<0.005	76	78	293	<1	<10	1615	<50
[redacted] 13	384313	<0.005	-	41	147	733	<1	<10	682	256
14	384314	<0.005	-	41	216	718	<1	<10	1742	256
[redacted] 15	384315	0.007	-	40	115	360	<1	<10	1863	<50
[redacted] 16	384316	<0.005	-	27	67	2540	<1	<10	1046	<50
[redacted] 17	384317	0.027	-	226	471	1164	2	<10	759	<50
[redacted] 18	384318	0.063	-	1028	634	486	4	<10	1537	<50
19	384319	0.012	-	390	71	218	1	<10	693	<50
[redacted] 20	384320	0.104	-	414	194	171	4	<10	1130	<50
[redacted] 21	384321	<0.005	-	7	9	181	<1	<10	1418	<50
[redacted] 22	384322	<0.005	-	39	16	249	<1	<10	1249	<50
[redacted] 23	384323	<0.005	-	18	14	126	<1	<10	966	<50
24	384324	<0.005	-	76	42	165	<1	<10	1418	<50
[redacted] 25	384325	<0.005	-	50	24	104	<1	<10	1104	<50

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp [signature]

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A.C.N. 004 591 664

390466

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Bi	Mn	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384326	<0.005	<0.005	9	9	161	<1	<10	1115	<50
2	384327	<0.005	-	14	12	112	<1	<10	603	<50
3	384328	<0.005	-	16	21	40	<1	<10	505	<50
4	384329	<0.005	-	10	4	34	<1	<10	185	<50
5	384330	<0.005	-	6	6	60	<1	<10	470	<50
	384331	<0.005	-	140	5	176	<1	<10	1487	<50
7	384332	<0.005	-	40	28	116	<1	<10	635	<50
8	384333	<0.005	-	37	29	99	<1	<10	202	<50
9	384334	<0.005	-	38	49	79	<1	<10	140	<50
10	384335	<0.005	-	35	22	79	<1	<10	155	<50
11	384336	<0.005	-	50	5	122	<1	<10	167	<50
12	384337	<0.005	-	35	22	88	<1	<10	342	<50
13	384338	<0.005	<0.005	44	14	127	<1	<10	190	<50
14	384339	<0.005	-	8	5	66	<1	<10	82	<50
[illegible]	384340	<0.005	-	35	4	42	<1	<10	115	<50
16	384341	<0.005	<0.005	34	13	49	<1	<10	54	<50
17	384342	<0.005	-	26	18	258	<1	<10	1303	<50
18	384343	0.010	-	42	23	200	<1	<10	1263	<50
19	384344	0.016	-	27	7	47	<1	<10	558	<50
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	10	3	50
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp Mo. Good

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390467

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	RES202.60.12488	02/12/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	As									
METHOD		HA140									
[redacted]1	384301	>50.0									
2	384302	27.9									
[redacted]3	384303	14.6									
4	384304	11.1									
[redacted]5	384305	12.8									
[redacted]	384306	>50.0									
7	384307	5.0									
[redacted]8	384308	8.3									
9	384309	>50.0									
[redacted]10	384310	13.7									
[redacted]11	384311	16.5									
12	384312	8.9									
[redacted]13	384313	>50.0									
14	384314	>50.0									
[redacted]	384315	25.9									
[redacted]16	384316	22.1									
[redacted]17	384317	30.6									
[redacted]18	384318	9.1									
19	384319	17.4									
[redacted]20	384320	17.6									
21	384321	11.4									
[redacted]22	384322	6.9									
[redacted]23	384323	4.3									
24	384324	9.4									
[redacted]25	384325	5.5									

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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390468

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	As
METHOD		HA140
1	384326	5.6
2	384327	5.0
3	384328	4.5
4	384329	4.2
5	384330	3.2
	384331	5.9
7	384332	5.3
8	384333	11.3
9	384334	11.0
10	384335	11.2
11	384336	10.0
12	384337	7.2
13	384338	9.3
14	384339	1.8
[illegible]	384340	2.0
16	384341	4.2
17	384342	35.5
18	384343	18.1
19	384344	6.9
20		
21		
22		
23		
24	DETECTION	0.5
25	UNITS	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390469

Phone (004) 316827 | 14 Thirkell St, DODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.1/5444

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box [illegible]
Cloisters Square
PERTH WA 6000

ORDER No.: GRANT MACDUN
PROJECT:

DATE RECEIVED: 02/12/96
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	12/12/96	1	57

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385501/57	DC Pred : GP033	Au.Au(R)/6B310
385501/57	DC Pred : GP033	Cu,Pb,Zn,Ag/6A140

RESULTS TO:
Grant Macdonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

SHD 1
664m → 721m.

pp M.A. Good
AUTHORISED OFFICER

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Analabs Pty. Ltd.
A.C.N. 004 591 664

390470

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	1 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385501	<0.005	-	45	1783	-	2280	-	8	
2	385502	0.012	-	16	1039	-	1510	-	3	
3	385503	0.044	-	198	>5000	3.45	>5000	0.92	32	
4	385504	0.048	-	42	905	-	2323	-	2	
5	385505	0.019	-	85	1294	-	827	-	3	
	385506	0.064	-	64	605	-	1121	-	2	
7	385507	0.063	-	30	726	-	1265	-	2	
8	385508	0.038	-	32	1427	-	1366	-	5	
9	385509	0.168	-	94	3393	-	>5000	0.93	13	
10	385510	0.039	-	57	1010	-	1779	-	3	
11	385511	0.034	-	34	826	-	1185	-	2	
12	385512	0.042	0.036	37	814	-	1495	-	3	
13	385513	0.168	0.168	404	>5000	0.69	>5000	1.82	14	
14	385514	0.132	-	283	2899	-	1635	-	14	
15	385515	0.042	-	60	2271	-	1485	-	5	
16	385516	0.060	-	80	894	-	2281	-	2	
17	385517	0.078	-	76	3281	-	3083	-	8	
18	385518	0.064	-	49	923	-	1664	-	2	
19	385519	0.048	-	57	363	-	1070	-	1	
20	385520	0.019	-	24	328	-	804	-	1	
21	385521	0.028	-	50	310	-	1066	-	1	
22	385522	0.013	0.009	37	631	-	965	-	1	
23	385523	0.008	-	84	1508	-	933	-	3	
24	385524	0.008	-	65	135	-	956	-	<1	
25	385525	0.008	-	39	198	-	587	-	<1	

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs

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A.C.N. 004 591 664

390471

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	2 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385526	0.012	0.021	35	676	-	979	-	1	
2	385527	<0.005	-	85	320	-	240	-	1	
3	385528	<0.005	-	63	243	-	1504	-	<1	
4	385529	<0.005	-	76	130	-	283	-	<1	
5	385530	0.023	-	1361	455	-	1348	-	6	
	385531	0.017	-	38	1095	-	2211	-	3	
7	385532	0.029	-	40	674	-	1506	-	2	
8	385533	0.023	-	14	353	-	926	-	<1	
9	385534	0.017	-	30	1326	-	2138	-	2	
10	385535	0.005	-	21	716	-	3609	-	1	
11	385536	<0.005	-	110	806	-	1214	-	2	
12	385537	0.012	-	36	637	-	1593	-	2	
13	385538	0.016	-	48	549	-	3020	-	2	
14	385539	0.007	-	1131	109	-	107	-	2	
15	385540	0.006	-	760	34	-	209	-	2	
16	385541	<0.005	-	77	36	-	233	-	<1	
17	385542	<0.005	<0.005	17	41	-	116	-	<1	
18	385543	<0.005	-	83	147	-	187	-	<1	
19	385544	0.016	-	14	135	-	224	-	<1	
20	385545	0.034	-	22	387	-	529	-	1	
21	385546	0.046	-	18	440	-	1107	-	1	
22	385547	0.016	0.021	13	434	-	1151	-	<1	
23	385548	0.026	-	20	540	-	1006	-	1	
24	385549	0.036	-	30	799	-	1638	-	1	
25	385550	0.031	-	16	646	-	704	-	<1	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390472

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	3 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385551	0.089	-	71	1488	-	4387	-	1	
2	385552	0.266	-	378	2455	-	>5000	0.72	7	
3	385553	0.331	-	68	1679	-	3668	-	3	
4	385554	0.042	-	100	1020	-	>5000	0.66	1	
5	385555	0.039	-	45	919	-	1561	-	<1	
	385556	0.025	-	8	623	-	887	-	<1	
7	385557	0.031	-	7	129	-	430	-	<1	
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	

'ts in ppm unless otherwise specified
'ent not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390473

Phone (004) 316877 | 14 Thirkell St, DOOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No.

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

John Ikstrums
Resolute Resources Limited
P.O. Box [illegible]
Cloisters Square
PERTH WA [illegible]

ORDER No.	PROJECT
GRANT MACDOUGALL	

DATE RECEIVED	RESULTS REQUIRED
06/12/96	[illegible]

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
14	19/12/96	1

TOTAL No. OF SAMPLES: 101

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385558/385615,385621/385654	RC Prep : GP033	Au,Au1R1/GB313
385558/385615,385621/385654	RC Prep : GP033	Cu,Pb,Zn,Ag/GA140
385501 & others	RC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../GX408
385502 & others	RC Prep : GP033	S/GN613,Zr,Ba,Ti/GX401
385502 & others	RC Prep : GP033	Sn,Mo,Bi,As/GA140

RESULTS TO: Grant MacDougall
Resolute Resources Limited
PO Box 65
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

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pp M.A. Gard
AUTHORISED OFFICER

A N A L A B S

390474

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	1 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385558	0.024	-	11	266	-	777	-	<1	-
2	385559	0.010	-	22	338	-	718	-	<1	-
3	385560	0.015	-	16	127	-	1128	-	<1	>5000
4	385561	0.019	-	40	310	-	1808	-	<1	-
5	385562	0.029	-	23	345	-	1063	-	<1	-
6	385563	0.048	-	51	1030	-	2223	-	<1	-
7	385564	0.029	-	16	614	-	1411	-	<1	-
8	385565	0.032	-	26	693	-	2067	-	<1	-
9	385566	0.048	0.041	60	1077	-	1785	-	<1	>5000
10	385567	0.051	-	174	1441	-	>5000	0.73	<1	-
11	385568	0.060	-	296	1857	-	2939	-	2	-
12	385569	0.063	0.060	56	941	-	2528	-	2	-
13	385570	0.052	-	102	1432	-	3123	-	3	-
14	385571	0.114	-	72	727	-	2309	-	4	-
15	385572	0.090	0.092	85	750	-	2660	-	1	-
16	385573	0.057	-	35	675	-	1817	-	2	-
17	385574	0.074	-	68	1695	-	3164	-	12	-
18	385575	0.068	-	46	815	-	2373	-	4	-
19	385576	0.045	-	45	983	-	1798	-	2	-
20	385577	0.018	-	105	890	-	3762	-	1	-
21	385578	0.008	-	16	530	-	1200	-	<1	-
22	385579	0.024	0.028	19	373	-	1199	-	<1	-
23	385580	0.025	-	25	734	-	1752	-	<1	-
24	385581	0.039	-	75	903	-	2589	-	1	-
25	385582	0.015	-	26	750	-	1606	-	1	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390475

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	2 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385583	0.007	-	14	648	-	1621	-	<1	-
2	385584	<0.005	-	26	992	-	2523	-	<1	-
3	385585	0.043	-	79	1147	-	2725	-	<1	-
4	385586	0.009	-	119	1581	-	3230	-	<1	-
5	385587	0.008	-	7	263	-	888	-	<1	-
6	385588	<0.005	-	8	140	-	960	-	<1	>5000
7	385589	0.010	-	9	341	-	1593	-	<1	-
8	385590	<0.005	-	8	811	-	2235	-	<1	-
9	385591	<0.005	-	12	1509	-	2453	-	<1	-
10	385592	<0.005	-	41	2372	-	3151	-	<1	>5000
11	385593	0.008	-	108	1296	-	3547	-	<1	-
12	385594	<0.005	<0.005	96	880	-	2273	-	<1	-
13	385595	0.012	-	8	407	-	946	-	<1	-
14	385596	<0.005	-	8	146	-	706	-	<1	-
15	385597	0.016	-	3	246	-	771	-	<1	-
16	385598	0.006	-	4	303	-	946	-	<1	-
17	385599	<0.005	-	4	467	-	735	-	<1	-
18	385600	<0.005	-	5	448	-	1075	-	<1	-
19	385601	<0.005	-	6	170	-	644	-	<1	-
20	385602	<0.005	-	6	113	-	544	-	<1	>5000
21	385603	<0.005	-	14	184	-	555	-	<1	-
22	385604	<0.005	<0.005	4	172	-	486	-	<1	-
23	385605	<0.005	-	5	338	-	520	-	<1	-
24	385606	0.008	-	10	175	-	338	-	<1	-
25	385607	0.005	-	11	147	-	506	-	<1	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390476

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	3 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385608	0.008	-	43	215	-	625	-	<1	-
2	385609	0.005	0.007	15	222	-	510	-	<1	-
3	385610	<0.005	-	12	140	-	535	-	<1	-
4	385611	0.179	-	10	185	-	465	-	<1	-
5	385612	<0.005	-	12	252	-	611	-	<1	-
	385613	<0.005	-	10	276	-	689	-	<1	4046
7	385614	0.013	-	23	393	-	1221	-	<1	-
8	385615	<0.005	-	8	275	-	682	-	<1	-
9	385621	<0.005	-	33	<3	-	140	-	<1	827
10	385622	<0.005	-	135	<3	-	138	-	<1	1590
11	385623	<0.005	-	132	<3	-	165	-	<1	1780
12	385624	<0.005	<0.005	196	3	-	236	-	<1	1338
13	385625	0.035	-	4	<3	-	87	-	<1	1007
14	385626	<0.005	-	19	<3	-	67	-	<1	1036
15	385627	0.019	-	127	40	-	180	-	<1	1092
16	385628	0.071	-	9	<3	-	188	-	<1	1160
17	385629	0.079	-	5	11	-	25	-	<1	2417
18	385630	0.007	-	3	<3	-	227	-	<1	972
19	385631	<0.005	-	39	6	-	132	-	<1	1152
20	385632	<0.005	-	26	30	-	319	-	<1	1573
21	385633	<0.005	-	6	14	-	228	-	<1	1740
22	385634	<0.005	<0.005	15	33	-	198	-	<1	618
23	385635	<0.005	-	26	9	-	240	-	<1	2014
24	385636	<0.005	-	5	552	-	1513	-	<1	347
25	385637	<0.005	-	13	15	-	131	-	<1	2339

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390477

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	4 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385638	<0.005	-	13	28	-	323	-	<1	2610
2	385639	<0.005	<0.005	19	14	-	281	-	<1	2728
3	385640	0.024	-	10	8	-	92	-	<1	1506
4	385641	<0.005	-	14	222	-	460	-	<1	272
5	385642	0.018	-	28	58	-	95	-	<1	575
6	385643	<0.005	-	37	10	-	282	-	<1	2687
7	385644	<0.005	-	21	28	-	247	-	<1	2262
8	385645	<0.005	-	13	<3	-	201	-	<1	1732
9	385646	<0.005	-	8	<3	-	281	-	<1	2829
10	385647	<0.005	-	50	<3	-	288	-	<1	4275
11	385648	<0.005	-	63	19	-	153	-	<1	3127
12	385649	<0.005	<0.005	31	77	-	321	-	<1	2611
13	385650	<0.005	-	22	4	-	70	-	<1	3733
14	385651	0.027	-	12	5	-	82	-	<1	1396
15	385652	<0.005	-	19	6	-	74	-	<1	1603
16	385653	0.089	-	17	24	-	105	-	<1	2110
17	385654	0.005	-	49	786	-	4979	-	4	2293
18	385502	-	-	-	-	-	-	-	-	>5000
19	385505	-	-	-	-	-	-	-	-	>5000
20	385513	-	-	-	-	-	-	-	-	768
21	385522	-	-	-	-	-	-	-	-	>5000
22	385532	-	-	-	-	-	-	-	-	>5000
23	385538	-	-	-	-	-	-	-	-	>5000
24	385546	-	-	-	-	-	-	-	-	>5000
25	385553	-	-	-	-	-	-	-	-	>5000

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.D. Good

A N A L A B S

390478

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	5 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
THOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385557	-	-	-	-	-	-	-	-	>5000
2										
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	3
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

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AUTHORISED OFFICER

A N A L A B S

390479

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	6 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
ETHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1	385560	1.85	6	<10	<50	12.6	0.740	149	2527	3723
2	385566	1.18	<5	<10	<50	45.8	0.570	253	3458	3061
3	385588	1.00	<5	<10	<50	9.8	0.410	272	1534	1837
4	385592	0.87	9	<10	<50	7.6	0.400	269	1292	1488
5	385602	0.86	<5	<10	<50	5.1	0.120	261	879	1582
	385613	-	<5	<10	<50	5.8	0.093	249	1213	2814
7	385621	-	<5	<10	<50	4.1	0.025	173	1076	4301
8	385622	-	<5	<10	<50	4.7	0.110	191	905	4679
9	385623	-	<5	<10	<50	2.4	0.016	174	802	5125
10	385624	-	<5	<10	<50	5.7	0.052	217	443	2878
11	385625	-	<5	<10	<50	2.5	0.015	112	1495	4582
12	385626	-	<5	<10	<50	2.7	<0.005	89	1176	3154
13	385627	-	6	<10	<50	37.2	0.990	170	638	2482
14	385628	-	<5	<10	<50	2.9	<0.005	152	908	5576
15	385629	-	<5	<10	<50	18.5	<0.005	12	209	208
16	385630	-	<5	<10	<50	3.2	0.011	199	1813	2461
17	385631	-	<5	<10	<50	3.6	<0.005	228	2306	2710
18	385632	-	<5	<10	<50	2.7	<0.005	204	2442	2692
19	385633	-	<5	<10	<50	2.3	0.068	221	1765	2768
20	385634	-	<5	<10	<50	10.6	<0.005	219	1315	2744
21	385635	-	<5	<10	<50	5.3	0.049	228	925	4045
22	385636	-	5	<10	<50	4.8	0.270	213	1717	3667
23	385637	-	<5	<10	<50	2.3	0.100	190	965	2326
24	385638	-	<5	<10	<50	2.2	0.018	230	1283	2409
25	385639	-	<5	<10	<50	12.5	0.220	259	1172	4664

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390480

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	7 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
ETHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1	385640	-	5	<10	<50	9.1	0.490	219	1600	5115
2	385641	-	<5	<10	<50	30.3	0.920	268	1405	2589
3	385642	-	<5	<10	<50	40.1	1.750	261	1472	3648
4	385643	-	<5	<10	<50	7.4	0.110	289	1398	7304
5	385644	-	<5	<10	<50	15.9	0.230	221	996	4090
	385645	-	<5	<10	<50	2.5	0.028	226	1070	2649
7	385646	-	<5	<10	<50	12.3	0.021	211	1125	2653
8	385647	-	<5	<10	<50	15.9	0.054	194	1412	3926
9	385648	-	<5	<10	<50	26.7	0.110	166	1524	3433
10	385649	-	<5	<10	<50	34.8	1.050	266	996	2814
11	385650	-	<5	<10	<50	19.9	0.038	229	677	2578
12	385651	-	<5	<10	<50	18.4	0.024	241	857	2646
13	385652	-	<5	<10	<50	18.2	0.088	227	816	2562
14	385653	-	<5	<10	<50	25.3	0.032	219	1541	2511
15	385654	-	<5	<10	<50	32.6	2.300	106	64000	4080
16	385502	1.26	<5	<10	<50	37.6	0.830	251	4545	3622
17	385505	1.70	<5	<10	60	>50.0	0.660	146	3675	2912
18	385513	-	10	<10	64	>50.0	6.290	55	205000	1320
19	385522	1.29	<5	<10	77	>50.0	0.530	150	3267	3591
20	385532	1.01	<5	<10	95	>50.0	1.550	157	4062	3688
21	385538	2.02	<5	<10	<50	49.7	1.340	139	5285	3069
22	385546	1.40	<5	<10	83	>50.0	0.650	210	3390	5785
23	385553	1.98	<5	<10	65	>50.0	1.420	143	5010	3105
24	385557	1.70	<5	<10	<50	35.6	0.530	147	3504	4046
25										

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER PP

ANALABS

390481

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	8 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
METHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1										
2										
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	5	10	50	0.5	0.005	5	10	50
25	UNITS	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390482

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	9 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385560	14.30	57.30	0.57	9.41	2.31	0.67	4.45	1.11	0.133
2	385566	16.70	60.40	0.59	6.89	1.52	0.31	5.00	0.81	0.144
3	385588	13.10	69.50	0.33	3.81	1.25	1.36	3.93	0.77	0.052
4	385592	12.00	73.60	0.28	3.85	1.06	0.17	3.61	0.54	0.040
5	385602	12.20	70.20	0.30	3.22	1.03	2.19	3.57	0.95	0.020
6	385613	13.50	66.40	0.51	4.15	0.61	2.66	3.81	1.27	0.109
7	385621	20.60	48.80	1.10	8.00	0.10	6.25	3.62	1.88	0.511
8	385622	21.90	44.60	1.19	9.91	0.21	5.84	3.72	1.72	0.331
9	385623	19.70	46.00	1.05	11.70	0.24	6.53	2.46	1.75	0.345
10	385624	15.60	53.60	0.48	13.20	0.17	3.03	1.05	4.17	0.131
11	385625	16.90	37.70	0.88	13.83	0.13	11.85	3.48	1.59	0.229
12	385626	12.20	30.70	0.68	7.34	0.13	23.22	2.41	1.36	0.194
13	385627	13.20	61.30	0.44	8.51	0.14	3.66	1.41	2.50	0.166
14	385628	19.70	49.10	1.06	9.85	0.15	4.09	1.68	2.22	0.311
15	385629	1.77	6.75	0.04	1.01	0.32	49.20	0.23	0.51	0.091
16	385630	13.20	68.30	0.45	5.93	0.12	1.30	2.17	2.16	0.127
17	385631	15.50	67.90	0.52	3.45	0.15	1.83	3.72	1.03	0.142
18	385632	14.30	67.10	0.51	7.12	0.21	1.24	2.79	1.54	0.143
19	385633	15.60	65.60	0.56	5.52	0.23	1.71	2.81	1.24	0.150
20	385634	14.80	70.90	0.52	4.51	0.07	0.24	3.05	1.16	0.145
21	385635	14.70	64.00	0.69	6.04	0.28	2.87	2.77	0.88	0.241
22	385636	13.80	72.30	0.64	3.04	0.04	0.59	3.18	0.64	0.227
23	385637	13.10	61.40	0.46	5.19	0.33	6.38	3.31	1.24	0.135
24	385638	15.00	63.20	0.51	5.38	0.36	2.62	4.74	1.61	0.140
25	385639	17.60	58.90	0.88	8.50	0.39	0.81	5.24	1.73	0.219

Results in ppm unless otherwise specified
-- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390483

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	10 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385640	15.10	65.90	0.86	3.56	0.21	1.63	5.08	1.09	0.262
2	385641	17.80	66.20	0.65	3.18	0.03	0.40	6.20	1.06	0.161
3	385642	17.80	63.40	0.75	4.59	0.08	0.59	6.20	0.98	0.176
4	385643	21.50	53.10	1.30	8.02	0.40	0.70	6.88	1.69	0.386
5	385644	15.10	59.60	0.74	7.62	0.33	3.00	4.72	1.77	0.209
6	385645	14.90	65.30	0.52	5.73	0.25	1.56	4.73	1.50	0.141
7	385646	14.20	65.40	0.51	6.08	0.42	1.01	5.15	1.46	0.136
8	385647	18.00	58.80	0.72	6.74	0.65	0.38	6.81	1.40	0.190
9	385648	15.80	59.60	0.64	7.23	0.47	2.02	5.76	1.25	0.174
10	385649	17.40	60.30	0.59	5.43	0.40	0.96	7.03	1.31	0.160
11	385650	15.10	66.30	0.53	5.23	0.58	0.53	5.96	0.98	0.138
12	385651	15.70	67.50	0.54	4.60	0.20	0.71	5.73	0.93	0.152
13	385652	15.00	66.00	0.51	4.84	0.23	1.64	5.25	0.94	0.144
14	385653	14.30	67.00	0.52	4.48	0.31	1.77	4.95	0.90	0.132
15	385654	12.50	53.60	0.67	3.97	0.30	2.58	4.41	1.12	0.169
16	385502	15.70	57.10	0.65	5.08	1.55	3.20	6.34	0.99	0.157
17	385505	12.60	58.50	0.50	5.26	2.12	3.75	5.50	1.27	0.130
18	385513	4.33	50.70	0.22	1.62	0.07	0.76	1.50	0.17	0.045
19	385522	14.40	62.10	0.62	6.32	1.58	1.23	5.24	0.98	0.158
20	385532	15.30	61.80	0.64	5.71	1.23	1.15	5.42	0.79	0.145
21	385538	12.20	62.00	0.49	7.08	2.51	1.14	4.07	0.90	0.101
22	385546	15.60	59.30	0.94	6.32	1.70	1.48	5.06	1.05	0.162
23	385553	12.80	53.60	0.49	11.36	2.44	1.32	4.15	1.23	0.102
24	385557	15.00	54.80	0.64	9.75	2.06	1.39	4.62	1.27	0.166
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390484

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	11 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1										
2										
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	%	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

390485

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	12 OF 14

	SAMPLE No.	SO3	LOI	Total	Na20					
ETHOD		OX408	OX408	OX408	OX408					
1	385560	1.67	8.41	98.80	0.12					
2	385566	0.96	6.68	99.40	0.13					
3	385588	0.68	4.99	99.30	0.11					
4	385592	0.81	4.05	99.60	0.09					
5	385602	0.27	5.36	99.10	0.11					
	385613	0.22	6.16	99.40	0.13					
7	385621	<0.01	6.12	100.20	3.17					
8	385622	0.20	6.65	99.10	2.97					
9	385623	0.04	6.83	100.20	3.64					
10	385624	0.08	6.00	99.80	2.30					
11	385625	<0.01	12.04	100.10	1.40					
12	385626	<0.01	20.03	100.00	1.66					
13	385627	1.82	5.20	99.00	2.47					
14	385628	<0.01	5.30	99.40	5.90					
15	385629	0.01	39.20	99.60	0.44					
16	385630	0.02	3.11	99.20	2.41					
17	385631	<0.01	3.36	99.40	1.79					
18	385632	<0.01	3.17	99.80	1.75					
19	385633	0.10	2.98	99.30	2.88					
20	385634	0.15	2.10	99.80	2.25					
21	385635	0.09	3.91	99.00	2.58					
22	385636	0.54	1.86	99.00	2.56					
23	385637	0.18	6.74	99.40	1.06					
24	385638	0.04	5.42	99.10	0.13					
25	385639	0.48	4.48	99.10	0.40					

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	13 OF 14

	SAMPLE No.	SO3	LOI	Total	Na2O					
METHOD		OX408	OX408	OX408	OX408					
1	385640	0.89	3.90	98.20	0.62					
	385641	1.50	3.47	99.30	0.15					
	385642	3.32	3.97	98.80	0.27					
4	385643	0.28	4.97	99.30	0.32					
	385644	0.51	6.01	99.20	0.06					
	385645	0.06	4.38	99.00	0.00					
	385646	0.03	5.45	99.80	0.00					
8	385647	0.09	5.39	99.20	0.06					
9	385648	0.23	6.20	99.20	0.09					
1	385649	1.78	4.68	98.40	0.10					
11	385650	0.09	4.34	99.70	0.07					
12	385651	0.04	3.91	100.10	0.00					
13	385652	0.15	4.65	99.30	0.07					
14	385653	0.05	4.91	99.20	0.00					
15	385654	5.26	4.31	84.40	0.09					
16	385502	1.47	5.92	97.30	0.50					
17	385505	1.20	7.23	97.30	0.35					
8	385513	11.46	4.07	66.40	1.16					
9	385522	1.13	5.88	98.70	0.12					
0	385532	2.54	5.41	98.60	0.80					
1	385538	2.46	7.08	98.10	0.18					
2	385546	1.13	6.78	98.60	0.07					
3	385553	3.29	9.46	97.40	0.07					
4	385557	0.86	8.68	98.40	0.08					
5										

ppm unless otherwise specified
ment not determined

IS = insufficient sample
SNR = sample not received

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390487

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	
	RES202.60.12563	19/12/96	GRANT MACDONA	14 (

SAMPLE No.	SO3	LOI	Total	Na2O				
	OX408	OX408	OX408	OX408				
ECTION	0.01	0.01	0.01	0.05				
UNITS	%	%	%	%				

nless otherwise specified
determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390488

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316557 | 14 Tarkeli St. DODEE TAS 7320 | Fax (004) 316890

ANALYTICAL REPORT No. [illegible]

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Bestrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
17/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	02/01/97	1	70

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
395681/750	CO Prep : GP033	Au,Au(AT/BB313
395681/750	CO Prep : GP033	Cu,Pb,Zn,Ag/GA140

RESULTS TO
Graeme MacDonald
Resolute Resources Limited
PO Box 65
ZEEHAN TAS 7469

REMARKS

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RESULTS TO

RESULTS TO

AUTHORISED OFFICER

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	1 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385681	<0.005	-	8	137	835	<1			
2	385682	<0.005	-	14	1026	1240	<1			
3	385683	<0.005	-	11	33	299	<1			
4	385684	<0.005	-	16	90	200	<1			
5	385685	<0.005	-	13	67	84	<1			
6	385686	<0.005	-	24	156	164	<1			
7	385687	<0.005	-	24	59	199	<1			
8	385688	<0.005	-	39	35	1046	<1			
9	385689	<0.005	-	20	23	176	<1			
10	385690	<0.005	-	21	37	95	<1			
11	385691	<0.005	-	20	60	182	<1			
12	385692	<0.005	<0.005	14	90	128	<1			
13	385693	<0.005	-	11	168	769	<1			
14	385694	<0.005	<0.005	30	120	305	<1			
15	385695	<0.005	-	25	40	264	<1			
16	385696	<0.005	-	21	29	193	<1			
17	385697	<0.005	-	14	23	143	<1			
18	385698	<0.005	-	30	19	154	<1			
19	385699	<0.005	-	19	15	158	<1			
20	385700	<0.005	-	35	24	239	<1			
21	385701	<0.005	-	42	21	188	<1			
22	385702	<0.005	<0.005	10	4	140	<1			
23	385703	<0.005	-	9	44	127	<1			
24	385704	<0.005	-	9	378	430	2			
25	385705	<0.005	-	14	66	79	<1			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	2 OF

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385706	<0.005	-	56	739	501	4			
2	385707	<0.005	-	15	169	511	1			
3	385708	0.023	-	22	134	167	1			
4	385709	<0.005	-	17	109	229	<1			
5	385710	<0.005	-	20	66	178	<1			
6	385711	<0.005	-	25	85	717	<1			
7	385712	<0.005	-	30	26	155	<1			
8	385713	<0.005	<0.005	17	38	329	<1			
9	385714	0.005	-	444	22	103	<1			
10	385715	<0.005	-	49	57	170	1			
11	385716	0.007	-	46	20	368	<1			
12	385717	0.098	0.090	4	13	30	<1			
13	385718	0.032	-	169	140	512	2			
14	385719	<0.005	-	32	160	1106	1			
15	385720	<0.005	-	8	131	319	<1			
16	385721	<0.005	-	76	72	480	2			
17	385722	<0.005	-	461	22	355	5			
18	385723	<0.005	-	59	14	178	2			
19	385724	<0.005	-	35	28	77	1			
20	385725	<0.005	-	44	31	101	1			
21	385726	0.022	-	21	<3	114	<1			
22	385727	<0.005	<0.005	25	11	75	<1			
23	385728	<0.005	-	35	38	79	1			
24	385729	<0.005	-	14	110	509	2			
25	385730	<0.005	-	19	34	119	1			

Results in ppm unless otherwise specified
- = not determined

as = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	3 OF

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385731	<0.005	-	13	100	789	2			
2	385732	<0.005	<0.005	5	32	478	<1			
3	385733	0.040	-	28	14	90	<1			
4	385734	0.020	-	26	163	680	<1			
5	385735	0.011	-	29	30	333	<1			
6	385736	0.196	-	15	28	210	<1			
7	385737	0.016	-	14	12	136	<1			
8	385738	0.014	-	68	70	235	2			
9	385739	0.052	-	23	51	92	<1			
10	385740	0.070	-	14	55	133	1			
11	385741	<0.005	-	21	44	120	1			
12	385742	0.032	-	29	266	864	3			
13	385743	0.014	-	58	390	921	8			
14	385744	<0.005	-	31	142	666	3			
15	385745	<0.005	<0.005	20	64	240	<1			
16	385746	<0.005	-	21	12	54	<1			
17	385747	<0.005	-	25	11	61	<1			
18	385748	<0.005	-	24	19	109	<1			
19	385749	<0.005	-	33	114	105	1			
20	385750	<0.005	-	18	41	259	<1			
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1			
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm			

IS = insufficient sample
SNR = sample not received

AUTHORISED

390492

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 31 8837 | 14 Thirkell St. JOOEE 145 7320 | Fax (004) 318590

ANALYTICAL REPORT No. [illegible]

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:	ORDER No.	PROJECT
John Dietrums Resolute Resources Limited P.O. Box 7252 Cloisters Square PERTH WA 6000	GRANT MACDON	
	DATE RECEIVED	RESULTS REQUIRED
	31/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
21	06/01/97	1	195

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
4361/77 & others	BD Prep : GP031	Au,Au(R)/BB313
4361/77 & others	BC Prep : GP031	Cu,Pb,Zn,Ag,As/GA140,As/HA140
5751/2,385771/827	DC Prep : GP033	Au,Au(R)/BB313
5751/2,385771/827	DC Prep :	Cu,Pb,Zn,Ag/GA140
385772 & others	DC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../OX40B

RESULTS TO: Grant Macdonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

Healy Canal
Acc Rd
"Workers"
SHD-2
264m - 322m

AUTHORISED OFFICER

390493

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	1 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384361	-	-	-	-	8	-	32	-	<50
2	384362	-	-	-	-	6	-	16	-	<50
3	384363	-	-	-	-	7	-	16	-	<50
4	384364	-	-	-	-	13	-	121	-	<50
5	384365	-	-	-	-	30	-	50	-	<50
6	384366	-	-	-	-	7	-	53	-	<50
7	384367	-	-	-	-	5	-	16	-	<50
8	384368	-	-	-	-	13	-	78	-	<50
9	384369	-	-	-	-	85	-	384	-	<50
10	384370	-	-	-	-	18	-	103	-	<50
11	384371	-	-	-	-	41	-	1543	-	146
12	384372	-	-	-	-	13	-	44	-	<50
13	384373	-	-	-	-	18	-	74	-	<50
14	384374	-	-	-	-	26	-	161	-	<50
15	384375	-	-	-	-	3	-	8	-	<50
16	384376	-	-	-	-	3	-	28	-	<50
17	384377	-	-	-	-	5	-	73	-	<50
18	384380	-	-	-	-	6	-	9	-	<50
19	384382	-	-	-	-	5	-	66	-	<50
20	384383	-	-	-	-	38	-	132	-	<50
21	384384	-	-	-	-	49	-	224	-	<50
22	384385	-	-	-	-	8	-	41	-	<50
23	384386	-	-	-	-	7	-	51	-	<50
24	384389	-	-	-	-	61	-	142	-	<50
25	384390	-	-	-	-	5	-	57	-	<50

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390494

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	2 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384391	-	-	-	-	12	-	46	-	<50
2	384392	-	-	-	-	6	-	34	-	<50
3	384393	-	-	-	-	3	-	40	-	<50
4	384394	-	-	-	-	25	-	54	-	<50
5	384395	-	-	-	-	47	-	44	-	<50
6	384396	-	-	-	-	3	-	9	-	<50
7	384397	-	-	-	-	<2	-	8	-	<50
8	384398	-	-	-	-	<2	-	85	-	<50
9	384399	-	-	-	-	2	-	18	-	<50
10	384400	-	-	-	-	<2	-	48	-	<50
11	384401	-	-	-	-	<2	-	66	-	<50
12	384402	-	-	-	-	2	-	63	-	<50
13	384403	-	-	-	-	3	-	149	-	<50
14	384404	-	-	-	-	2	-	48	-	<50
15	384405	-	-	-	-	5	-	120	-	<50
16	384406	-	-	-	-	4	-	53	-	<50
17	384407	-	-	-	-	13	-	40	-	<50
18	384408	-	-	-	-	54	-	73	-	<50
19	384409	-	-	-	-	6	-	89	-	80
20	384410	-	-	-	-	24	-	62	-	<50
21	384412	-	-	-	-	10	-	26	-	<50
22	384413	-	-	-	-	15	-	55	-	<50
23	384414	-	-	-	-	19	-	75	-	<50
24	384415	-	-	-	-	37	-	68	-	<50
25	384416	-	-	-	-	18	-	62	-	<50

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	3 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384417	-	-	-	-	16	-	371	-	<50
2	384418	-	-	-	-	9	-	25	-	<50
3	384419	-	-	-	-	13	-	95	-	<50
4	384420	-	-	-	-	8	-	103	-	<50
5	384421	-	-	-	-	3	-	12	-	71
6	384422	-	-	-	-	5	-	47	-	<50
7	384423	-	-	-	-	3	-	18	-	<50
8	384424	-	-	-	-	3	-	28	-	<50
9	384425	-	-	-	-	3	-	54	-	<50
10	384431	-	-	-	-	5	-	55	-	<50
11	384432	-	-	-	-	16	-	91	-	<50
12	384433	-	-	-	-	9	-	57	-	<50
13	384434	-	-	-	-	3	-	106	-	<50
14	384435	-	-	-	-	136	-	79	-	<50
15	384436	-	-	-	-	39	-	77	-	<50
16	384437	-	-	-	-	96	-	205	-	<50
17	384438	-	-	-	-	<2	-	11	-	<50
18	384439	-	-	-	-	3	-	18	-	<50
19	384440	-	-	-	-	2	-	20	-	<50
20	384441	-	-	-	-	3	-	123	-	<50
21	384442	-	-	-	-	8	-	97	-	<50
22	384443	-	-	-	-	6	-	120	-	<50
23	384444	-	-	-	-	4	-	91	-	<50
24	384445	-	-	-	-	4	-	46	-	<50
25	384446	-	-	-	-	4	-	54	-	<50

Results in ppm unless otherwise specified
- = Element not determined

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390496

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	4 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384448	-	-	-	-	3	-	66	-	<50
2	384451	-	-	-	-	3	-	23	-	<50
3	384452	-	-	-	-	13	-	63	-	<50
4	384455	-	-	-	-	60	-	124	-	<50
5	384456	-	-	-	-	95	-	82	-	<50
6	384457	-	-	-	-	3	-	32	-	<50
7	384458	-	-	-	-	2	-	16	-	<50
8	384459	-	-	-	-	<2	-	21	-	<50
9	384460	-	-	-	-	2	-	17	-	<50
10	384462	-	-	-	-	12	-	17	-	72
11	384463	-	-	-	-	4	-	10	-	<50
12	384464	-	-	-	-	5	-	36	-	<50
13	384465	-	-	-	-	3	-	68	-	<50
14	384466	-	-	-	-	<2	-	5	-	<50
15	384467	-	-	-	-	11	-	285	-	69
16	384468	-	-	-	-	12	-	328	-	<50
17	384469	-	-	-	-	18	-	42	-	<50
18	384470	-	-	-	-	9	-	<2	-	<50
19	384471	-	-	-	-	9	-	80	-	<50
20	384472	-	-	-	-	5	-	100	-	<50
21	384473	-	-	-	-	7	-	30	-	<50
22	384474	-	-	-	-	9	-	23	-	<50
23	384475	-	-	-	-	9	-	34	-	<50
24	384476	-	-	-	-	17	-	51	-	<50
25	384477	-	-	-	-	14	-	60	-	<50

Results in ppm unless otherwise specified. - = not requested, not determined. IS = insufficient sample. SNR = sample not received.

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390497

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	5 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384482	-	-	-	-	53	-	145	-	109
2	384483	-	-	-	-	3	-	29	-	<50
3	384484	-	-	-	-	6	-	50	-	<50
4	384485	-	-	-	-	17	-	74	-	<50
5	384487	-	-	-	-	2	-	15	-	<50
6	384488	-	-	-	-	2	-	30	-	<50
7	384489	-	-	-	-	5	-	28	-	<50
8	384490	-	-	-	-	4	-	10	-	<50
9	384493	-	-	-	-	17	-	60	-	<50
10	384494	-	-	-	-	27	-	45	-	<50
11	384495	-	-	-	-	16	-	71	-	<50
12	384496	-	-	-	-	27	-	36	-	<50
13	384497	-	-	-	-	32	-	84	-	57
14	384498	-	-	-	-	32	-	60	-	<50
15	384499	-	-	-	-	34	-	48	-	<50
16	384500	-	-	-	-	15	-	29	-	<50
17	384501	-	-	-	-	6	-	60	-	<50
18	384502	-	-	-	-	24	-	114	-	<50
19	384503	-	-	-	-	12	-	128	-	<50
20	384504	-	-	-	-	26	-	257	-	<50
21	384505	-	-	-	-	20	-	56	-	<50
22	384506	-	-	-	-	28	-	66	-	<50
23	384507	-	-	-	-	34	-	51	-	<50
24	384508	-	-	-	-	19	-	38	-	<50
25	384509	-	-	-	-	35	-	57	-	<50

Results in ppm unless otherwise specified

AUTHORISED

390498

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	6 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384510	-	-	-	-	133	-	37	-	<50
2	384511	-	-	-	-	16	-	28	-	<50
3	384512	-	-	-	-	23	-	36	-	<50
4	384513	-	-	-	-	39	-	55	-	<50
5	384514	-	-	-	-	33	-	86	-	<50
6	384515	-	-	-	-	20	-	43	-	<50
7	384516	-	-	-	-	26	-	64	-	<50
8	384517	-	-	-	-	23	-	60	-	<50
9	384518	-	-	-	-	16	-	47	-	<50
10	384519	-	-	-	-	26	-	72	-	<50
11	384520	-	-	-	-	4	-	52	-	<50
12	384521	-	-	-	-	19	-	97	-	<50
13	384522	-	-	-	-	64	-	99	-	<50
14	384523	-	-	-	-	5	-	39	-	<50
15	384524	-	-	-	-	35	-	143	-	<50
16	385751	-	-	-	-	19	-	181	-	-
17	385752	-	-	-	-	59	-	905	-	-
18	385771	-	-	-	-	2887	-	32	-	-
19	385772	5.37	2485	1137	-	4533	-	94	-	<50
20	385773	-	-	-	-	48	-	383	-	-
21	385774	-	-	-	-	19	-	329	-	-
22	385775	-	-	-	-	17	-	226	-	-
23	385776	-	-	-	-	28	-	513	-	-
24	385777	-	-	-	-	141	-	>5000	0.74	-
25	385778	-	-	-	-	222	-	4108	-	-

Results in parts per million unless otherwise specified
- = element not determined

@ = insufficient sample
INR = sample not received

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390499

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	7 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	385779	-	-	-	-	294	-	327	-	-
2	385780	-	-	-	-	215	-	404	-	-
3	385781	-	-	-	-	1837	-	126	-	-
4	385782	7.08	2490	140	-	175	-	27	-	<50
5	385783	-	-	-	-	356	-	40	-	-
6	385784	-	-	-	-	388	-	333	-	-
7	385785	8.43	2330	403	-	203	-	82	-	<50
8	385786	-	-	-	-	52	-	25	-	-
9	385787	-	-	-	-	2041	-	162	-	-
10	385788	-	-	-	-	452	-	358	-	-
11	385789	-	-	-	-	233	-	53	-	-
12	385790	-	-	-	-	515	-	194	-	-
13	385791	-	-	-	-	600	-	344	-	-
14	385792	-	-	-	-	392	-	671	-	-
15	385793	-	-	-	-	74	-	3657	-	-
16	385794	9.93	2295	21	-	50	-	347	-	<50
17	385795	-	-	-	-	728	-	222	-	-
18	385796	-	-	-	-	266	-	673	-	-
19	385797	0.16	2755	>5000	0.32	137	-	297	-	<50
20	385798	-	-	-	-	1100	-	229	-	-
21	385799	-	-	-	-	541	-	98	-	-
22	385800	-	-	-	-	309	-	792	-	-
23	385801	-	-	-	-	219	-	53	-	-
24	385802	-	-	-	-	219	-	87	-	-
25	385803	-	-	-	-	96	-	67	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	8 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	385804	-	-	-	-	512	-	257	-	-
2	385805	-	-	-	-	338	-	92	-	-
3	385806	-	-	-	-	261	-	114	-	-
4	385807	-	-	-	-	21	-	187	-	-
5	385808	-	-	-	-	7	-	199	-	-
6	385809	-	-	-	-	32	-	183	-	-
7	385810	-	-	-	-	9	-	123	-	-
8	385811	-	-	-	-	32	-	223	-	-
9	385812	-	-	-	-	244	-	724	-	-
10	385813	-	-	-	-	25	-	287	-	-
11	385814	-	-	-	-	21	-	265	-	-
12	385815	-	-	-	-	15	-	186	-	-
13	385816	-	-	-	-	100	-	237	-	-
14	385817	4.69	2715	3696	-	3871	-	165	-	<50
15	385818	-	-	-	-	>5000	1.10	203	-	-
16	385819	-	-	-	-	1200	-	270	-	-
17	385820	-	-	-	-	744	-	167	-	-
18	385821	-	-	-	-	765	-	88	-	-
19	385822	-	-	-	-	2497	-	51	-	-
20	385823	-	-	-	-	1352	-	85	-	-
21	385824	-	-	-	-	2834	-	78	-	-
22	385825	-	-	-	-	1041	-	170	-	-
23	385826	-	-	-	-	2775	-	126	-	-
24	385827	-	-	-	-	581	-	220	-	-
25										

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390501

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/92	GRANT MACDONA	9 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		GM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
8										
9										
10										
1										
12										
3										
14										
15										
6										
17										
8										
19										
0										
1										
22										
3										
24	DETECTION	0.01	50	3	0.01	2	0.01	2	0.01	50
5	UNITS	%	ppm	ppm	%	ppm	%	ppm	%	ppm

All results in ppm unless otherwise specified / - = insufficient sample
N = element not present / NA = element not analysed

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390502

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	10 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384361	17.8	-	-	<1	-	<0.005	5	-	-
2	384362	3.4	-	-	<1	-	<0.005	7	-	-
3	384363	3.4	-	-	<1	-	<0.005	4	-	-
4	384364	6.2	-	-	<1	-	<0.005	8	-	-
5	384365	1.3	-	-	<1	-	<0.005	10	-	-
6	384366	13.2	-	-	<1	-	<0.005	11	-	-
7	384367	<0.5	-	-	<1	-	<0.005	11	-	-
8	384368	7.1	-	-	<1	-	<0.005	14	-	-
9	384369	7.1	-	-	<1	-	<0.005	61	-	-
10	384370	18.0	-	-	<1	-	<0.005	66	-	-
11	384371	-	-	-	15	-	<0.005	2370	-	-
12	384372	17.0	-	-	<1	-	<0.005	5	-	-
13	384373	26.1	-	-	<1	-	<0.005	26	-	-
14	384374	30.1	-	-	<1	-	<0.005	33	-	-
15	384375	3.3	-	-	<1	-	<0.005	18	-	-
16	384376	3.3	-	-	<1	-	<0.005	11	-	-
17	384377	8.6	-	-	<1	-	<0.005	4	-	-
18	384380	3.7	-	-	<1	-	<0.005	4	-	-
19	384382	2.9	-	-	<1	-	<0.005	5	-	-
20	384383	22.0	-	-	<1	-	<0.005	35	-	-
21	384384	17.0	-	-	<1	-	<0.005	115	-	-
22	384385	25.1	-	-	<1	-	<0.005	<3	-	-
23	384386	7.1	-	-	<1	-	<0.005	17	-	-
24	384389	19.4	-	-	<1	-	<0.005	14	-	-
25	384390	8.9	-	-	<1	-	<0.005	4	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390503

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	11 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384391	32.9	-	-	<1	-	<0.005	22	-	-
2	384392	5.7	-	-	<1	-	<0.005	<3	-	-
3	384393	9.5	-	-	<1	-	<0.005	12	-	-
4	384394	19.9	-	-	<1	-	<0.005	10	-	-
5	384395	20.5	-	-	<1	-	<0.005	<3	-	-
6	384396	3.3	-	-	<1	-	<0.005	11	-	-
7	384397	2.7	-	-	<1	-	<0.005	<3	-	-
8	384398	7.3	-	-	<1	-	<0.005	5	-	-
9	384399	1.7	-	-	<1	-	<0.005	4	-	-
10	384400	4.0	-	-	<1	-	<0.005	7	-	-
11	384401	2.8	-	-	<1	-	<0.005	<3	-	-
12	384402	9.0	-	-	<1	-	<0.005	<3	-	-
13	384403	1.8	-	-	<1	-	<0.005	5	-	-
14	384404	10.4	-	-	<1	-	<0.005	19	-	-
15	384405	13.4	-	-	<1	-	<0.005	44	-	-
16	384406	3.5	-	-	<1	-	<0.005	8	-	-
17	384407	8.2	-	-	<1	-	<0.005	10	-	-
18	384408	34.1	-	-	<1	-	<0.005	11	-	-
19	384409	-	-	-	<1	-	<0.005	9	-	-
20	384410	27.8	-	-	<1	-	<0.005	17	-	-
21	384412	25.4	-	-	<1	-	<0.005	20	-	-
22	384413	17.2	-	-	<1	-	<0.005	15	-	-
23	384414	17.6	-	-	<1	-	<0.005	12	-	-
24	384415	20.3	-	-	<1	-	<0.005	14	-	-
25	384416	27.0	-	-	<1	-	<0.005	8	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390504

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	12 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384417	10.1	-	-	<1	-	<0.005	126	-	-
2	384418	5.8	-	-	<1	-	<0.005	17	-	-
3	384419	38.3	-	-	<1	-	<0.005	7	-	-
4	384420	7.6	-	-	<1	-	<0.005	60	-	-
5	384421	-	-	-	<1	-	<0.005	17	-	-
6	384422	29.9	-	-	<1	-	<0.005	21	-	-
7	384423	2.2	-	-	<1	-	<0.005	7	-	-
8	384424	2.7	-	-	<1	-	<0.005	6	-	-
9	384425	2.3	-	-	<1	-	<0.005	10	-	-
10	384431	4.4	-	-	<1	-	<0.005	17	-	-
11	384432	7.6	-	-	<1	-	<0.005	21	-	-
12	384433	4.5	-	-	<1	-	<0.005	9	-	-
13	384434	4.1	-	-	<1	-	<0.005	19	-	-
14	384435	8.4	-	-	<1	-	<0.005	16	-	-
15	384436	2.7	-	-	<1	-	<0.005	20	-	-
16	384437	10.6	-	-	<1	-	<0.005	25	-	-
17	384438	1.6	-	-	<1	-	<0.005	4	-	-
18	384439	2.3	-	-	<1	-	<0.005	7	-	-
19	384440	1.1	-	-	<1	-	<0.005	10	-	-
20	384441	7.9	-	-	<1	-	<0.005	15	-	-
21	384442	41.3	-	-	<1	-	<0.005	61	-	-
22	384443	21.4	-	-	<1	-	<0.005	101	-	-
23	384444	5.5	-	-	<1	-	<0.005	47	-	-
24	384445	4.3	-	-	<1	-	<0.005	14	-	-
25	384446	4.1	-	-	<1	-	<0.005	13	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	13 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384448	4.7	-	-	<1	-	<0.005	15	-	-
2	384451	1.6	-	-	<1	-	<0.005	9	-	-
3	384452	5.3	-	-	<1	-	<0.005	18	-	-
4	384455	7.0	-	-	<1	-	<0.005	13	-	-
5	384456	4.9	-	-	<1	-	<0.005	15	-	-
6	384457	11.2	-	-	<1	-	<0.005	33	-	-
7	384458	3.3	-	-	2	-	<0.005	18	-	-
8	384459	3.8	-	-	<1	-	<0.005	205	-	-
9	384460	5.5	-	-	<1	-	<0.005	81	-	-
10	384462	-	-	-	<1	-	<0.005	113	-	-
11	384463	17.1	-	-	<1	-	<0.005	98	-	-
12	384464	36.8	-	-	<1	-	<0.005	16	-	-
13	384465	31.5	-	-	<1	-	<0.005	7	-	-
14	384466	3.2	-	-	<1	-	<0.005	7	-	-
15	384467	-	-	-	<1	-	<0.005	288	-	-
16	384468	21.2	-	-	<1	-	<0.005	13	-	-
17	384469	7.7	-	-	<1	-	<0.005	41	-	-
18	384470	8.3	-	-	<1	-	<0.005	13	-	-
19	384471	16.1	-	-	<1	-	<0.005	16	-	-
20	384472	4.1	-	-	<1	-	<0.005	18	-	-
21	384473	3.5	-	-	<1	-	<0.005	15	-	-
22	384474	28.7	-	-	<1	-	<0.005	19	-	-
23	384475	27.0	-	-	<1	-	<0.005	23	-	-
24	384476	6.5	-	-	<1	-	<0.005	25	-	-
25	384477	6.3	-	-	<1	-	<0.005	25	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390506

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	14 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384482	-	-	-	<1	-	<0.005	279	-	-
2	384483	3.0	-	-	<1	-	<0.005	23	-	-
3	384484	2.8	-	-	<1	-	<0.005	22	-	-
4	384485	5.6	-	-	<1	-	<0.005	20	-	-
5	384487	0.9	-	-	<1	-	<0.005	11	-	-
6	384488	0.5	-	-	<1	-	<0.005	16	-	-
7	384489	0.6	-	-	<1	-	<0.005	16	-	-
8	384490	21.7	-	-	<1	-	<0.005	12	-	-
9	384493	17.7	-	-	<1	-	<0.005	37	-	-
10	384494	41.7	-	-	<1	-	<0.005	56	-	-
11	384495	23.9	-	-	<1	-	<0.005	15	-	-
12	384496	8.1	-	-	<1	-	<0.005	18	-	-
13	384497	-	-	-	<1	-	<0.005	30	-	-
14	384498	7.2	-	-	<1	-	<0.005	24	-	-
15	384499	39.8	-	-	<1	-	<0.005	56	-	-
16	384500	10.2	-	-	<1	-	<0.005	55	-	-
17	384501	25.9	-	-	<1	-	<0.005	15	-	-
18	384502	14.5	-	-	<1	-	<0.005	15	-	-
19	384503	26.8	-	-	<1	-	<0.005	17	-	-
20	384504	8.2	-	-	<1	-	<0.005	28	-	-
21	384505	33.2	-	-	<1	-	<0.005	12	-	-
22	384506	40.4	-	-	<1	-	<0.005	27	-	-
23	384507	6.4	-	-	<1	-	<0.005	5	-	-
24	384508	36.8	-	-	<1	-	<0.005	14	-	-
25	384509	41.0	-	-	<1	-	<0.005	24	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390507

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	15 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384510	7.4	-	-	<1	-	<0.005	13	-	-
2	384511	4.4	-	-	<1	-	<0.005	6	-	-
3	384512	6.0	-	-	<1	-	<0.005	16	-	-
4	384513	2.8	-	-	<1	-	<0.005	10	-	-
5	384514	1.3	-	-	<1	-	<0.005	7	-	-
6	384515	4.7	-	-	<1	-	<0.005	8	-	-
7	384516	2.8	-	-	<1	-	<0.005	6	-	-
8	384517	1.1	-	-	<1	-	<0.005	<3	-	-
9	384518	23.6	-	-	<1	-	<0.005	8	-	-
10	384519	17.8	-	-	<1	-	<0.005	24	-	-
11	384520	2.8	-	-	<1	-	<0.005	<3	-	-
12	384521	2.9	-	-	<1	-	<0.005	<3	-	-
13	384522	4.4	-	-	<1	-	<0.005	7	-	-
14	384523	2.7	-	-	<1	-	<0.005	6	-	-
15	384524	<0.5	-	-	<1	-	<0.005	6	-	-
16	385751	-	-	-	1	-	0.007	148	-	-
17	385752	-	-	-	5	-	0.009	818	-	-
18	385771	-	-	-	2	-	0.040	131	-	-
19	385772	10.1	243	5	2	1495	0.199	154	-	28
20	385773	-	-	-	1	-	0.017	415	-	-
21	385774	-	-	-	1	-	<0.005	401	-	-
22	385775	-	-	-	<1	-	<0.005	433	-	-
23	385776	-	-	-	1	-	<0.005	1087	-	-
24	385777	-	-	-	4	-	<0.005	3790	0.52	-
25	385778	-	-	-	1	-	0.008	687	-	-

Results in ppm unless otherwise specified
- = not determined
IS = insufficient sample
SNR = sample not received

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390508

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	16 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	385779	-	-	-	<1	-	0.017	42	-	-
2	385780	-	-	-	<1	-	0.030	3	-	-
3	385781	-	-	-	1	-	0.037	20	-	-
4	385782	49.1	244	7	1	1935	0.067	32	-	<10
5	385783	-	-	-	1	-	0.040	42	-	-
6	385784	-	-	-	1	-	0.040	18	-	-
7	385785	36.1	226	6	<1	1980	0.328	28	-	13
8	385786	-	-	-	2	-	0.193	15	-	-
9	385787	-	-	-	2	-	0.162	6	-	-
10	385788	-	-	-	1	-	0.039	17	-	-
11	385789	-	-	-	2	-	0.111	9	-	-
12	385790	-	-	-	2	-	0.126	11	-	-
13	385791	-	-	-	2	-	0.053	29	-	-
14	385792	-	-	-	10	-	0.821	244	-	-
15	385793	-	-	-	10	-	0.289	3754	-	-
16	385794	41.1	209	<5	7	3820	1.502	461	-	<10
17	385795	-	-	-	5	-	0.515	14	-	-
18	385796	-	-	-	<1	-	0.020	14	-	-
19	385797	13.6	242	<5	<1	3490	0.008	15	-	<10
20	385798	-	-	-	1	-	0.057	22	-	-
21	385799	-	-	-	2	-	0.047	46	-	-
22	385800	-	-	-	1	-	0.030	20	-	-
23	385801	-	-	-	<1	-	0.381	30	-	-
24	385802	-	-	-	1	-	0.423	30	-	-
25	385803	-	-	-	<1	-	0.467	63	-	-

Results in [illegible] refer only to the sample(s) as received.
[illegible] not guaranteed

(S) = insufficient sample
(NR) = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	17 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	385804	-	-	-	2	-	0.818	386	-	-
2	385805	-	-	-	1	-	0.488	42	-	-
3	385806	-	-	-	<1	-	0.512	38	-	-
4	385807	-	-	-	<1	-	0.334	35	-	-
5	385808	-	-	-	<1	-	0.015	67	-	-
6	385809	-	-	-	<1	-	0.020	333	-	-
7	385810	-	-	-	<1	-	0.012	34	-	-
8	385811	-	-	-	<1	-	0.015	19	-	-
9	385812	-	-	-	<1	-	0.057	164	-	-
10	385813	-	-	-	<1	-	0.017	50	-	-
11	385814	-	-	-	<1	-	0.010	10	-	-
12	385815	-	-	-	<1	-	0.011	13	-	-
13	385816	-	-	-	<1	-	0.025	11	-	-
14	385817	7.0	226	<5	3	1715	0.071	7	-	18
15	385818	-	-	-	1	-	0.069	11	-	-
16	385819	-	-	-	<1	-	0.041	11	-	-
17	385820	-	-	-	<1	-	0.047	9	-	-
18	385821	-	-	-	<1	-	0.925	13	-	-
19	385822	-	-	-	<1	-	0.391	12	-	-
20	385823	-	-	-	<1	-	0.220	18	-	-
21	385824	-	-	-	1	-	0.199	13	-	-
22	385825	-	-	-	1	-	0.167	14	-	-
23	385826	-	-	-	<1	-	0.114	10	-	-
24	385827	-	-	-	<1	-	0.080	7	-	-
25										

Results in ppm unless otherwise specified
Element not determined

S = Insufficient sample
SNR = Sample not received

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390510

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.80.12627	06/02/97	GRANT MACDONA	18 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.5	5	5	1	10	0.005	3	0.01	10
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm

Results in ppm unless otherwise specified
Element not determined
Insufficient sample
Sample not received

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390511

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	19 OF 21

	SAMPLE No.	Au(R)	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		GG313	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	384372	<0.005	-	-	-	-	-	-	-	-
2	384385	<0.005	-	-	-	-	-	-	-	-
3	384402	<0.005	-	-	-	-	-	-	-	-
4	384410	<0.005	-	-	-	-	-	-	-	-
5	384418	<0.005	-	-	-	-	-	-	-	-
6	384433	<0.005	-	-	-	-	-	-	-	-
7	384443	<0.005	-	-	-	-	-	-	-	-
8	384446	<0.005	-	-	-	-	-	-	-	-
9	384462	0.007	-	-	-	-	-	-	-	-
10	384463	<0.005	-	-	-	-	-	-	-	-
11	384464	<0.005	-	-	-	-	-	-	-	-
12	384474	<0.005	-	-	-	-	-	-	-	-
13	384496	<0.005	-	-	-	-	-	-	-	-
14	384506	<0.005	-	-	-	-	-	-	-	-
15	384511	<0.005	-	-	-	-	-	-	-	-
16	384521	<0.005	-	-	-	-	-	-	-	-
17	385772	-	64.90	0.52	8.51	0.15	0.65	3.75	0.50	0.143
18	385780	0.028	-	-	-	-	-	-	-	-
19	385782	-	63.90	0.51	10.44	0.02	0.24	3.86	0.25	0.189
20	385785	-	61.80	0.45	12.54	0.07	0.18	3.36	0.24	0.142
21	385790	0.120	-	-	-	-	-	-	-	-
22	385791	0.064	-	-	-	-	-	-	-	-
23	385794	-	60.90	0.42	14.45	<0.01	0.09	3.14	0.16	0.075
24	385797	-	66.40	0.55	6.37	1.11	0.33	3.93	0.78	0.157
25	385802	0.428	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
Not requested or determined
IS = Insufficient sample
SNR = sample not received

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390512

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	20 OF 21

	SAMPLE No.	Au(R)	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		GG313	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385806	0.436	-	-	-	-	-	-	-	-
2	385815	0.008	-	-	-	-	-	-	-	-
3	385817	-	61.90	0.50	10.43	0.52	0.32	3.82	0.53	0.157
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	ppm	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified

Is sufficient sample remaining for additional work required

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390513

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	21 OF 21

SAMPLE No.	SiO2	Na2O	LOI	Total	Al2O3				
	OX408	OX408	OX408	OX408	OX408				
385772	9.15	0.31	5.73	99.80	14.10				
385782	5.84	0.31	6.79	100.70	14.20				
385785	4.22	0.26	7.73	99.30	12.60				
385794	5.78	0.21	8.64	99.80	11.70				
385797	0.66	0.22	4.70	99.60	15.00				
385817	9.40	0.18	6.39	99.10	14.00				
DETECTION	0.01	0.05	0.01	0.01	0.05				
UNITS	%	%	%	%	%				

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Analabs

Analabs Pty. Ltd.

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12650

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:	ORDER No.	PROJECT
John Ikstrums Resolute Resources Limited P.O. Box 7232 Cloisters Square PERTH WA 6000	GRANT MACDON	
	DATE RECEIVED	RESULTS REQUIRED
	07/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
27	18/03/97	1	641

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384525/735	SO Prep : GP033	Au.Au(R)/66313
384525/735 & others	SO Prep : GP033	Cu,Pb,Zn,Ag,As/GA140
387302/588.387590/732	SO Prep : GP033	Au.Au(R)/66326

RESULTS TO

Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Wacles
Tya Ck
H Coal
Acc Rd

pp

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390515

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	1 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384525	<0.005	-	8	3	92	<1	<50	15.6	-
2	384526	<0.005	-	80	47	174	<1	<50	11.3	-
3	384527	<0.005	-	81	8	225	<1	<50	5.0	-
4	384528	<0.005	-	97	41	220	<1	<50	15.7	-
5	384529	0.878	-	34	22	132	<1	<50	8.9	-
6	384530	0.006	-	18	16	146	<1	<50	9.2	-
7	384531	0.005	-	68	91	126	<1	<50	9.1	-
8	384532	<0.005	-	30	14	59	<1	<50	8.3	-
9	384533	<0.005	-	22	15	40	<1	<50	11.3	-
10	384534	<0.005	<0.005	35	5	64	<1	<50	21.9	-
11	384535	<0.005	-	36	68	135	<1	<50	34.1	-
12	384536	<0.005	<0.005	7	7	77	<1	<50	11.2	-
13	384537	0.009	-	10	63	42	<1	<50	13.2	-
14	384538	0.013	-	35	148	220	<1	<50	12.7	-
15	384539	0.019	-	18	33	219	<1	<50	16.3	-
16	384540	<0.005	-	39	57	344	<1	<50	40.7	-
17	384541	<0.005	-	56	1061	220	<1	<50	35.1	-
18	384542	0.007	-	10	43	88	<1	<50	7.5	-
19	384543	<0.005	-	51	187	320	<1	<50	15.3	-
20	384544	<0.005	-	75	46	156	<1	76	-	-
21	384545	0.005	-	90	122	148	<1	<50	15.4	-
22	384546	<0.005	<0.005	88	19	138	<1	59	-	-
23	384547	<0.005	-	30	125	290	<1	<50	9.4	-
24	384548	0.008	-	7	72	38	<1	<50	4.9	-
25	384549	<0.005	-	25	48	259	<1	<50	15.4	-

Results in ppm unless otherwise specified — = Insufficient sample
= element not determined INR = sample not received

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390516

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	2 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384550	<0.005	-	14	29	106	<1	<50	9.8	-
2	384551	<0.005	-	59	11	96	<1	<50	15.0	-
3	384552	<0.005	-	19	5	113	<1	<50	18.4	-
4	384553	<0.005	-	20	7	72	<1	<50	10.4	-
5	384554	<0.005	-	17	11	66	<1	<50	21.7	-
6	384555	<0.005	-	48	11	100	<1	<50	12.0	-
7	384556	<0.005	-	20	4	54	<1	<50	12.5	-
8	384557	<0.005	-	19	62	101	<1	<50	10.3	-
9	384558	<0.005	<0.005	31	56	148	<1	<50	9.2	-
10	384559	<0.005	-	46	320	228	<1	<50	31.1	-
11	384560	<0.005	-	11	6	155	<1	<50	41.2	-
12	384561	<0.005	<0.005	11	6	118	<1	<50	10.2	-
13	384562	<0.005	-	40	12	313	<1	<50	8.1	-
14	384563	<0.005	-	8	7	168	<1	<50	10.6	-
15	384564	<0.005	-	29	10	250	<1	<50	31.7	-
16	384565	<0.005	-	20	10	79	<1	<50	11.9	-
17	384566	<0.005	<0.005	26	8	97	<1	<50	9.6	-
18	384567	<0.005	-	12	15	69	<1	<50	9.2	-
19	384568	<0.005	-	19	4	171	<1	<50	11.5	-
20	384569	<0.005	-	32	23	108	<1	<50	13.9	-
21	384570	<0.005	-	45	26	95	<1	<50	25.9	-
22	384571	<0.005	<0.005	46	20	103	<1	<50	12.9	-
23	384572	<0.005	-	56	48	131	<1	62	-	-
24	384573	<0.005	-	23	26	106	<1	<50	13.9	-
25	384574	0.157	-	20	18	67	<1	<50	13.2	-

Results in ppm unless otherwise specified
< = less than detection limit

- = insufficient sample
INS = sample not received

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390517

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	3 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384575	<0.005	-	52	112	186	<1	<50	37.5	-
2	384576	0.014	-	356	73	370	<1	<50	12.1	-
3	384577	<0.005	-	78	20	86	<1	<50	8.0	-
4	384578	<0.005	-	289	35	180	<1	<50	11.3	-
5	384579	<0.005	-	90	238	81	<1	73	-	-
	384580	<0.005	-	38	21	139	<1	<50	22.3	-
7	384581	<0.005	-	39	41	440	<1	<50	30.6	-
8	384582	<0.005	-	61	33	391	<1	<50	13.9	-
9	384583	<0.005	-	88	47	182	<1	<50	20.8	-
10	384584	<0.005	-	10	47	33	<1	<50	10.0	-
11	384585	<0.005	-	89	37	170	<1	<50	24.8	-
12	384586	<0.005	<0.005	71	114	151	<1	<50	14.0	-
13	384587	<0.005	<0.005	28	19	82	<1	<50	21.9	-
14	384588	<0.005	-	19	12	230	<1	<50	37.0	-
15	384589	<0.005	-	8	12	90	<1	<50	5.8	-
16	384590	<0.005	-	12	20	125	<1	<50	2.4	-
17	384591	<0.005	-	7	7	40	<1	<50	6.0	-
18	384592	<0.005	-	4	35	<2	<1	<50	10.0	-
19	384593	<0.005	-	2	47	<2	<1	<50	<0.5	-
20	384594	<0.005	-	<2	<3	11	<1	<50	<0.5	-
21	384595	<0.005	-	2	<3	8	<1	<50	<0.5	-
22	384596	<0.005	<0.005	6	6	106	<1	<50	7.0	-
23	384597	<0.005	-	2	7	61	<1	<50	0.5	-
24	384598	<0.005	-	6	25	33	<1	<50	2.9	-
25	384599	<0.005	-	21	38	50	<1	<50	3.9	-

Results apply to sample(s) as received. Method(s) and detection limit(s) specified.

INS = insufficient sample
SNR = sample not received

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390518

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	4 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384600	<0.005	-	12	26	64	<1	<50	4.5	-
2	384601	<0.005	-	17	31	40	<1	<50	1.2	-
3	384602	<0.005	-	12	27	41	<1	<50	0.5	-
4	384603	<0.005	-	2	12	9	<1	<50	<0.5	-
5	384604	<0.005	-	2	15	13	<1	<50	<0.5	-
	384605	<0.005	-	3	<3	24	<1	<50	<0.5	-
7	384606	<0.005	-	<2	<3	8	<1	<50	1.9	-
8	384607	<0.005	-	2	<3	7	<1	<50	<0.5	-
9	384608	<0.005	-	2	<3	9	<1	<50	<0.5	-
10	384609	<0.005	-	20	23	112	<1	<50	<0.5	-
11	384610	<0.005	-	3	<3	17	<1	<50	<0.5	-
12	384611	<0.005	<0.005	6	8	156	<1	<50	1.7	-
13	384612	<0.005	-	12	132	124	<1	<50	45.1	-
14	384613	<0.005	-	5	51	67	<1	<50	<0.5	-
15	384614	0.110	-	17	<3	34	<1	<50	<0.5	-
16	384615	<0.005	-	15	25	59	<1	<50	14.2	-
17	384616	<0.005	-	5	<3	16	<1	<50	<0.5	-
18	384617	<0.005	<0.005	5	<3	13	<1	<50	<0.5	-
19	384618	<0.005	-	4	4	13	<1	<50	<0.5	-
20	384619	<0.005	-	10	16	21	<1	<50	3.0	-
21	384620	<0.005	-	9	12	21	<1	<50	3.3	-
22	384621	<0.005	<0.005	11	<3	17	<1	<50	<0.5	-
23	384622	<0.005	-	7	<3	54	<1	<50	11.3	-
24	384623	<0.005	-	6	<3	37	<1	<50	7.6	-
25	384624	<0.005	-	13	24	35	<1	<50	5.3	-

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390519

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	5 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384625	<0.005	-	5	8	14	<1	<50	<0.5	-
2	384626	<0.005	-	20	18	43	<1	<50	2.2	-
3	384627	<0.005	<0.005	4	<3	8	<1	<50	<0.5	-
4	384628	<0.005	-	4	3	85	<1	<50	<0.5	-
5	384629	<0.005	-	8	18	13	<1	<50	<0.5	-
	384630	<0.005	-	4	<3	5	<1	<50	<0.5	-
7	384631	<0.005	-	11	10	38	<1	<50	<0.5	-
8	384632	<0.005	-	6	17	49	<1	<50	3.1	-
9	384633	<0.005	-	4	8	10	<1	<50	<0.5	-
10	384634	<0.005	-	5	19	11	<1	<50	<0.5	-
11	384635	<0.005	-	17	118	80	<1	<50	26.8	-
12	384636	<0.005	<0.005	5	336	33	<1	<50	2.2	-
13	384637	<0.005	-	3	12	17	<1	<50	<0.5	-
14	384638	<0.005	-	22	18	108	<1	<50	<0.5	-
15	384639	<0.005	-	5	4	4	<1	<50	<0.5	-
16	384640	<0.005	-	4	3	323	<1	<50	2.7	-
17	384641	<0.005	-	26	14	74	<1	<50	2.7	-
18	384642	<0.005	-	8	10	101	<1	<50	18.7	-
19	384643	<0.005	-	27	4	69	<1	<50	5.3	-
20	384644	<0.005	-	35	58	136	<1	<50	<0.5	-
21	384645	<0.005	-	15	<3	76	<1	<50	<0.5	-
22	384646	<0.005	<0.005	11	17	132	<1	<50	1.5	-
23	384647	<0.005	-	40	<3	119	<1	<50	<0.5	-
24	384648	<0.005	-	65	<3	203	<1	<50	6.7	-
25	384649	<0.005	-	22	14	68	<1	<50	3.0	-

Results to [illegible] - insufficient sample
[illegible] - sample not [illegible]

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	6 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384650	<0.005	-	27	<3	107	<1	<50	8.4	-
2	384651	<0.005	-	26	14	88	<1	<50	2.3	-
3	384652	<0.005	-	12	12	23	<1	<50	<0.5	-
4	384653	<0.005	-	7	9	12	<1	<50	<0.5	-
5	384654	<0.005	-	6	5	184	<1	<50	<0.5	-
	384655	<0.005	-	9	10	21	<1	<50	<0.5	-
7	384656	<0.005	-	7	4	14	<1	<50	<0.5	-
8	384657	<0.005	-	8	11	26	<1	<50	<0.5	-
9	384658	<0.005	-	7	13	14	<1	<50	7.2	-
10	384659	<0.005	-	20	19	40	<1	<50	3.3	-
11	384660	0.027	-	6	20	9	<1	<50	0.8	-
12	384661	<0.005	<0.005	18	29	95	<1	<50	9.0	-
13	384662	<0.005	<0.005	8	13	160	<1	<50	0.5	-
14	384663	<0.005	-	11	9	247	<1	<50	2.4	-
15	384664	0.118	0.100	12	31	411	<1	<50	0.9	-
16	384665	0.016	-	10	3	22	<1	<50	0.6	-
17	384666	<0.005	-	17	11	59	<1	<50	<0.5	-
18	384667	<0.005	-	9	9	29	<1	<50	<0.5	-
19	384668	<0.005	-	6	8	8	<1	<50	<0.5	-
20	384669	<0.005	-	8	8	28	<1	<50	2.4	-
21	384670	<0.005	-	4	<3	6	<1	<50	<0.5	-
22	384671	<0.005	<0.005	5	4	5	<1	<50	<0.5	-
23	384672	<0.005	-	53	5	178	<1	<50	0.7	-
24	384673	0.035	-	62	7	260	<1	<50	2.8	-
25	384674	<0.005	-	21	9	142	<1	<50	14.5	-

Results in ppm unless otherwise specified
Not analysed / not determined

* Insufficient sample
Soil - sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	7 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384675	<0.005	-	6	4	44	<1	<50	0.8	-
2	384676	<0.005	-	4	7	13	<1	<50	<0.5	-
3	384677	<0.005	-	3	9	23	<1	<50	<0.5	-
4	384678	<0.005	-	4	71	15	<1	<50	1.5	-
5	384679	<0.005	-	3	13	13	<1	<50	<0.5	-
6	384680	<0.005	-	8	133	12	<1	<50	0.6	-
7	384681	0.015	-	6	25	17	<1	<50	<0.5	-
8	384682	0.009	-	5	620	21	<1	<50	1.6	-
9	384683	0.063	0.062	4	16	18	<1	<50	<0.5	-
10	384684	<0.005	-	7	25	33	<1	<50	5.2	-
11	384685	<0.005	-	28	24	67	<1	<50	5.3	-
12	384686	<0.005	<0.005	17	21	48	<1	<50	3.1	-
13	384687	<0.005	-	17	16	113	<1	<50	4.8	-
14	384688	<0.005	-	18	26	73	<1	<50	7.2	-
15	384689	<0.005	-	4	<3	9	<1	<50	<0.5	-
16	384690	<0.005	-	10	23	46	<1	<50	<0.5	-
17	384691	<0.005	-	34	364	57	<1	<50	31.3	-
18	384692	<0.005	-	4	388	14	<1	<50	0.5	-
19	384693	<0.005	-	6	44	13	<1	<50	<0.5	-
20	384694	<0.005	-	8	20	26	<1	<50	5.3	-
21	384695	<0.005	-	4	18	14	<1	<50	0.6	-
22	384696	<0.005	<0.005	34	5	99	<1	<50	3.7	-
23	384697	<0.005	-	53	6	72	<1	<50	5.9	-
24	384698	<0.005	-	12	6	43	<1	<50	3.4	-
25	384699	<0.005	<0.005	13	9	60	<1	<50	4.0	-

Results in ppm unless otherwise specified
- = not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	8 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384700	<0.005	-	11	9	26	<1	<50	8.2	-
2	384701	<0.005	-	19	4	49	<1	<50	2.9	-
3	384702	<0.005	-	20	9	14	<1	<50	1.2	-
4	384703	<0.005	-	18	95	179	<1	<50	49.8	-
5	384704	0.042	-	79	443	192	<1	75	-	-
6	384705	<0.005	-	44	143	1058	<1	<50	23.4	-
7	384706	<0.005	-	26	307	235	<1	<50	45.7	-
8	384707	<0.005	-	57	25	135	<1	<50	34.1	-
9	384708	<0.005	-	49	11	98	<1	68	-	-
10	384709	<0.005	-	67	253	161	<1	62	-	-
11	384710	<0.005	-	65	34	187	<1	<50	49.8	-
12	384711	0.020	0.024	93	517	144	<1	<50	40.5	-
13	384712	<0.005	-	31	33	172	<1	79	-	-
14	384713	<0.005	-	69	<3	411	<1	<50	12.7	-
15	384714	<0.005	-	18	<3	170	<1	92	-	-
16	384715	<0.005	-	13	4	183	<1	<50	12.7	-
17	384716	<0.005	-	62	16	81	<1	57	-	-
18	384717	<0.005	-	38	24	279	<1	<50	29.0	-
19	384718	<0.005	-	48	29	239	<1	66	-	-
20	384719	<0.005	-	54	26	315	<1	64	-	-
21	384720	<0.005	-	51	280	134	<1	<50	16.5	-
22	384721	<0.005	<0.005	20	13	148	<1	<50	12.4	-
23	384722	<0.005	-	17	34	280	<1	<50	41.1	-
24	384723	<0.005	-	214	8	137	<1	<50	23.7	-
25	384724	<0.005	<0.005	54	43	213	<1	<50	47.6	-

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	9 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384725	<0.005	-	34	16	119	<1	77	-	-
2	384726	<0.005	-	31	68	287	<1	87	-	-
3	384727	<0.005	-	20	44	161	<1	<50	15.6	-
4	384728	<0.005	-	59	19	90	<1	<50	32.4	-
5	384729	<0.005	-	18	5	33	<1	<50	18.3	-
	384730	<0.005	-	149	47	139	<1	<50	13.0	-
7	384731	<0.005	-	19	35	144	<1	<50	9.5	-
8	384732	<0.005	-	41	96	61	<1	<50	30.9	-
9	384733	<0.005	-	92	12	242	<1	64	-	-
10	384734	<0.005	-	51	26	73	<1	<50	34.1	-
11	384735	<0.005	-	63	7	1553	<1	<50	33.6	-
12	387302	-	-	6	10	22	<1	<50	15.8	<0.001
13	387303	-	-	7	6	20	<1	<50	22.4	<0.001
14	387304	-	-	4	5	8	<1	<50	5.7	<0.001
15	387305	-	-	9	8	40	<1	<50	11.8	<0.001
16	387306	-	-	11	6	17	<1	<50	49.3	<0.001
17	387307	-	-	6	3	11	<1	<50	10.5	<0.001
18	387308	-	-	4	5	9	<1	<50	4.4	<0.001
19	387309	-	-	6	14	14	<1	<50	11.9	0.001
20	387310	-	-	5	7	26	<1	<50	14.5	<0.001
21	387311	-	-	7	12	34	<1	<50	14.0	<0.001
22	387312	-	-	4	11	23	<1	<50	16.3	<0.001
23	387313	-	-	9	29	22	<1	<50	17.2	<0.001
24	387314	-	-	4	5	11	<1	<50	6.6	<0.001
25	387315	-	-	5	4	12	<1	<50	6.2	<0.001

Results in ppm unless otherwise requested. IS = Insufficient sample. SNR = sample not received.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	10 OF 27

METHOD	SAMPLE No.	Au GG313	Au(R) GG313	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	As HA140	Au GG326
1	387316	-	-	4	7	36	<1	<50	5.2	<0.001
2	387317	-	-	6	8	18	<1	<50	13.1	<0.001
3	387318	-	-	5	16	15	<1	<50	9.8	<0.001
4	387319	-	-	6	11	16	<1	<50	10.8	<0.001
5	387320	-	-	5	4	11	<1	<50	1.8	<0.001
6	387321	-	-	4	<3	7	<1	<50	1.0	<0.001
7	387322	-	-	4	<3	6	<1	<50	6.9	<0.001
8	387323	-	-	6	<3	9	<1	<50	8.6	<0.001
9	387324	-	-	8	7	15	<1	<50	18.0	0.001
10	387325	-	-	12	5	11	<1	<50	0.6	0.020
11	387326	-	-	17	8	14	<1	<50	13.6	0.001
12	387327	-	-	9	<3	8	<1	<50	7.7	0.014
13	387328	-	-	4	<3	7	<1	<50	4.8	0.001
14	387329	-	-	7	<3	11	<1	<50	7.1	0.017
15	387330	-	-	5	<3	8	<1	<50	3.0	<0.001
16	387331	-	-	24	3	18	<1	<50	3.8	0.002
17	387332	-	-	8	3	13	<1	<50	19.7	<0.001
18	387333	-	-	6	<3	12	<1	<50	5.0	0.002
19	387334	-	-	7	3	13	<1	<50	13.4	<0.001
20	387335	-	-	6	8	24	<1	<50	21.9	0.001
21	387336	-	-	15	10	67	<1	<50	18.2	<0.001
22	387337	-	-	32	13	35	<1	<50	47.3	0.001
23	387338	-	-	8	5	14	<1	<50	25.5	<0.001
24	387339	-	-	13	8	18	<1	<50	42.4	0.001
25	387340	-	-	42	14	49	<1	148	-	<0.001

Results in ppm unless otherwise specified
- = not detected / not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	11 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387341	-	-	12	8	15	<1	<50	15.8	0.001
2	387342	-	-	10	15	34	<1	<50	9.1	<0.001
3	387343	-	-	6	6	28	<1	<50	3.0	<0.001
4	387344	-	-	4	9	42	<1	<50	<0.5	<0.001
5	387345	-	-	3	9	48	<1	<50	36.7	0.001
	387346	-	-	18	9	82	<1	80	-	<0.001
7	387347	-	-	14	6	29	<1	<50	27.3	<0.001
8	387348	-	-	10	<3	15	<1	<50	13.6	0.003
9	387349	-	-	6	<3	11	<1	<50	7.9	0.001
10	387350	-	-	7	54	15	<1	<50	10.2	0.003
11	387351	-	-	18	28	36	<1	<50	8.7	0.001
12	387352	-	-	13	15	67	<1	<50	22.9	<0.001
13	387353	-	-	14	9	36	<1	<50	22.4	0.001
14	387354	-	-	41	17	84	<1	<50	14.7	<0.001
15	387355	-	-	12	11	30	<1	<50	24.7	0.001
16	387356	-	-	16	20	51	<1	<50	30.2	<0.001
17	387357	-	-	15	14	27	<1	<50	16.9	0.001
18	387358	-	-	13	3	20	<1	<50	15.1	<0.001
19	387359	-	-	30	12	24	<1	<50	24.0	<0.001
20	387360	-	-	10	6	10	<1	<50	18.2	0.002
21	387361	-	-	37	8	30	<1	<50	46.1	0.001
22	387362	-	-	8	<3	15	<1	<50	14.0	0.001
23	387363	-	-	16	36	12	<1	<50	14.5	0.003
24	387364	-	-	8	<3	7	<1	<50	5.7	<0.001
25	387365	-	-	7	3	8	<1	<50	<0.5	<0.001

Results in parts per million unless otherwise specified
Not analysed
- = not detected
is = insufficient sample
NR = sample not received

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390526

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	12 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
THOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387366	-	-	8	<3	7	<1	<50	2.1	<0.001
2	387367	-	-	9	<3	13	<1	<50	11.1	<0.001
3	387368	-	-	8	<3	29	<1	<50	4.8	<0.001
4	387369	-	-	9	8	16	<1	<50	24.5	<0.001
5	387370	-	-	6	<3	11	<1	<50	18.4	0.001
	387371	-	-	6	<3	5	<1	<50	5.7	0.006
7	387372	-	-	7	<3	12	<1	<50	30.2	<0.001
8	387373	-	-	15	12	14	<1	65	-	0.001
9	387374	-	-	23	11	31	<1	<50	49.6	0.001
10	387375	-	-	14	11	7	<1	<50	4.2	0.015
11	387376	-	-	6	<3	6	<1	<50	11.6	0.001
12	387377	-	-	26	<3	30	<1	83	-	0.001
13	387378	-	-	11	7	31	<1	<50	31.4	<0.001
14	387379	-	-	9	4	24	<1	<50	33.2	<0.001
15	387380	-	-	10	12	19	<1	<50	21.8	0.001
16	387381	-	-	8	17	14	<1	<50	26.7	0.001
17	387382	-	-	7	24	15	<1	<50	19.6	0.002
18	387383	-	-	7	<3	6	<1	<50	1.5	0.001
19	387384	-	-	9	5	32	<1	<50	29.5	0.001
20	387385	-	-	10	28	23	<1	<50	19.2	0.001
21	387386	-	-	9	10	19	<1	<50	14.3	0.001
22	387387	-	-	7	10	10	<1	<50	2.3	0.016
23	387388	-	-	5	<3	11	<1	<50	6.2	<0.001
24	387389	-	-	12	<3	10	<1	<50	1.8	<0.001
25	387390	-	-	8	5	24	<1	<50	24.3	0.001

Results appear on this report only as received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	13 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387391	-	-	7	<3	9	<1	<50	7.1	0.002
2	387392	-	-	9	22	22	<1	64	-	<0.001
3	387393	-	-	8	9	17	<1	<50	35.5	0.001
4	387394	-	-	5	<3	10	<1	<50	5.0	<0.001
5	387395	-	-	7	3	9	<1	<50	8.5	<0.001
	387396	-	-	9	11	20	<1	<50	49.9	<0.001
7	387397	-	-	8	6	14	<1	<50	41.5	<0.001
8	387398	-	-	10	4	13	<1	72	-	0.001
9	387399	-	-	11	4	19	<1	81	-	<0.001
10	387400	-	-	29	7	32	<1	94	-	0.001
11	387401	-	-	18	7	25	<1	<50	50.0	0.001
12	387402	-	-	30	4	36	<1	<50	49.5	0.002
13	387403	-	-	46	<3	27	<1	<50	46.1	0.006
14	387404	-	-	34	<3	22	<1	<50	26.2	0.004
15	387405	-	-	24	<3	24	<1	<50	16.2	0.002
16	387406	-	-	33	7	25	<1	<50	18.5	0.002
17	387407	-	-	22	6	19	<1	71	-	<0.001
18	387408	-	-	19	13	22	<1	<50	25.4	0.002
19	387409	-	-	16	15	17	<1	<50	21.6	0.001
20	387410	-	-	18	13	15	<1	67	-	0.002
21	387411	-	-	15	8	18	<1	<50	49.0	0.002
22	387412	-	-	12	9	18	<1	<50	45.3	<0.001
23	387413	-	-	36	10	56	<1	<50	27.2	0.002
24	387414	-	-	11	<3	10	<1	<50	10.0	0.002
25	387415	-	-	34	4	24	<1	<50	44.9	0.002

Results [illegible] IS – Insufficient sample
[illegible] INR – Sample not received

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390528

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	14 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387416	-	-	7	<3	8	<1	<50	2.9	<0.001
2	387417	-	-	8	<3	9	<1	<50	2.9	0.001
3	387418	-	-	19	<3	233	<1	<50	5.2	0.001
4	387419	-	-	7	<3	13	<1	<50	2.1	<0.001
5	387420	-	-	10	7	28	<1	<50	3.6	<0.001
	387421	-	-	11	7	8	<1	<50	3.0	<0.001
7	387422	-	-	12	8	26	<1	67	-	0.001
8	387423	-	-	8	<3	9	<1	<50	9.1	<0.001
9	387424	-	-	10	<3	11	<1	<50	6.1	<0.001
10	387425	-	-	7	<3	12	<1	<50	12.3	<0.001
11	387426	-	-	6	<3	6	<1	<50	3.6	<0.001
12	387427	-	-	9	<3	7	<1	<50	2.0	<0.001
13	387428	-	-	6	<3	6	<1	<50	1.5	0.001
14	387429	-	-	9	3	7	<1	<50	1.3	<0.001
15	387430	-	-	10	<3	5	<1	<50	1.9	<0.001
16	387431	-	-	8	<3	7	<1	<50	1.2	<0.001
17	387432	-	-	16	<3	9	<1	<50	2.1	<0.001
18	387433	-	-	12	<3	8	<1	<50	7.8	0.001
19	387434	-	-	7	<3	6	<1	<50	2.8	<0.001
20	387435	-	-	9	<3	6	<1	<50	2.1	<0.001
21	387436	-	-	7	13	12	<1	63	-	<0.001
22	387437	-	-	12	5	12	<1	69	-	<0.001
23	387438	-	-	16	6	22	<1	137	-	0.001
24	387439	-	-	14	6	19	<1	63	-	<0.001
25	387440	-	-	10	5	13	<1	<50	39.8	<0.001

Results in ppm (unless otherwise specified)
[illegible] not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390529

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	15 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387441	-	-	11	6	12	<1	63	-	0.001
2	387442	-	-	8	<3	36	<1	<50	10.4	<0.001
3	387443	-	-	10	7	59	<1	<50	20.8	<0.001
4	387444	-	-	11	<3	11	<1	<50	8.6	<0.001
5	387445	-	-	7	<3	12	<1	<50	12.4	<0.001
6	387446	-	-	10	<3	9	<1	<50	13.8	<0.001
7	387447	-	-	12	<3	13	<1	<50	14.3	<0.001
8	387448	-	-	8	<3	12	<1	<50	9.4	0.001
9	387449	-	-	9	10	23	<1	53	-	<0.001
10	387450	-	-	14	5	10	<1	<50	3.4	<0.001
11	387451	-	-	10	13	20	<1	<50	36.7	<0.001
12	387452	-	-	37	34	28	<1	<50	40.7	0.002
13	387453	-	-	42	26	33	<1	<50	24.7	0.005
14	387454	-	-	51	260	74	<1	<50	31.4	0.003
15	387455	-	-	37	23	39	<1	<50	33.3	0.004
16	387456	-	-	24	14	18	<1	70	-	0.010
17	387457	-	-	20	11	19	<1	<50	45.7	0.004
18	387458	-	-	49	28	20	<1	<50	32.3	0.004
19	387459	-	-	46	10	24	<1	<50	34.8	0.003
20	387460	-	-	18	16	37	<1	<50	32.5	0.002
21	387461	-	-	11	15	19	<1	<50	33.2	0.002
22	387462	-	-	10	6	10	<1	<50	9.8	<0.001
23	387463	-	-	7	44	13	<1	<50	30.0	0.001
24	387464	-	-	8	<3	7	<1	<50	2.3	<0.001
25	387465	-	-	13	<3	8	<1	<50	1.8	<0.001

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390530

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	16 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387466	-	-	5	<3	5	<1	<50	2.5	0.001
2	387467	-	-	7	4	16	<1	<50	20.6	<0.001
3	387468	-	-	19	8	24	<1	<50	32.2	0.001
4	387469	-	-	7	<3	10	<1	<50	1.4	0.001
5	387470	-	-	7	5	12	<1	<50	2.8	<0.001
6	387471	-	-	8	3	10	<1	<50	1.9	<0.001
7	387472	-	-	10	8	17	<1	<50	16.5	<0.001
8	387473	-	-	8	<3	9	<1	<50	0.9	0.001
9	387474	-	-	9	<3	13	<1	<50	<0.5	<0.001
10	387475	-	-	8	<3	6	<1	<50	<0.5	<0.001
11	387476	-	-	5	7	7	<1	<50	0.5	<0.001
12	387477	-	-	6	7	8	<1	<50	4.9	<0.001
13	387478	-	-	9	8	6	<1	<50	1.4	<0.001
14	387479	-	-	7	8	6	<1	<50	1.1	<0.001
15	387480	-	-	6	7	9	<1	<50	4.2	<0.001
16	387481	-	-	9	9	6	<1	<50	1.6	<0.001
17	387482	-	-	5	8	4	<1	<50	1.3	<0.001
18	387483	-	-	6	<3	10	<1	<50	7.6	0.001
19	387484	-	-	7	4	19	<1	<50	13.7	<0.001
20	387485	-	-	6	<3	15	<1	<50	7.3	<0.001
21	387486	-	-	6	<3	18	<1	<50	5.6	0.002
22	387487	-	-	10	<3	12	<1	<50	10.4	0.001
23	387488	-	-	6	4	14	<1	<50	8.4	<0.001
24	387489	-	-	4	3	9	<1	<50	7.1	<0.001
25	387490	-	-	6	4	14	<1	<50	10.2	0.001

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390531

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	17 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
ETHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387491	-	-	5	8	13	<1	<50	10.7	0.001
2	387492	-	-	8	<3	12	<1	<50	11.1	0.001
3	387493	-	-	7	4	13	<1	<50	10.7	<0.001
4	387494	-	-	6	<3	12	<1	<50	11.6	0.001
5	387495	-	-	7	3	9	<1	<50	5.0	0.001
	387496	-	-	6	<3	17	<1	<50	12.2	0.001
7	387497	-	-	8	<3	6	<1	<50	9.1	0.002
8	387498	-	-	7	8	20	<1	<50	11.7	0.002
9	387499	-	-	6	<3	6	<1	<50	3.8	0.001
10	387500	-	-	7	<3	14	<1	<50	2.8	<0.001
11	387501	-	-	7	3	12	<1	<50	10.8	0.002
12	387502	-	-	6	<3	7	<1	<50	3.5	<0.001
13	387503	-	-	8	7	12	<1	<50	10.3	<0.001
14	387504	-	-	9	4	13	<1	<50	4.9	0.001
15	387505	-	-	3	8	11	<1	<50	16.3	0.001
16	387506	-	-	7	53	83	<1	<50	1.9	0.002
17	387507	-	-	11	3	110	<1	<50	19.3	0.001
18	387508	-	-	18	<3	336	<1	<50	18.0	0.002
19	387509	-	-	4	3	11	<1	<50	10.6	<0.001
20	387510	-	-	6	<3	31	<1	<50	9.4	<0.001
21	387511	-	-	19	3	107	<1	<50	37.3	0.003
22	387512	-	-	4	<3	13	<1	<50	27.4	<0.001
23	387513	-	-	9	<3	13	<1	81	-	<0.001
24	387514	-	-	6	5	55	<1	<50	46.3	<0.001
25	387515	-	-	6	4	14	<1	<50	39.2	<0.001

Results in ppm unless otherwise specified
[illegible] not detected

[illegible] - insufficient sample
INR - sample not received

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390532

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	18 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387516	-	-	7	<3	12	<1	<50	46.5	0.001
2	387517	-	-	9	11	62	<1	<50	41.3	<0.001
3	387518	-	-	9	6	10	<1	58	-	0.001
4	387519	-	-	5	9	13	<1	<50	11.1	<0.001
5	387520	-	-	10	8	38	<1	<50	49.2	<0.001
6	387521	-	-	4	13	11	<1	<50	18.7	0.001
7	387522	-	-	4	11	9	<1	<50	15.1	0.001
8	387523	-	-	5	28	8	<1	<50	32.9	0.001
9	387524	-	-	3	14	8	<1	<50	17.0	<0.001
10	387525	-	-	5	38	19	<1	<50	29.8	0.002
11	387526	-	-	15	14	17	<1	<50	35.0	0.001
12	387527	-	-	9	8	15	<1	<50	36.7	<0.001
13	387528	-	-	47	<3	36	<1	<50	26.3	0.002
14	387529	-	-	7	6	14	<1	<50	6.9	<0.001
15	387530	-	-	10	10	25	<1	<50	10.5	<0.001
16	387531	-	-	7	11	27	<1	<50	3.6	0.001
17	387532	-	-	6	3	13	<1	<50	8.8	0.004
18	387533	-	-	11	3	15	<1	<50	2.2	<0.001
19	387534	-	-	4	4	6	<1	<50	6.3	0.001
20	387535	-	-	3	6	6	<1	<50	5.4	<0.001
21	387536	-	-	3	<3	7	<1	<50	<0.5	<0.001
22	387537	-	-	4	<3	9	<1	<50	1.2	0.001
23	387538	-	-	3	<3	12	<1	<50	0.9	0.001
24	387539	-	-	5	5	12	<1	<50	15.1	<0.001
25	387540	-	-	5	<3	8	<1	<50	1.6	<0.001

Results to more decimal places than specified
Element not determined

* = Anomalous sample
SMPL = sample not received

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390533

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	19 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387541	-	-	5	<3	10	<1	<50	1.4	<0.001
2	387542	-	-	3	8	8	<1	<50	1.4	0.001
3	387543	-	-	4	10	11	<1	<50	8.8	<0.001
4	387544	-	-	3	<3	9	<1	<50	8.1	<0.001
5	387545	-	-	5	<3	7	<1	<50	0.8	0.001
	387546	-	-	3	<3	10	<1	<50	2.9	<0.001
7	387547	-	-	3	<3	10	<1	<50	7.2	0.001
8	387548	-	-	4	<3	-	<1	<50	1.2	0.001
9	387549	-	-	5	<3	5	<1	<50	5.1	<0.001
10	387550	-	-	5	<3	14	<1	<50	9.5	0.001
11	387551	-	-	5	<3	5	<1	<50	7.5	<0.001
12	387552	-	-	4	<3	12	<1	<50	6.7	0.001
13	387553	-	-	4	<3	14	<1	<50	9.5	<0.001
14	387554	-	-	3	<3	3	<1	<50	1.3	<0.001
15	387555	-	-	5	3	11	<1	<50	16.5	0.001
16	387556	-	-	3	13	13	<1	<50	11.4	0.008
17	387557	-	-	4	3	10	<1	<50	5.4	<0.001
18	387558	-	-	5	6	14	<1	<50	10.5	<0.001
19	387559	-	-	4	11	15	<1	<50	16.2	0.001
20	387560	-	-	3	<3	5	<1	<50	1.9	0.001
21	387561	-	-	5	4	14	<1	<50	15.8	0.001
22	387562	-	-	5	3	10	<1	<50	16.9	0.001
23	387563	-	-	6	<3	10	<1	<50	2.7	0.001
24	387564	-	-	5	<3	6	<1	<50	8.1	<0.001
25	387565	-	-	2	<3	6	<1	<50	6.5	0.001

Results apply to the sample(s) as specified [illegible] IS = Insufficient sample
[illegible] INR = sample not received

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390534

A·N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	20 OF 27

METHOD	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387566	-	-	3	5	8	<1	<50	23.0	<0.001
2	387567	-	-	4	9	9	<1	<50	35.7	0.001
3	387568	-	-	4	10	13	<1	<50	41.0	<0.001
4	387569	-	-	3	7	11	<1	<50	32.2	<0.001
5	387570	-	-	4	<3	8	<1	<50	15.5	<0.001
	387571	-	-	5	<3	9	<1	<50	14.6	0.001
7	387572	-	-	5	<3	7	<1	<50	10.0	<0.001
8	387573	-	-	5	3	9	<1	<50	22.0	0.001
9	387574	-	-	6	4	11	<1	<50	30.7	0.001
10	387575	-	-	8	6	12	<1	<50	43.6	0.001
11	387576	-	-	5	<3	6	<1	<50	12.2	<0.001
12	387577	-	-	7	8	23	<1	<50	42.1	0.002
13	387578	-	-	7	4	14	<1	<50	29.3	0.002
14	387579	-	-	9	15	16	<1	<50	36.9	0.002
15	387580	-	-	10	<3	15	<1	<50	31.4	0.003
16	387581	-	-	8	3	18	<1	<50	29.3	<0.001
17	387582	-	-	7	<3	23	<1	<50	34.3	0.002
18	387583	-	-	5	<3	18	<1	<50	12.9	0.001
19	387584	-	-	6	<3	17	<1	<50	10.4	0.001
20	387585	-	-	15	13	35	<1	<50	4.8	0.001
21	387586	-	-	11	5	19	<1	<50	9.9	0.001
22	387587	-	-	9	6	21	<1	<50	6.5	<0.001
23	387588	-	-	12	9	23	<1	<50	6.9	0.001
24	387590	-	-	5	<3	6	<1	<50	2.0	<0.001
25	387591	-	-	8	<3	8	<1	<50	2.2	<0.001

Results apply to sample(s) as received. - = Not analysed / insufficient sample
* = sample not received

AUTHORISED OFFICER PP

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	21 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387592	-	-	5	3	12	<1	<50	14.0	<0.001
2	387593	-	-	3	<3	22	<1	<50	3.6	<0.001
3	387594	-	-	6	<3	7	<1	<50	2.0	<0.001
4	387595	-	-	5	<3	9	<1	<50	3.0	<0.001
5	387596	-	-	4	<3	10	<1	<50	2.8	<0.001
6	387597	-	-	4	<3	9	1	<50	24.7	<0.001
7	387598	-	-	2	<3	7	<1	<50	7.2	<0.001
8	387599	-	-	4	<3	15	<1	<50	5.5	0.002
9	387600	-	-	3	<3	8	<1	<50	3.9	<0.001
10	387601	-	-	10	<3	9	<1	<50	2.6	0.002
11	387602	-	-	5	4	15	2	<50	17.2	<0.001
12	387603	-	-	4	3	16	2	<50	23.1	<0.001
13	387604	-	-	3	<3	19	1	<50	8.8	<0.001
14	387605	-	-	3	<3	11	<1	<50	5.0	0.003
15	387606	-	-	3	<3	12	1	<50	21.7	<0.001
16	387607	-	-	2	<3	16	2	<50	21.8	0.001
17	387608	-	-	<2	<3	11	<1	<50	7.8	<0.001
18	387609	-	-	5	<3	11	<1	<50	6.8	<0.001
19	387610	-	-	4	<3	10	1	<50	6.4	0.001
20	387611	-	-	3	<3	10	1	<50	9.6	0.001
21	387612	-	-	4	<3	16	<1	<50	4.1	0.001
22	387613	-	-	6	<3	18	1	<50	14.6	<0.001
23	387614	-	-	3	<3	15	<1	<50	8.2	<0.001
24	387615	-	-	4	<3	12	1	<50	13.7	<0.001
25	387616	-	-	3	<3	10	1	<50	13.6	<0.001

Results in ppm unless otherwise specified
- = not determined

IS = insufficient sample
SNR = sample not received

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	22 OF 27

METHOD	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387617	-	-	4	<3	15	1	<50	12.0	<0.001
2	387618	-	-	4	<3	20	2	<50	22.3	<0.001
3	387619	-	-	5	<3	18	1	<50	13.4	<0.001
4	387620	-	-	6	<3	15	1	<50	22.2	0.001
5	387621	-	-	4	<3	14	1	<50	20.6	<0.001
	387622	-	-	3	<3	12	<1	<50	9.4	<0.001
7	387623	-	-	4	3	15	2	<50	15.9	<0.001
8	387624	-	-	2	<3	12	<1	<50	2.8	<0.001
9	387625	-	-	4	<3	15	1	<50	8.8	<0.001
10	387626	-	-	6	<3	16	1	<50	15.4	0.001
11	387627	-	-	7	4	19	1	<50	8.0	0.001
12	387628	-	-	5	<3	11	1	<50	6.1	<0.001
13	387629	-	-	5	<3	15	<1	<50	11.6	0.001
14	387630	-	-	5	<3	9	<1	<50	4.7	0.001
15	387631	-	-	4	<3	8	<1	<50	5.3	<0.001
16	387632	-	-	3	<3	8	<1	<50	1.9	<0.001
17	387633	-	-	5	<3	10	<1	<50	8.9	<0.001
18	387634	-	-	4	<3	10	<1	<50	<0.5	<0.001
19	387635	-	-	5	<3	9	<1	<50	11.1	<0.001
20	387636	-	-	4	<3	11	1	<50	15.2	<0.001
21	387637	-	-	3	3	10	1	<50	5.4	<0.001
22	387638	-	-	4	<3	12	<1	<50	4.1	<0.001
23	387639	-	-	5	<3	21	1	<50	15.4	<0.001
24	387640	-	-	5	<3	16	1	<50	10.0	<0.001
25	387641	-	-	5	<3	10	2	<50	11.6	<0.001

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	23 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387642	-	-	7	<3	14	1	<50	8.5	<0.001
2	387643	-	-	4	6	8	<1	<50	5.5	0.002
3	387644	-	-	3	<3	8	<1	<50	6.0	<0.001
4	387645	-	-	2	<3	7	<1	<50	1.4	<0.001
5	387646	-	-	2	<3	5	<1	<50	1.0	<0.001
	387647	-	-	3	3	7	<1	<50	3.1	<0.001
7	387648	-	-	2	<3	2	<1	<50	1.0	0.001
8	387649	-	-	3	4	5	1	<50	10.6	<0.001
9	387650	-	-	3	<3	7	<1	<50	3.4	<0.001
10	387651	-	-	3	<3	2	<1	<50	0.8	0.001
11	387652	-	-	3	3	4	<1	<50	4.7	<0.001
12	387653	-	-	5	4	9	<1	<50	2.6	<0.001
13	387654	-	-	2	<3	3	<1	<50	<0.5	<0.001
14	387655	-	-	3	<3	5	<1	<50	<0.5	0.001
15	387656	-	-	3	<3	4	<1	<50	<0.5	<0.001
16	387657	-	-	2	<3	5	<1	<50	<0.5	<0.001
17	387658	-	-	5	55	95	<1	<50	<0.5	0.002
18	387659	-	-	3	<3	10	<1	<50	12.8	0.001
19	387660	-	-	4	8	21	<1	<50	1.5	0.001
20	387661	-	-	4	<3	10	<1	<50	2.4	0.001
21	387662	-	-	5	3	10	<1	<50	1.3	0.001
22	387663	-	-	4	<3	5	<1	<50	9.1	<0.001
23	387664	-	-	4	4	14	<1	<50	0.8	<0.001
24	387665	-	-	4	<3	10	<1	<50	0.9	<0.001
25	387666	-	-	3	<3	9	<1	<50	2.0	<0.001

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	24 OF 27

METHOD	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387667	-	-	3	<3	4	<1	<50	2.3	<0.001
2	387668	-	-	4	3	6	<1	<50	19.0	<0.001
3	387669	-	-	3	<3	4	<1	<50	1.7	<0.001
4	387670	-	-	4	8	14	<1	<50	11.6	<0.001
5	387671	-	-	5	10	7	<1	<50	16.3	0.002
	387672	-	-	4	3	5	<1	<50	8.6	<0.001
7	387673	-	-	8	<3	5	<1	<50	0.9	0.004
8	387674	-	-	3	5	7	<1	<50	5.3	<0.001
9	387675	-	-	4	18	15	<1	<50	0.8	<0.001
10	387676	-	-	5	11	15	<1	<50	37.3	<0.001
11	387677	-	-	2	7	5	<1	<50	5.8	<0.001
12	387678	-	-	6	83	26	<1	<50	27.1	<0.001
13	387679	-	-	8	21	18	2	<50	12.0	<0.001
14	387680	-	-	4	13	21	1	<50	8.9	<0.001
15	387681	-	-	4	7	11	1	<50	11.2	<0.001
16	387682	-	-	6	7	12	<1	<50	7.4	<0.001
17	387683	-	-	3	3	17	<1	<50	2.7	<0.001
18	387684	-	-	7	4	15	1	<50	19.4	<0.001
19	387685	-	-	8	<3	23	1	<50	6.9	<0.001
20	387686	-	-	4	<3	7	1	<50	4.8	<0.001
21	387687	-	-	4	4	4	<1	<50	6.3	<0.001
22	387688	-	-	6	<3	4	<1	<50	10.3	<0.001
23	387689	-	-	3	3	8	<1	<50	9.5	<0.001
24	387690	-	-	4	<3	10	<1	<50	9.8	<0.001
25	387691	-	-	9	9	17	<1	<50	8.9	<0.001

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	25 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387692	-	-	4	<3	28	<1	<50	6.8	<0.001
2	387693	-	-	5	<3	30	<1	<50	10.2	<0.001
3	387694	-	-	10	<3	18	1	<50	42.4	<0.001
4	387695	-	-	8	<3	13	1	<50	42.1	<0.001
5	387696	-	-	7	<3	13	<1	56	>50.0	<0.001
	387697	-	-	6	<3	12	<1	<50	32.8	<0.001
7	387698	-	-	5	<3	12	<1	<50	29.0	<0.001
8	387699	-	-	6	<3	19	<1	54	>50.0	<0.001
9	387700	-	-	6	3	17	1	58	>50.0	0.002
0	387701	-	-	7	28	34	<1	54	>50.0	<0.001
1	387702	-	-	6	71	61	<1	<50	46.3	<0.001
12	387703	-	-	5	3	15	1	<50	31.1	<0.001
3	387704	-	-	5	3	12	1	<50	45.5	<0.001
14	387705	-	-	3	4	9	<1	<50	22.9	0.002
	387706	-	-	5	3	10	<1	<50	26.6	<0.001
16	387707	-	-	6	<3	14	1	51	>50.0	<0.001
17	387708	-	-	3	<3	10	<1	<50	28.6	<0.001
8	387709	-	-	5	<3	13	1	<50	42.5	0.003
19	387710	-	-	7	<3	10	<1	<50	12.9	<0.001
0	387711	-	-	4	<3	10	<1	<50	16.7	<0.001
21	387712	-	-	3	<3	10	<1	<50	38.4	<0.001
22	387713	-	-	4	<3	10	<1	<50	10.2	<0.001
3	387714	-	-	5	<3	13	1	<50	30.9	<0.001
24	387715	-	-	4	<3	13	1	<50	15.6	<0.001
5	387716	-	-	4	3	13	<1	<50	9.2	<0.001

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	26 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387717	-	-	5	21	14	1	<50	13.2	0.001
2	387718	-	-	5	15	11	1	<50	23.4	<0.001
3	387719	-	-	7	8	16	<1	<50	20.3	0.001
4	387720	-	-	7	7	24	1	<50	30.0	<0.001
5	387721	-	-	6	5	23	<1	<50	25.7	<0.001
6	387722	-	-	8	7	11	1	<50	8.2	0.001
7	387723	-	-	4	5	8	<1	<50	5.2	<0.001
8	387724	-	-	3	3	6	<1	<50	<0.5	<0.001
9	387725	-	-	6	7	16	<1	<50	2.6	0.003
10	387726	-	-	4	<3	9	<1	<50	3.1	0.001
11	387727	-	-	2	<3	8	<1	<50	<0.5	<0.001
12	387728	-	-	4	<3	38	1	<50	7.5	0.001
13	387729	-	-	3	5	31	<1	<50	2.9	<0.001
14	387730	-	-	4	6	45	<1	<50	16.1	<0.001
15	387731	-	-	7	4	62	1	<50	8.0	<0.001
16	387732	-	-	5	4	75	1	<50	6.2	<0.001
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	0.001
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	27 OF 27

	SAMPLE No.	Au(R)									
METHOD		GG326									
[redacted]	387302	0.002									
2	387303	<0.001									
[redacted]	387305	0.001									
4	387306	0.001									
[redacted]	387312	0.001									
[redacted]	387327	0.008									
7	387362	0.001									
[redacted]	387367	0.001									
9	387423	<0.001									
[redacted]	387458	0.004									
[redacted]	387474	<0.001									
12	387511	0.002									
[redacted]	387527	<0.001									
14	387571	0.001									
[redacted]	387588	<0.001									
16	387618	<0.001									
17	387649	<0.001									
[redacted]	387653	0.001									
19	387695	<0.001									
[redacted]	387702	<0.001									
21	387723	<0.001									
[redacted]											
[redacted]											
24	DETECTION	0.001									
[redacted]	UNITS	ppm									

[redacted] AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316857 | 14 Thirkell St. CLOVE TAS 7320 | Fax (004) 318890

390542

ANALYTICAL REPORT No. KES202.60.12686

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
16/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	29/01/97	1	24

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384736/49,385826/37	DC Prep : GP033	Au,Au(R)/GB313
384736/49,385826/37	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Wades Tyn Ck
SHD-2

AUTHORISED OFFICER

A·N A L A B S

390543

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Ag
METHOD		GG313	GG313	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384736	<0.005	-	125	-	104	-	463	-	<1
2	384737	<0.005	-	15	-	22	-	433	-	<1
3	384738	0.012	-	18	-	12	-	420	-	1
4	384739	<0.005	-	49	-	6	-	366	-	<1
5	384740	<0.005	-	54	-	13	-	161	-	1
6	384741	<0.005	-	19	-	19	-	352	-	<1
7	384742	<0.005	-	75	-	91	-	170	-	<1
8	384743	<0.005	-	102	-	56	-	420	-	<1
9	384744	<0.005	-	115	-	289	-	10	-	<1
10	384745	<0.005	-	2	-	64	-	46	-	<1
11	384746	<0.005	-	98	-	1416	-	106	-	<1
12	384747	0.017	0.021	14	-	35	-	152	-	1
13	384748	0.033	-	412	-	46	-	58	-	1
14	384749	0.026	-	3	-	28	-	137	-	<1
15	385828	0.042	-	352	-	7	-	234	-	<1
	385829	0.034	-	497	-	15	-	288	-	<1
17	385830	0.200	-	267	-	9	-	205	-	<1
18	385831	0.080	-	162	-	21	-	263	-	<1
19	385832	0.052	-	1245	-	<3	-	316	-	<1
20	385833	0.032	-	20	-	2696	0.57	>5000	-	3
21	385834	0.050	0.058	92	0.75	>5000	1.94	>5000	-	10
22	385835	0.090	-	156	1.04	>5000	1.91	>5000	-	16
23	385836	3.420	-	1300	11.70	>5000	18.20	>5000	220	>50
24	385837	0.062	-	95	0.75	>5000	1.23	>5000	-	11
25										

Results in ppm unless otherwise specified
- not determined
NS - insufficient sample
SNR - sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Ag
METHOD		GG313	GG313	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	0.01	3	0.01	2	50	1
25	UNITS	ppm	ppm	ppm	%	ppm	%	ppm	ppm	ppm

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390545

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	3 OF 4

METHOD	SAMPLE No.	As GA140	As HA140							
1	384736	<50	18.3							
2	384737	<50	26.8							
3	384738	<50	11.8							
4	384739	<50	6.4							
5	384740	<50	11.5							
6	384741	<50	2.4							
7	384742	<50	5.1							
8	384743	<50	3.1							
9	384744	<50	2.3							
10	384745	<50	1.2							
11	384746	<50	20.2							
12	384747	<50	5.3							
13	384748	<50	21.0							
14	384749	<50	3.2							
15	385828	<50	18.0							
	385829	<50	6.0							
17	385830	<50	16.8							
18	385831	<50	19.7							
19	385832	<50	5.2							
20	385833	<50	23.2							
21	385834	<50	20.1							
22	385835	<50	50.0							
23	385836	<50	40.9							
24	385837	<50	37.9							
25										

Results apply to samples as received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	As	As							
METHOD		GA140	HA140							
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	0.5							
25	UNITS	ppm	ppm							

Results in ppm unless otherwise specified
[illegible] Determined

IS = Insufficient sample
SNR = [illegible] requested

AUTHORISED OFFICER

390547

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12728

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
29/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
10	27/02/97	1	163

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385838/6000	DC Prep : GP033	Au,Au(R),Au(S)/GG313
385838/6000	DC Prep : GP033	Cu,Pb,Zn,Ag,Mn/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

SHD-2
327-579

AUTHORISED OFFICER

390548

[redacted] ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
[redacted]	RES202.60.12728	26/02/97	GRANT MACDONA	1 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
[redacted] 1	385838	0.082	-	405	11	-	179	-	1	2170
2	385839	0.016	-	118	63	-	700	-	<1	2070
[redacted] 3	385840	0.023	-	52	141	-	1230	-	1	2350
4	385841	0.010	-	31	264	-	790	-	<1	2200
[redacted] 5	385842	0.017	0.008	58	620	-	760	-	1	2300
[redacted]	385843	0.010	-	33	378	-	760	-	1	3610
7	385844	0.008	-	46	392	-	720	-	1	2560
[redacted] 8	385845	0.013	-	60	296	-	1050	-	<1	2620
9	385846	0.010	-	109	410	-	850	-	1	2260
[redacted] 10	385847	0.034	-	54	264	-	152	-	1	2420
[redacted] 11	385848	0.033	-	186	311	-	1030	-	2	3430
12	385849	0.019	0.038	35	55	-	266	-	<1	1860
[redacted] 13	385850	0.008	-	109	64	-	920	-	<1	1540
14	385851	0.009	-	128	91	-	335	-	1	2690
[redacted] 15	385852	0.112	-	2720	110	-	348	-	2	4210
[redacted] 16	385853	0.026	-	400	91	-	313	-	2	3920
[redacted] 17	385854	0.032	-	630	219	-	810	-	2	3440
[redacted] 18	385855	0.014	-	343	272	-	1010	-	2	2740
19	385856	<0.005	-	30	246	-	780	-	<1	3310
[redacted] 20	385857	0.011	-	28	262	-	650	-	<1	3330
[redacted] 21	385858	<0.005	-	27	253	-	890	-	<1	3330
[redacted] 22	385859	0.010	0.007	28	287	-	830	-	<1	3410
[redacted] 23	385860	0.026	-	66	291	-	1570	-	2	1980
24	385861	0.010	-	39	276	-	232	-	2	2696
[redacted] 25	385862	0.015	-	26	57	-	120	-	1	2760

Results in ppm unless otherwise specified IS = Insufficient sample
[redacted] not determined NSMP = Sample not received

AUTHORISED OFFICER: [redacted]

390549

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	2 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385863	0.012	-	23	19	-	103	-	1	3520
2	385864	0.012	-	28	83	-	107	-	<1	3650
3	385865	0.054	-	32	172	-	60	-	1	4120
4	385866	0.016	-	22	125	-	286	-	<1	4520
5	385867	0.016	-	41	394	-	1500	-	1	>5000
	385868	0.011	-	30	325	-	1410	-	<1	>5000
7	385869	0.016	-	26	125	-	640	-	<1	>5000
8	385870	0.016	-	25	58	-	362	-	<1	>5000
9	385871	0.012	-	25	29	-	251	-	<1	>5000
10	385872	0.014	-	8	182	-	144	-	<1	>5000
11	385873	0.013	-	6	217	-	1330	-	1	>5000
12	385874	0.021	0.018	11	720	-	3250	-	<1	>5000
13	385875	0.020	-	10	1840	-	>5000	0.53	4	>5000
14	385876	0.023	-	12	950	-	2230	-	2	>5000
15	385877	0.018	-	8	1090	-	3650	-	3	>5000
16	385878	0.027	-	11	1250	-	2850	-	1	>5000
17	385879	0.026	-	10	1570	-	3120	-	1	>5000
18	385880	0.033	0.026	14	2360	-	3190	-	2	>5000
19	385881	0.036	-	37	1000	-	4300	-	2	>5000
20	385882	0.072	-	66	1430	-	3650	-	7	>5000
21	385883	0.026	-	31	4050	-	>5000	0.60	12	>5000
22	385884	0.010	0.016	16	960	-	1640	-	4	>5000
23	385885	0.011	-	19	810	-	2300	-	4	>5000
24	385886	0.012	-	13	270	-	1280	-	3	>5000
25	385887	0.008	-	21	600	-	2720	-	4	>5000

Results in parts per million unless otherwise specified. [illegible]
[illegible] estimate not guaranteed.

AUTHORISED OFFICER

390550

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	3 OF 10

METHOD	SAMPLE No.	Au GG313	Au(R) GG313	Cu GA140	Pb GA140	Pb GA104	Zn GA140	Zn GA104	Ag GA140	Mn GA140
1	385888	0.010	-	10	147	-	114	-	2	>5000
2	385889	0.015	-	24	240	-	1150	-	3	>5000
3	385890	0.017	-	21	83	-	700	-	1	>5000
4	385891	0.011	-	14	48	-	219	-	1	>5000
5	385892	0.009	-	21	33	-	690	-	<1	>5000
	385893	<0.005	-	17	41	-	212	-	1	>5000
7	385894	0.005	-	12	240	-	207	-	1	>5000
8	385895	0.041	-	7	60	-	89	-	1	4000
9	385896	0.007	-	7	29	-	127	-	1	>5000
10	385897	0.009	-	139	374	-	720	-	33	>5000
11	385898	<0.005	-	22	87	-	1150	-	3	>5000
12	385899	<0.005	-	11	71	-	380	-	2	>5000
13	385900	<0.005	-	31	175	-	397	-	5	>5000
14	385901	<0.005	-	27	92	-	355	-	6	>5000
15	385902	<0.005	-	19	184	-	303	-	5	>5000
16	385903	<0.005	-	18	590	-	89	-	4	4140
17	385904	<0.005	-	15	176	-	385	-	2	>5000
18	385905	<0.005	-	16	209	-	1560	-	2	3330
19	385906	<0.005	-	12	670	-	1050	-	1	1430
20	385907	<0.005	-	24	320	-	750	-	1	2020
21	385908	<0.005	-	109	136	-	255	-	2	3630
22	385909	0.005	-	96	20	-	306	-	1	2700
23	385910	<0.005	-	45	20	-	272	-	<1	3120
24	385911	0.007	-	80	32	-	275	-	1	2880
25	385912	0.065	-	164	44	-	355	-	1	2540

Results in ppm unless otherwise specified. - Not analysed. IS = Insufficient sample. NR = Sample not received.

AUTHORISED

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	4 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385913	0.024	-	86	63	-	293	-	2	2290
2	385914	0.023	-	65	271	-	250	-	6	3370
3	385915	0.014	-	58	113	-	190	-	2	2020
4	385916	0.018	0.010	88	196	-	159	-	3	2360
5	385917	0.013	-	83	218	-	283	-	2	2420
	385918	0.018	-	70	570	-	1360	-	6	1530
7	385919	0.015	-	47	334	-	960	-	4	4270
8	385920	0.008	-	38	102	-	730	-	2	>5000
9	385921	0.008	-	21	127	-	285	-	2	3800
10	385922	0.016	-	25	239	-	349	-	2	>5000
11	385923	0.019	-	16	332	-	401	-	1	>5000
12	385924	0.007	-	10	147	-	280	-	1	3810
13	385925	0.009	-	6	66	-	261	-	2	4680
14	385926	0.006	-	7	60	-	307	-	<1	>5000
[illegible]	385927	0.008	-	7	28	-	83	-	<1	>5000
16	385928	0.020	-	7	167	-	355	-	<1	>5000
17	385929	0.038	-	10	670	-	970	-	3	>5000
18	385930	0.036	-	8	480	-	850	-	2	>5000
19	385931	0.016	0.026	5	500	-	1060	-	<1	>5000
20	385932	0.008	-	13	157	-	1440	-	<1	>5000
21	385933	0.013	-	11	77	-	1270	-	1	>5000
22	385934	0.009	-	18	129	-	1330	-	<1	>5000
23	385935	0.013	-	27	180	-	860	-	<1	>5000
24	385936	0.010	-	17	206	-	880	-	<1	>5000
25	385937	0.008	-	9	227	-	930	-	<1	>5000

[illegible] specified. [illegible] Results apply to sample as received.

AUTHORISED [illegible]

390552

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	5 OF 10

METHOD	SAMPLE No.	Au GG313	Au(R) GG313	Cu GA140	Pb GA140	Pb GA104	Zn GA140	Zn GA104	Ag GA140	Mn GA140
1	385938	0.005	-	9	247	-	397	-	<1	2880
2	385939	0.010	-	8	258	-	311	-	<1	>5000
3	385940	0.018	-	5	83	-	410	-	<1	4660
4	385941	0.007	0.005	6	165	-	258	-	<1	4100
5	385942	0.005	-	4	284	-	204	-	<1	>5000
	385943	<0.005	-	7	148	-	131	-	<1	4640
7	385944	0.006	-	5	89	-	134	-	<1	>5000
8	385945	<0.005	-	7	81	-	111	-	<1	4000
9	385946	<0.005	-	4	34	-	109	-	<1	2730
10	385947	<0.005	-	5	35	-	140	-	<1	3460
11	385948	0.007	-	38	36	-	295	-	<1	2660
12	385949	<0.005	-	97	72	-	399	-	1	3130
13	385950	0.006	-	84	23	-	410	-	1	3380
14	385951	<0.005	-	86	26	-	265	-	<1	2940
[illegible]	385952	0.178	-	23	206	-	267	-	<1	3690
16	385953	<0.005	-	62	81	-	560	-	<1	3560
17	385954	0.100	-	173	3350	-	>5000	0.51	3	4980
18	385955	0.005	-	58	384	-	730	-	2	>5000
19	385956	<0.005	-	11	216	-	325	-	1	>5000
20	385957	<0.005	-	8	152	-	332	-	1	>5000
21	385958	0.005	-	12	82	-	200	-	<1	3120
22	385959	0.009	0.010	14	394	-	1050	-	<1	>5000
23	385960	0.010	-	10	420	-	420	-	1	>5000
24	385961	0.008	-	7	149	-	336	-	1	>5000
25	385962	0.038	-	14	3000	-	>5000	0.66	2	>5000

[illegible] from listed elements specified
[illegible] not determined

INS = insufficient sample
SNR = sample not received

AUTHORISED [illegible]

390553

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	6 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
THOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385963	0.032	-	16	710	-	1160	-	1	>5000
2	385964	0.687	-	57	206	-	314	-	1	>5000
3	385965	0.019	-	15	56	-	136	-	<1	4210
4	385966	0.022	-	12	130	-	161	-	<1	4340
5	385967	0.012	-	11	162	-	144	-	1	3310
	385968	0.020	-	7	230	-	173	-	<1	>5000
7	385969	0.005	-	7	158	-	133	-	<1	4220
8	385970	<0.005	-	20	156	-	750	-	<1	>5000
9	385971	0.005	0.011	24	1100	-	1280	-	<1	4430
10	385972	0.037	-	108	>5000	0.60	3500	-	3	>5000
11	385973	<0.005	-	56	43	-	530	-	1	3590
12	385974	<0.005	-	94	50	-	290	-	1	3160
13	385975	0.007	-	46	15	-	277	-	<1	2770
14	385976	<0.005	-	75	20	-	297	-	<1	3710
15	385977	<0.005	-	14	134	-	332	-	<1	3150
16	385978	<0.005	-	9	140	-	177	-	<1	2170
17	385979	0.005	-	6	68	-	148	-	<1	1780
18	385980	<0.005	-	6	57	-	108	-	<1	1420
19	385981	0.023	-	15	220	-	330	-	<1	1760
20	385982	0.007	-	12	49	-	200	-	<1	1250
21	385983	0.014	-	12	88	-	275	-	<1	990
22	385984	<0.005	-	19	34	-	140	-	<1	1230
23	385985	<0.005	-	16	<3	-	95	-	<1	890
24	385986	<0.005	-	17	21	-	145	-	<1	790
25	385987	0.007	-	20	32	-	162	-	<1	810

AUTHORISED OFFICER

390554

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	7 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385988	0.010	-	13	<3	-	80	-	<1	670
2	385989	0.011	-	11	<3	-	66	-	<1	550
3	385990	0.010	-	10	<3	-	92	-	<1	880
4	385991	0.008	-	11	18	-	86	-	<1	280
5	385992	<0.005	-	7	6	-	80	-	<1	1100
6	385993	0.017	-	8	6	-	69	-	<1	540
7	385994	0.016	-	6	3	-	63	-	<1	610
8	385995	0.007	-	5	<3	-	73	-	<1	580
9	385996	0.006	0.010	6	<3	-	69	-	1	440
10	385997	0.005	-	4	<3	-	69	-	<1	410
11	385998	<0.005	-	8	<3	-	64	-	<1	530
12	385999	0.006	-	15	81	-	307	-	1	690
13	386000	0.005	-	71	58	-	304	-	<1	560
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	3
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	ppm

Results listed above apply to sample(s) as received.
- = analysis not determined
IS = insufficient sample
SNR = sample not received

AUTHORISED SIGNATURE

390555

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	8 OF 10

	SAMPLE No.	Mn								
METHOD		GA104								
1	385867	0.50								
2	385868	0.51								
3	385869	0.52								
4	385870	0.52								
5	385871	0.53								
	385872	0.50								
7	385873	1.43								
8	385874	2.09								
9	385875	4.09								
10	385876	2.75								
11	385877	2.96								
12	385878	2.59								
13	385879	1.76								
14	385880	1.43								
15	385881	1.66								
16	385882	0.80								
17	385883	1.45								
18	385884	1.41								
19	385885	0.75								
20	385886	1.33								
21	385887	1.72								
22	385888	1.75								
23	385889	1.66								
24	385890	1.52								
25	385891	1.41								

SNR = sample not received

AUTHORISED OFFICER

390550

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	9 OF 10

METHOD	SAMPLE No.	Mn GA104									
1	385892	0.85									
2	385893	0.99									
3	385894	0.61									
4	385896	0.57									
5	385897	0.73									
	385898	0.66									
7	385899	0.50									
8	385900	1.24									
9	385901	1.38									
10	385902	0.80									
11	385904	0.51									
12	385920	0.51									
13	385922	0.55									
14	385923	0.50									
[illegible]	385926	0.51									
16	385927	1.04									
17	385928	0.77									
18	385929	1.32									
19	385930	3.35									
20	385931	1.96									
21	385932	0.76									
22	385933	1.01									
23	385934	1.14									
24	385935	1.13									
25	385936	0.89									

[illegible] IS = Insufficient Sample
SNR = Sample not received

AUTHORISED [illegible]

390557

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	10 OF 10

	SAMPLE No.	Mn								
METHOD		GA104								
1	385937	0.82								
2	385939	0.50								
3	385942	0.51								
4	385944	0.50								
5	385955	0.72								
	385956	0.64								
7	385957	0.51								
8	385959	0.55								
9	385960	0.62								
10	385961	0.50								
11	385962	1.64								
12	385963	1.89								
13	385964	0.52								
14	385968	0.51								
15	385970	0.54								
16	385972	0.59								
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01								
25	UNITS	%								

Results in ppm unless otherwise specified
- not analysed
- not detected

AUTHORISED OFFICER

390558

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12721

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
28/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	12/02/97	1	11

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386011/21	DC Prep : GP033	Au,Au(R)/GG313
386011/21	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

SHD-4
46-5765

RESULTS TO

RESULTS TO

AUTHORISED OFFICER

390559

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12721	12/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386011	<0.005	<0.005	25	4	71	<1	<50	8.6	
2	386012	<0.005	-	41	17	53	<1	<50	8.8	
3	386013	0.014	-	57	15	41	1	<50	14.4	
4	386014	<0.005	-	27	3	39	<1	<50	8.8	
5	386015	<0.005	-	35	72	41	<1	<50	5.8	
6	386016	<0.005	-	32	9	53	<1	<50	4.0	
7	386017	<0.005	-	27	<3	53	1	<50	3.1	
8	386018	<0.005	-	30	<3	49	<1	<50	4.1	
9	386019	<0.005	-	33	<3	67	1	<50	10.5	
10	386020	<0.005	-	30	<3	69	<1	<50	3.9	
11	386021	<0.005	<0.005	44	21	60	1	<50	4.3	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- sample not received
Insufficient sample
Sample not analysed

AUTHORISED OFFICER

390560

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12743

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
31/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	27/02/97	1	12

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386041/3.386047/55	DC Prep : GP033	Au.Au(R)/GG313
386041/3.386047/55	DC Prep : GP033	Cu.Pb.Zn.Ag.As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

SHD-5
2-5 ~
8-17 ~

pp M. L. Seed
AUTHORISED OFFICER

390561

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12743	27/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386041	0.028	-	10	<3	38	<1	<50	19.0	
2	386042	0.019	-	18	<3	53	1	<50	24.5	
3	386043	0.016	-	17	<3	41	<1	<50	17.2	
4	386047	0.014	-	31	80	30	2	<50	25.8	
5	386048	0.017	-	50	92	43	2	<50	1.2	
6	386049	0.010	-	52	133	54	2	<50	38.8	
7	386050	0.006	-	27	66	88	1	<50	11.6	
8	386051	0.009	-	19	36	132	1	<50	6.4	
9	386052	0.011	-	30	74	95	<1	<50	9.6	
10	386053	0.012	-	44	93	61	1	<50	11.1	
11	386054	0.006	-	59	64	107	1	<50	4.0	
12	386055	<0.005	0.009	95	35	72	1	<50	1.1	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- = not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390562

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 864

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12781

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
06/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	27/02/97	1	32

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
6044/46.386056/84	DC Prep : GP033	Au.Au(R1/66313
386044/46.386056/84	DC Prep : GP033	Cu.Pb.Zn.Ag.As/GA140.As/HA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

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5-8-
17-47.2-

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12781	27/02/97	GRANT MACDONA	1 OF 2

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386044	0.008	-	47	5	23	<1	76	-	
2	386045	<0.005	-	31	62	32	<1	<50	50.0	
3	386046	<0.005	-	32	85	26	<1	<50	30.7	
4	386056	<0.005	<0.005	81	26	106	<1	<50	9.1	
5	386057	<0.005	-	47	13	122	<1	<50	7.6	
	386058	<0.005	-	57	<3	119	<1	<50	10.0	
7	386059	<0.005	-	42	6	80	<1	<50	4.2	
8	386060	<0.005	-	29	37	56	<1	<50	10.2	
9	386061	<0.005	-	21	23	74	<1	<50	6.7	
10	386062	<0.005	-	38	15	132	<1	<50	6.8	
11	386063	<0.005	-	45	55	109	<1	<50	4.6	
12	386064	<0.005	0.006	38	30	99	<1	<50	4.0	
13	386065	<0.005	-	41	3	102	<1	<50	4.8	
14	386066	<0.005	-	30	12	146	<1	<50	2.9	
15	386067	<0.005	-	37	30	149	1	<50	8.9	
16	386068	<0.005	-	33	13	178	<1	<50	9.1	
17	386069	<0.005	-	25	5	182	<1	<50	6.6	
18	386070	<0.005	-	32	12	179	<1	<50	7.6	
19	386071	<0.005	-	164	63	82	2	60	-	
20	386072	<0.005	-	71	29	101	<1	<50	16.4	
21	386073	<0.005	-	63	30	131	1	<50	6.2	
22	386074	<0.005	-	60	30	117	<1	<50	3.8	
23	386075	<0.005	-	94	<3	127	3	<50	6.3	
24	386076	<0.005	<0.005	68	<3	124	<1	<50	8.2	
25	386077	<0.005	-	51	24	120	<1	<50	10.0	

[redacted] not determined

AUTHORISED [redacted]

390564

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12781	27/02/97	GRANT MACDONA	2 OF 2

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386078	<0.005	-	37	<3	162	<1	<50	6.6	
2	386079	<0.005	-	45	<3	229	<1	<50	6.7	
3	386080	<0.005	-	26	<3	132	<1	<50	3.1	
4	386081	<0.005	-	23	<3	238	<1	<50	3.3	
5	386082	<0.005	-	29	<3	231	<1	<50	5.3	
6	386083	<0.005	-	37	<3	195	<1	<50	3.6	
7	386084	<0.005	-	27	<3	160	<1	<50	5.5	
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- element not determined
IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

390565

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12791

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
11/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	27/02/97	1	17

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
6101/8.386111/9	DC Prep : GP033	Au.Au(R)/66313
386101/8.386111/9	DC Prep : GP033	Cu,Pb,Zn,Ag,Mn,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

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SHD-8
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A·N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12791	27/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Mn	As	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	HA140
1	386101	<0.005	-	12	<3	17	<1	281	<50	14.7
2	386102	<0.005	-	10	<3	32	<1	362	<50	6.7
3	386103	<0.005	-	21	12	51	<1	329	<50	35.9
4	386104	<0.005	-	16	<3	80	<1	470	<50	8.7
5	386105	<0.005	-	19	6	28	<1	285	<50	9.9
	386106	<0.005	<0.005	14	<3	63	<1	356	<50	3.5
7	386107	<0.005	-	5	<3	78	<1	410	<50	3.7
8	386108	<0.005	-	11	10	34	<1	252	<50	8.0
9	386111	<0.005	-	23	169	389	<1	3420	<50	18.4
10	386112	<0.005	-	35	237	333	1	4590	<50	16.9
11	386113	0.033	-	34	80	410	<1	3500	<50	27.1
12	386114	0.100	0.122	65	161	38	1	126	<50	42.0
13	386115	0.130	-	386	242	24	2	99	<50	30.8
14	386116	0.014	-	170	125	1590	1	2870	<50	28.8
15	386117	0.012	-	130	26	128	1	3710	<50	23.6
16	386118	0.040	-	490	52	206	1	4530	<50	28.2
17	386119	0.050	-	1290	135	580	2	1970	<50	13.2
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	3	50	0.5
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
Incorrect but acceptable

AUTHORISED OFFICER

390567

Analabs

Analabs Pty. Ltd.
A.C.N. 004 501 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12611

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
18/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	09/04/97	1	77

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386131/7 & others	DC Prep : GP033	Au,Au(R)/GA313
386131/7 & others	DC Prep : GP033	Cu,Pb,In,Ag,As/GA140,As/HA140
386131/7 & others	DC Prep : GP033	Mn/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

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RESULTS TO

RESULTS TO

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390568

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	1 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	386131	<0.005	-	31	98	191	<1	-	16.7	2131
2	386132	<0.005	-	24	46	154	<1	-	15.3	>5000
3	386133	<0.005	-	48	77	268	<1	-	4.9	760
4	386134	<0.005	-	19	9	13	<1	-	0.8	73
5	386135	0.013	-	61	32	17	<1	-	2.0	25
	386136	0.006	-	273	30	127	<1	-	17.1	28
7	386137	<0.005	-	215	134	205	<1	-	20.0	33
8	386142	0.027	-	1024	281	1041	<1	-	31.4	3790
9	386143	0.010	-	162	314	768	<1	-	39.6	>5000
10	386144	0.016	-	91	532	778	<1	110	-	>5000
11	386149	0.015	-	508	76	871	<1	-	12.9	>5000
12	386150	0.009	-	220	146	223	<1	-	12.2	>5000
13	386151	0.511	-	822	197	210	<1	-	5.3	>5000
14	386152	0.010	-	226	102	305	<1	-	6.4	>5000
15	386153	0.236	-	1469	154	471	<1	-	6.7	>5000
16	386154	0.019	-	277	124	620	<1	-	20.4	>5000
17	386155	<0.005	-	33	167	464	<1	-	26.0	>5000
18	386160	<0.005	-	17	517	656	<1	-	16.4	>5000
19	386161	<0.005	-	15	396	393	<1	-	8.0	3165
20	386162	0.015	-	247	666	1418	<1	-	9.5	4430
21	386163	0.039	-	60	129	342	<1	-	2.5	4318
22	386164	0.051	-	246	225	437	<1	-	25.5	>5000
23	386165	0.047	-	51	54	530	<1	-	24.4	>5000
24	386166	0.054	-	87	65	544	<1	-	34.5	>5000
25	386167	0.044	-	61	190	454	<1	-	37.8	>5000

Results [illegible] as specified [illegible]

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390569

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	2 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	386168	0.037	-	384	139	646	<1	-	25.0	>5000
2	386169	0.103	-	503	747	762	<1	-	25.0	>5000
3	386170	0.017	-	285	840	2988	<1	-	29.0	>5000
4	386171	0.035	-	221	628	2074	<1	-	25.5	>5000
5	386172	0.015	-	92	528	826	<1	-	25.6	>5000
6	386173	<0.005	-	85	83	297	<1	-	22.2	1926
7	386174	0.006	-	40	175	331	<1	-	30.9	3259
8	386175	<0.005	-	21	589	1611	<1	-	16.2	3343
9	388171	<0.005	-	54	<3	40	<1	57	-	-
10	388172	<0.005	-	17	13	26	<1	201	-	-
11	388173	<0.005	-	86	<3	187	<1	108	-	-
12	388174	<0.005	-	12	<3	24	<1	-	44.4	-
13	388175	<0.005	-	3	<3	8	<1	-	5.5	-
14	388176	<0.005	-	4	<3	5	<1	-	6.0	-
15	388177	<0.005	-	<2	13	39	<1	-	15.1	-
16	388178	<0.005	-	313	3	104	<1	1813	-	-
17	388179	<0.005	-	468	<3	228	<1	-	39.4	-
18	388180	<0.005	-	361	5	134	<1	1806	-	-
19	388181	<0.005	-	164	9	16	<1	-	43.7	-
20	388182	<0.005	-	3	3	7	<1	-	40.0	-
21	388183	<0.005	-	20	8	12	<1	-	48.3	-
22	388184	0.007	-	39	6	33	<1	-	7.7	-
23	388185	0.017	-	132	9	66	<1	-	38.5	-
24	388186	0.009	-	130	6	44	<1	138	-	-
25	388187	<0.005	-	49	<3	136	<1	254	-	-

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390570

A N A L A B S

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	3 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	388188	<0.005	-	53	5	38	<1	-	37.9	-
2	388189	<0.005	-	4	9	13	<1	-	10.8	-
3	388190	<0.005	-	10	57	27	<1	-	29.8	-
4	388191	<0.005	-	5	7	16	<1	-	3.2	-
5	388192	<0.005	-	2	13	9	<1	-	5.9	-
	388193	<0.005	-	50	48	53	<1	-	41.8	-
7	388194	<0.005	-	18	8	12	<1	-	12.5	-
8	388195	<0.005	-	75	351	152	<1	381	-	-
9	388196	<0.005	-	6	<3	13	<1	-	21.1	-
10	388197	<0.005	-	2	<3	9	<1	-	15.5	-
11	388198	<0.005	-	21	<3	39	<1	629	-	-
12	388199	<0.005	-	19	<3	38	<1	-	44.1	-
13	388200	<0.005	-	8	<3	7	<1	108	-	-
14	388201	<0.005	-	10	<3	9	<1	125	-	-
15	388202	<0.005	-	19	<3	12	<1	237	-	-
16	388203	<0.005	-	37	<3	49	<1	130	-	-
17	388204	<0.005	-	12	17	19	<1	-	28.2	-
18	388205	<0.005	-	2	<3	7	<1	-	22.5	-
19	388206	<0.005	-	7	<3	7	<1	-	3.8	-
20	388207	<0.005	-	7	5	13	<1	-	16.1	-
21	388208	<0.005	-	16	6	13	<1	-	0.6	-
22	388209	<0.005	-	3	6	7	<1	-	<0.5	-
23	388210	<0.005	-	38	5	72	<1	62	-	-
24	388211	<0.005	-	37	<3	36	<1	75	-	-
25	388212	<0.005	-	24	<3	29	<1	-	45.1	-

Results in ppm unless otherwise specified
Samples not received

IS = Insufficient sample
SNR = Sample not received

AUTHORISED OFFICER

390571

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	4 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	388213	<0.005	-	129	8	119	<1	79	-	-
2	388214	<0.005	-	8	<3	12	<1	-	7.8	-
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = analysis not determined

* = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390572

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	5 OF 5

	SAMPLE No.	Mn
METHOD		GA104
1	386132	0.66
2	386143	0.67
3	386144	0.65
4	386149	0.90
5	386150	0.66
6	386151	0.76
7	386152	0.88
8	386153	1.17
9	386154	0.69
10	386155	0.77
11	386160	1.22
12	386164	0.79
13	386165	0.78
14	386166	0.81
15	386167	0.82
16	386168	0.55
17	386169	0.96
18	386170	0.68
19	386171	0.79
20	386172	0.83
21		
22		
23		
24	DETECTION	0.01
25	UNITS	%

Results in ppm unless otherwise specified
Method not determined

IS = insufficient sample
SNR = sample not received

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ANALABS

ANALYTICAL DATA

all over 4 pages

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	1 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
388217	20	<5	28	<1	68	-	0.01	-	-
388218	12	5	12	<1	<50	-	0.01	-	-
388219	5	<5	2	<1	52	-	<0.01	-	-
~~388219~~	~~5~~	~~<5~~	~~2~~	~~<1~~	~~52~~	~~-~~	~~<0.01~~	~~-~~	~~-~~
388220	2	<5	2	<1	60	-	<0.01	-	-
388221	68	<5	7	<1	226	-	<0.01	-	-
388222	2	25	4	<1	82	-	<0.01	-	-
388223	11	<5	<2	<1	<50	-	<0.01	-	-
388224	10	6	6	<1	<50	-	<0.01	-	-
388225	2	7	<2	<1	<50	-	<0.01	-	-
388226	8	12	4	<1	<50	-	<0.01	-	-
388227	12	<5	3	<1	152	-	<0.01	-	-
388228	41	25	45	<1	412	-	<0.01	-	-
388229	42	<5	10	<1	<50	-	<0.01	-	-
388230	18	5	17	<1	<50	-	<0.01	-	-
388231	9	24	30	<1	151	-	0.01	-	-
388232	9	<5	2	<1	79	-	0.01	-	-
388233	8	<5	2	<1	<50	-	0.01	-	-
388234	<2	<5	4	<1	<50	-	0.01	-	-
388235	10	<5	<2	<1	<50	-	<0.01	-	-
388236	11	6	30	<1	179	-	<0.01	-	-
388237	4	<5	4	<1	80	-	<0.01	-	-
388238	9	<5	2	<1	<50	-	<0.01	-	-
388239	34	7	58	<1	97	-	<0.01	-	-
388240	28	6	8	<1	108	-	<0.01	-	-

ANALABS

ANALYTICAL DATA

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	2 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
388241	11	<5	<2	<1	60	-	<0.01	-	-
388242	7	<5	3	<1	78	-	<0.01	-	-
388243	<2	<5	2	<1	85	-	0.01	-	-
388244	7	8	25	<1	242	-	0.01	0.02	-
388245	9	95	19	<1	183	-	0.01	0.02	-
388246	<2	<5	15	<1	60	-	<0.01	-	-
388247	11	<5	8	<1	66	-	<0.01	-	-
388248	22	<5	8	<1	77	-	<0.01	-	-
388249	9	<5	7	<1	<50	-	<0.01	-	-
388250	7	<5	3	<1	<50	-	<0.01	-	-
388251	15	<5	3	<1	<50	-	0.01	-	-
384751	-	-	-	-	-	-	-	-	2783
384752	-	-	-	-	-	-	-	-	2646
384753	-	-	-	-	-	-	-	-	1774
384754	-	-	-	-	-	-	-	-	3537
384755	-	-	-	-	-	-	-	-	2698
384756	-	-	-	-	-	-	-	-	2135
384757	-	-	-	-	-	-	-	-	3605
384758	<2	<5	6	-	-	-	0.01	-	1157
384759	35	502	59	-	-	-	<0.01	-	2431
384760	7	35	67	-	-	-	<0.01	-	2698
384761	11	10	179	-	-	-	<0.01	-	2928
384762	14	6	119	-	-	-	0.01	-	2899
384763	11	<5	114	-	-	-	<0.01	-	3369
386281	7	<5	150	<1	<50	2925	0.01	-	-

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ANALYTICAL DATA

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	3 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
386282	10	6	153	<1	<50	2942	0.01	-	-
386283	33	7	109	<1	<50	1965	<0.01	-	-
386284	13	<5	184	<1	<50	2376	<0.01	-	-
386285	8	<5	194	<1	<50	2671	<0.01	-	-
386286	10	<5	190	<1	<50	3252	<0.01	-	-
386287	7	5	184	<1	<50	3234	<0.01	-	-
386288	10	6	182	<1	<50	3133	0.01	-	-
386289	14	5	203	<1	65	2737	<0.01	-	-
386290	8	5	157	<1	<50	2272	<0.01	-	-
386291	18	8	172	<1	56	3304	<0.01	-	-
386292	18	10	189	<1	78	3920	<0.01	-	-
386293	15	6	154	<1	<50	3596	<0.01	-	-
386294	57	9	155	<1	<50	3104	<0.01	-	-
386295	18	6	99	<1	<50	3703	<0.01	-	-
386296	24	5	178	<1	<50	2866	<0.01	-	-
386297	22	8	139	<1	64	3137	<0.01	-	-
386298	9	<5	72	<1	<50	2829	0.01	-	-
386299	18	<5	109	<1	75	4888	<0.01	-	-
386300	34	9	132	<1	64	3696	<0.01	-	-
386301	17	8	147	<1	<50	4847	<0.01	-	-
386302	66	6	166	<1	58	3276	<0.01	-	-
386303	57	6	206	<1	74	3507	<0.01	-	-
386304	108	19	171	<1	<50	2906	<0.01	-	-
386305	95	7	164	<1	56	3388	<0.01	-	-
386306	38	26	205	<1	64	3886	<0.01	-	-

ANALABS

ANALYTICAL DATA

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	4 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
386307	45	16	242	<1	67	5238	<0.01	-	-

PLEASE NOTE: As/HA140 Results to follow.

DETECTION	2	5	2	1	50	3	0.01	0.01	50
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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ANALYTICAL DATA

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	5 OF 5

SAMPLE	Zr GX401	Ba GX401
384751	157	920
384752	132	665
384753	292	663
384754	171	1294
384755	204	724
384756	197	792
384757	453	848
384758	202	418
384759	367	1712
384760	217	1082
384761	215	834
384762	230	726
384763	227	563

PLEASE NOTE: As/HA140 Results to follow.

DETECTION	5	10
UNITS	ppm	ppm

390578

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 31e837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES2021.60.12950

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:	ORDER No.	PROJECT
John Ilsetrums Resolute Resources Limited P.O. Box 7232 Cloisters Square PERTH WA 6000	GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
21/03/97	eGAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	20/05/97	1	20

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
8216/51	CO Prep : GP033	Au,Au(R)/GG313
388216/51	CO Prep : GP033	Cu,Pb,Zn,Ag,As/GG140
4751/63	CO Prep : GP033	Ti,Zr/GX401
384759	CO Prep : GP033	Ba/GX401
4758/63	CO Prep : GP033	Au,Au(R)/GG313

REMARKS

RESULTS TO: Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

AUTHORISED OFFICER

390579

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GG313	GG313
1	388216	6	<5	10	<1	-	0.5	-	0.01	-
2	388217	20	<5	28	<1	68	-	-	0.01	-
3	388218	12	5	12	<1	-	1.2	-	<0.01	-
4	388219	5	<5	2	<1	52	-	-	<0.01	-
5	388220	2	<5	2	<1	60	-	-	<0.01	-
6	388221	68	<5	7	<1	226	-	-	<0.01	-
7	388222	2	25	4	<1	82	-	-	<0.01	-
8	388223	11	<5	<2	<1	-	7.4	-	<0.01	-
9	388224	10	6	6	<1	-	4.2	-	<0.01	-
10	388225	2	7	<2	<1	-	5.9	-	<0.01	-
11	388226	8	12	4	<1	-	12.4	-	<0.01	-
12	388227	12	<5	3	<1	152	-	-	<0.01	-
13	388228	41	25	45	<1	412	-	-	<0.01	-
14	388229	42	<5	10	<1	120	-	-	<0.01	-
15	388230	18	5	17	<1	-	23.6	-	<0.01	-
16	388231	9	24	30	<1	151	-	-	0.01	-
17	388232	9	<5	2	<1	79	-	-	0.01	-
18	388233	8	<5	2	<1	-	3.7	-	0.01	-
19	388234	<2	<5	4	<1	-	6.4	-	0.01	-
20	388235	10	<5	<2	<1	-	2.3	-	<0.01	-
21	388236	11	6	30	<1	179	-	-	<0.01	-
22	388237	4	<5	4	<1	80	-	-	<0.01	-
23	388238	9	<5	2	<1	-	2.7	-	<0.01	-
24	388239	34	7	58	<1	97	-	-	<0.01	-
25	388240	28	6	8	<1	108	-	-	<0.01	-

Results in [illegible] unless otherwise specified
[illegible] not received

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GG313	GG313
1	388241	11	<5	<2	<1	60	-	-	<0.01	-
2	388242	7	<5	3	<1	78	-	-	<0.01	-
3	388243	<2	<5	2	<1	85	-	-	0.01	-
4	388244	7	8	25	<1	242	-	-	0.01	0.02
5	388245	9	95	19	<1	183	-	-	0.01	0.02
6	388246	<2	<5	15	<1	60	-	-	<0.01	-
7	388247	11	<5	8	<1	66	-	-	<0.01	-
8	388248	22	<5	8	<1	77	-	-	<0.01	-
9	388249	9	<5	7	<1	-	20.5	-	0.01	-
10	388250	7	<5	3	<1	-	1.8	-	<0.01	-
11	388251	15	<5	3	<1	-	3.2	-	0.01	-
12	384758	<2	<5	6	-	-	-	-	0.01	-
13	384759	35	502	59	-	-	-	-	<0.01	-
14	384760	7	35	67	-	-	-	-	<0.01	-
15	384761	11	10	179	-	-	-	-	<0.01	-
16	384762	14	6	119	-	-	-	-	0.01	-
17	384763	11	<5	114	-	-	-	-	<0.01	-
18	386281	7	<5	150	<1	-	9.0	2925	0.01	-
19	386282	10	6	153	<1	-	9.4	2942	0.01	-
20	386283	33	7	109	<1	-	10.2	1965	<0.01	-
21	386284	13	<5	184	<1	-	5.0	2376	<0.01	-
22	386285	8	<5	194	<1	-	3.1	2671	<0.01	-
23	386286	10	<5	190	<1	-	1.7	3252	<0.01	-
24	386287	7	5	184	<1	-	1.1	3234	<0.01	-
25	386288	10	6	182	<1	-	1.4	3133	0.01	-

Results in ppb unless otherwise specified. - = not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	3 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GG313	GG313
1	386289	14	5	203	<1	65	-	2737	<0.01	-
2	386290	8	5	157	<1	-	12.0	2272	<0.01	-
3	386291	18	8	172	<1	56	-	3304	<0.01	-
4	386292	18	10	189	<1	78	-	3920	<0.01	-
5	386293	15	6	154	<1	-	14.1	3596	<0.01	-
6	386294	57	9	155	<1	-	23.0	3104	<0.01	-
7	386295	18	6	99	<1	-	45.4	3703	<0.01	-
8	386296	24	5	178	<1	-	23.7	2866	<0.01	-
9	386297	22	8	139	<1	64	-	3137	<0.01	-
10	386298	9	<5	72	<1	-	47.8	2829	0.01	-
11	386299	18	<5	109	<1	75	-	4888	<0.01	-
12	386300	34	9	132	<1	64	-	3696	<0.01	-
13	386301	17	8	147	<1	-	14.9	4847	<0.01	-
14	386302	66	6	166	<1	58	-	3276	<0.01	-
15	386303	57	6	206	<1	74	-	3507	<0.01	-
16	386304	108	19	171	<1	-	35.4	2906	<0.01	-
17	386305	95	7	164	<1	56	-	3388	<0.01	-
18	386306	38	26	205	<1	64	-	3886	<0.01	-
19	386307	45	16	242	<1	67	-	5238	<0.01	-
20										
21										
22										
23										
24	DETECTION	2	5	2	1	50	0.5	3	0.01	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in parts/million unless otherwise specified
Element not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ti	Zr	Ba						
METHOD		GX401	GX401	GX401						
1	384751	2783	157	920						
2	384752	2646	132	665						
3	384753	1774	292	663						
4	384754	3537	171	1294						
5	384755	2698	204	724						
6	384756	2135	197	792						
7	384757	3605	453	848						
8	384758	1157	202	418						
9	384759	2431	367	1712						
10	384760	2698	217	1082						
11	384761	2928	215	834						
12	384762	2899	230	726						
13	384763	3369	227	563						
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	5	10						
25	UNITS	ppm	ppm	ppm						

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390583

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. [illegible]

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ekstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
03/03/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
6c	29/05/97	1

TOTAL No. OF SAMPLES: 518

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
7751/8160.386251/7	SO Prep : GP032	Au.AuTR1/GG32o
387751/8160	SO Prep : GP032	Cu.Pb.Zn.Ag.As/GA140
6251/7	DC Prep : GP033	Cu.Pb.Zn.Ag/GA140
386251/7	DC Prep : GP033	Ce.Gd.Nd.Dy.Pr.Yb.Er.La.Sm.Eu/GG
8191/238 & others	SO Prep : GP033	Au.AuTR1/GG313

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

AUTHORISED OFFICER

390584

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	1 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387751	-	-	-	-	5	29	<0.5	-	-
2	387752	-	-	-	-	3	43	4.2	-	-
3	387753	-	-	-	-	2	11	3.1	-	-
4	387754	-	-	-	-	10	15	<0.5	-	-
5	387755	-	-	-	-	2	11	<0.5	-	-
6	387756	-	-	-	-	4	14	<0.5	-	-
7	387757	-	-	-	-	6	27	<0.5	-	-
8	387758	-	-	-	-	2	14	<0.5	-	-
9	387759	-	-	-	-	6	19	<0.5	-	-
10	387760	-	-	-	-	33	31	49.9	-	-
11	387761	-	-	-	-	7	15	5.7	-	-
12	387762	-	-	-	-	6	13	7.8	-	-
13	387763	-	-	-	-	6	17	9.2	-	-
14	387764	-	-	-	-	9	22	34.2	-	-
15	387765	-	-	-	-	11	30	42.4	-	-
16	387766	-	-	-	-	13	16	26.6	-	-
17	387767	-	-	-	-	19	27	41.6	-	-
18	387768	-	-	-	-	10	16	17.1	-	-
19	387769	-	-	-	-	3	12	4.9	-	-
20	387770	-	-	-	-	<2	9	7.4	-	-
21	387771	-	-	-	-	4	21	30.4	-	-
22	387772	-	-	-	-	23	42	-	66	-
23	387773	-	-	-	-	11	26	20.1	-	-
24	387774	-	-	-	-	6	14	5.5	-	-
25	387775	-	-	-	-	3	9	3.1	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	2 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387776	-	-	-	-	7	16	8.8	-	-
2	387777	-	-	-	-	4	11	3.2	-	-
3	387778	-	-	-	-	2	25	3.9	-	-
4	387779	-	-	-	-	6	25	9.4	-	-
5	387780	-	-	-	-	8	20	9.3	-	-
6	387781	-	-	-	-	8	17	8.1	-	-
7	387782	-	-	-	-	7	24	9.4	-	-
8	387783	-	-	-	-	6	31	18.6	-	-
9	387784	-	-	-	-	4	32	9.9	-	-
10	387785	-	-	-	-	5	22	11.7	-	-
11	387786	-	-	-	-	4	16	11.7	-	-
12	387787	-	-	-	-	5	17	5.3	-	-
13	387788	-	-	-	-	2	8	1.1	-	-
14	387789	-	-	-	-	6	24	10.5	-	-
15	387790	-	-	-	-	8	17	28.6	-	-
16	387791	-	-	-	-	34	33	-	64	-
17	387792	-	-	-	-	4	17	1.1	-	-
18	387793	-	-	-	-	16	15	20.5	-	-
19	387794	-	-	-	-	6	6	4.3	-	-
20	387795	-	-	-	-	4	12	2.8	-	-
21	387796	-	-	-	-	2	9	3.4	-	-
22	387797	-	-	-	-	4	7	0.8	-	-
23	387798	-	-	-	-	6	9	<0.5	-	-
24	387799	-	-	-	-	5	15	17.0	-	-
25	387800	-	-	-	-	9	13	10.7	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	3 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387801	-	-	-	-	2	5	<0.5	-	-
2	387802	-	-	-	-	<2	5	<0.5	-	-
3	387803	-	-	-	-	18	26	-	71	-
4	387804	-	-	-	-	30	43	-	131	-
5	387805	-	-	-	-	19	60	22.3	-	-
6	387806	-	-	-	-	12	16	31.3	-	-
7	387807	-	-	-	-	28	22	-	61	-
8	387808	-	-	-	-	12	16	34.9	-	-
9	387809	-	-	-	-	6	12	8.9	-	-
10	387810	-	-	-	-	9	18	14.0	-	-
11	387811	-	-	-	-	3	4	<0.5	-	-
12	387812	-	-	-	-	3	6	1.3	-	-
13	387813	-	-	-	-	3	12	11.5	-	-
14	387814	-	-	-	-	8	23	44.4	-	-
15	387815	-	-	-	-	7	12	4.6	-	-
16	387816	-	-	-	-	2	4	2.4	-	-
17	387817	-	-	-	-	<2	8	2.0	-	-
18	387818	-	-	-	-	5	5	2.2	-	-
19	387819	-	-	-	-	<2	5	2.7	-	-
20	387820	-	-	-	-	3	7	9.5	-	-
21	387821	-	-	-	-	<2	8	2.4	-	-
22	387822	-	-	-	-	<2	6	2.8	-	-
23	387823	-	-	-	-	4	13	18.5	-	-
24	387824	-	-	-	-	<2	4	1.5	-	-
25	387825	-	-	-	-	3	9	6.5	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	4 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
THOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387826	-	-	-	-	7	2	1.6	-	-
2	387827	-	-	-	-	6	9	1.7	-	-
3	387828	-	-	-	-	39	21	-	80	-
4	387829	-	-	-	-	6	10	29.7	-	-
5	387830	-	-	-	-	9	16	49.8	-	-
6	387831	-	-	-	-	30	17	-	73	-
7	387832	-	-	-	-	7	13	23.9	-	-
8	387833	-	-	-	-	7	25	11.2	-	-
9	387834	-	-	-	-	4	18	8.4	-	-
10	387835	-	-	-	-	3	7	<0.5	-	-
11	387836	-	-	-	-	2	6	<0.5	-	-
12	387837	-	-	-	-	5	7	<0.5	-	-
13	387838	-	-	-	-	4	19	13.8	-	-
14	387839	-	-	-	-	5	22	13.7	-	-
15	387840	-	-	-	-	5	18	11.4	-	-
16	387841	-	-	-	-	8	12	12.0	-	-
17	387842	-	-	-	-	15	19	3.6	-	-
18	387843	-	-	-	-	5	11	3.3	-	-
19	387844	-	-	-	-	<2	54	2.3	-	-
20	387845	-	-	-	-	<2	13	1.6	-	-
21	387846	-	-	-	-	<2	3	<0.5	-	-
22	387847	-	-	-	-	<2	9	7.8	-	-
23	387848	-	-	-	-	2	6	6.7	-	-
24	387849	-	-	-	-	<2	77	4.7	-	-
25	387850	-	-	-	-	<2	8	0.6	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	5 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
THOD		UM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387851	-	-	-	-	4	6	1.3	-	-
2	387852	-	-	-	-	5	16	31.9	-	-
3	387853	-	-	-	-	7	9	-	72	-
4	387854	-	-	-	-	11	42	-	67	-
5	387855	-	-	-	-	11	18	28.6	-	-
6	387856	-	-	-	-	7	17	19.0	-	-
7	387857	-	-	-	-	11	21	7.5	-	-
8	387858	-	-	-	-	3	9	14.2	-	-
9	387859	-	-	-	-	2	14	1.2	-	-
10	387860	-	-	-	-	<2	7	5.0	-	-
11	387861	-	-	-	-	8	15	30.1	-	-
12	387862	-	-	-	-	3	12	6.7	-	-
13	387863	-	-	-	-	4	16	25.9	-	-
14	387864	-	-	-	-	2	10	0.8	-	-
15	387865	-	-	-	-	2	7	0.7	-	-
16	387866	-	-	-	-	2	5	0.7	-	-
17	387867	-	-	-	-	2	30	0.8	-	-
18	387868	-	-	-	-	<2	8	1.0	-	-
19	387869	-	-	-	-	3	25	39.0	-	-
20	387870	-	-	-	-	6	40	14.9	-	-
21	387871	-	-	-	-	<2	7	<0.5	-	-
22	387872	-	-	-	-	3	54	9.7	-	-
23	387873	-	-	-	-	<2	8	0.8	-	-
24	387874	-	-	-	-	6	23	15.8	-	-
25	387875	-	-	-	-	3	18	40.2	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	6 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387876	-	-	-	-	7	6	1.4	-	-
2	387877	-	-	-	-	3	7	15.0	-	-
3	387878	-	-	-	-	4	18	-	65	-
4	387879	-	-	-	-	4	10	14.7	-	-
5	387880	-	-	-	-	8	16	21.2	-	-
6	387881	-	-	-	-	8	14	-	70	-
7	387882	-	-	-	-	26	180	-	71	-
8	387883	-	-	-	-	19	24	45.7	-	-
9	387884	-	-	-	-	15	21	-	69	-
10	387885	-	-	-	-	18	27	-	80	-
11	387886	-	-	-	-	81	30	-	82	-
12	387887	-	-	-	-	4	294	12.6	-	-
13	387888	-	-	-	-	3	4	2.8	-	-
14	387889	-	-	-	-	23	23	19.9	-	-
15	387890	-	-	-	-	21	11	7.7	-	-
16	387891	-	-	-	-	17	17	17.2	-	-
17	387892	-	-	-	-	17	29	8.2	-	-
18	387893	-	-	-	-	31	15	22.7	-	-
19	387894	-	-	-	-	32	19	28.5	-	-
20	387895	-	-	-	-	48	24	33.2	-	-
21	387896	-	-	-	-	15	13	34.6	-	-
22	387897	-	-	-	-	5	36	8.2	-	-
23	387898	-	-	-	-	5	7	8.1	-	-
24	387899	-	-	-	-	4	8	1.9	-	-
25	387900	-	-	-	-	7	7	6.0	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	7 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387901	-	-	-	-	6	19	2.7	-	-
2	387902	-	-	-	-	9	23	5.2	-	-
3	387903	-	-	-	-	25	37	-	66	-
4	387904	-	-	-	-	6	10	7.3	-	-
5	387905	-	-	-	-	6	11	2.5	-	-
6	387906	-	-	-	-	7	14	2.8	-	-
7	387907	-	-	-	-	6	9	0.9	-	-
8	387908	-	-	-	-	5	9	25.3	-	-
9	387909	-	-	-	-	10	30	19.4	-	-
10	387910	-	-	-	-	14	91	17.3	-	-
11	387911	-	-	-	-	42	26	5.4	-	-
12	387912	-	-	-	-	8	15	6.2	-	-
13	387913	-	-	-	-	7	12	6.2	-	-
14	387914	-	-	-	-	16	30	10.4	-	-
15	387915	-	-	-	-	12	17	5.4	-	-
16	387916	-	-	-	-	7	20	14.7	-	-
17	387917	-	-	-	-	4	16	47.3	-	-
18	387918	-	-	-	-	6	16	10.6	-	-
19	387919	-	-	-	-	41	46	32.5	-	-
20	387920	-	-	-	-	6	10	5.6	-	-
21	387921	-	-	-	-	2	8	2.9	-	-
22	387922	-	-	-	-	3	8	2.3	-	-
23	387923	-	-	-	-	3	7	6.4	-	-
24	387924	-	-	-	-	5	8	28.5	-	-
25	387925	-	-	-	-	3	9	2.1	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	8 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387926	-	-	-	-	3	7	<0.5	-	-
2	387927	-	-	-	-	2	7	2.7	-	-
3	387928	-	-	-	-	3	8	4.0	-	-
4	387929	-	-	-	-	5	11	22.6	-	-
5	387930	-	-	-	-	4	7	0.9	-	-
6	387931	-	-	-	-	5	6	0.6	-	-
7	387932	-	-	-	-	2	6	<0.5	-	-
8	387933	-	-	-	-	7	7	<0.5	-	-
9	387934	-	-	-	-	3	6	1.3	-	-
10	387935	-	-	-	-	5	7	<0.5	-	-
11	387936	-	-	-	-	5	7	<0.5	-	-
12	387937	-	-	-	-	4	7	<0.5	-	-
13	387938	-	-	-	-	3	13	<0.5	-	-
14	387939	-	-	-	-	3	6	<0.5	-	-
15	387940	-	-	-	-	3	8	<0.5	-	-
16	387941	-	-	-	-	3	6	<0.5	-	-
17	387942	-	-	-	-	3	6	<0.5	-	-
18	387943	-	-	-	-	2	17	1.7	-	-
19	387944	-	-	-	-	3	5	1.0	-	-
20	387945	-	-	-	-	2	4	0.7	-	-
21	387946	-	-	-	-	3	5	0.5	-	-
22	387947	-	-	-	-	2	5	2.0	-	-
23	387948	-	-	-	-	2	9	7.0	-	-
24	387949	-	-	-	-	3	3	<0.5	-	-
25	387950	-	-	-	-	2	4	1.0		-

Results in ppm unless otherwise specified
- Element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	9 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387951	-	-	-	-	<2	4	1.8	-	-
2	387952	-	-	-	-	4	13	-	79	-
3	387953	-	-	-	-	6	27	-	87	-
4	387954	-	-	-	-	2	3	5.5	-	-
5	387955	-	-	-	-	4	7	1.4	-	-
6	387956	-	-	-	-	2	8	16.0	-	-
7	387957	-	-	-	-	2	9	9.3	-	-
8	387958	-	-	-	-	5	13	18.0	-	-
9	387959	-	-	-	-	3	10	10.2	-	-
10	387960	-	-	-	-	12	11	8.5	-	-
11	387961	-	-	-	-	15	14	18.2	-	-
12	387962	-	-	-	-	13	12	8.0	-	-
13	387963	-	-	-	-	30	25	35.5	-	-
14	387964	-	-	-	-	36	25	23.1	-	-
15	387965	-	-	-	-	14	13	9.2	-	-
16	387966	-	-	-	-	9	19	-	81	-
17	387967	-	-	-	-	7	17	-	96	-
18	387968	-	-	-	-	7	17	-	73	-
19	387969	-	-	-	-	4	8	20.8	-	-
20	387970	-	-	-	-	8	11	32.1	-	-
21	387971	-	-	-	-	6	11	21.9	-	-
22	387972	-	-	-	-	4	8	9.0	-	-
23	387973	-	-	-	-	18	17	-	75	-
24	387974	-	-	-	-	6	7	15.9	-	-
25	387975	-	-	-	-	3	9	9.0	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	10 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387976	-	-	-	-	3	7	<0.5	-	-
2	387977	-	-	-	-	2	9	<0.5	-	-
3	387978	-	-	-	-	3	4	<0.5	-	-
4	387979	-	-	-	-	3	3	2.6	-	-
5	387980	-	-	-	-	2	5	1.7	-	-
6	387981	-	-	-	-	5	11	31.5	-	-
7	387982	-	-	-	-	5	5	15.7	-	-
8	387983	-	-	-	-	3	8	27.2	-	-
9	387984	-	-	-	-	6	12	37.9	-	-
10	387985	-	-	-	-	2	8	5.3	-	-
11	387986	-	-	-	-	<2	<2	<0.5	-	-
12	387987	-	-	-	-	4	5	0.8	-	-
13	387988	-	-	-	-	3	7	2.9	-	-
14	387989	-	-	-	-	2	14	7.3	-	-
15	387990	-	-	-	-	2	5	0.6	-	-
16	387991	-	-	-	-	<2	9	-	64	-
17	387992	-	-	-	-	3	11	<0.5	-	-
18	387993	-	-	-	-	8	16	40.9	-	-
19	387994	-	-	-	-	5	17	-	64	-
20	387995	-	-	-	-	8	17	-	71	-
21	387996	-	-	-	-	7	17	-	96	-
22	387997	-	-	-	-	5	12	34.8	-	-
23	387998	-	-	-	-	7	12	-	96	-
24	387999	-	-	-	-	18	18	-	101	-
25	388000	-	-	-	-	26	15	-	76	-

Results in ppm unless otherwise specified
- element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	11 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388001	-	-	-	-	7	20	-	58	-
2	388002	-	-	-	-	8	18	-	80	-
3	388003	-	-	-	-	22	20	21.0	-	-
4	388004	-	-	-	-	14	17	24.0	-	-
5	388005	-	-	-	-	5	17	-	62	-
6	388006	-	-	-	-	4	16	48.0	-	-
7	388007	-	-	-	-	4	15	35.5	-	-
8	388008	-	-	-	-	3	9	17.3	-	-
9	388009	-	-	-	-	3	5	1.1	-	-
10	388010	-	-	-	-	<2	2	-	75	-
11	388011	-	-	-	-	2	7	-	299	-
12	388012	-	-	-	-	2	7	-	134	-
13	388013	-	-	-	-	2	6	17.5	-	-
14	388014	-	-	-	-	<2	5	3.5	-	-
15	388015	-	-	-	-	5	6	1.4	-	-
16	388016	-	-	-	-	8	20	-	69	-
17	388017	-	-	-	-	6	16	-	70	-
18	388018	-	-	-	-	8	21	-	62	-
19	388019	-	-	-	-	8	15	-	60	-
20	388020	-	-	-	-	3	6	7.5	-	-
21	388021	-	-	-	-	4	12	28.0	-	-
22	388022	-	-	-	-	2	5	5.2	-	-
23	388023	-	-	-	-	3	8	29.3	-	-
24	388024	-	-	-	-	3	5	3.1	-	-
25	388025	-	-	-	-	25	10	24.4	-	-

Results in ppm unless otherwise specified
- element not determined

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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	12 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		UM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388026	-	-	-	-	12	11	13.3	-	-
2	388027	-	-	-	-	3	9	4.8	-	-
3	388028	-	-	-	-	4	15	17.8	-	-
4	388029	-	-	-	-	4	17	5.4	-	-
5	388030	-	-	-	-	2	13	1.9	-	-
6	388031	-	-	-	-	3	12	11.8	-	-
7	388032	-	-	-	-	4	13	9.6	-	-
8	388033	-	-	-	-	4	10	16.2	-	-
9	388034	-	-	-	-	3	10	4.2	-	-
10	388035	-	-	-	-	3	17	10.6	-	-
11	388036	-	-	-	-	2	7	<0.5	-	-
12	388037	-	-	-	-	2	4	<0.5	-	-
13	388038	-	-	-	-	<2	7	<0.5	-	-
14	388039	-	-	-	-	2	8	<0.5	-	-
15	388040	-	-	-	-	2	8	<0.5	-	-
16	388041	-	-	-	-	<2	6	3.3	-	-
17	388042	-	-	-	-	3	13	6.8	-	-
18	388043	-	-	-	-	2	8	1.0	-	-
19	388044	-	-	-	-	3	8	<0.5	-	-
20	388045	-	-	-	-	2	18	0.9	-	-
21	388046	-	-	-	-	2	6	<0.5	-	-
22	388047	-	-	-	-	3	6	0.9	-	-
23	388048	-	-	-	-	2	8	<0.5	-	-
24	388049	-	-	-	-	4	12	24.6	-	-
25	388050	-	-	-	-	2	13	8.2	-	-

Results in ppm unless otherwise specified
- element not determined

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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	13 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388051	-	-	-	-	4	10	22.9	-	-
2	388052	-	-	-	-	4	16	28.3	-	-
3	388053	-	-	-	-	4	12	50.0	-	-
4	388054	-	-	-	-	4	21	30.9	-	-
5	388055	-	-	-	-	2	23	24.8	-	-
6	388056	-	-	-	-	7	25	28.9	-	-
7	388057	-	-	-	-	4	15	7.9	-	-
8	388058	-	-	-	-	6	16	20.3	-	-
9	388059	-	-	-	-	4	12	3.7	-	-
10	388060	-	-	-	-	2	9	<0.5	-	-
11	388061	-	-	-	-	3	10	5.0	-	-
12	388062	-	-	-	-	3	15	2.3	-	-
13	388063	-	-	-	-	3	10	1.5	-	-
14	388064	-	-	-	-	4	10	26.8	-	-
15	388065	-	-	-	-	4	11	13.3	-	-
16	388066	-	-	-	-	17	17	9.9	-	-
17	388067	-	-	-	-	4	10	8.8	-	-
18	388068	-	-	-	-	4	13	18.2	-	-
19	388069	-	-	-	-	5	17	-	72	-
20	388070	-	-	-	-	9	16	50.0	-	-
21	388071	-	-	-	-	11	12	39.5	-	-
22	388072	-	-	-	-	5	10	8.4	-	-
23	388073	-	-	-	-	5	15	5.7	-	-
24	388074	-	-	-	-	5	14	25.0	-	-
25	388075	-	-	-	-	3	14	12.9	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	14 OF 66

	SAMPLE No.	S	Fe	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388076	-	-	-	-	4	13	15.1	-	-
2	388077	-	-	-	-	4	16	4.1	-	-
3	388078	-	-	-	-	5	16	15.3	-	-
4	388079	-	-	-	-	3	14	7.6	-	-
5	388080	-	-	-	-	5	16	15.3	-	-
6	388081	-	-	-		4	10	13.7	-	-
7	388082	-	-	-	-	3	15	17.7	-	-
8	388083	-	-	-	-	4	8	22.5	-	-
9	388084	-	-	-	-	10	27	43.2	-	-
10	388085	-	-	-	-	17	38	37.9	-	-
11	388086	-	-	-	-	4	12	6.5	-	-
12	388087	-	-	-	-	7	13	3.4	-	-
13	388088	-	-	-	-	6	15	19.0	-	-
14	388089	-	-	-	-	12	20	41.9	-	-
15	388090	-	-	-	-	3	8	3.3	-	-
16	388091	-	-	-	-	2	6	0.8	-	-
17	388092	-	-	-	-	4	6	1.4	-	-
18	388093	-	-	-	-	5	13	20.7	-	-
19	388094	-	-	-	-	5	16	16.0	-	-
20	388095	-	-	-	-	4	11	21.7	-	-
21	388096	-	-	-	-	5	10	31.9	-	-
22	388097	-	-	-	-	10	26	5.4	-	-
23	388098	-	-	-	-	7	18	38.1	-	-
24	388099	-	-	-	-	6	14	18.3	-	-
25	388100	-	-	-	-	6	13	36.8	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390598

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	15 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388101	-	-	-	-	8	18	-	55	-
2	388102	-	-	-	-	6	12	5.7	-	-
3	388103	-	-	-	-	6	17	-	60	-
4	388104	-	-	-	-	8	18	46.5	-	-
5	388105	-	-	-	-	26	29	-	64	-
6	388106	-	-	-	-	10	20	-	71	-
7	388107	-	-	-	-	7	4	3.1	-	-
8	388108	-	-	-	-	7	9	2.0	-	-
9	388109	-	-	-	-	9	25	7.8	-	-
10	388110	-	-	-	-	7	13	10.5	-	-
11	388111	-	-	-	-	8	8	12.7	-	-
12	388112	-	-	-	-	6	8	12.7	-	-
13	388113	-	-	-	-	8	7	24.1	-	-
14	388114	-	-	-	-	6	67	11.1	-	-
15	388115	-	-	-	-	10	7	5.2	-	-
16	388116	-	-	-	-	6	14	-	63	-
17	388117	-	-	-	-	10	14	-	68	-
18	388118	-	-	-	-	5	10	12.1	-	-
19	388119	-	-	-	-	4	12	3.3	-	-
20	388120	-	-	-	-	7	8	3.7	-	-
21	388121	-	-	-	-	10	6	5.9	-	-
22	388122	-	-	-	-	6	3	<0.5	-	-
23	388123	-	-	-	-	5	4	2.6	-	-
24	388124	-	-	-	-	6	5	9.4	-	-
25	388125	-	-	-	-	7	12	14.4	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	16 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		UM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388126	-	-	-	-	10	9	-	93	-
2	388127	-	-	-	-	6	5	-	60	-
3	388128	-	-	-	-	10	18	-	84	-
4	388129	-	-	-	-	6	11	-	71	-
5	388130	-	-	-	-	6	10	27.9	-	-
6	388131	-	-	-	-	10	13	37.8	-	-
7	388132	-	-	-	-	7	10	39.9	-	-
8	388133	-	-	-	-	5	8	10.4	-	-
9	388134	-	-	-	-	4	6	14.7	-	-
10	388135	-	-	-	-	5	11	36.1	-	-
11	388136	-	-	-	-	4	8	3.9	-	-
12	388137	-	-	-	-	5	10	18.9	-	-
13	388138	-	-	-	-	5	4	5.4	-	-
14	388139	-	-	-	-	3	10	4.1	-	-
15	388140	-	-	-	-	6	8	11.6	-	-
16	388141	-	-	-	-	6	19	37.0	-	-
17	388142	-	-	-	-	6	10	10.9	-	-
18	388143	-	-	-	-	5	10	6.6	-	-
19	388144	-	-	-	-	3	7	7.9	-	-
20	388145	-	-	-	-	6	9	6.9	-	-
21	388146	-	-	-	-	6	6	4.1	-	-
22	388147	-	-	-	-	6	6	25.8	-	-
23	388148	-	-	-	-	5	6	6.7	-	-
24	388149	-	-	-	-	5	3	1.2	-	-
25	388150	-	-	-	-	7	8	1.2	-	

Results in ppm unless otherwise specified
- element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	17 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388151	-	-	-	-	5	7	5.1	-	-
2	388152	-	-	-	-	6	7	10.6	-	-
3	388153	-	-	-	-	8	5	2.6	-	-
4	388154	-	-	-	-	7	3	1.4	-	-
5	388155	-	-	-	-	6	21	34.0	-	-
6	388156	-	-	-	-	9	7	27.9	-	-
7	388157	-	-	-	-	10	7	-	69	-
8	388158	-	-	-	-	10	8	-	61	-
9	388159	-	-	-	-	7	8	48.1	-	-
10	388160	-	-	-	-	8	55	49.3	-	-
11	386251	1.090	2020	-	-	69	197	-	-	159
12	386252	0.039	2010	-	-	9	152	-	-	156
13	386253	0.150	1869	-	-	11	174	-	-	159
14	386254	0.860	1975	-	-	85	242	-	-	166
15	386255	0.230	2365	-	-	7	53	-	-	126
16	386256	0.014	2336	-	-	34	84	-	-	118
17	386257	0.075	2778	-	-	18	80	-	-	118
18	386191	-	-	250	-	76	165	5.5	-	-
19	386192	-	-	436	-	75	207	5.8	-	-
20	386193	-	-	701	-	84	243	1.3	-	-
21	386194	-	-	476	-	70	125	<0.5	-	-
22	386195	-	-	259	-	45	120	<0.5	-	-
23	386196	-	-	488	-	39	130	<0.5	-	-
24	386197	-	-	471	-	31	184	0.5	-	-
25	386198	-	-	1093	-	30	220	<0.5	-	-

Results in ppm unless otherwise specified
- element not determined
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	18 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386199	-	-	491	-	24	170	<0.5	-	-
2	386200	-	-	380	-	39	133	9.2	-	-
3	386201	-	-	497	-	27	153	1.0	-	-
4	386202	-	-	268	-	16	176	2.0	-	-
5	386203	-	-	191	-	26	175	0.7	-	-
6	386204	-	-	69	-	25	80	<0.5	-	-
7	386205	-	-	56	-	35	75	<0.5	-	-
8	386206	-	-	61	-	29	82	<0.5	-	-
9	386207	-	-	48	-	16	64	<0.5	-	-
10	386208	-	-	65	-	11	66	<0.5	-	-
11	386209	-	-	57	-	11	68	<0.5	-	-
12	386210	-	-	31	-	9	40	4.3	-	-
13	386211	-	-	41	-	19	52	<0.5	-	-
14	386212	-	-	46	-	14	63	1.9	-	-
15	386213	-	-	82	-	15	46	3.5	-	-
16	386214	-	-	138	-	20	91	3.1	-	-
17	386215	-	-	187	-	16	57	<0.5	-	-
18	386216	-	-	344	-	27	88	<0.5	-	-
19	386217	-	-	575	-	34	204	5.0	-	-
20	386218	-	-	407	-	48	366	5.9	-	-
21	386219	-	-	588	-	47	305	9.2	-	-
22	386220	-	-	308	-	45	203	4.1	-	-
23	386221	-	-	54	-	79	48	<0.5	-	-
24	386222	-	-	55	-	13	59	<0.5	-	-
25	386223	-	-	61	-	14	61	<0.5	-	

Results in ppm unless otherwise specified
- element not determined
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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	19 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386224	-	-	51	-	14	63	<0.5	-	-
2	386225	-	-	54	-	30	37	<0.5	-	-
3	386226	-	-	46	-	17	38	<0.5	-	-
4	386227	-	-	47	-	29	59	5.3	-	-
5	386228	-	-	196	-	40	175	3.8	-	-
6	386229	-	-	327	-	47	171	3.9	-	-
7	386230	-	-	349	-	29	150	6.2	-	-
8	386231	-	-	334	-	29	145	7.7	-	-
9	386232	-	-	363	-	14	156	15.0	-	-
10	386233	-	-	277	-	17	136	18.9	-	-
11	386234	-	-	1098	-	26	119	15.4	-	-
12	386235	-	-	495	-	27	116	6.6	-	-
13	386236	-	-	210	-	63	46	>50.0	97	-
14	386237	-	-	405	-	40	87	5.8	-	-
15	386238	-	-	182	-	84	68	16.8	-	-
16	386138	-	-	29	-	24	145	10.4	-	-
17	386139	-	-	24	-	23	117	8.4	-	-
18	386140	-	-	1982	-	19	101	29.4	-	-
19	386141	-	-	3777	-	11	141	11.2	-	-
20	386145	-	-	>5000	0.81	132	780	<0.5	-	-
21	386146	-	-	>5000	0.86	36	883	<0.5	-	-
22	386147	-	-	>5000	0.66	28	223	2.0	-	-
23	386148	-	-	>5000	0.81	137	147	32.0	-	-
24	386156	-	-	>5000	0.85	437	193	26.1	-	-
25	386157	-	-	1981	-	46	673	15.4	-	-

Results in ppm unless otherwise specified. IS = insufficient sample
- = element not determined SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	20 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386158	-	-	>5000	1.18	34	453	16.6	-	-
2	386159	-	-	>5000	1.15	51	1030	11.4	-	-
3	386264	0.390	4797	-	-	-	-	-	-	100
4	386265	0.026	4000	-	-	-	-	-	-	84
5	386266	0.140	2251	-	-	-	-	-	-	198
6	386267	0.009	5137	-	-	-	-	-	-	148
7	386268	0.011	4877	-	-	-	-	-	-	135
8	386269	0.020	1468	-	-	-	-	-	-	29
9	384051	0.380	465	-	-	-	-	-	-	127
10	385830	0.930	3085	-	-	-	-	-	-	249
11	385835	1.660	2159	-	-	-	-	-	-	192
12	385836	13.630	760	-	-	-	-	-	-	303
13	385818	3.550	2762	-	-	-	-	-	-	203
14	385821	3.490	2744	-	-	-	-	-	-	208
15	385846	0.550	2356	-	-	-	-	-	-	193
16	385856	0.270	2706	-	-	-	-	-	-	219
17	385867	0.890	2522	-	-	-	-	-	-	210
18	385876	0.160	2540	-	-	-	-	-	-	199
19	385891	0.130	2358	-	-	-	-	-	-	172
20	385907	0.360	3103	-	-	-	-	-	-	184
21	385911	0.092	4384	-	-	-	-	-	-	101
22	385925	0.230	1727	-	-	-	-	-	-	289
23	385933	0.110	1678	-	-	-	-	-	-	279
24	385938	0.034	1751	-	-	-	-	-	-	298
25	385946	0.044	1745	-	-	-	-	-	-	285

Results in ppm unless otherwise specified
- element not determined
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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	21 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	385954	0.430	4163	-	-	-	-	-	-	123
2	385957	0.022	1817	-	-	-	-	-	-	297
3	385964	1.410	2402	-	-	-	-	-	-	248
4	385975	0.011	4594	-	-	-	-	-	-	99
5	385985	0.420	2967	-	-	-	-	-	-	178
6	385995	0.260	2196	-	-	-	-	-	-	346
7	386112	0.079	2739	-	-	-	-	-	-	208
8	386114	13.600	1956	-	-	-	-	-	-	157
9	386118	1.780	2774	-	-	-	-	-	-	214
10	386103	0.300	1824	-	-	-	-	-	-	237
11	386256	-	1717	-	-	-	-	-	-	213
12	386259	-	1819	-	-	-	-	-	-	226
13	386260	-	1607	-	-	-	-	-	-	220
14	386261	-	1390	-	-	-	-	-	-	196
15	386262	-	1446	-	-	-	-	-	-	204
16	386263	-	1483	-	-	-	-	-	-	201
17	385918	-	3278	-	-	-	-	-	-	183
18	385921	-	2729	-	-	-	-	-	-	204
19										
20										
21										
22										
23										
24	DETECTION	0.005	50	3	0.01	2	2	0.5	50	5
25	UNITS	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	22 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387751	<1	-	-	-	-	-	-	-	-
2	387752	<1	-	-	-	-	-	-	-	-
3	387753	<1	-	-	-	-	-	-	-	-
4	387754	<1	-	-	-	-	-	-	-	-
5	387755	<1	-	-	-	-	-	-	-	-
6	387756	<1	-	-	-	-	-	-	-	-
7	387757	<1	-	-	-	-	-	-	-	-
8	387758	<1	-	-	-	-	-	-	-	-
9	387759	<1	-	-	-	-	-	-	-	-
10	387760	<1	-	-	-	-	-	-	-	-
11	387761	<1	-	-	-	-	-	-	-	-
12	387762	<1	-	-	-	-	-	-	-	-
13	387763	<1	-	-	-	-	-	-	-	-
14	387764	<1	-	-	-	-	-	-	-	-
15	387765	<1	-	-	-	-	-	-	-	-
16	387766	<1	-	-	-	-	-	-	-	-
17	387767	<1	-	-	-	-	-	-	-	-
18	387768	1	-	-	-	-	-	-	-	-
19	387769	<1	-	-	-	-	-	-	-	-
20	387770	1	-	-	-	-	-	-	-	-
21	387771	<1	-	-	-	-	-	-	-	-
22	387772	<1	-	-	-	-	-	-	-	-
23	387773	<1	-	-	-	-	-	-	-	-
24	387774	<1	-	-	-	-	-	-	-	-
25	387775	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	23 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387776	<1	-	-	-	-	-	-	-	-
2	387777	1	-	-	-	-	-	-	-	-
3	387778	<1	-	-	-	-	-	-	-	-
4	387779	<1	-	-	-	-	-	-	-	-
5	387780	<1	-	-	-	-	-	-	-	-
6	387781	<1	-	-	-	-	-	-	-	-
7	387782	<1	-	-	-	-	-	-	-	-
8	387783	1	-	-	-	-	-	-	-	-
9	387784	1	-	-	-	-	-	-	-	-
10	387785	1	-	-	-	-	-	-	-	-
11	387786	<1	-	-	-	-	-	-	-	-
12	387787	<1	-	-	-	-	-	-	-	-
13	387788	1	-	-	-	-	-	-	-	-
14	387789	1	-	-	-	-	-	-	-	-
15	387790	1	-	-	-	-	-	-	-	-
16	387791	<1	-	-	-	-	-	-	-	-
17	387792	1	-	-	-	-	-	-	-	-
18	387793	<1	-	-	-	-	-	-	-	-
19	387794	<1	-	-	-	-	-	-	-	-
20	387795	<1	-	-	-	-	-	-	-	-
21	387796	<1	-	-	-	-	-	-	-	-
22	387797	<1	-	-	-	-	-	-	-	-
23	387798	<1	-	-	-	-	-	-	-	-
24	387799	<1	-	-	-	-	-	-	-	-
25	387800	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	24 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387801	<1	-	-	-	-	-	-	-	-
2	387802	<1	-	-	-	-	-	-	-	-
3	387803	<1	-	-	-	-	-	-	-	-
4	387804	<1	-	-	-	-	-	-	-	-
5	387805	<1	-	-	-	-	-	-	-	-
6	387806	<1	-	-	-	-	-	-	-	-
7	387807	<1	-	-	-	-	-	-	-	-
8	387808	<1	-	-	-	-	-	-	-	-
9	387809	<1	-	-	-	-	-	-	-	-
10	387810	<1	-	-	-	-	-	-	-	-
11	387811	<1	-	-	-	-	-	-	-	-
12	387812	<1	-	-	-	-	-	-	-	-
13	387813	<1	-	-	-	-	-	-	-	-
14	387814	<1	-	-	-	-	-	-	-	-
15	387815	1	-	-	-	-	-	-	-	-
16	387816	<1	-	-	-	-	-	-	-	-
17	387817	<1	-	-	-	-	-	-	-	-
18	387818	<1	-	-	-	-	-	-	-	-
19	387819	1	-	-	-	-	-	-	-	-
20	387820	<1	-	-	-	-	-	-	-	-
21	387821	<1	-	-	-	-	-	-	-	-
22	387822	<1	-	-	-	-	-	-	-	-
23	387823	<1	-	-	-	-	-	-	-	-
24	387824	<1	-	-	-	-	-	-	-	-
25	387825	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390608

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	25 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387826	<1	-	-	-	-	-	-	-	-
2	387827	<1	-	-	-	-	-	-	-	-
3	387828	<1	-	-	-	-	-	-	-	-
4	387829	<1	-	-	-	-	-	-	-	-
5	387830	<1	-	-	-	-	-	-	-	-
6	387831	<1	-	-	-	-	-	-	-	-
7	387832	<1	-	-	-	-	-	-	-	-
8	387833	<1	-	-	-	-	-	-	-	-
9	387834	<1	-	-	-	-	-	-	-	-
10	387835	<1	-	-	-	-	-	-	-	-
11	387836	<1	-	-	-	-	-	-	-	-
12	387837	<1	-	-	-	-	-	-	-	-
13	387838	<1	-	-	-	-	-	-	-	-
14	387839	<1	-	-	-	-	-	-	-	-
15	387840	<1	-	-	-	-	-	-	-	-
16	387841	<1	-	-	-	-	-	-	-	-
17	387842	<1	-	-	-	-	-	-	-	-
18	387843	<1	-	-	-	-	-	-	-	-
19	387844	<1	-	-	-	-	-	-	-	-
20	387845	<1	-	-	-	-	-	-	-	-
21	387846	<1	-	-	-	-	-	-	-	-
22	387847	<1	-	-	-	-	-	-	-	-
23	387848	<1	-	-	-	-	-	-	-	-
24	387849	<1	-	-	-	-	-	-	-	-
25	387850	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390609

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	26 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387851	<1	-	-	-	-	-	-	-	-
2	387852	<1	-	-	-	-	-	-	-	-
3	387853	<1	-	-	-	-	-	-	-	-
4	387854	<1	-	-	-	-	-	-	-	-
5	387855	<1	-	-	-	-	-	-	-	-
6	387856	<1	-	-	-	-	-	-	-	-
7	387857	<1	-	-	-	-	-	-	-	-
8	387858	<1	-	-	-	-	-	-	-	-
9	387859	<1	-	-	-	-	-	-	-	-
10	387860	<1	-	-	-	-	-	-	-	-
11	387861	<1	-	-	-	-	-	-	-	-
12	387862	<1	-	-	-	-	-	-	-	-
13	387863	<1	-	-	-	-	-	-	-	-
14	387864	<1	-	-	-	-	-	-	-	-
15	387865	<1	-	-	-	-	-	-	-	-
16	387866	<1	-	-	-	-	-	-	-	-
17	387867	<1	-	-	-	-	-	-	-	-
18	387868	<1	-	-	-	-	-	-	-	-
19	387869	<1	-	-	-	-	-	-	-	-
20	387870	<1	-	-	-	-	-	-	-	-
21	387871	<1	-	-	-	-	-	-	-	-
22	387872	<1	-	-	-	-	-	-	-	-
23	387873	<1	-	-	-	-	-	-	-	-
24	387874	<1	-	-	-	-	-	-	-	-
25	387875	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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390610

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	27 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387876	<1	-	-	-	-	-	-	-	-
2	387877	<1	-	-	-	-	-	-	-	-
3	387878	<1	-	-	-	-	-	-	-	-
4	387879	<1	-	-	-	-	-	-	-	-
5	387880	<1	-	-	-	-	-	-	-	-
6	387881	<1	-	-	-	-	-	-	-	-
7	387882	<1	-	-	-	-	-	-	-	-
8	387883	<1	-	-	-	-	-	-	-	-
9	387884	<1	-	-	-	-	-	-	-	-
10	387885	<1	-	-	-	-	-	-	-	-
11	387886	<1	-	-	-	-	-	-	-	-
12	387887	<1	-	-	-	-	-	-	-	-
13	387888	<1	-	-	-	-	-	-	-	-
14	387889	<1	-	-	-	-	-	-	-	-
15	387890	<1	-	-	-	-	-	-	-	-
16	387891	<1	-	-	-	-	-	-	-	-
17	387892	<1	-	-	-	-	-	-	-	-
18	387893	<1	-	-	-	-	-	-	-	-
19	387894	<1	-	-	-	-	-	-	-	-
20	387895	<1	-	-	-	-	-	-	-	-
21	387896	<1	-	-	-	-	-	-	-	-
22	387897	<1	-	-	-	-	-	-	-	-
23	387898	<1	-	-	-	-	-	-	-	-
24	387899	<1	-	-	-	-	-	-	-	-
25	387900	1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390611

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	28 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387901	<1	-	-	-	-	-	-	-	-
2	387902	<1	-	-	-	-	-	-	-	-
3	387903	<1	-	-	-	-	-	-	-	-
4	387904	<1	-	-	-	-	-	-	-	-
5	387905	<1	-	-	-	-	-	-	-	-
6	387906	<1	-	-	-	-	-	-	-	-
7	387907	<1	-	-	-	-	-	-	-	-
8	387908	<1	-	-	-	-	-	-	-	-
9	387909	<1	-	-	-	-	-	-	-	-
10	387910	<1	-	-	-	-	-	-	-	-
11	387911	<1	-	-	-	-	-	-	-	-
12	387912	<1	-	-	-	-	-	-	-	-
13	387913	<1	-	-	-	-	-	-	-	-
14	387914	<1	-	-	-	-	-	-	-	-
15	387915	<1	-	-	-	-	-	-	-	-
16	387916	1	-	-	-	-	-	-	-	-
17	387917	<1	-	-	-	-	-	-	-	-
18	387918	<1	-	-	-	-	-	-	-	-
19	387919	<1	-	-	-	-	-	-	-	-
20	387920	<1	-	-	-	-	-	-	-	-
21	387921	<1	-	-	-	-	-	-	-	-
22	387922	<1	-	-	-	-	-	-	-	-
23	387923	<1	-	-	-	-	-	-	-	-
24	387924	<1	-	-	-	-	-	-	-	-
25	387925	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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390612

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 29	OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387926	<1	-	-	-	-	-	-	-	-
2	387927	<1	-	-	-	-	-	-	-	-
3	387928	<1	-	-	-	-	-	-	-	-
4	387929	1	-	-	-	-	-	-	-	-
5	387930	<1	-	-	-	-	-	-	-	-
6	387931	<1	-	-	-	-	-	-	-	-
7	387932	<1	-	-	-	-	-	-	-	-
8	387933	<1	-	-	-	-	-	-	-	-
9	387934	<1	-	-	-	-	-	-	-	-
10	387935	<1	-	-	-	-	-	-	-	-
11	387936	<1	-	-	-	-	-	-	-	-
12	387937	<1	-	-	-	-	-	-	-	-
13	387938	<1	-	-	-	-	-	-	-	-
14	387939	<1	-	-	-	-	-	-	-	-
15	387940	<1	-	-	-	-	-	-	-	-
16	387941	<1	-	-	-	-	-	-	-	-
17	387942	<1	-	-	-	-	-	-	-	-
18	387943	<1	-	-	-	-	-	-	-	-
19	387944	<1	-	-	-	-	-	-	-	-
20	387945	<1	-	-	-	-	-	-	-	-
21	387946	<1	-	-	-	-	-	-	-	-
22	387947	<1	-	-	-	-	-	-	-	-
23	387948	<1	-	-	-	-	-	-	-	-
24	387949	<1	-	-	-	-	-	-	-	-
25	387950	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390613

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	30 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
THOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387951	<1	-	-	-	-	-	-	-	-
2	387952	<1	-	-	-	-	-	-	-	-
3	387953	<1	-	-	-	-	-	-	-	-
4	387954	<1	-	-	-	-	-	-	-	-
5	387955	<1	-	-	-	-	-	-	-	-
6	387956	<1	-	-	-	-	-	-	-	-
7	387957	<1	-	-	-	-	-	-	-	-
8	387958	<1	-	-	-	-	-	-	-	-
9	387959	<1	-	-	-	-	-	-	-	-
10	387960	<1	-	-	-	-	-	-	-	-
11	387961	<1	-	-	-	-	-	-	-	-
12	387962	<1	-	-	-	-	-	-	-	-
13	387963	<1	-	-	-	-	-	-	-	-
14	387964	<1	-	-	-	-	-	-	-	-
15	387965	<1	-	-	-	-	-	-	-	-
16	387966	<1	-	-	-	-	-	-	-	-
17	387967	<1	-	-	-	-	-	-	-	-
18	387968	<1	-	-	-	-	-	-	-	-
19	387969	<1	-	-	-	-	-	-	-	-
20	387970	<1	-	-	-	-	-	-	-	-
21	387971	<1	-	-	-	-	-	-	-	-
22	387972	<1	-	-	-	-	-	-	-	-
23	387973	<1	-	-	-	-	-	-	-	-
24	387974	<1	-	-	-	-	-	-	-	-
25	387975	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
element not determined

IS = insufficient sample
SNR = sample not received

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390614

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	31 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
THOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387976	<1	-	-	-	-	-	-	-	-
2	387977	<1	-	-	-	-	-	-	-	-
3	387978	<1	-	-	-	-	-	-	-	-
4	387979	<1	-	-	-	-	-	-	-	-
5	387980	<1	-	-	-	-	-	-	-	-
6	387981	<1	-	-	-	-	-	-	-	-
7	387982	<1	-	-	-	-	-	-	-	-
8	387983	<1	-	-	-	-	-	-	-	-
9	387984	<1	-	-	-	-	-	-	-	-
10	387985	<1	-	-	-	-	-	-	-	-
11	387986	<1	-	-	-	-	-	-	-	-
12	387987	<1	-	-	-	-	-	-	-	-
13	387988	<1	-	-	-	-	-	-	-	-
14	387989	<1	-	-	-	-	-	-	-	-
15	387990	<1	-	-	-	-	-	-	-	-
16	387991	<1	-	-	-	-	-	-	-	-
17	387992	<1	-	-	-	-	-	-	-	-
18	387993	<1	-	-	-	-	-	-	-	-
19	387994	<1	-	-	-	-	-	-	-	-
20	387995	<1	-	-	-	-	-	-	-	-
21	387996	<1	-	-	-	-	-	-	-	-
22	387997	<1	-	-	-	-	-	-	-	-
23	387998	2	-	-	-	-	-	-	-	-
24	387999	<1	-	-	-	-	-	-	-	-
25	388000	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = Insufficient sample
SNR = sample not received

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390615

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	32 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388001	<1	-	-	-	-	-	-	-	-
2	388002	<1	-	-	-	-	-	-	-	-
3	388003	1	-	-	-	-	-	-	-	-
4	388004	<1	-	-	-	-	-	-	-	-
5	388005	<1	-	-	-	-	-	-	-	-
6	388006	<1	-	-	-	-	-	-	-	-
7	388007	<1	-	-	-	-	-	-	-	-
8	388008	<1	-	-	-	-	-	-	-	-
9	388009	<1	-	-	-	-	-	-	-	-
10	388010	<1	-	-	-	-	-	-	-	-
11	388011	<1	-	-	-	-	-	-	-	-
12	388012	<1	-	-	-	-	-	-	-	-
13	388013	<1	-	-	-	-	-	-	-	-
14	388014	<1	-	-	-	-	-	-	-	-
15	388015	<1	-	-	-	-	-	-	-	-
16	388016	<1	-	-	-	-	-	-	-	-
17	388017	<1	-	-	-	-	-	-	-	-
18	388018	<1	-	-	-	-	-	-	-	-
19	388019	<1	-	-	-	-	-	-	-	-
20	388020	<1	-	-	-	-	-	-	-	-
21	388021	<1	-	-	-	-	-	-	-	-
22	388022	<1	-	-	-	-	-	-	-	-
23	388023	<1	-	-	-	-	-	-	-	-
24	388024	<1	-	-	-	-	-	-	-	-
25	388025	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = Insufficient sample
SNR = sample not received

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390616

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	33 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
THOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388026	<1	-	-	-	-	-	-	-	-
2	388027	<1	-	-	-	-	-	-	-	-
3	388028	<1	-	-	-	-	-	-	-	-
4	388029	<1	-	-	-	-	-	-	-	-
5	388030	<1	-	-	-	-	-	-	-	-
6	388031	<1	-	-	-	-	-	-	-	-
7	388032	<1	-	-	-	-	-	-	-	-
8	388033	<1	-	-	-	-	-	-	-	-
9	388034	<1	-	-	-	-	-	-	-	-
10	388035	<1	-	-	-	-	-	-	-	-
11	388036	<1	-	-	-	-	-	-	-	-
12	388037	<1	-	-	-	-	-	-	-	-
13	388038	<1	-	-	-	-	-	-	-	-
14	388039	<1	-	-	-	-	-	-	-	-
15	388040	<1	-	-	-	-	-	-	-	-
16	388041	<1	-	-	-	-	-	-	-	-
17	388042	<1	-	-	-	-	-	-	-	-
18	388043	<1	-	-	-	-	-	-	-	-
19	388044	<1	-	-	-	-	-	-	-	-
20	388045	1	-	-	-	-	-	-	-	-
21	388046	<1	-	-	-	-	-	-	-	-
22	388047	<1	-	-	-	-	-	-	-	-
23	388048	<1	-	-	-	-	-	-	-	-
24	388049	<1	-	-	-	-	-	-	-	-
25	388050	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390617

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	34 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388051	<1	-	-	-	-	-	-	-	-
2	388052	<1	-	-	-	-	-	-	-	-
3	388053	<1	-	-	-	-	-	-	-	-
4	388054	<1	-	-	-	-	-	-	-	-
5	388055	<1	-	-	-	-	-	-	-	-
6	388056	<1	-	-	-	-	-	-	-	-
7	388057	<1	-	-	-	-	-	-	-	-
8	388058	<1	-	-	-	-	-	-	-	-
9	388059	<1	-	-	-	-	-	-	-	-
10	388060	<1	-	-	-	-	-	-	-	-
11	388061	<1	-	-	-	-	-	-	-	-
12	388062	<1	-	-	-	-	-	-	-	-
13	388063	<1	-	-	-	-	-	-	-	-
14	388064	<1	-	-	-	-	-	-	-	-
15	388065	<1	-	-	-	-	-	-	-	-
16	388066	<1	-	-	-	-	-	-	-	-
17	388067	<1	-	-	-	-	-	-	-	-
18	388068	<1	-	-	-	-	-	-	-	-
19	388069	<1	-	-	-	-	-	-	-	-
20	388070	<1	-	-	-	-	-	-	-	-
21	388071	<1	-	-	-	-	-	-	-	-
22	388072	<1	-	-	-	-	-	-	-	-
23	388073	<1	-	-	-	-	-	-	-	-
24	388074	<1	-	-	-	-	-	-	-	-
25	388075	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390618

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	35 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388076	<1	-	-	-	-	-	-	-	-
2	388077	<1	-	-	-	-	-	-	-	-
3	388078	<1	-	-	-	-	-	-	-	-
4	388079	<1	-	-	-	-	-	-	-	-
5	388080	<1	-	-	-	-	-	-	-	-
6	388081	<1	-	-	-	-	-	-	-	-
7	388082	<1	-	-	-	-	-	-	-	-
8	388083	<1	-	-	-	-	-	-	-	-
9	388084	<1	-	-	-	-	-	-	-	-
10	388085	<1	-	-	-	-	-	-	-	-
11	388086	<1	-	-	-	-	-	-	-	-
12	388087	<1	-	-	-	-	-	-	-	-
13	388088	<1	-	-	-	-	-	-	-	-
14	388089	<1	-	-	-	-	-	-	-	-
15	388090	<1	-	-	-	-	-	-	-	-
16	388091	<1	-	-	-	-	-	-	-	-
17	388092	<1	-	-	-	-	-	-	-	-
18	388093	<1	-	-	-	-	-	-	-	-
19	388094	<1	-	-	-	-	-	-	-	-
20	388095	<1	-	-	-	-	-	-	-	-
21	388096	<1	-	-	-	-	-	-	-	-
22	388097	<1	-	-	-	-	-	-	-	-
23	388098	<1	-	-	-	-	-	-	-	-
24	388099	<1	-	-	-	-	-	-	-	-
25	388100	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREF:X	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	36 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388101	<1	-	-	-	-	-	-	-	-
2	388102	<1	-	-	-	-	-	-	-	-
3	388103	<1	-	-	-	-	-	-	-	-
4	388104	<1	-	-	-	-	-	-	-	-
5	388105	<1	-	-	-	-	-	-	-	-
6	388106	<1	-	-	-	-	-	-	-	-
7	388107	<1	-	-	-	-	-	-	-	-
8	388108	<1	-	-	-	-	-	-	-	-
9	388109	<1	-	-	-	-	-	-	-	-
10	388110	<1	-	-	-	-	-	-	-	-
11	388111	<1	-	-	-	-	-	-	-	-
12	388112	<1	-	-	-	-	-	-	-	-
13	388113	<1	-	-	-	-	-	-	-	-
14	388114	<1	-	-	-	-	-	-	-	-
15	388115	<1	-	-	-	-	-	-	-	-
16	388116	<1	-	-	-	-	-	-	-	-
17	388117	<1	-	-	-	-	-	-	-	-
18	388118	<1	-	-	-	-	-	-	-	-
19	388119	1	-	-	-	-	-	-	-	-
20	388120	<1	-	-	-	-	-	-	-	-
21	388121	<1	-	-	-	-	-	-	-	-
22	388122	<1	-	-	-	-	-	-	-	-
23	388123	<1	-	-	-	-	-	-	-	-
24	388124	<1	-	-	-	-	-	-	-	-
25	388125	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
Elements not determined: -

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	37 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388126	<1	-	-	-	-	-	-	-	-
2	388127	<1	-	-	-	-	-	-	-	-
3	388128	<1	-	-	-	-	-	-	-	-
4	388129	<1	-	-	-	-	-	-	-	-
5	388130	<1	-	-	-	-	-	-	-	-
6	388131	<1	-	-	-	-	-	-	-	-
7	388132	<1	-	-	-	-	-	-	-	-
8	388133	<1	-	-	-	-	-	-	-	-
9	388134	<1	-	-	-	-	-	-	-	-
10	388135	<1	-	-	-	-	-	-	-	-
11	388136	<1	-	-	-	-	-	-	-	-
12	388137	<1	-	-	-	-	-	-	-	-
13	388138	<1	-	-	-	-	-	-	-	-
14	388139	<1	-	-	-	-	-	-	-	-
15	388140	<1	-	-	-	-	-	-	-	-
16	388141	<1	-	-	-	-	-	-	-	-
17	388142	<1	-	-	-	-	-	-	-	-
18	388143	<1	-	-	-	-	-	-	-	-
19	388144	<1	-	-	-	-	-	-	-	-
20	388145	<1	-	-	-	-	-	-	-	-
21	388146	<1	-	-	-	-	-	-	-	-
22	388147	<1	-	-	-	-	-	-	-	-
23	388148	<1	-	-	-	-	-	-	-	-
24	388149	<1	-	-	-	-	-	-	-	-
25	388150	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	38 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
THOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388151	<1	-	-	-	-	-	-	-	-
2	388152	<1	-	-	-	-	-	-	-	-
3	388153	<1	-	-	-	-	-	-	-	-
4	388154	<1	-	-	-	-	-	-	-	-
5	388155	<1	-	-	-	-	-	-	-	-
6	388156	<1	-	-	-	-	-	-	-	-
7	388157	<1	-	-	-	-	-	-	-	-
8	388158	<1	-	-	-	-	-	-	-	-
9	388159	<1	-	-	-	-	-	-	-	-
10	388160	<1	-	-	-	-	-	-	-	-
11	386251	<1	1416	43.50	70.40	8.40	28.3	4.3	1.21	4.2
12	386252	<1	1449	63.10	106.00	11.50	39.0	6.0	1.42	6.2
13	386253	<1	1558	61.10	104.00	11.40	38.0	5.9	1.45	5.9
14	386254	1	1558	57.10	100.00	11.40	38.5	6.1	1.51	6.0
15	386255	<1	940	49.80	85.80	9.39	32.8	5.2	1.29	5.1
16	386256	<1	843	47.30	78.90	8.92	30.7	5.1	1.24	5.0
17	386257	<1	1300	49.70	83.90	9.21	31.3	5.1	1.21	5.1
18	386191	<1	-	-	-	-	-	-	-	-
19	386192	<1	-	-	-	-	-	-	-	-
20	386193	<1	-	-	-	-	-	-	-	-
21	386194	<1	-	-	-	-	-	-	-	-
22	386195	<1	-	-	-	-	-	-	-	-
23	386196	<1	-	-	-	-	-	-	-	-
24	386197	<1	-	-	-	-	-	-	-	-
25	386198	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
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390622

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	39 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386199	<1	-	-	-	-	-	-	-	-
2	386200	<1	-	-	-	-	-	-	-	-
3	386201	<1	-	-	-	-	-	-	-	-
4	386202	<1	-	-	-	-	-	-	-	-
5	386203	<1	-	-	-	-	-	-	-	-
6	386204	<1	-	-	-	-	-	-	-	-
7	386205	<1	-	-	-	-	-	-	-	-
8	386206	<1	-	-	-	-	-	-	-	-
9	386207	<1	-	-	-	-	-	-	-	-
10	386208	<1	-	-	-	-	-	-	-	-
11	386209	<1	-	-	-	-	-	-	-	-
12	386210	<1	-	-	-	-	-	-	-	-
13	386211	<1	-	-	-	-	-	-	-	-
14	386212	<1	-	-	-	-	-	-	-	-
15	386213	<1	-	-	-	-	-	-	-	-
16	386214	<1	-	-	-	-	-	-	-	-
17	386215	<1	-	-	-	-	-	-	-	-
18	386216	<1	-	-	-	-	-	-	-	-
19	386217	<1	-	-	-	-	-	-	-	-
20	386218	<1	-	-	-	-	-	-	-	-
21	386219	<1	-	-	-	-	-	-	-	-
22	386220	<1	-	-	-	-	-	-	-	-
23	386221	<1	-	-	-	-	-	-	-	-
24	386222	<1	-	-	-	-	-	-	-	-
25	386223	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390623

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	40 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386224	<1	-	-	-	-	-	-	-	-
2	386225	<1	-	-	-	-	-	-	-	-
3	386226	<1	-	-	-	-	-	-	-	-
4	386227	<1	-	-	-	-	-	-	-	-
5	386228	<1	-	-	-	-	-	-	-	-
6	386229	<1	-	-	-	-	-	-	-	-
7	386230	<1	-	-	-	-	-	-	-	-
8	386231	<1	-	-	-	-	-	-	-	-
9	386232	<1	-	-	-	-	-	-	-	-
10	386233	<1	-	-	-	-	-	-	-	-
11	386234	<1	-	-	-	-	-	-	-	-
12	386235	<1	-	-	-	-	-	-	-	-
13	386236	<1	-	-	-	-	-	-	-	-
14	386237	<1	-	-	-	-	-	-	-	-
15	386238	<1	-	-	-	-	-	-	-	-
16	386138	<1	-	-	-	-	-	-	-	-
17	386139	<1	-	-	-	-	-	-	-	-
18	386140	<1	-	-	-	-	-	-	-	-
19	386141	<1	-	-	-	-	-	-	-	-
20	386145	<1	-	-	-	-	-	-	-	-
21	386146	<1	-	-	-	-	-	-	-	-
22	386147	<1	-	-	-	-	-	-	-	-
23	386148	<1	-	-	-	-	-	-	-	-
24	386156	<1	-	-	-	-	-	-	-	-
25	386157	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390624

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	41 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386158	<1	-	-	-	-	-	-	-	-
2	386159	<1	-	-	-	-	-	-	-	-
3	386264	-	854	-	-	-	-	-	-	-
4	386265	-	272	-	-	-	-	-	-	-
5	386266	-	1675	-	-	-	-	-	-	-
6	386267	-	525	-	-	-	-	-	-	-
7	386268	-	506	-	-	-	-	-	-	-
8	386269	-	531	-	-	-	-	-	-	-
9	384051	-	1309	-	-	-	-	-	-	-
10	385830	-	1399	-	-	-	-	-	-	-
11	385835	-	408	-	-	-	-	-	-	-
12	385836	-	218	-	-	-	-	-	-	-
13	385818	-	1562	-	-	-	-	-	-	-
14	385821	-	1462	-	-	-	-	-	-	-
15	385846	-	624	-	-	-	-	-	-	-
16	385856	-	485	-	-	-	-	-	-	-
17	385867	-	510	-	-	-	-	-	-	-
18	385876	-	412	-	-	-	-	-	-	-
19	385891	-	566	-	-	-	-	-	-	-
20	385907	-	1909	-	-	-	-	-	-	-
21	385911	-	502	-	-	-	-	-	-	-
22	385925	-	397	-	-	-	-	-	-	-
23	385933	-	364	-	-	-	-	-	-	-
24	385938	-	429	-	-	-	-	-	-	-
25	385946	-	590	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390625

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	42 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	385954	-	487	-	-	-	-	-	-	-
2	385957	-	633	-	-	-	-	-	-	-
3	385964	-	598	-	-	-	-	-	-	-
4	385975	-	680	-	-	-	-	-	-	-
5	385985	-	891	-	-	-	-	-	-	-
6	385995	-	986	-	-	-	-	-	-	-
7	386112	-	755	-	-	-	-	-	-	-
8	386114	-	552	-	-	-	-	-	-	-
9	386118	-	772	-	-	-	-	-	-	-
10	386103	-	236	-	-	-	-	-	-	-
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	0.05	0.05	0.05	0.1	0.1	0.05	0.1
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	43 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387751	-	-	-	0.002	-	10	-	-	-
2	387752	-	-	-	0.001	-	4	-	-	-
3	387753	-	-	-	0.001	-	8	-	-	-
4	387754	-	-	-	<0.001	-	<3	-	-	-
5	387755	-	-	-	<0.001	-	<3	-	-	-
6	387756	-	-	-	<0.001	-	<3	-	-	-
7	387757	-	-	-	<0.001	-	5	-	-	-
8	387758	-	-	-	<0.001	-	6	-	-	-
9	387759	-	-	-	<0.001	-	5	-	-	-
10	387760	-	-	-	<0.001	-	7	-	-	-
11	387761	-	-	-	0.001	-	4	-	-	-
12	387762	-	-	-	<0.001	-	3	-	-	-
13	387763	-	-	-	<0.001	-	<3	-	0.001	-
14	387764	-	-	-	<0.001	-	5	-	-	-
15	387765	-	-	-	<0.001	-	9	-	-	-
16	387766	-	-	-	<0.001	-	<3	<0.001	-	-
17	387767	-	-	-	0.001	-	7	-	-	-
18	387768	-	-	-	0.001	-	8	-	-	-
19	387769	-	-	-	<0.001	-	<3	-	-	-
20	387770	-	-	-	<0.001	-	<3	-	-	-
21	387771	-	-	-	<0.001	-	8	-	-	-
22	387772	-	-	-	0.001	-	15	-	-	-
23	387773	-	-	-	0.001	-	11	-	-	-
24	387774	-	-	-	<0.001	-	<3	-	-	-
25	387775	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	44 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387776	-	-	-	<0.001	-	7	-	-	-
2	387777	-	-	-	<0.001	-	6	-	-	-
3	387778	-	-	-	<0.001	-	10	-	-	-
4	387779	-	-	-	<0.001	-	17	-	-	-
5	387780	-	-	-	<0.001	-	15	-	-	-
6	387781	-	-	-	<0.001	-	6	-	-	-
7	387782	-	-	-	<0.001	-	7	-	-	-
8	387783	-	-	-	<0.001	-	5	-	-	-
9	387784	-	-	-	<0.001	-	11	-	-	-
10	387785	-	-	-	<0.001	-	13	-	-	-
11	387786	-	-	-	<0.001	-	14	<0.001	-	-
12	387787	-	-	-	<0.001	-	<3	-	-	-
13	387788	-	-	-	<0.001	-	<3	-	-	-
14	387789	-	-	-	0.002	-	10	-	-	-
15	387790	-	-	-	0.001	-	25	-	-	-
16	387791	-	-	-	0.001	-	5	-	-	-
17	387792	-	-	-	0.001	-	<3	-	-	-
18	387793	-	-	-	0.002	-	<3	-	-	-
19	387794	-	-	-	0.001	-	4	-	-	-
20	387795	-	-	-	<0.001	-	6	-	-	-
21	387796	-	-	-	0.001	-	<3	-	-	-
22	387797	-	-	-	0.001	-	<3	-	-	-
23	387798	-	-	-	<0.001	-	<3	-	-	-
24	387799	-	-	-	<0.001	-	<3	-	-	-
25	387800	-	-	-	<0.001	-	<3	-		-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	45 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387801	-	-	-	<0.001	-	<3	-	-	-
2	387802	-	-	-	<0.001	-	<3	-	-	-
3	387803	-	-	-	<0.001	-	10	-	-	-
4	387804	-	-	-	<0.001	-	10	-	-	-
5	387805	-	-	-	0.001	-	7	-	-	-
6	387806	-	-	-	0.001	-	<3	-	-	-
7	387807	-	-	-	0.002	-	13	-	-	-
8	387808	-	-	-	<0.001	-	11	-	-	-
9	387809	-	-	-	0.001	-	6	-	-	-
10	387810	-	-	-	0.001	-	6	-	-	-
11	387811	-	-	-	0.001	-	<3	-	-	-
12	387812	-	-	-	<0.001	-	9	-	-	-
13	387813	-	-	-	<0.001	-	3	-	-	-
14	387814	-	-	-	<0.001	-	11	-	-	-
15	387815	-	-	-	0.001	-	8	-	-	-
16	387816	-	-	-	<0.001	-	<3	-	-	-
17	387817	-	-	-	<0.001	-	5	-	-	-
18	387818	-	-	-	<0.001	-	<3	-	-	-
19	387819	-	-	-	0.001	-	3	-	-	-
20	387820	-	-	-	<0.001	-	<3	-	-	-
21	387821	-	-	-	<0.001	-	<3	-	-	-
22	387822	-	-	-	<0.001	-	<3	-	-	-
23	387823	-	-	-	<0.001	-	8	-	-	-
24	387824	-	-	-	0.001	-	4	-	-	-
25	387825	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	46 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387826	-	-	-	<0.001	-	<3	-	-	-
2	387827	-	-	-	<0.001	-	<3	-	-	-
3	387828	-	-	-	<0.001	-	3	<0.001	-	-
4	387829	-	-	-	<0.001	-	5	-	-	-
5	387830	-	-	-	<0.001	-	<3	-	-	-
6	387831	-	-	-	<0.001	-	7	-	-	-
7	387832	-	-	-	0.001	-	<3	-	-	-
8	387833	-	-	-	<0.001	-	5	-	-	-
9	387834	-	-	-	0.001	-	<3	-	-	-
10	387835	-	-	-	<0.001	-	8	<0.001	-	-
11	387836	-	-	-	<0.001	-	<3	-	-	-
12	387837	-	-	-	0.001	-	<3	-	-	-
13	387838	-	-	-	<0.001	-	3	-	-	-
14	387839	-	-	-	<0.001	-	7	-	-	-
15	387840	-	-	-	<0.001	-	8	-	-	-
16	387841	-	-	-	<0.001	-	4	-	-	-
17	387842	-	-	-	<0.001	-	<3	-	-	-
18	387843	-	-	-	0.001	-	<3	-	-	-
19	387844	-	-	-	0.002	-	<3	0.001	-	-
20	387845	-	-	-	<0.001	-	<3	-	-	-
21	387846	-	-	-	<0.001	-	7	-	-	-
22	387847	-	-	-	0.001	-	6	-	-	-
23	387848	-	-	-	0.001	-	3	-	-	-
24	387849	-	-	-	0.001	-	5	-	-	-
25	387850	-	-	-	0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	47 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387851	-	-	-	<0.001	-	<3	-	-	-
2	387852	-	-	-	0.002	-	3	-	-	-
3	387853	-	-	-	<0.001	-	5	-	-	-
4	387854	-	-	-	0.001	-	<3	-	-	-
5	387855	-	-	-	0.001	-	7	-	-	-
6	387856	-	-	-	0.001	-	5	-	-	-
7	387857	-	-	-	0.001	-	7	-	-	-
8	387858	-	-	-	0.001	-	<3	-	-	-
9	387859	-	-	-	<0.001	-	<3	-	-	-
10	387860	-	-	-	<0.001	-	5	-	-	-
11	387861	-	-	-	<0.001	-	5	-	-	-
12	387862	-	-	-	<0.001	-	3	-	-	-
13	387863	-	-	-	0.001	-	<3	-	-	-
14	387864	-	-	-	<0.001	-	6	-	-	-
15	387865	-	-	-	<0.001	-	5	-	-	-
16	387866	-	-	-	<0.001	-	8	-	-	-
17	387867	-	-	-	<0.001	-	7	-	-	-
18	387868	-	-	-	0.001	-	6	-	-	-
19	387869	-	-	-	0.001	-	50	0.001	-	-
20	387870	-	-	-	0.001	-	5	-	-	-
21	387871	-	-	-	0.001	-	<3	-	-	-
22	387872	-	-	-	0.001	-	<3	-	-	-
23	387873	-	-	-	<0.001	-	<3	-	-	-
24	387874	-	-	-	0.002	-	5	-	-	-
25	387875	-	-	-	<0.001	-	6	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	48 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387876	-	-	-	<0.001	-	<3	-	-	-
2	387877	-	-	-	0.001	-	16	-	-	-
3	387878	-	-	-	0.001	-	7	-	-	-
4	387879	-	-	-	0.001	-	17	-	-	-
5	387880	-	-	-	<0.001	-	21	-	-	-
6	387881	-	-	-	0.001	-	10	-	-	-
7	387882	-	-	-	0.003	-	7	-	-	-
8	387883	-	-	-	0.004	-	6	-	-	-
9	387884	-	-	-	0.001	-	10	-	-	-
10	387885	-	-	-	0.001	-	21	-	-	-
11	387886	-	-	-	<0.001	-	12	-	-	-
12	387887	-	-	-	0.001	-	8	-	-	-
13	387888	-	-	-	<0.001	-	<3	-	-	-
14	387889	-	-	-	0.002	-	8	-	-	-
15	387890	-	-	-	0.001	-	7	-	-	-
16	387891	-	-	-	0.002	-	7	-	-	-
17	387892	-	-	-	0.002	-	10	-	-	-
18	387893	-	-	-	0.003	-	15	-	-	-
19	387894	-	-	-	0.001	-	10	-	-	-
20	387895	-	-	-	0.005	-	14	-	-	-
21	387896	-	-	-	0.001	-	10	-	-	-
22	387897	-	-	-	<0.001	-	5	-	-	-
23	387898	-	-	-	<0.001	-	<3	-	-	-
24	387899	-	-	-	<0.001	-	<3	-	-	-
25	387900	-	-	-	<0.001	-	3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390632

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	49 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387901	-	-	-	<0.001	-	4	-	-	-
2	387902	-	-	-	<0.001	-	9	-	-	-
3	387903	-	-	-	0.001	-	8	-	-	-
4	387904	-	-	-	0.001	-	<3	-	-	-
5	387905	-	-	-	<0.001	-	<3	-	-	-
6	387906	-	-	-	<0.001	-	4	-	-	-
7	387907	-	-	-	<0.001	-	<3	-	-	-
8	387908	-	-	-	0.001	-	<3	-	-	-
9	387909	-	-	-	<0.001	-	<3	-	-	-
10	387910	-	-	-	0.001	-	6	-	-	-
11	387911	-	-	-	<0.001	-	4	-	-	-
12	387912	-	-	-	0.001	-	5	0.001	-	-
13	387913	-	-	-	0.004	-	9	-	-	-
14	387914	-	-	-	0.001	-	7	-	-	-
15	387915	-	-	-	0.001	-	18	-	-	-
16	387916	-	-	-	<0.001	-	13	-	-	-
17	387917	-	-	-	<0.001	-	7	-	-	-
18	387918	-	-	-	<0.001	-	6	-	-	-
19	387919	-	-	-	<0.001	-	36	-	-	-
20	387920	-	-	-	<0.001	-	7	-	-	-
21	387921	-	-	-	<0.001	-	<3	-	-	-
22	387922	-	-	-	0.001	-	<3	-	-	-
23	387923	-	-	-	<0.001	-	3	<0.001	-	-
24	387924	-	-	-	0.001	-	5	-	-	-
25	387925	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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390633

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	50 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387926	-	-	-	<0.001	-	7	-	-	-
2	387927	-	-	-	<0.001	-	6	-	-	-
3	387928	-	-	-	<0.001	-	9	-	-	-
4	387929	-	-	-	0.003	-	14	-	-	-
5	387930	-	-	-	0.001	-	9	-	-	-
6	387931	-	-	-	0.001	-	7	-	-	-
7	387932	-	-	-	0.001	-	14	-	-	-
8	387933	-	-	-	<0.001	-	7	-	-	-
9	387934	-	-	-	<0.001	-	<3	-	-	-
10	387935	-	-	-	0.003	-	<3	-	-	-
11	387936	-	-	-	<0.001	-	<3	-	-	-
12	387937	-	-	-	<0.001	-	<3	-	-	-
13	387938	-	-	-	<0.001	-	<3	-	-	-
14	387939	-	-	-	<0.001	-	3	-	-	-
15	387940	-	-	-	<0.001	-	8	-	-	-
16	387941	-	-	-	<0.001	-	3	<0.001	-	-
17	387942	-	-	-	<0.001	-	4	-	-	-
18	387943	-	-	-	<0.001	-	<3	-	-	-
19	387944	-	-	-	<0.001	-	<3	-	-	-
20	387945	-	-	-	<0.001	-	4	-	-	-
21	387946	-	-	-	<0.001	-	<3	-	-	-
22	387947	-	-	-	<0.001	-	6	-	-	-
23	387948	-	-	-	<0.001	-	<3	-	-	-
24	387949	-	-	-	<0.001	-	5	-	-	-
25	387950	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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390634

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	51 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387951	-	-	-	<0.001	-	6	-	-	-
2	387952	-	-	-	<0.001	-	7	-	-	-
3	387953	-	-	-	<0.001	-	22	-	-	-
4	387954	-	-	-	<0.001	-	5	-	-	-
5	387955	-	-	-	<0.001	-	<3	-	-	-
6	387956	-	-	-	<0.001	-	6	-	-	-
7	387957	-	-	-	<0.001	-	<3	-	-	-
8	387958	-	-	-	<0.001	-	<3	-	-	-
9	387959	-	-	-	<0.001	-	5	-	-	-
10	387960	-	-	-	0.001	-	10	-	-	-
11	387961	-	-	-	<0.001	-	3	-	-	-
12	387962	-	-	-	<0.001	-	7	-	-	-
13	387963	-	-	-	0.002	-	10	-	-	-
14	387964	-	-	-	0.002	-	9	-	-	-
15	387965	-	-	-	<0.001	-	10	<0.001	-	-
16	387966	-	-	-	<0.001	-	10	-	-	-
17	387967	-	-	-	<0.001	-	13	-	-	-
18	387968	-	-	-	<0.001	-	15	-	-	-
19	387969	-	-	-	<0.001	-	3	-	-	-
20	387970	-	-	-	<0.001	-	8	-	-	-
21	387971	-	-	-	<0.001	-	8	-	-	-
22	387972	-	-	-	<0.001	-	<3	-	-	-
23	387973	-	-	-	0.002	-	4	-	-	-
24	387974	-	-	-	0.002	-	10	-	-	-
25	387975	-	-	-	0.002	-	9	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 52	OF 66

METHOD	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387976	-	-	-	<0.001	-	<3	-	-	-
2	387977	-	-	-	0.002	-	4	-	-	-
3	387978	-	-	-	<0.001	-	3	-	-	-
4	387979	-	-	-	<0.001	-	5	-	-	-
5	387980	-	-	-	<0.001	-	5	-	-	-
6	387981	-	-	-	<0.001	-	5	-	-	-
7	387982	-	-	-	<0.001	-	9	-	-	-
8	387983	-	-	-	<0.001	-	10	-	-	-
9	387984	-	-	-	<0.001	-	13	-	-	-
10	387985	-	-	-	<0.001	-	5	-	-	-
11	387986	-	-	-	<0.001	-	11	-	-	-
12	387987	-	-	-	<0.001	-	8	-	-	-
13	387988	-	-	-	<0.001	-	8	-	-	-
14	387989	-	-	-	<0.001	-	4	<0.001	-	-
15	387990	-	-	-	<0.001	-	<3	-	-	-
16	387991	-	-	-	<0.001	-	4	<0.001	-	-
17	387992	-	-	-	<0.001	-	4	-	-	-
18	387993	-	-	-	<0.001	-	7	-	-	-
19	387994	-	-	-	<0.001	-	6	-	-	-
20	387995	-	-	-	<0.001	-	4	-	-	-
21	387996	-	-	-	<0.001	-	7	-	-	-
22	387997	-	-	-	<0.001	-	6	-	-	-
23	387998	-	-	-	0.001	-	<3	-	-	-
24	387999	-	-	-	0.002	-	12	-	-	-
25	388000	-	-	-	<0.001	-	12	-		-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 53	OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388001	-	-	-	0.002	-	10	-	-	-
2	388002	-	-	-	0.001	-	10	-	-	-
3	388003	-	-	-	0.001	-	13	-	-	-
4	388004	-	-	-	<0.001	-	5	-	-	-
5	388005	-	-	-	<0.001	-	9	-	-	-
6	388006	-	-	-	<0.001	-	7	-	-	-
7	388007	-	-	-	<0.001	-	5	-	-	-
8	388008	-	-	-	<0.001	-	4	-	-	-
9	388009	-	-	-	<0.001	-	3	-	-	-
10	388010	-	-	-	<0.001	-	6	-	-	-
11	388011	-	-	-	0.001	-	5	-	-	-
12	388012	-	-	-	0.001	-	<3	-	-	-
13	388013	-	-	-	<0.001	-	4	<0.001	-	-
14	388014	-	-	-	<0.001	-	13	-	-	-
15	388015	-	-	-	<0.001	-	15	-	-	-
16	388016	-	-	-	0.001	-	8	-	0.001	-
17	388017	-	-	-	<0.001	-	20	-	-	-
18	388018	-	-	-	0.001	-	8	-	-	-
19	388019	-	-	-	0.002	-	9	-	-	-
20	388020	-	-	-	<0.001	-	4	-	-	-
21	388021	-	-	-	<0.001	-	<3	-	-	-
22	388022	-	-	-	<0.001	-	4	-	-	-
23	388023	-	-	-	<0.001	-	<3	<0.001	-	-
24	388024	-	-	-	<0.001	-	9	-	<0.001	-
25	388025	-	-	-	<0.001	-	5	-		-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
GNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 54	OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388026	-	-	-	<0.001	-	5	-	-	-
2	388027	-	-	-	<0.001	-	<3	-	-	-
3	388028	-	-	-	0.001	-	<3	-	-	-
4	388029	-	-	-	0.001	-	<3	-	-	-
5	388030	-	-	-	<0.001	-	<3	-	-	-
6	388031	-	-	-	<0.001	-	8	-	-	-
7	388032	-	-	-	0.001	-	7	-	-	-
8	388033	-	-	-	0.001	-	<3	-	-	-
9	388034	-	-	-	<0.001	-	3	-	-	-
10	388035	-	-	-	<0.001	-	<3	-	<0.001	-
11	388036	-	-	-	<0.001	-	<3	-	-	-
12	388037	-	-	-	0.001	-	<3	-	-	-
13	388038	-	-	-	<0.001	-	<3	-	-	-
14	388039	-	-	-	0.001	-	4	-	-	-
15	388040	-	-	-	<0.001	-	5	-	-	-
16	388041	-	-	-	<0.001	-	<3	-	-	-
17	388042	-	-	-	<0.001	-	6	-	-	-
18	388043	-	-	-	<0.001	-	6	-	-	-
19	388044	-	-	-	<0.001	-	7	-	-	-
20	388045	-	-	-	<0.001	-	9	-	-	-
21	388046	-	-	-	<0.001	-	4	-	-	-
22	388047	-	-	-	<0.001	-	<3	-	-	-
23	388048	-	-	-	<0.001	-	<3	-	<0.001	-
24	388049	-	-	-	<0.001	-	<3	-	-	-
25	388050	-	-	-	0.001	-	4	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	55 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388051	-	-	-	<0.001	-	<3	-	-	-
2	388052	-	-	-	<0.001	-	5	-	-	-
3	388053	-	-	-	<0.001	-	<3	-	-	-
4	388054	-	-	-	<0.001	-	5	-	-	-
5	388055	-	-	-	<0.001	-	8	-	-	-
6	388056	-	-	-	<0.001	-	3	-	-	-
7	388057	-	-	-	<0.001	-	7	-	-	-
8	388058	-	-	-	<0.001	-	11	-	-	-
9	388059	-	-	-	<0.001	-	14	-	-	-
10	388060	-	-	-	<0.001	-	<3	-	-	-
11	388061	-	-	-	<0.001	-	<3	<0.001	-	-
12	388062	-	-	-	<0.001	-	8	-	-	-
13	388063	-	-	-	0.001	-	6	-	-	-
14	388064	-	-	-	<0.001	-	3	-	-	-
15	388065	-	-	-	<0.001	-	<3	-	-	-
16	388066	-	-	-	0.002	-	12	-	-	-
17	388067	-	-	-	<0.001	-	6	-	-	-
18	388068	-	-	-	0.001	-	12	-	-	-
19	388069	-	-	-	<0.001	-	14	-	-	-
20	388070	-	-	-	0.001	-	10	0.002	<0.001	-
21	388071	-	-	-	<0.001	-	<3	-	-	-
22	388072	-	-	-	<0.001	-	18	-	-	-
23	388073	-	-	-	0.001	-	5	-	-	-
24	388074	-	-	-	0.001	-	9	-	-	-
25	388075	-	-	-	0.001	-	6	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	56 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388076	-	-	-	<0.001	-	10	-	-	-
2	388077	-	-	-	<0.001	-	12	-	-	-
3	388078	-	-	-	<0.001	-	6	-	-	-
4	388079	-	-	-	0.001	-	16	-	-	-
5	388080	-	-	-	<0.001	-	14	-	-	-
6	388081	-	-	-	<0.001	-	5	-	<0.001	-
7	388082	-	-	-	<0.001	-	5	-	-	-
8	388083	-	-	-	<0.001	-	<3	-	-	-
9	388084	-	-	-	<0.001	-	27	-	-	-
10	388085	-	-	-	0.002	-	31	-	-	-
11	388086	-	-	-	<0.001	-	13	-	-	-
12	388087	-	-	-	<0.001	-	5	-	-	-
13	388088	-	-	-	<0.001	-	7	<0.001	-	-
14	388089	-	-	-	<0.001	-	5	-	-	-
15	388090	-	-	-	<0.001	-	<3	-	-	-
16	388091	-	-	-	<0.001	-	4	-	-	-
17	388092	-	-	-	<0.001	-	<3	-	-	-
18	388093	-	-	-	<0.001	-	<3	-	-	-
19	388094	-	-	-	<0.001	-	3	-	-	-
20	388095	-	-	-	<0.001	-	8	-	-	-
21	388096	-	-	-	<0.001	-	<3	-	-	-
22	388097	-	-	-	<0.001	-	13	-	-	-
23	388098	-	-	-	0.001	-	<3	-	-	-
24	388099	-	-	-	<0.001	-	5	-	-	-
25	388100	-	-	-	<0.001	-	4	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 57	OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388101	-	-	-	<0.001	-	6	-	-	-
2	388102	-	-	-	0.001	-	9	-	-	-
3	388103	-	-	-	<0.001	-	<3	-	-	-
4	388104	-	-	-	<0.001	-	11	-	-	-
5	388105	-	-	-	<0.001	-	19	-	-	-
6	388106	-	-	-	0.001	-	22	-	-	-
7	388107	-	-	-	<0.001	-	<3	-	-	-
8	388108	-	-	-	<0.001	-	<3	-	<0.001	-
9	388109	-	-	-	<0.001	-	<3	-	-	-
10	388110	-	-	-	0.003	-	3	-	-	-
11	388111	-	-	-	<0.001	-	<3	-	-	-
12	388112	-	-	-	<0.001	-	<3	-	-	-
13	388113	-	-	-	<0.001	-	<3	-	-	-
14	388114	-	-	-	<0.001	-	<3	-	-	-
15	388115	-	-	-	<0.001	-	<3	-	-	-
16	388116	-	-	-	0.001	-	<3	-	-	-
17	388117	-	-	-	<0.001	-	<3	<0.001	-	-
18	388118	-	-	-	<0.001	-	<3	-	-	-
19	388119	-	-	-	<0.001	-	<3	-	-	-
20	388120	-	-	-	<0.001	-	<3	-	-	-
21	388121	-	-	-	<0.001	-	<3	-	-	-
22	388122	-	-	-	<0.001	-	<3	-	-	-
23	388123	-	-	-	<0.001	-	<3	-	-	-
24	388124	-	-	-	<0.001	-	<3	-	-	-
25	388125	-	-	-	0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	58 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388126	-	-	-	<0.001	-	<3	-	-	-
2	388127	-	-	-	<0.001	-	<3	-	-	-
3	388128	-	-	-	<0.001	-	<3	-	-	-
4	388129	-	-	-	<0.001	-	<3	-	-	-
5	388130	-	-	-	<0.001	-	3	-	<0.001	-
6	388131	-	-	-	0.001	-	4	-	-	-
7	388132	-	-	-	<0.001	-	<3	-	-	-
8	388133	-	-	-	<0.001	-	<3	-	-	-
9	388134	-	-	-	<0.001	-	<3	-	-	-
10	388135	-	-	-	<0.001	-	<3	-	-	-
11	388136	-	-	-	0.001	-	3	-	-	-
12	388137	-	-	-	<0.001	-	10	-	<0.001	-
13	388138	-	-	-	<0.001	-	<3	-	-	-
14	388139	-	-	-	<0.001	-	<3	-	-	-
15	388140	-	-	-	<0.001	-	3	-	-	-
16	388141	-	-	-	<0.001	-	6	-	-	-
17	388142	-	-	-	<0.001	-	<3	-	-	-
18	388143	-	-	-	<0.001	-	<3	-	-	-
19	388144	-	-	-	<0.001	-	<3	-	-	-
20	388145	-	-	-	<0.001	-	3	-	-	-
21	388146	-	-	-	<0.001	-	<3	-	-	-
22	388147	-	-	-	<0.001	-	<3	-	-	-
23	388148	-	-	-	<0.001	-	<3	-	-	-
24	388149	-	-	-	<0.001	-	<3	-	-	-
25	388150	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	59 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388151	-	-	-	<0.001	-	<3	-	-	-
2	388152	-	-	-	<0.001	-	5	-	-	-
3	388153	-	-	-	<0.001	-	<3	-	-	-
4	388154	-	-	-	0.001	-	<3	-	-	-
5	388155	-	-	-	0.001	-	<3	-	-	-
6	388156	-	-	-	0.001	-	<3	-	-	-
7	388157	-	-	-	<0.001	-	<3	<0.001	-	-
8	388158	-	-	-	0.001	-	<3	-	-	-
9	388159	-	-	-	0.001	-	<3	-	-	-
10	388160	-	-	-	<0.001	-	<3	-	-	-
11	386251	2.3	1.4	1.5	0.016	-	22	0.018	-	-
12	386252	3.3	1.9	1.9	0.001	-	<3	-	-	-
13	386253	2.8	1.5	1.6	0.001	-	<3	0.001	-	-
14	386254	3.1	1.8	1.9	0.002	-	15	-	-	-
15	386255	3.0	1.9	2.0	<0.001	-	<3	-	-	-
16	386256	3.1	2.0	2.0	<0.001	-	4	<0.001	-	-
17	386257	3.0	1.9	1.9	0.001	-	6	-	-	-
18	386191	-	-	-	-	0.02	14	-	-	-
19	386192	-	-	-	-	0.02	15	-	-	-
20	386193	-	-	-	-	<0.01	13	-	-	-
21	386194	-	-	-	-	0.01	11	-	-	-
22	386195	-	-	-	-	<0.01	3	-	-	-
23	386196	-	-	-	-	<0.01	<3	-	-	-
24	386197	-	-	-	-	<0.01	<3	-	-	-
25	386198	-	-	-	-	<0.01	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 60	OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386199	-	-	-	-	<0.01	<3	-	-	-
2	386200	-	-	-	-	0.01	<3	-	-	-
3	386201	-	-	-	-	<0.01	<3	-	-	-
4	386202	-	-	-	-	<0.01	<3	-	-	0.01
5	386203	-	-	-	-	<0.01	3	-	-	-
6	386204	-	-	-	-	<0.01	11	-	-	-
7	386205	-	-	-	-	<0.01	<3	-	-	-
8	386206	-	-	-	-	<0.01	<3	-	-	-
9	386207	-	-	-	-	<0.01	8	-	-	-
10	386208	-	-	-	-	0.01	6	-	-	-
11	386209	-	-	-	-	0.01	20	-	-	-
12	386210	-	-	-	-	0.02	6	-	-	-
13	386211	-	-	-	-	0.02	11	-	-	-
14	386212	-	-	-	-	0.01	15	-	-	<0.01
15	386213	-	-	-	-	0.01	43	-	-	-
16	386214	-	-	-	-	<0.01	21	-	-	-
17	386215	-	-	-	-	<0.01	15	-	-	-
18	386216	-	-	-	-	<0.01	26	-	-	-
19	386217	-	-	-	-	<0.01	51	-	-	-
20	386218	-	-	-	-	0.02	27	-	-	-
21	386219	-	-	-	-	<0.01	32	-	-	-
22	386220	-	-	-	-	<0.01	4	-	-	-
23	386221	-	-	-	-	<0.01	19	-	-	-
24	386222	-	-	-	-	<0.01	11	-	-	-
25	386223	-	-	-	-	<0.01	8	-	-	-

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	61 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386224	-	-	-	-	<0.01	18	-	-	-
2	386225	-	-	-	-	<0.01	10	-	-	-
3	386226	-	-	-	-	<0.01	3	-	-	-
4	386227	-	-	-	-	<0.01	6	-	-	<0.01
5	386228	-	-	-	-	0.01	24	-	-	-
6	386229	-	-	-	-	<0.01	39	-	-	0.01
7	386230	-	-	-	-	<0.01	38	-	-	-
8	386231	-	-	-	-	<0.01	69	-	-	-
9	386232	-	-	-	-	<0.01	14	-	-	-
10	386233	-	-	-	-	<0.01	29	-	-	-
11	386234	-	-	-	-	<0.01	31	-	-	-
12	386235	-	-	-	-	<0.01	27	-	-	-
13	386236	-	-	-	-	<0.01	124	-	-	-
14	386237	-	-	-	-	<0.01	30	-	-	<0.01
15	386238	-	-	-	-	<0.01	135	-	-	-
16	386138	-	-	-	-	<0.01	20	-	-	-
17	386139	-	-	-	-	<0.01	33	-	-	-
18	386140	-	-	-	-	<0.01	36	-	-	-
19	386141	-	-	-	-	<0.01	61	-	-	-
20	386145	-	-	-	-	<0.01	184	-	-	-
21	386146	-	-	-	-	<0.01	685	-	-	-
22	386147	-	-	-	-	<0.01	141	-	-	<0.01
23	386148	-	-	-	-	<0.01	31	-	-	-
24	386156	-	-	-	-	<0.01	47	-	-	-
25	386157	-	-	-	-	<0.01	285	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	62 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386158	-	-	-	-	<0.01	596	-	-	-
2	386159	-	-	-	-	<0.01	395	-	-	-
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.1	0.1	0.1	0.001	0.01	3	0.001	0.001	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	63 OF 66

METHOD	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	386251	15.30	65.30	0.38	6.44	0.53	0.31	7.44	0.72	0.180
2	386252	16.30	63.00	0.36	3.73	0.51	2.04	9.37	0.67	0.183
3	386253	15.60	64.50	0.36	4.04	0.48	1.56	9.98	0.56	0.180
4	386254	16.40	61.60	0.36	4.27	0.54	1.79	10.17	0.50	0.203
5	386255	15.60	62.60	0.45	7.13	0.15	2.95	2.46	0.92	0.141
6	386256	15.30	60.80	0.48	6.74	0.16	4.36	3.04	0.81	0.136
7	386257	14.80	61.00	0.44	6.45	0.18	2.71	1.05	3.37	0.125
8	386264	16.30	46.30	0.76	9.14	0.60	8.70	3.28	2.38	0.119
9	386265	13.10	43.80	0.62	14.33	0.21	9.18	0.31	5.72	0.071
10	386266	12.40	70.00	0.43	4.58	0.47	2.93	2.43	1.14	0.112
11	386267	19.40	48.60	0.99	10.11	0.17	5.38	1.08	3.13	0.297
12	386268	17.90	49.90	0.92	8.80	0.13	6.85	2.02	2.19	0.278
13	386269	4.91	31.00	0.23	6.50	1.29	22.49	1.18	5.22	0.053
14	384051	11.40	76.10	0.07	1.70	0.03	0.74	5.94	0.93	0.006
15	385830	16.80	56.70	0.65	12.14	0.49	0.43	4.40	1.14	0.176
16	385835	12.10	66.40	0.42	6.98	1.01	0.20	3.22	0.44	0.115
17	385836	5.29	38.40	0.15	4.03	0.15	0.03	1.22	0.26	0.026
18	385818	13.60	63.00	0.51	9.60	0.63	0.30	3.70	0.57	0.173
19	385821	14.10	66.70	0.52	7.48	0.55	0.26	4.06	0.43	0.166
20	385846	12.30	69.30	0.42	7.85	0.40	0.62	2.89	1.16	0.105
21	385856	14.50	64.10	0.52	4.45	0.53	3.65	3.99	1.27	0.138
22	385867	13.90	62.10	0.50	5.60	0.90	4.31	3.72	0.84	0.143
23	385876	13.10	59.90	0.49	6.67	5.29	0.53	3.80	0.72	0.133
24	385891	12.70	59.90	0.48	9.40	3.29	1.44	3.40	0.64	0.122
25	385907	14.60	63.90	0.69	6.09	0.36	3.70	2.88	1.38	0.175

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

390647

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 64	OF 66

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385911	14.30	48.50	0.66	9.19	0.47	7.97	2.61	3.23	0.110
2	385925	12.60	70.90	0.35	3.34	0.66	2.49	3.58	1.03	0.050
3	385933	11.80	70.20	0.33	5.59	2.07	0.18	3.47	0.59	0.045
4	385938	13.30	72.70	0.35	3.07	0.51	1.73	3.91	0.83	0.054
5	385946	13.00	70.40	0.34	3.04	0.45	2.85	3.94	0.85	0.048
6	385954	14.10	53.80	0.63	9.65	0.87	5.59	3.05	2.47	0.093
7	385957	13.10	68.70	0.37	3.40	0.87	3.22	3.91	1.04	0.052
8	385964	13.40	65.80	0.42	6.26	0.99	2.79	3.74	1.07	0.068
9	385975	15.10	49.50	0.69	10.30	0.50	7.76	2.84	3.39	0.114
10	385985	14.00	67.10	0.51	4.63	0.14	3.04	3.41	1.24	0.103
11	385995	15.40	66.20	0.45	4.34	0.09	2.53	3.61	1.67	0.079
12	386112	14.10	63.60	0.51	9.24	0.90	0.34	3.91	0.43	0.143
13	386114	9.88	53.80	0.33	20.05	0.01	0.16	2.83	0.14	0.130
14	386118	14.10	62.70	0.50	9.71	0.77	0.27	4.03	0.74	0.145
15	386103	11.80	75.30	0.30	3.20	0.03	0.85	0.45	0.84	0.051
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	%	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

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AUTHORISED OFFICER

390648

ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	65 OF 66

	SAMPLE No.	SO3	Na2O	L.O.I	Total					
THOD		OX408	OX408	OX408	OX408					
1	386251	2.88	1.31	2.50	100.40					
2	386252	0.10	0.92	2.80	99.80					
3	386253	0.40	0.48	2.53	100.40					
4	386254	1.67	0.41	3.05	99.30					
5	386255	0.04	4.09	3.51	100.00					
6	386256	0.03	3.69	4.03	99.60					
7	386257	0.16	4.95	4.12	99.30					
8	386264	1.01	0.96	10.40	99.00					
9	386265	0.05	1.29	11.55	100.10					
10	386266	0.34	0.44	4.60	99.60					
11	386267	<0.01	5.02	5.57	99.80					
12	386268	0.01	3.61	6.84	99.40					
13	386269	0.04	0.58	25.87	99.30					
14	384051	0.94	0.85	1.24	99.10					
15	385830	2.17	0.17	7.05	100.20					
16	385835	3.44	0.13	5.44	98.40					
17	385836	1.81	1.62	7.91	73.50					
18	385818	6.13	0.19	5.87	99.20					
19	385821	6.99	0.18	5.46	99.90					
20	385846	1.14	0.11	4.65	99.90					
21	385856	0.69	0.15	5.69	99.10					
22	385867	2.10	0.16	5.95	98.30					
23	385876	0.41	0.16	8.54	99.50					
24	385891	0.34	0.18	8.10	99.70					
25	385907	0.85	0.44	4.84	99.10					

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALABS

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA 66	OF 66

	SAMPLE No.	SO3	Na2O	LOI	Total
METHOD		OX408	OX408	OX408	OX408
1	385911	0.20	1.33	11.02	99.30
2	385925	0.50	0.16	4.45	99.60
3	385933	0.27	0.12	4.89	99.40
4	385938	0.08	0.14	3.82	100.50
5	385946	0.10	0.12	4.52	99.60
6	385954	1.04	0.09	7.02	97.90
7	385957	0.04	0.10	5.10	99.90
8	385964	3.10	0.16	4.40	99.10
9	385975	0.02	0.51	8.84	99.40
10	385985	0.86	0.94	4.37	99.50
11	385995	0.54	1.37	3.83	99.60
12	386112	0.17	0.14	7.00	100.40
13	386114	4.22	0.09	11.64	99.00
14	386118	2.87	0.15	7.30	100.50
15	386103	0.70	5.84	1.30	100.00
16					
17					
18					
19					
20					
21					
22					
23					
24	DETECTION	0.01	0.05	0.01	0.01
25	UNITS	%	%	%	%

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

390650

ANALYTICAL REPORT No. RES202.60.12457

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
12/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	14/01/97	1	37

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384241/53,384271/94	SC Prep : GP033	Au,Au(R)/GG309
384241/53,384271/94	SC Prep : GP033	Cu,Pb,Zn,Ag,Bi,Mn,Sb,As/GA140, As/HA140
384241/53,384271/94	SC Prep : GP033	Zr,Ba,Ti/GX401

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

LTS TO

REMARKS

HA-2
102 – 115

pp

AUTHORISED OFFICER

ANALABS

390651

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384241	0.062	-	-	102	-	782	-	3120	-
2	384242	0.014	-	-	107	-	80	-	1763	-
3	384243	0.016	-	-	89	-	241	-	1519	-
4	384244	0.064	-	-	179	-	45	-	152	-
5	384245	0.100	-	-	209	-	46	-	141	-
6	384246	0.166	-	-	154	-	80	-	632	-
7	384247	0.176	-	-	615	-	65	-	271	-
8	384248	0.341	-	-	267	-	147	-	105	-
9	384249	0.336	-	-	3072	-	78	-	73	-
10	384250	0.102	-	-	314	-	255	-	220	-
11	384251	0.053	-	-	233	-	609	-	2723	-
12	384252	0.012	0.015	-	121	-	1405	-	3818	-
13	384253	0.012	-	-	183	-	838	-	2285	-
14	384271	46.000	-	-	3922	0.64	>5000	-	195	60
15	384272	1.517	-	-	2376	-	757	-	55	-
16	384273	121.00	-	-	2051	1.41	>5000	-	681	171
17	384274	9.340	10.100	0.57	>5000	1.19	>5000	-	130	108
18	384275	0.084	-	-	21	-	20	-	5	-
19	384276	6.040	-	-	1594	-	1370	-	78	-
20	384277	15.200	-	-	2027	-	4407	-	154	-
21	384278	0.323	-	-	577	-	569	-	326	-
22	384279	0.826	0.840	-	104	-	2113	-	165	-
23	384280	0.803	-	-	820	1.54	>5000	2.57	>5000	-
24	384281	0.030	-	-	195	0.52	>5000	2.59	>5000	58
25	384282	0.029	-	-	465	0.55	>5000	1.73	>5000	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.D. Good

ANALABS

390652

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384283	0.041	–	–	119	0.86	>5000	–	1436	–
2	384284	0.922	–	–	1021	1.10	>5000	0.70	>5000	–
3	384285	0.915	0.969	–	1512	0.87	>5000	1.57	>5000	–
4	384286	1.641	–	–	2937	1.91	>5000	3.57	>5000	250
5	384287	0.304	–	–	2553	2.78	>5000	4.37	>5000	120
6	384288	0.819	–	–	177	–	4100	–	327	–
7	384289	0.491	–	–	946	0.83	>5000	2.15	>5000	148
8	384290	1.501	–	–	1893	6.62	>5000	3.11	>5000	66
9	384291	3.770	–	–	2882	3.59	>5000	5.24	>5000	175
10	384292	1.198	–	–	270	1.18	>5000	–	3019	–
11	384293	0.055	–	–	145	–	1170	–	386	65
12	384294	2.300	2.420	–	968	2.94	>5000	7.19	>5000	55
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.008	0.008	0.01	2	0.01	3	0.01	2	50
25	UNITS	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Grant

ANALABS

390653

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	3 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384241	<1	<10	1836	45.3	<50	119	1720	1945	<3
2	384242	<1	12	2111	38.0	<50	116	1580	1855	5
3	384243	<1	<10	1441	48.0	<50	139	2570	2290	<3
4	384244	<1	<10	886	37.8	<50	150	3600	2350	<3
5	384245	<1	<10	637	37.0	<50	142	4225	2430	<3
6	384246	<1	<10	1236	34.3	<50	136	4695	2345	5
7	384247	<1	12	1605	21.7	<50	153	4750	2725	<3
8	384248	<1	11	252	38.0	<50	151	11300	2200	3
9	384249	3	32	173	15.7	<50	126	6075	2160	7
10	384250	<1	<10	890	32.0	<50	132	3405	2245	4
11	384251	<1	<10	3870	23.0	<50	144	2195	2125	7
12	384252	<1	11	2828	46.9	<50	145	3730	2130	<3
13	384253	<1	<10	1950	30.4	<50	162	4070	2535	5
14	384271	>50	119	600	4.3	<50	220	44	2395	23
15	384272	9	26	251	<0.5	<50	136	55	1615	<3
16	384273	>50	409	338	12.9	<50	343	29	3695	52
17	384274	>50	450	89	10.3	<50	319	<10	2725	16
18	384275	<1	<10	68	5.3	<50	98	64	515	6
19	384276	28	43	211	4.1	<50	130	38	1390	4
20	384277	37	80	278	7.2	<50	177	36	2050	5
21	384278	3	15	93	41.3	<50	231	282	2650	3
22	384279	11	<10	69	>50.0	123	102	91000	1785	33
23	384280	35	13	64	13.7	<50	115	49000	820	47
24	384281	>50	<10	48	10.0	<50	28	111000	410	29
25	384282	35	<10	56	11.7	<50	21	147000	460	26

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Gent

ANALABS

390654

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	14/01/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384283	18	<10	57	13.2	<50	37	68000	350	30
2	384284	40	<10	78	>50.0	443	148	73000	2920	209
3	384285	14	<10	71	>50.0	132	87	186000	1270	61
4	384286	>50	<10	317	>50.0	130	43	437000	515	136
5	384287	>50	<10	59	>50.0	106	69	337000	455	83
6	384288	14	<10	160	>50.0	125	134	9000	2345	39
7	384289	>50	<10	132	1.0	539	30	262000	540	78
8	384290	>50	<10	66	>50.0	315	157	307000	530	95
9	384291	>50	<10	57	>50.0	472	65	400000	495	100
10	384292	37	<10	165	>50.0	159	145	12000	2040	61
11	384293	>50	<10	958	37.3	<50	31	117000	570	16
12	384294	>50	<10	72	>50.0	457	68	389000	575	127
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	3	0.5	50	5	10	50	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.J. Good

Analabs

Analabs
A.C.N. 390655

Phone (004) 316837 | 14 Thirkell St, DOGEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 112400.60.122204

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P. O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
26/08/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
14	18/09/96	1	75

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384031/384053,384082/384098	RC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../GX408
384031/384053,384082/384098	RC Prep : GP033	S/GM613
384031/384053,384082/384098	RC Prep : GP033	Zr,Ba,Ti/GX401
384031/384033 & others	RC Prep : GP033	Au,Au(R)/GG326
384031/384033 & others	RC Prep : GP033	Cu,Pb,Zn,Ag/GA140

RESULTS

Mr Grant MacDonald
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

HA-2 ~~HA-6~~ YNC-16
HA-7 YNC-5
HA-8
NC-1
YNC-13
YNC-14
YNC-4
YNC-8
YNC-9
YNC-10

REMARKS

Please disregard all previous reports sent to you for this job, as this report contains amended results for Eu/GS201 that we have just received from Perth.

Sorry for any inconvenience this may have caused you.

Drill core whole rock (first batch).

pp M.A. Cook
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 501 864

ANALYTICAL DATA

390656

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	1 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		DM613	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1	384031	4.070	2354	-	-	120	1039	-	132	-
2	384032	4.320	2778	-	-	208	1924	-	139	-
3	384033	1.620	2446	-	-	36	270	-	141	-
4	384034	0.410	2667	-	-	-	-	-	144	-
5	384035	5.060	2126	-	-	1242	126	-	127	-
6	384036	1.780	2582	-	-	-	-	-	121	-
7	384037	0.097	1867	-	-	-	-	-	148	-
8	384038	2.380	2240	-	-	-	-	-	164	-
9	384039	1.020	2232	-	-	-	-	-	161	-
10	384040	3.490	3071	-	-	50	20	-	270	-
11	384041	0.026	1843	-	-	21	69	-	150	-
12	384042	1.210	5247	-	-	174	192	-	103	-
13	384043	6.610	6861	-	-	138	70	-	153	-
14	384044	7.480	6291	-	-	139	54	-	158	-
15	384045	0.630	3091	-	-	-	-	-	247	-
16	384046	0.910	2743	-	-	-	-	-	227	-
17	384047	2.990	2814	-	-	-	-	-	230	-
18	384048	0.014	2594	-	-	-	-	-	207	-
19	384049	0.023	3220	-	-	-	-	-	248	-
20	384050	3.090	3022	-	-	21	55	-	235	-
21	384051	0.400	510	-	-	-	-	-	134	-
22	384052	0.410	2402	-	-	180	111	-	122	-
23	384053	2.310	2755	-	-	71	360	-	111	-
24	384082	0.220	2694	-	-	-	-	-	215	-
25	384083	0.049	2734	-	-	-	-	-	261	-

Results in ppm unless otherwise specified. IS = Insufficient sample.
< = Less than (LOR) NAR = Analysis not required.

AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	2 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		OM610	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1	384084	0.032	6584	-	-	-	-	-	209	-
2	384085	0.077	4093	-	-	-	-	-	98	-
3	384086	0.012	2546	-	-	-	-	-	214	-
4	384087	0.022	2819	-	-	-	-	-	231	-
5	384088	0.041	2680	-	-	-	-	-	236	-
6	384089	0.007	1424	-	-	-	-	-	261	-
7	384090	0.009	2091	-	-	-	-	-	159	-
8	384091	0.018	2343	-	-	-	-	-	170	-
9	384092	0.007	2827	-	-	-	-	-	220	-
10	384093	0.012	2847	-	-	-	-	-	228	-
11	384094	0.140	2990	-	-	-	-	-	252	-
12	384095	0.080	3206	-	-	-	-	-	183	-
13	384096	0.170	5673	-	-	-	-	-	124	-
14	384097	0.013	1219	-	-	-	-	-	199	-
15	384098	0.063	6019	-	-	-	-	-	123	-
16	384058	-	219	-	-	-	-	-	15	-
17	384059	-	104	-	-	-	-	-	7	-
18	384060	-	444	-	-	-	-	-	14	-
19	384070	-	118	-	-	-	-	-	6	-
20	384072	-	133	-	-	-	-	-	<5	-
21	384076	-	-	-	-	-	-	-	34	-
22	384103	-	-	-	-	-	-	-	<5	-
23	384104	-	-	-	-	-	-	-	156	-
24	384061	-	611	-	-	-	-	-	25	-
25	384062	-	3990	-	-	-	-	-	154	-

Results in parts per million (ppm) unless otherwise specified. IS = Insufficient sample. <ind. = Sample not received.

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A.C.N. 004 591 664

390658

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	3 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		OM613	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1	384063	-	4419	-	-	-	-	-	124	-
2	384064	-	5078	-	-	-	-	-	149	-
3	384065	-	4022	-	-	-	-	-	112	-
4	384066	-	4173	-	-	-	-	-	195	-
5	384067	-	3418	-	-	-	-	-	99	-
6	384068	-	2773	-	-	-	-	-	85	-
7	384069	-	672	-	-	-	-	-	15	-
8	384071	-	4188	-	-	-	-	-	159	-
9	384073	-	3116	-	-	-	-	-	181	-
10	384074	-	2576	-	-	-	-	-	167	-
11	384075	-	4469	-	-	-	-	-	140	-
12	384077	-	5496	-	-	-	-	-	185	-
13	384078	-	-	-	-	-	-	-	31	-
14	384079	-	2302	-	-	-	-	-	95	-
15	384080	-	-	-	-	-	-	-	108	-
16	384081	-	2211	-	-	-	-	-	111	-
17	384099	-	2158	-	-	-	-	-	104	-
18	384100	-	-	-	-	-	-	-	118	-
19	384101	-	5680	-	-	-	-	-	146	-
20	384102	-	6822	-	-	-	-	-	144	-
21	384105	-	448	-	-	-	-	-	126	-
22	384054	-	2196	5	506	865	16	4.5	172	7
23	384055	-	2034	7	392	1111	113	10.0	169	6
24	384056	-	5679	54	49	12	22	1.0	457	3
25	384057	-	1523	32	304	17581	73	29.5	127	64

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390659

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	4 OF 14

	SAMPLE No.	S	Ti	V	Mn	Cu	Zn	As	Zr	Mo
METHOD		OM613	GX401	GX401	GX401	GA140	GA140	HA140	GX401	GX401
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	50	5	20	2	2	0.5	5	3
25	UNITS	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390660

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	5 OF 14

	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
METHOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
1	384031	1	-	-	-	1193	-	-	-	-
2	384032	3	-	-	-	1004	-	-	-	-
3	384033	<1	-	-	-	980	-	-	-	-
4	384034	-	-	-	-	857	-	-	-	-
5	384035	2	-	-	-	8013	-	-	-	-
6	384036	-	-	-	-	645	-	-	-	-
7	384037	-	-	-	-	1216	-	-	-	-
8	384038	-	-	-	-	1829	-	-	-	-
9	384039	-	-	-	-	2201	-	-	-	-
10	384040	<1	-	-	-	1275	-	-	-	-
11	384041	<1	-	-	-	435	-	-	-	-
12	384042	<1	-	-	-	178	-	-	-	-
13	384043	<1	-	-	-	1375	-	-	-	-
14	384044	<1	-	-	-	1469	-	-	-	-
15	384045	-	-	-	-	908	-	-	-	-
16	384046	-	-	-	-	540	-	-	-	-
17	384047	-	-	-	-	764	-	-	-	-
18	384048	-	-	-	-	397	-	-	-	-
19	384049	-	-	-	-	571	-	-	-	-
20	384050	2	-	-	-	565	-	-	-	-
21	384051	-	-	-	-	1201	-	-	-	-
22	384052	<1	-	-	-	4264	-	-	-	-
23	384053	1	-	-	-	448	-	-	-	-
24	384082	-	-	-	-	873	-	-	-	-
25	384083	-	-	-	-	292	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390661

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	6 OF 14

	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
METHOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
1	384084	-	-	-	-	543	-	-	-	-
2	384085	-	-	-	-	330	-	-	-	-
3	384086	-	-	-	-	419	-	-	-	-
4	384087	-	-	-	-	623	-	-	-	-
5	384088	-	-	-	-	660	-	-	-	-
6	384089	-	-	-	-	1131	-	-	-	-
7	384090	-	-	-	-	240	-	-	-	-
8	384091	-	-	-	-	923	-	-	-	-
9	384092	-	-	-	-	747	-	-	-	-
10	384093	-	-	-	-	1238	-	-	-	-
11	384094	-	-	-	-	1156	-	-	-	-
12	384095	-	-	-	-	778	-	-	-	-
13	384096	-	-	-	-	1209	-	-	-	-
14	384097	-	-	-	-	581	-	-	-	-
15	384098	-	-	-	-	1285	-	-	-	-
16	384058	-	-	-	0.4	-	12.90	21.30	2.55	8.9
17	384059	-	-	-	0.2	-	10.20	15.50	1.85	5.7
18	384060	-	-	-	0.4	-	6.77	11.40	1.53	5.4
19	384070	-	-	-	<0.2	-	5.08	7.37	1.09	3.1
20	384072	-	-	-	<0.2	-	5.25	10.30	1.38	5.3
21	384076	-	-	-	<0.2	-	0.62	1.07	0.15	0.8
22	384103	-	-	-	<0.2	-	0.08	0.21	<0.05	0.5
23	384104	-	-	-	<0.2	-	<0.05	<0.05	<0.05	0.1
24	384054	7	7	<3	5.5	32	4.57	9.20	1.32	5.2
25	384055	18	6	13	16.8	38	10.90	20.20	2.63	9.4

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390662

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	7 OF 14

	SAMPLE No.	Ag	Sn	Sb	Te	Ba	La	Ce	Pr	Nd
METHOD		GA140	GX401	GX401	GS201	GX401	GS201	GS201	GS201	GS201
1	384056	8	12	4	11.4	470	106.00	211.00	24.50	76.5
2	384057	21	7	<3	2.4	193	57.00	101.00	12.60	45.4
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	3	3	0.2	10	0.05	0.05	0.05	0.1
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390663

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	8 OF 14

	SAMPLE No.	Sm	Eu	Gd	Dy	Er	Yb	W	Au	Tl
METHOD		GS201	GS201	GS201	GS201	GS201	GS201	GX401	GG326	GS201
1	384031	-	-	-	-	-	-	-	13	-
2	384032	-	-	-	-	-	-	-	7	-
3	384033	-	-	-	-	-	-	-	7	-
4	384035	-	-	-	-	-	-	-	253	-
5	384040	-	-	-	-	-	-	-	10	-
6	384041	-	-	-	-	-	-	-	6	-
7	384042	-	-	-	-	-	-	-	6	-
8	384043	-	-	-	-	-	-	-	11	-
9	384044	-	-	-	-	-	-	-	8	-
10	384050	-	-	-	-	-	-	-	10	-
11	384052	-	-	-	-	-	-	-	38	-
12	384053	-	-	-	-	-	-	-	18	-
13	384058	1.6	0.47	1.4	1.3	0.8	0.5	-	-	<0.5
14	384059	1.1	0.35	1.2	0.9	0.6	0.3	-	-	<0.5
15	384060	1.4	0.44	1.6	1.6	0.8	0.5	-	-	<0.5
16	384070	0.7	0.23	0.6	0.5	0.3	0.2	-	-	<0.5
17	384072	1.5	0.36	1.6	1.1	0.5	0.4	-	-	<0.5
18	384076	0.3	0.14	0.3	0.2	0.2	0.1	-	-	19.1
19	384103	0.3	0.29	0.4	0.3	0.1	0.1	-	-	2.2
20	384104	0.2	0.06	0.3	0.3	0.2	0.1	-	-	9.1
21	384054	1.6	0.44	1.8	2.5	1.9	2.1	5	4266	0.0
22	384055	2.0	0.45	2.0	2.2	2.0	2.0	<5	13699	0.0
23	384056	9.8	2.35	5.5	3.7	2.1	2.5	15	1464	2.3
24	384057	8.8	1.62	6.4	2.9	1.6	1.5	7	278	1.2
25										

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	9 OF 14

	SAMPLE No.	Sm	Eu	Gd	Dy	Er	Yb	W	Au	Tl
METHOD		GS201	GS201	GS201	GS201	GS201	GS201	GX401	GG326	GS201
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.1	0.05	0.1	0.1	0.1	0.1	5	1	0.5
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	10 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		GA140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
1	384031	200	–	–	16.40	60.50	0.50	7.59	0.14	1.17
2	384032	566	–	–	15.80	62.30	0.48	7.45	0.02	0.47
3	384033	76	–	–	15.30	63.00	0.49	3.81	0.08	4.97
4	384034	–	–	–	16.00	54.30	0.54	5.88	0.22	7.72
5	384035	71	–	–	11.90	63.90	0.38	9.49	0.05	0.82
6	384036	–	–	–	15.90	52.30	0.51	8.82	0.28	8.03
7	384037	–	–	–	14.90	68.10	0.31	3.65	0.22	1.80
8	384038	–	–	–	15.40	66.90	0.37	3.37	0.05	0.41
9	384039	–	–	–	14.60	68.60	0.36	2.49	0.25	1.05
10	384040	73	–	–	18.10	60.70	0.62	6.09	0.03	1.37
11	384041	45	–	–	9.34	73.40	0.32	3.37	0.16	4.59
12	384042	9	–	–	14.30	51.20	0.83	10.59	0.24	6.76
13	384043	62	–	–	23.40	43.00	1.24	12.17	0.06	1.44
14	384044	47	–	–	23.90	40.00	1.27	13.18	0.04	1.60
15	384045	–	–	–	14.90	64.80	0.52	5.31	0.10	2.56
16	384046	–	–	–	13.80	64.40	0.47	6.44	0.08	3.44
17	384047	–	–	–	14.10	64.20	0.49	4.91	0.05	3.61
18	384048	–	–	–	13.80	65.30	0.51	6.60	0.09	2.82
19	384049	–	–	–	16.40	62.00	0.60	5.83	0.07	1.65
20	384050	72	–	–	15.20	64.40	0.60	5.84	0.06	1.40
21	384051	–	–	–	11.40	76.50	0.08	1.72	0.03	0.74
22	384052	47	–	–	0.09	98.30	0.44	0.64	<0.01	<0.01
23	384053	162	–	–	12.60	76.30	0.47	3.08	<0.01	0.04
24	384082	–	–	–	14.00	63.70	0.52	7.49	2.03	0.80
25	384083	–	–	–	14.90	64.00	0.50	5.67	0.15	2.06

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390666

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	11 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		GA140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
1	384084	-	-	-	18.40	50.70	1.02	11.27	0.15	3.93
2	384085	-	-	-	15.40	52.80	0.63	7.49	0.17	7.44
3	384086	-	-	-	13.60	67.40	0.48	4.36	0.07	2.54
4	384087	-	-	-	14.10	69.30	0.48	5.52	0.05	1.59
5	384088	-	-	-	14.70	65.70	0.50	5.20	0.07	2.86
6	384089	-	-	-	11.90	77.50	0.24	2.00	0.02	0.07
7	384090	-	-	-	16.00	66.60	0.35	4.28	0.08	1.04
8	384091	-	-	-	16.50	59.60	0.38	4.91	0.13	4.90
9	384092	-	-	-	14.70	64.00	0.52	5.58	0.13	4.17
10	384093	-	-	-	15.00	65.70	0.55	4.75	0.21	3.79
11	384094	-	-	-	15.90	59.20	0.55	7.16	0.55	2.69
12	384095	-	-	-	14.40	64.30	0.58	5.57	0.17	4.23
13	384096	-	-	-	17.50	57.20	0.95	10.29	0.10	1.12
14	384097	-	-	-	11.10	77.50	0.20	3.05	0.04	0.75
15	384098	-	-	-	18.50	55.00	1.14	12.05	0.27	0.28
	384058	-	-	1.17	-	-	-	-	-	-
17	384059	-	-	1.18	-	-	-	-	-	-
18	384060	-	-	0.92	-	-	-	-	-	-
19	384070	-	-	0.65	-	-	-	-	-	-
20	384072	-	-	0.30	-	-	-	-	-	-
21	384076	-	-	0.08	-	-	-	-	-	-
22	384103	-	-	<0.05	-	-	-	-	-	-
23	384104	-	-	0.00	-	-	-	-	-	-
24	384054	587	<1	5.24	0.47	91.50	0.40	0.83	0.06	3.36
25	384055	261	<1	6.05	0.67	91.30	0.36	0.85	0.04	3.14

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390667

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	12 OF 14

	SAMPLE No.	Pb	Bi	Th	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO
METHOD		GA140	HA140	GS201	OX408	OX408	OX408	OX408	OX408	OX408
1	384056	7	<1	36.80	27.90	54.50	1.03	1.29	<0.01	0.26
2	384057	>5000	<1	9.23	6.95	72.70	0.27	6.94	0.04	1.74
3										
4										
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6										
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8										
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12										
13										
14										
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19										
20										
21										
22										
23										
24	DETECTION	3	1	0.05	0.05	0.05	0.01	0.01	0.01	0.01
25	UNITS	ppm	ppm	ppm	%	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390668

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	13 OF 14

	SAMPLE No.	K2O	MgO	P2O5	SO3	Na2O	LOI	Total	Au(R)	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326	OX408
1	384031	4.00	0.73	0.170	7.48	2.75	5.82	99.90	-	-
2	384032	4.51	0.77	0.204	9.94	1.89	5.81	99.90	-	-
3	384033	3.62	0.54	0.283	3.85	2.92	3.74	98.80	-	-
4	384034	2.88	1.21	0.267	0.97	3.59	6.17	98.90	-	-
5	384035	4.31	1.06	0.136	1.67	<0.05	6.41	98.60	260	-
6	384036	1.52	3.13	0.184	0.22	3.26	6.05	99.90	-	-
7	384037	4.89	0.71	0.139	4.42	0.63	4.19	99.50	-	-
8	384038	8.54	0.40	0.214	4.36	0.12	3.39	99.50	-	-
9	384039	9.01	0.33	0.217	1.87	0.26	2.74	99.80	-	-
10	384040	4.60	0.61	0.171	6.54	2.07	5.10	99.50	-	-
11	384041	1.37	1.20	0.091	0.05	1.81	4.82	100.60	-	-
12	384042	0.62	3.43	0.279	2.66	3.68	6.16	98.10	-	-
13	384043	5.99	1.66	0.185	9.91	1.74	8.14	99.10	-	-
14	384044	7.11	1.46	0.160	9.50	0.30	10.62	99.70	-	-
15	384045	3.45	1.61	0.136	1.27	1.57	3.61	98.50	-	-
16	384046	2.45	1.72	0.125	1.95	1.85	3.92	98.70	-	-
17	384047	3.41	1.43	0.133	6.54	1.38	4.58	98.40	-	-
18	384048	2.37	1.46	0.141	0.02	2.68	4.67	100.50	-	-
19	384049	3.42	1.25	0.171	0.04	2.90	5.92	100.20	-	-
20	384050	3.66	0.97	0.111	5.99	2.70	4.87	99.80	-	-
21	384051	5.87	0.97	<0.005	0.70	0.86	1.32	99.60	-	-
22	384052	0.02	0.02	<0.005	0.91	<0.05	0.34	99.90	37	-
23	384053	3.79	0.20	0.043	5.04	<0.05	3.47	100.10	-	-
24	384082	4.44	0.79	0.144	0.45	0.08	6.38	100.40	-	-
25	384083	1.64	1.31	0.125	0.10	0.13	9.14	99.70	-	-

s in ppm unless otherwise specified
nent not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390669

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12204	18/09/96	GRANT MACDONA	14 OF 14

	SAMPLE No.	K2O	MgO	P2O5	SO3	Na2O	LOI	Total	Au(R)	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326	OX408
1	384084	1.43	2.77	0.280	0.06	4.98	5.06	100.00	-	-
2	384085	1.43	2.39	0.085	0.17	4.12	7.37	99.40	-	-
3	384086	3.17	0.88	0.123	0.01	1.44	5.63	99.70	-	-
4	384087	3.43	1.03	0.126	0.04	1.15	3.32	100.10	-	-
5	384088	3.24	0.82	0.131	0.08	2.50	3.95	99.70	-	-
6	384089	2.62	0.41	0.019	<0.01	4.57	0.73	100.10	-	-
7	384090	0.41	2.05	0.169	<0.01	7.73	1.99	100.70	-	-
8	384091	5.38	1.27	0.206	0.03	0.06	5.98	99.30	-	-
9	384092	4.02	0.74	0.138	<0.01	0.10	5.43	99.50	-	-
10	384093	4.07	0.73	0.151	0.02	0.10	4.52	99.60	-	-
11	384094	4.47	0.59	0.149	0.25	2.46	5.32	99.20	-	-
12	384095	3.31	1.50	0.100	0.18	0.75	4.65	99.50	-	-
13	384096	2.64	3.01	0.145	0.33	2.20	4.23	99.50	-	-
14	384097	2.23	0.62	0.017	0.01	4.14	1.15	100.80	-	-
15	384098	6.35	1.97	0.155	0.12	0.10	4.21	100.10	-	-
16	384054	0.16	0.07	-	0.56	<0.05	2.51	99.50	4389	0.025
17	384055	0.22	0.29	-	0.46	<0.05	2.42	99.50	13565	0.017
18	384056	9.43	1.28	-	<0.01	0.11	4.17	100.10	1433	0.159
19	384057	2.37	0.66	-	5.51	<0.05	5.04	98.50	-	0.125
20										
21										
22										
23										
24	DETECTION	0.01	0.01	0.005	0.01	0.05	0.01	0.01	1	0.005
25	UNITS	%	%	%	%	%	%	%	ppb	%

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A.

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

390670

ANALYTICAL REPORT No. 112400.60.1226B

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P. O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
16/09/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	12/12/96	1	26

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384111/7,384122/9	DC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO2, .../OX408
384111/7,384122/9	DC Prep : GP033	S/OM613
384111/7,384122/9	DC Prep : GP033	Zr,Ba,Ti/GX401
384116 & others	DC Prep : GP033	Au,Au(R)/GG326
384116 & others	DC Prep : GP033	Cu,Pb,Zn,Ag,Bi,As/GA140

RESULTS TO
Mr Grant MacDonald
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Rocks from YNC 12/13 Access track (whole rock)

Various rocks

Drill core

C-horizon.

pp M.A. Good
AUTHORISED OFFICER

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A.C.N. 004 591 664

390671

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	1 OF 5

	SAMPLE No.	P	S	Ti	Cu	Zn	As	As	Zr	Ag
METHOD		GX401	OM613	GX401	GA140	GA140	GA140	HA140	GX401	GA140
1	384111	–	0.005	5334	–	–	–	–	144	–
2	384112	–	<0.005	6081	–	–	–	–	113	–
3	384113	–	<0.005	5882	–	–	–	–	105	–
4	384114	–	<0.005	1963	–	–	–	–	329	–
5	384115	–	<0.005	2409	–	–	–	–	176	–
	384116	–	2.430	1809	8	469	199	–	262	<1
7	384117	–	4.170	2295	5	19	456	–	335	<1
8	384122	–	0.310	455	–	–	–	–	136	–
9	384123	–	<0.005	1809	–	–	–	–	339	–
10	384124	–	3.210	3161	52	4939	77	–	299	1
11	384125	–	0.009	3388	–	–	–	–	262	–
12	384126	–	<0.005	4529	–	–	–	–	88	–
13	384127	–	<0.005	2625	–	–	–	–	133	–
14	384128	–	0.220	2647	–	–	–	–	223	–
	384129	–	0.210	2864	–	–	–	–	256	–
16	384118	–	–	–	5	22	1258	–	–	<1
17	384119	–	–	–	3	6	<50	18.2	–	<1
18	384120	–	–	–	<2	8	<50	14.4	–	<1
19	384121	–	–	–	<2	12	<50	7.1	–	<1
20	384106	37	–	4011	3	12	<50	1.0	312	<1
21	384107	979	–	3545	33	69	<50	7.8	214	<1
22	384108	63	–	4608	<2	22	<50	0.5	365	<1
23	384109	305	–	3067	8	74	<50	2.3	273	<1
24	384110	47	–	2846	<2	24	<50	<0.5	243	<1
25	384130	208	–	1875	–	–	–	–	307	–

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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Analabs Pty. Ltd.
A.C.N. 004 591 664

390672

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	2 OF 5

	SAMPLE No.	P	S	Ti	Cu	Zn	As	As	Zr	Ag
METHOD		GX401	OM613	GX401	GA140	GA140	GA140	HA140	GX401	GA140
1	384131	170	–	1821	–	–	–	–	300	–
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	30	0.005	50	2	2	50	0.5	5	1
25	UNITS	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Good

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390673

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	3 OF 5

	SAMPLE No.	Ba	Au	Pb	Bi	Al2O3	SiO2	TiO2	Fe2O3	MnO
METHOD		GX401	GG326	GA140	GA140	OX408	OX408	OX408	OX408	OX408
1	384111	678	–	–	–	18.40	53.20	0.87	11.92	0.15
2	384112	530	–	–	–	20.10	51.80	1.02	13.10	0.10
3	384113	474	–	–	–	18.40	51.00	0.96	14.94	0.12
4	384114	1080	–	–	–	13.80	73.40	0.38	2.70	0.02
5	384115	1429	–	–	–	19.00	59.10	0.40	7.30	0.25
6	384116	1849	34	28	<10	11.70	75.90	0.33	3.50	<0.01
7	384117	3022	17	9	<10	13.70	69.40	0.42	5.99	<0.01
8	384122	1204	–	–	–	11.40	77.10	0.08	1.69	0.03
9	384123	1158	–	–	–	13.60	73.50	0.38	3.43	0.05
10	384124	806	26	1526	<10	18.30	61.20	0.63	7.31	0.04
11	384125	956	–	–	–	19.90	57.80	0.58	10.20	0.13
12	384126	286	–	–	–	14.90	48.10	0.70	11.55	0.17
13	384127	171	–	–	–	17.60	59.20	0.49	8.72	0.15
14	384128	548	–	–	–	14.60	65.30	0.51	7.05	1.51
15	384129	565	–	–	–	16.60	71.40	0.55	3.14	0.02
16	384118	–	18	16	<10	–	–	–	–	–
17	384119	–	2	6	<10	–	–	–	–	–
18	384120	–	2	11	<10	–	–	–	–	–
19	384121	–	2	8	<10	–	–	–	–	–
20	384106	–	<1	7	<10	–	–	–	–	–
21	384107	–	2	31	<10	–	–	–	–	–
22	384108	–	2	10	<10	–	–	–	–	–
23	384109	–	2	17	<10	–	–	–	–	–
24	384110	–	6	5	<10	–	–	–	–	–
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

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Analabs Pty. Ltd.
A.C.N. 004 591 664

390674

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	4 OF 5

	SAMPLE No.	Ba	Au	Pb	Bi	Al2O3	SiO2	TiO2	Fe2O3	MnO
METHOD		GX401	GG326	GA140	GA140	OX408	OX408	OX408	OX408	OX408
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	10	1	3	10	0.05	0.05	0.01	0.01	0.01
25	UNITS	ppm	ppb	ppm	ppm	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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A.C.N. 004 591 664

ANALYTICAL DATA

390675

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	112400.60.12268	12/12/96	GRANT MACDONA	5 OF 5

	SAMPLE No.	CaO	K2O	MgO	P2O5	SO3	Na2O	LOI	Total	Au(R)
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	GG326
1	384111	0.05	2.06	5.03	0.086	0.02	1.85	5.53	99.30	—
2	384112	0.12	1.55	2.90	0.088	0.02	5.01	3.90	99.60	—
3	384113	0.20	2.05	3.55	0.133	<0.01	3.35	4.45	99.20	—
4	384114	0.03	3.74	1.69	0.030	<0.01	1.01	2.47	99.30	—
5	384115	1.13	4.25	1.64	0.169	<0.01	2.16	3.84	99.20	—
6	384116	0.10	1.91	0.34	0.067	5.68	3.23	2.86	100.00	27
7	384117	<0.01	4.08	0.49	0.017	8.77	0.71	4.95	99.70	—
8	384122	0.74	5.88	1.00	<0.005	0.72	0.74	1.38	100.10	—
9	384123	0.89	2.61	1.46	0.041	<0.01	1.07	2.38	99.50	—
10	384124	0.08	5.21	0.59	0.135	6.03	0.08	5.15	99.20	—
11	384125	0.18	4.68	1.21	0.238	0.02	0.07	4.26	99.30	—
12	384126	7.21	0.36	4.75	0.152	<0.01	2.96	8.71	99.60	—
13	384127	0.97	0.42	2.53	0.133	<0.01	7.86	1.97	100.00	—
14	384128	0.31	4.32	0.43	0.134	0.49	<0.05	5.33	99.60	—
15	384129	0.13	4.84	0.42	0.116	0.39	<0.05	2.64	99.90	—
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.01	0.01	0.005	0.01	0.05	0.01	0.01	1
25	UNITS	%	%	%	%	%	%	%	%	ppb

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

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A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

390676

ANALYTICAL REPORT No. RES202.60.12339

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
08/10/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	22/10/96	1	28

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384132/59	RC Prep : GP033	Au,Au(R)/GG309
384132/59		Cu,Pb,Zn,Ag,Fe,Mn,Bi,As/GA140
		As/HA140,Mn,Fe/GA104

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Rocks (various)
- Alt° around nth shore of lake
- Heaty Canal alt°
- Drill core.

pp M.A. Good
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390677

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12339	23/10/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Cu	Pb	%Zn	Ag	Fe	Fe	Mn	Mn	Bi
METHOD		GA140	GA140	GA140	GA140	GA140	GA104	GA140	GA104	GA140
1	384132	36	2761	4905	5	2.91	-	233	-	<10
2	384133	16	676	4961	1	4.17	-	>5000	0.62	<10
3	384134	25	1334	915	1	1.92	-	169	-	<10
4	384135	8	1683	2659	2	>5.00	6.34	883	-	<10
5	384136	38	1204	294	1	3.68	-	651	-	<10
6	384137	12	946	4946	<1	4.56	-	1759	-	<10
7	384138	<2	<3	55	<1	>5.00	52.10	4730	-	<10
8	384139	<2	7	61	<1	>5.00	47.50	>5000	3.44	<10
9	384140	<2	9	54	<1	>5.00	46.50	>5000	1.58	<10
10	384141	33	160	132	6	4.29	-	528	-	<10
11	384142	4	49	73	1	1.79	-	210	-	<10
12	384143	6	25	32	1	1.27	-	112	-	<10
13	384144	8	43	26	1	0.93	-	82	-	<10
14	384145	13	122	54	2	1.29	-	37	-	<10
15	384146	5	6	40	<1	1.53	-	45	-	<10
16	384147	9	4	114	<1	4.33	-	342	-	<10
17	384148	4	6	29	<1	3.19	-	147	-	<10
18	384149	3	33	18	2	0.98	-	81	-	<10
19	384150	<2	21	21	1	0.88	-	82	-	<10
20	384151	539	19	108	1	0.65	-	251	-	<10
21	384152	3	5	16	<1	0.79	-	353	-	<10
22	384153	3447	30	121	2	1.57	-	731	-	<10
23	384154	1375	26	149	3	0.92	-	406	-	<10
24	384155	165	8	29	1	0.45	-	81	-	<10
25	384156	4	13	29	<1	1.17	-	678	-	<10

Results in ppm unless otherwise specified IS = Insufficient sample

AUTHORISED

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Analabs Pty. Ltd.
A.C.N. 004 581 004

390678

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12339	22/10/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	Fe	Fe	Mn	Mn	Bi
METHOD		GA140	GA140	GA140	GA140	GA140	GA104	GA140	GA104	GA140
1	384157	2071	18	228	10	0.53	-	293	-	<10
2	384158	71	26	288	<1	1.37	-	286	-	<10
3	384159	702	24	64	<1	1.04	-	129	-	<10
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	2	3	2	1	0.01	0.01	3	0.01	10
25	UNITS	ppm	ppm	ppm	ppm	%	%	ppm	%	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 864

390679

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12339	23/10/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	As	Ag	Au	Au (R)					
METHOD		GA140	HQ140	GG309	GG309					
1	384132	312	-	0.017	-					
2	384133	56	-	<0.008	-					
3	384134	55	-	<0.008	-					
4	384135	<50	17.40	<0.008	-					
5	384136	102	-	<0.008	-					
6	384137	<50	12.90	<0.008	-					
7	384138	435	-	<0.008	-					
8	384139	348	-	<0.008	-					
9	384140	287	-	<0.008	-					
10	384141	1574	-	<0.008	-					
11	384142	<50	32.80	<0.008	-					
12	384143	<50	13.40	<0.008	<0.008					
13	384144	<50	2.30	<0.008	-					
14	384145	<50	40.10	<0.008	-					
15	384146	<50	3.50	<0.008	-					
16	384147	<50	4.30	<0.008	-					
17	384148	54	-	<0.008	-					
18	384149	51	-	<0.008	-					
19	384150	<50	2.80	<0.008	-					
20	384151	<50	17.40	<0.008	-					
21	384152	<50	2.20	<0.008	-					
22	384153	<50	10.40	0.012	<0.008					
23	384154	<50	22.20	<0.008	-					
24	384155	<50	11.40	<0.008	-					
25	384156	<50	1.70	<0.008	-					

Results in ppm unless otherwise specified. - is insufficient sample

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A.C.N. 004 591 664

ANALYTICAL DATA

390680

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12339	22/10/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	As	Ag	Au	Au(R)					
METHOD		GA140	HA140	GA309	GG309					
1	384157	90	-	<0.008	<0.008					
2	384158	<50	15.70	0.024	-					
3	384159	<50	18.70	<0.008	-					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	0.01	0.008	0.008					
25	UNITS	ppm	ppm	ppm	ppm					

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED

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Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

390681

ANALYTICAL REPORT No. RES202.60.12359

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.: GRANT MACDON
PROJECT:
DATE RECEIVED: 14/10/96
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	22/10/96	1	19

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384160/78	RO Prep : GP033	Au,Au(R)/GG309 Cu,Pb,Zn/GA140,Zn/GA104

RESULTS TO:
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

Rock chips from
" Howards Pt "
& " YNC 12/13 ACCESS RD "

PP M.A. Good
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 684

390682

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12359	23/10/96	GRANT MACDONA	1 OF 1

	SAMPLE No.	Cu	Pb	Zn	Zn	Au	Au(R)			
METHOD		GA140	GA140	GA140	GA104	GG309	GG309			
1	384160	127	2488	1660	-	0.113	0.121			
2	384161	287	2383	>5000	0.86	0.016	-			
3	384162	6	34	1877	-	<0.008	-			
4	384163	6	15	867	-	<0.008	-			
5	384164	75	82	544	-	0.026	-			
6	384165	7	40	1299	-	<0.008	-			
7	384166	47	646	891	-	<0.008	-			
8	384167	6	32	1945	-	<0.008	-			
9	384168	8	26	962	-	<0.008	-			
10	384169	1423	355	1197	-	0.062	-			
11	384170	12	11	109	-	<0.008	-			
12	384171	2	23	144	-	<0.008	<0.008			
13	384172	3	23	124	-	<0.008	-			
14	384173	40	765	358	-	0.022	-			
15	384174	4	24	81	-	<0.008	-			
16	384175	2	7	68	-	<0.008	-			
17	384176	<2	<3	25	-	0.020	-			
18	384177	3	<3	16	-	<0.008	-			
19	384178	33	<3	77	-	<0.008	-			
20										
21										
22										
23										
24	DETECTION	2	3	2	0.01	0.008	0.008			
25	UNITS	ppm	ppm	ppm	%	ppm	ppm			

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.J. Grant

Analabs
Analabs Pty. Ltd.
A.C.N. 004 591 664
14 Thirkell St. CODEE TAS 7320
Phone (004) 316837
Fax (004) 318890

390683

ANALYTICAL REPORT No. RES202.60.12436

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ekstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
06/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	22/11/96	1	45

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384181/384209,384211/384226	SC Prep : GP033	Au,Au(R)/66309
384181/384209,384211/384226	SC Prep : GP033	Cu,Pb,Zn,Ag,Fe,Bi,Mn,As/GA140, As/HA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

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~~HA1~~ . HA2
reassay

PP M.A. Good
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 501 664

390684

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Fe	Bi	Mn
METHOD		GG309	GG309	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384181	0.029	-	31	36	68	<1	1.45	<10	459
2	384182	0.035	-	42	106	152	1	0.82	<10	212
3	384183	0.024	-	75	38	107	<1	2.15	<10	786
4	384184	<0.008	-	77	65	93	1	0.99	<10	725
5	384185	<0.008	-	50	46	30	<1	0.98	<10	473
6	384186	<0.008	-	55	63	88	1	3.01	<10	927
7	384187	<0.008	-	18	18	122	1	3.74	<10	1086
8	384188	<0.008	-	37	26	81	<1	2.96	<10	912
9	384189	<0.008	-	22	27	100	1	3.62	<10	1153
10	384190	<0.008	<0.008	25	22	77	<1	2.96	<10	933
11	384191	<0.008	-	20	28	91	<1	3.07	<10	824
12	384192	<0.008	<0.008	38	65	150	<1	1.54	<10	658
13	384193	<0.008	-	39	30	51	<1	1.44	<10	758
14	384194	<0.008	-	30	39	50	<1	1.90	<10	622
15	384195	<0.008	-	65	20	93	<1	2.95	<10	1311
16	384196	<0.008	-	57	21	102	<1	2.86	<10	1037
17	384197	<0.008	-	25	26	107	<1	3.09	<10	1298
18	384198	<0.008	-	38	50	102	<1	2.25	<10	938
19	384199	<0.008	-	38	59	107	<1	2.05	<10	1109
20	384200	<0.008	-	40	36	79	<1	1.24	<10	270
21	384201	<0.008	-	24	47	107	<1	2.77	<10	844
22	384202	<0.008	<0.008	28	60	101	<1	2.49	<10	1241
23	384203	<0.008	-	23	46	98	<1	3.41	<10	1280
24	384204	<0.008	-	52	5	115	<1	3.49	<10	1101
25	384205	<0.008	-	33	4	101	<1	2.98	<10	1196

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Good

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 684

390685

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Fe	Bi	Mn
METHOD		GG309	GG309	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384206	<0.008	-	31	21	67	<1	2.54	<10	1404
2	384207	<0.008	-	29	16	90	<1	2.89	<10	1101
3	384208	<0.008	-	43	9	109	<1	3.06	<10	1045
4	384209	<0.008	-	31	28	130	<1	3.26	<10	1335
5	384211	<0.008	-	42	87	162	<1	1.01	<10	302
6	384212	<0.008	-	62	143	704	<1	1.45	<10	754
7	384213	0.010	-	55	109	504	<1	3.61	<10	1490
8	384214	<0.008	-	59	148	262	<1	3.68	<10	1385
9	384215	<0.008	<0.008	60	128	298	<1	4.29	<10	1217
10	384216	<0.008	-	67	273	792	<1	1.35	<10	403
11	384217	<0.008	-	273	223	784	1	2.33	<10	411
12	384218	<0.008	<0.008	92	197	480	<1	2.88	<10	482
13	384219	<0.008	-	111	202	588	<1	3.08	<10	507
14	384220	<0.008	-	45	201	21	<1	3.06	<10	481
15	384221	<0.008	-	56	361	916	<1	1.02	<10	319
16	384222	<0.008	<0.008	49	88	139	<1	1.98	<10	703
17	384223	<0.008	-	46	128	420	<1	1.91	<10	779
18	384224	<0.008	-	52	40	334	1	4.32	<10	1429
19	384225	<0.008	-	38	78	355	<1	2.78	<10	444
20	384226	<0.008	-	46	157	509	<1	1.69	<10	302
21										
22										
23										
24	DETECTION	0.008	0.008	2	3	2	1	0.01	10	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 501 684

390686

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	As	As							
METHOD		HA140	GA140							
1	384181	27.70	<50							
2	384182	23.90	<50							
3	384183	20.10	<50							
4	384184	43.80	<50							
5	384185	25.60	<50							
6	384186	14.80	<50							
7	384187	8.60	<50							
8	384188	10.10	<50							
9	384189	12.90	<50							
10	384190	12.20	<50							
11	384191	9.00	<50							
12	384192	17.60	52							
13	384193	14.90	<50							
14	384194	15.70	<50							
15	384195	5.50	<50							
16	384196	4.60	<50							
17	384197	8.10	<50							
18	384198	13.60	<50							
19	384199	10.30	<50							
20	384200	11.20	<50							
21	384201	11.20	<50							
22	384202	15.50	<50							
23	384203	11.80	<50							
24	384204	10.40	<50							
25	384205	11.70	<50							

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

390687

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12436	22/11/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	As	As							
METHOD		HA140	GA140							
1	384206	22.00	<50							
2	384207	16.10	<50							
3	384208	8.00	<50							
4	384209	13.10	<50							
5	384211	46.50	<50							
6	384212	>50.00	68							
7	384213	49.20	<50							
8	384214	35.20	<50							
9	384215	34.60	<50							
10	384216	>50.00	71							
11	384217	>50.00	60							
12	384218	36.60	<50							
13	384219	46.90	<50							
14	384220	>50.00	62							
15	384221	>50.00	80							
16	384222	>50.00	58							
17	384223	>50.00	68							
18	384224	40.60	<50							
19	384225	>50.00	78							
20	384226	>50.00	84							
21										
22										
23										
24	DETECTION	0.01	50							
25	UNITS	ppm	ppm							

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Good

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 064

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

390688

ANALYTICAL REPORT No. RES202.60.12457

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Mestrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
12/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	19/12/96	1	37

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384241/53,384271/94	SC Prep : GP033	Au,Au(R)/GB309
384241/53,384271/94	SC Prep : GP033	Cu,Pb,Zn,Ag,Bi,Mn,Sb,As/GA140. As/HA140
384241/53,384271/94	SC Prep : GP033	Zr,Ba,Ti/GX401

RESULTS TO:
Grant MacDonald
Resolute Resources Limited
PO Box 45
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

- HA2 unt core
- Henty ore
- Tyndall Creek rocks.

pp

AUTHORISED OFFICER

ANALABS

390689

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384241	0.062	-	-	102	-	782	-	3120	-
2	384242	0.014	-	-	107	-	80	-	1763	-
3	384243	0.016	-	-	89	-	241	-	1519	-
4	384244	0.064	-	-	179	-	45	-	152	-
5	384245	0.100	-	-	209	-	46	-	141	-
6	384246	0.166	-	-	154	-	80	-	632	-
7	384247	0.176	-	-	615	-	65	-	271	-
8	384248	0.341	-	-	267	-	147	-	105	-
9	384249	0.336	-	-	3072	-	78	-	73	-
10	384250	0.102	-	-	314	-	255	-	220	-
11	384251	0.053	-	-	233	-	609	-	2723	-
12	384252	0.012	0.015	-	121	-	1405	-	3818	-
13	384253	0.012	-	-	183	-	838	-	2285	-
14	384271	46.000	-	-	3922	0.64	>5000	-	195	60
15	384272	1.517	-	-	2376	-	757	-	55	-
16	384273	121.00	-	-	2051	1.41	>5000	-	681	171
17	384274	9.340	10.100	0.57	>5000	1.19	>5000	-	130	108
18	384275	0.084	-	-	21	-	20	-	5	-
19	384276	6.040	-	-	1594	-	1370	-	78	-
20	384277	15.200	-	-	2027	-	4407	-	154	-
21	384278	0.323	-	-	577	-	569	-	326	-
22	384279	0.826	0.840	-	104	-	2113	-	165	-
23	384280	0.803	-	-	820	1.54	>5000	2.57	>5000	-
24	384281	0.030	-	-	195	0.52	>5000	2.59	>5000	58
25	384282	0.029	-	-	465	0.55	>5000	1.73	>5000	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Fleet

A N A L A B S

390690

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Cu	Pb	Pb	Zn	Zn	Ag
METHOD		GG309	GG309	GA104	GA140	GA104	GA140	GA104	GA140	GA104
1	384283	0.041	-	-	119	0.86	>5000	-	1436	-
2	384284	0.922	-	-	1021	1.10	>5000	0.70	>5000	-
3	384285	0.915	0.969	-	1512	0.87	>5000	1.57	>5000	-
4	384286	1.641	-	-	2937	1.91	>5000	3.57	>5000	250
5	384287	0.304	-	-	2553	2.78	>5000	4.37	>5000	120
6	384288	0.819	-	-	177	-	4100	-	327	-
7	384289	0.491	-	-	946	0.83	>5000	2.15	>5000	148
8	384290	1.501	-	-	1893	6.62	>5000	3.11	>5000	66
9	384291	3.770	-	-	2882	3.59	>5000	5.24	>5000	175
10	384292	1.198	-	-	270	1.18	>5000	-	3019	-
11	384293	0.055	-	-	145	-	1170	-	386	65
12	384294	2.300	2.420	-	968	2.94	>5000	7.19	>5000	55
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.008	0.008	0.01	2	0.01	3	0.01	2	50
25	UNITS	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

3906S1

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384241	<1	<10	1836	45.3	<50	119	1720	1945	<3
2	384242	<1	12	2111	38.0	<50	116	1580	1855	5
3	384243	<1	<10	1441	48.0	<50	139	2570	2290	<3
4	384244	<1	<10	886	37.8	<50	150	3600	2350	<3
5	384245	<1	<10	637	37.0	<50	142	4225	2430	<3
6	384246	<1	<10	1236	34.3	<50	136	4695	2345	5
7	384247	<1	12	1605	21.7	<50	153	4750	2725	<3
8	384248	<1	11	252	38.0	<50	151	11300	2200	3
9	384249	3	32	173	15.7	<50	126	6075	2160	7
10	384250	<1	<10	890	32.0	<50	132	3405	2245	4
11	384251	<1	<10	3870	23.0	<50	144	2195	2125	7
12	384252	<1	11	2828	46.9	<50	145	3730	2130	<3
13	384253	<1	<10	1950	30.4	<50	162	4070	2535	5
14	384271	>50	119	600	4.3	<50	220	44	2395	23
15	384272	9	26	251	<0.5	<50	136	55	1615	<3
16	384273	>50	409	338	12.9	<50	343	29	3695	52
17	384274	>50	450	89	10.3	<50	319	<10	2725	16
18	384275	<1	<10	68	5.3	<50	98	64	515	6
19	384276	28	43	211	4.1	<50	130	38	1390	4
20	384277	37	80	278	7.2	<50	177	36	2050	5
21	384278	3	15	93	41.3	<50	231	282	2650	3
22	384279	11	<10	69	>50.0	123	102	91000	1785	33
23	384280	35	13	64	13.7	<50	115	49000	820	47
24	384281	>50	<10	48	10.0	<50	28	111000	410	29
25	384282	35	<10	56	11.7	<50	21	147000	460	26

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12457	19/12/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ag	Bi	Mn	As	As	Zr	Ba	Ti	Sb
METHOD		GA140	GA140	GA140	HA140	GA140	GX401	GX401	GX401	GX401
1	384283	18	<10	57	13.2	<50	37	68000	350	30
2	384284	40	<10	78	>50.0	443	148	73000	2920	209
3	384285	14	<10	71	>50.0	132	87	186000	1270	61
4	384286	>50	<10	317	>50.0	130	43	437000	515	136
5	384287	>50	<10	59	>50.0	106	69	337000	455	83
6	384288	14	<10	160	>50.0	125	134	9000	2345	39
7	384289	>50	<10	132	1.0	539	30	262000	540	78
8	384290	>50	<10	66	>50.0	315	157	307000	530	95
9	384291	>50	<10	57	>50.0	472	65	400000	495	100
10	384292	37	<10	165	>50.0	159	145	12000	2040	61
11	384293	>50	<10	958	37.3	<50	31	117000	570	16
12	384294	>50	<10	72	>50.0	457	68	389000	575	127
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	3	0.5	50	5	10	50	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs
****

Analabs Pty. Ltd.
A.C.N. 004 591 664

390692

Phone (004) 316837 | 14 Thirkell St. COGEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RE9202.60.12488

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
18/11/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	02/12/96	1	44

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384301/384344	SO Prep : GP033	Au,Au(R)/GG313
384301/384344	SO Prep :	Cu,Pb,Zn,Ag,Bi,Mn,As/GA140, As/HA140

RESULTS TO:
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

"Wacker" Cohorizon
First batch.

RESULTS TO:

RESULTS TO:

pp M.A. Good
AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

390693

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Bi	Mn	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384301	<0.005	-	27	312	118	<1	<10	838	60
2	384302	<0.005	-	256	68	377	<1	<10	444	<50
3	384303	<0.005	-	170	48	269	<1	<10	993	<50
4	384304	<0.005	-	57	58	352	<1	<10	1883	<50
5	384305	<0.005	-	40	19	351	<1	<10	651	<50
6	384306	0.013	-	961	667	567	<1	<10	203	362
7	384307	0.035	0.033	5	219	48	<1	<10	189	<50
8	384308	0.011	-	9	33	121	<1	<10	565	<50
9	384309	0.012	-	362	137	196	<1	<10	371	106
10	384310	0.014	-	117	1051	239	<1	<10	318	<50
11	384311	<0.005	-	31	15	933	<1	<10	1361	<50
12	384312	<0.005	<0.005	76	78	293	<1	<10	1615	<50
13	384313	<0.005	-	41	147	733	<1	<10	682	256
14	384314	<0.005	-	41	216	718	<1	<10	1742	256
15	384315	0.007	-	40	115	360	<1	<10	1863	<50
16	384316	<0.005	-	27	67	2540	<1	<10	1046	<50
17	384317	0.027	-	226	471	1164	2	<10	759	<50
18	384318	0.063	-	1028	634	486	4	<10	1537	<50
19	384319	0.012	-	390	71	218	1	<10	693	<50
20	384320	0.104	-	414	194	171	4	<10	1130	<50
21	384321	<0.005	-	7	9	181	<1	<10	1418	<50
22	384322	<0.005	-	39	16	249	<1	<10	1249	<50
23	384323	<0.005	-	18	14	126	<1	<10	966	<50
24	384324	<0.005	-	76	42	165	<1	<10	1418	<50
25	384325	<0.005	-	50	24	104	<1	<10	1104	<50

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

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Analabs Pty. Ltd.
A.C.N. 004 591 664

390694

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Bi	Mn	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	GA140
1	384326	<0.005	<0.005	9	9	161	<1	<10	1115	<50
2	384327	<0.005	-	14	12	112	<1	<10	603	<50
3	384328	<0.005	-	16	21	40	<1	<10	505	<50
4	384329	<0.005	-	10	4	34	<1	<10	185	<50
5	384330	<0.005	-	6	6	60	<1	<10	470	<50
6	384331	<0.005	-	140	5	176	<1	<10	1487	<50
7	384332	<0.005	-	40	28	116	<1	<10	635	<50
8	384333	<0.005	-	37	29	99	<1	<10	202	<50
9	384334	<0.005	-	38	49	79	<1	<10	140	<50
10	384335	<0.005	-	35	22	79	<1	<10	155	<50
11	384336	<0.005	-	50	5	122	<1	<10	167	<50
12	384337	<0.005	-	35	22	88	<1	<10	342	<50
13	384338	<0.005	<0.005	44	14	127	<1	<10	190	<50
14	384339	<0.005	-	8	5	66	<1	<10	82	<50
15	384340	<0.005	-	35	4	42	<1	<10	115	<50
16	384341	<0.005	<0.005	34	13	49	<1	<10	54	<50
17	384342	<0.005	-	26	18	258	<1	<10	1303	<50
18	384343	0.010	-	42	23	200	<1	<10	1263	<50
19	384344	0.016	-	27	7	47	<1	<10	558	<50
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	10	3	50
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

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ANALYTICAL DATA

390695

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	3 OF 4

	SAMPLE No.	As								
METHOD		HA140								
1	384301	>50.0								
2	384302	27.9								
3	384303	14.6								
4	384304	11.1								
5	384305	12.8								
6	384306	>50.0								
7	384307	5.0								
8	384308	8.3								
9	384309	>50.0								
10	384310	13.7								
11	384311	16.5								
12	384312	8.9								
13	384313	>50.0								
14	384314	>50.0								
15	384315	25.9								
16	384316	22.1								
17	384317	30.6								
18	384318	9.1								
19	384319	17.4								
20	384320	17.6								
21	384321	11.4								
22	384322	6.9								
23	384323	4.3								
24	384324	9.4								
25	384325	5.5								

Results in ppm unless otherwise specified
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AUTHORISED OFFICER pp M.A. Good

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Analabs Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

390696

SAMPLE PREPIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12488	02/12/96	GRANT MACDONA	4 OF 4

	SAMPLE No.	As								
METHOD		HA140								
1	384326	5.6								
2	384327	5.0								
3	384328	4.5								
4	384329	4.2								
5	384330	3.2								
6	384331	5.9								
7	384332	5.3								
8	384333	11.3								
9	384334	11.0								
10	384335	11.2								
11	384336	10.0								
12	384337	7.2								
13	384338	9.3								
14	384339	1.8								
15	384340	2.0								
16	384341	4.2								
17	384342	35.5								
18	384343	18.1								
19	384344	6.9								
20										
21										
22										
23										
24	DETECTION	0.5								
25	UNITS	ppm								

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs
Analabs Pty. Ltd.
A.C.N. 004 581 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

390697

ANALYTICAL REPORT No. RES202.60.12544

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
02/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	12/12/96	1	57

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385501/57	DC Prep : GP033	Au.Au(R)/GB313
385501/57	DC Prep : GP033	Cu,Pb,Zn,Ag/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

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664m → 724m.

RESULTS TO

RESULTS TO

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A.C.N. 004 591 664

ANALYTICAL DATA

390698

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	1 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385501	<0.005	-	45	1783	-	2280	-	8	
2	385502	0.012	-	16	1039	-	1510	-	3	
3	385503	0.044	-	198	>5000	3.45	>5000	0.92	32	
4	385504	0.048	-	42	905	-	2323	-	2	
5	385505	0.019	-	85	1294	-	827	-	3	
6	385506	0.064	-	64	605	-	1121	-	2	
7	385507	0.063	-	30	726	-	1265	-	2	
8	385508	0.038	-	32	1427	-	1366	-	5	
9	385509	0.168	-	94	3393	-	>5000	0.93	13	
10	385510	0.039	-	57	1010	-	1779	-	3	
11	385511	0.034	-	34	826	-	1185	-	2	
12	385512	0.042	0.036	37	814	-	1495	-	3	
13	385513	0.168	0.168	404	>5000	0.69	>5000	1.82	14	
14	385514	0.132	-	283	2899	-	1635	-	14	
15	385515	0.042	-	60	2271	-	1485	-	5	
16	385516	0.060	-	80	894	-	2281	-	2	
17	385517	0.078	-	76	3281	-	3083	-	8	
18	385518	0.064	-	49	923	-	1664	-	2	
19	385519	0.048	-	57	363	-	1070	-	1	
20	385520	0.019	-	24	328	-	804	-	1	
21	385521	0.028	-	50	310	-	1066	-	1	
22	385522	0.013	0.009	37	631	-	965	-	1	
23	385523	0.008	-	84	1508	-	933	-	3	
24	385524	0.008	-	65	135	-	956	-	<1	
25	385525	0.008	-	39	198	-	587	-	<1	

Results in ppm unless otherwise specified
- = element not determined

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AUTHORISED OFFICER pp

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A.C.N. 004 591 664

390659

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	2 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385526	0.012	0.021	35	676	-	979	-	1	
2	385527	<0.005	-	85	320	-	240	-	1	
3	385528	<0.005	-	63	243	-	1504	-	<1	
4	385529	<0.005	-	76	130	-	283	-	<1	
5	385530	0.023	-	1361	455	-	1348	-	6	
6	385531	0.017	-	38	1095	-	2211	-	3	
7	385532	0.029	-	40	674	-	1506	-	2	
8	385533	0.023	-	14	353	-	926	-	<1	
9	385534	0.017	-	30	1326	-	2138	-	2	
10	385535	0.005	-	21	716	-	3609	-	1	
11	385536	<0.005	-	110	806	-	1214	-	2	
12	385537	0.012	-	36	637	-	1593	-	2	
13	385538	0.016	-	48	549	-	3020	-	2	
14	385539	0.007	-	1131	109	-	107	-	2	
15	385540	0.006	-	760	34	-	209	-	2	
16	385541	<0.005	-	77	36	-	233	-	<1	
17	385542	<0.005	<0.005	17	41	-	116	-	<1	
18	385543	<0.005	-	83	147	-	187	-	<1	
19	385544	0.016	-	14	135	-	224	-	<1	
20	385545	0.034	-	22	387	-	529	-	1	
21	385546	0.046	-	18	440	-	1107	-	1	
22	385547	0.016	0.021	13	434	-	1151	-	<1	
23	385548	0.026	-	20	540	-	1006	-	1	
24	385549	0.036	-	30	799	-	1638	-	1	
25	385550	0.031	-	16	646	-	704	-	<1	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

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Analabs Pty. Ltd.
A.C.N. 004 501 064

ANALYTICAL DATA

390700

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12544	12/12/96	GRANT MACDONA	3 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	
1	385551	0.089	-	71	1488	-	4387	-	1	
2	385552	0.266	-	378	2455	-	>5000	0.72	7	
3	385553	0.331	-	68	1679	-	3668	-	3	
4	385554	0.042	-	100	1020	-	>5000	0.66	1	
5	385555	0.039	-	45	919	-	1581	-	<1	
6	385556	0.025	-	8	623	-	887	-	<1	
7	385557	0.031	-	7	129	-	430	-	<1	
8										
9										
10									-	
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	

...its in ppm unless otherwise specified
...ment not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390701

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12563

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
06/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
14	19/12/96	1	101

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385558/385615,385621/385654	RO Prep : GP033	Au,Au(R)/GG313
385558/385615,385621/385654	RO Prep : GP033	Cu,Pb,Zn,Ag/GA140
385502 & others	RO Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../OX408
385502 & others	RO Prep : GP033	S/OM613,Zr,Ba,Ti/GX401
385502 & others	RO Prep : GP033	Mn,Mo,Bi,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

SHD1 me
whole rock.

pp M.A. Good
AUTHORISED OFFICER

A N A L A B S

3202(2)

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	1 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385558	0.024	-	11	266	-	777	-	<1	-
2	385559	0.010	-	22	338	-	718	-	<1	-
3	385560	0.015	-	16	127	-	1128	-	<1	>5000
4	385561	0.019	-	40	310	-	1808	-	<1	-
5	385562	0.029	-	23	345	-	1063	-	<1	-
6	385563	0.048	-	51	1030	-	2223	-	<1	-
7	385564	0.029	-	16	614	-	1411	-	<1	-
8	385565	0.032	-	26	693	-	2067	-	<1	-
9	385566	0.048	0.041	60	1077	-	1785	-	<1	>5000
10	385567	0.051	-	174	1441	-	>5000	0.73	<1	-
11	385568	0.060	-	296	1857	-	2939	-	2	-
12	385569	0.063	0.060	56	941	-	2528	-	2	-
13	385570	0.052	-	102	1432	-	3123	-	3	-
14	385571	0.114	-	72	727	-	2309	-	4	-
15	385572	0.090	0.092	85	750	-	2660	-	1	-
16	385573	0.057	-	35	675	-	1817	-	2	-
17	385574	0.074	-	68	1695	-	3164	-	12	-
18	385575	0.068	-	46	815	-	2373	-	4	-
19	385576	0.045	-	45	983	-	1798	-	2	-
20	385577	0.018	-	105	890	-	3762	-	1	-
21	385578	0.008	-	16	530	-	1200	-	<1	-
22	385579	0.024	0.028	19	373	-	1199	-	<1	-
23	385580	0.025	-	25	734	-	1752	-	<1	-
24	385581	0.039	-	75	903	-	2589	-	1	-
25	385582	0.015	-	26	750	-	1606	-	1	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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ANALABS

ANALYTICAL DATA

390703

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	2 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385583	0.007	-	14	648	-	1621	-	<1	-
2	385584	<0.005	-	26	992	-	2523	-	<1	-
3	385585	0.043	-	79	1147	-	2725	-	<1	-
4	385586	0.009	-	119	1581	-	3230	-	<1	-
5	385587	0.008	-	7	263	-	888	-	<1	-
6	385588	<0.005	-	8	140	-	960	-	<1	>5000
7	385589	0.010	-	9	341	-	1593	-	<1	-
8	385590	<0.005	-	8	811	-	2235	-	<1	-
9	385591	<0.005	-	12	1509	-	2453	-	<1	-
10	385592	<0.005	-	41	2372	-	3151	-	<1	>5000
11	385593	0.008	-	108	1296	-	3547	-	<1	-
12	385594	<0.005	<0.005	96	880	-	2273	-	<1	-
13	385595	0.012	-	8	407	-	946	-	<1	-
14	385596	<0.005	-	8	146	-	706	-	<1	-
15	385597	0.016	-	3	246	-	771	-	<1	-
16	385598	0.006	-	4	303	-	946	-	<1	-
17	385599	<0.005	-	4	467	-	735	-	<1	-
18	385600	<0.005	-	5	448	-	1075	-	<1	-
19	385601	<0.005	-	6	170	-	644	-	<1	-
20	385602	<0.005	-	6	113	-	544	-	<1	>5000
21	385603	<0.005	-	14	184	-	555	-	<1	-
22	385604	<0.005	<0.005	4	172	-	486	-	<1	-
23	385605	<0.005	-	5	338	-	520	-	<1	-
24	385606	0.008	-	10	175	-	338	-	<1	-
25	385607	0.005	-	11	147	-	506	-	<1	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390704

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	3 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385608	0.008	-	43	215	-	625	-	<1	-
2	385609	0.005	0.007	15	222	-	510	-	<1	-
3	385610	<0.005	-	12	140	-	535	-	<1	-
4	385611	0.179	-	10	185	-	465	-	<1	-
5	385612	<0.005	-	12	252	-	611	-	<1	-
6	385613	<0.005	-	10	276	-	689	-	<1	4046
7	385614	0.013	-	23	393	-	1221	-	<1	-
8	385615	<0.005	-	8	275	-	682	-	<1	-
9	385621	<0.005	-	33	<3	-	140	-	<1	827
10	385622	<0.005	-	135	<3	-	138	-	<1	1590
11	385623	<0.005	-	132	<3	-	165	-	<1	1780
12	385624	<0.005	<0.005	196	3	-	236	-	<1	1338
13	385625	0.035	-	4	<3	-	87	-	<1	1007
14	385626	<0.005	-	19	<3	-	67	-	<1	1036
15	385627	0.019	-	127	40	-	180	-	<1	1092
16	385628	0.071	-	9	<3	-	188	-	<1	1160
17	385629	0.079	-	5	11	-	25	-	<1	2417
18	385630	0.007	-	3	<3	-	227	-	<1	972
19	385631	<0.005	-	39	6	-	132	-	<1	1152
20	385632	<0.005	-	26	30	-	319	-	<1	1573
21	385633	<0.005	-	6	14	-	228	-	<1	1740
22	385634	<0.005	<0.005	15	33	-	198	-	<1	618
23	385635	<0.005	-	26	9	-	240	-	<1	2014
24	385636	<0.005	-	5	552	-	1513	-	<1	347
25	385637	<0.005	-	13	15	-	131	-	<1	2339

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

390705

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	4 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Hg	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385638	<0.005	-	13	28	-	323	-	<1	2610
2	385639	<0.005	<0.005	19	14	-	281	-	<1	2728
3	385640	0.024	-	10	8	-	92	-	<1	1506
4	385641	<0.005	-	14	222	-	460	-	<1	272
5	385642	0.018	-	28	58	-	95	-	<1	575
6	385643	<0.005	-	37	10	-	282	-	<1	2687
7	385644	<0.005	-	21	28	-	247	-	<1	2262
8	385645	<0.005	-	13	<3	-	201	-	<1	1732
9	385646	<0.005	-	8	<3	-	281	-	<1	2829
10	385647	<0.005	-	50	<3	-	288	-	<1	4275
11	385648	<0.005	-	63	19	-	153	-	<1	3127
12	385649	<0.005	<0.005	31	77	-	321	-	<1	2611
13	385650	<0.005	-	22	4	-	70	-	<1	3733
14	385651	0.027	-	12	5	-	82	-	<1	1396
15	385652	<0.005	-	19	6	-	74	-	<1	1603
16	385653	0.089	-	17	24	-	105	-	<1	2110
17	385654	0.005	-	49	786	-	4979	-	4	2293
18	385502	-	-	-	-	-	-	-	-	>5000
19	385505	-	-	-	-	-	-	-	-	>5000
20	385513	-	-	-	-	-	-	-	-	768
21	385522	-	-	-	-	-	-	-	-	>5000
22	385532	-	-	-	-	-	-	-	-	>5000
23	385538	-	-	-	-	-	-	-	-	>5000
24	385546	-	-	-	-	-	-	-	-	>5000
25	385553	-	-	-	-	-	-	-	-	>5000

esults in ppm unless otherwise specified
= element not determined

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AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390706

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	5 OF 14

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385557	-	-	-	-	-	-	-	-	>5000
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	3
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

ANALYTICAL DATA

390707

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	6 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
METHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1	385560	1.85	6	<10	<50	12.6	0.740	149	2527	3723
2	385566	1.18	<5	<10	<50	45.8	0.570	253	3458	3061
3	385588	1.00	<5	<10	<50	9.8	0.410	272	1534	1837
4	385592	0.87	9	<10	<50	7.6	0.400	269	1292	1488
5	385602	0.86	<5	<10	<50	5.1	0.120	261	879	1582
6	385613	-	<5	<10	<50	5.8	0.093	249	1213	2814
7	385621	-	<5	<10	<50	4.1	0.025	173	1076	4301
8	385622	-	<5	<10	<50	4.7	0.110	191	905	4679
9	385623	-	<5	<10	<50	2.4	0.016	174	802	5125
10	385624	-	<5	<10	<50	5.7	0.052	217	443	2878
11	385625	-	<5	<10	<50	2.5	0.015	112	1495	4582
12	385626	-	<5	<10	<50	2.7	<0.005	89	1176	3154
13	385627	-	6	<10	<50	37.2	0.990	170	638	2482
14	385628	-	<5	<10	<50	2.9	<0.005	152	908	5576
15	385629	-	<5	<10	<50	18.5	<0.005	12	209	208
16	385630	-	<5	<10	<50	3.2	0.011	199	1813	2461
17	385631	-	<5	<10	<50	3.6	<0.005	228	2306	2710
18	385632	-	<5	<10	<50	2.7	<0.005	204	2442	2692
19	385633	-	<5	<10	<50	2.3	0.068	221	1765	2768
20	385634	-	<5	<10	<50	10.6	<0.005	219	1315	2744
21	385635	-	<5	<10	<50	5.3	0.049	228	925	4045
22	385636	-	5	<10	<50	4.8	0.270	213	1717	3667
23	385637	-	<5	<10	<50	2.3	0.100	190	965	2326
24	385638	-	<5	<10	<50	2.2	0.018	230	1283	2409
25	385639	-	<5	<10	<50	12.5	0.220	259	1172	4664

Results in ppm unless otherwise specified
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AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390708

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	7 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
METHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1	385640	-	5	<10	<50	9.1	0.490	219	1600	5115
2	385641	-	<5	<10	<50	30.3	0.920	268	1405	2589
3	385642	-	<5	<10	<50	40.1	1.750	261	1472	3648
4	385643	-	<5	<10	<50	7.4	0.110	289	1398	7304
5	385644	-	<5	<10	<50	15.9	0.230	221	996	4090
	385645	-	<5	<10	<50	2.5	0.028	226	1070	2649
7	385646	-	<5	<10	<50	12.3	0.021	211	1125	2653
8	385647	-	<5	<10	<50	15.9	0.054	194	1412	3926
9	385648	-	<5	<10	<50	26.7	0.110	166	1524	3433
10	385649	-	<5	<10	<50	34.8	1.050	266	996	2814
11	385650	-	<5	<10	<50	19.9	0.038	229	677	2578
12	385651	-	<5	<10	<50	18.4	0.024	241	857	2646
13	385652	-	<5	<10	<50	18.2	0.088	227	816	2562
14	385653	-	<5	<10	<50	25.3	0.032	219	1541	2511
15	385654	-	<5	<10	<50	32.6	2.300	106	64000	4080
16	385502	1.26	<5	<10	<50	37.6	0.830	251	4545	3622
17	385505	1.70	<5	<10	60	>50.0	0.660	146	3675	2912
18	385513	-	10	<10	64	>50.0	6.290	55	205000	1320
19	385522	1.29	<5	<10	77	>50.0	0.530	150	3267	3591
20	385532	1.01	<5	<10	95	>50.0	1.550	157	4062	3688
21	385538	2.02	<5	<10	<50	49.7	1.340	139	5285	3069
22	385546	1.40	<5	<10	83	>50.0	0.650	210	3390	5785
23	385553	1.98	<5	<10	65	>50.0	1.420	143	5010	3105
24	385557	1.70	<5	<10	<50	35.6	0.530	147	3504	4046
25										

Results in ppm unless otherwise specified
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AUTHORISED OFFICER pp

ANALABS

390709

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	8 OF 14

	SAMPLE No.	Mn	Mo	Bi	As	As	S	Zr	Ba	Ti
METHOD		GA104	GA140	GA140	GA140	HA140	OM613	GX401	GX401	GX401
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	5	10	50	0.5	0.005	5	10	50
25	UNITS	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

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AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390710

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	9 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385560	14.30	57.30	0.57	9.41	2.31	0.67	4.45	1.11	0.133
2	385566	16.70	60.40	0.59	6.89	1.52	0.31	5.00	0.81	0.144
3	385588	13.10	69.50	0.33	3.81	1.25	1.36	3.93	0.77	0.052
4	385592	12.00	73.60	0.28	3.85	1.06	0.17	3.61	0.54	0.040
5	385602	12.20	70.20	0.30	3.22	1.03	2.19	3.57	0.95	0.020
6	385613	13.50	66.40	0.51	4.15	0.61	2.66	3.81	1.27	0.109
7	385621	20.60	48.80	1.10	8.00	0.10	6.25	3.62	1.88	0.511
8	385622	21.90	44.60	1.19	9.91	0.21	5.84	3.72	1.72	0.331
9	385623	19.70	46.00	1.05	11.70	0.24	6.53	2.46	1.75	0.345
10	385624	15.60	53.60	0.48	13.20	0.17	3.03	1.05	4.17	0.131
11	385625	16.90	37.70	0.88	13.83	0.13	11.85	3.48	1.59	0.229
12	385626	12.20	30.70	0.68	7.34	0.13	23.22	2.41	1.36	0.194
13	385627	13.20	61.30	0.44	8.51	0.14	3.66	1.41	2.50	0.166
14	385628	19.70	49.10	1.06	9.85	0.15	4.09	1.68	2.22	0.311
15	385629	1.77	6.75	0.04	1.01	0.32	49.20	0.23	0.51	0.091
16	385630	13.20	68.30	0.45	5.93	0.12	1.30	2.17	2.16	0.127
17	385631	15.50	67.90	0.52	3.45	0.15	1.83	3.72	1.03	0.142
18	385632	14.30	67.10	0.51	7.12	0.21	1.24	2.79	1.54	0.143
19	385633	15.60	65.60	0.56	5.52	0.23	1.71	2.81	1.24	0.150
20	385634	14.80	70.90	0.52	4.51	0.07	0.24	3.05	1.16	0.145
21	385635	14.70	64.00	0.69	6.04	0.28	2.87	2.77	0.88	0.241
22	385636	13.80	72.30	0.64	3.04	0.04	0.59	3.18	0.64	0.227
23	385637	13.10	61.40	0.46	5.19	0.33	6.38	3.31	1.24	0.135
24	385638	15.00	63.20	0.51	5.38	0.36	2.62	4.74	1.61	0.140
25	385639	17.60	58.90	0.88	8.50	0.39	0.81	5.24	1.73	0.219

Results in ppm unless otherwise specified
– = element not determined

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AUTHORISED OFFICER pp

ANALABS

ANALYTICAL DATA

390711

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	10 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	385640	15.10	65.90	0.86	3.56	0.21	1.63	5.08	1.09	0.262
2	385641	17.80	66.20	0.65	3.18	0.03	0.40	6.20	1.06	0.161
3	385642	17.80	63.40	0.75	4.59	0.08	0.59	6.20	0.98	0.176
4	385643	21.50	53.10	1.30	8.02	0.40	0.70	6.88	1.69	0.386
5	385644	15.10	59.60	0.74	7.62	0.33	3.00	4.72	1.77	0.209
6	385645	14.90	65.30	0.52	5.73	0.25	1.56	4.73	1.50	0.141
7	385646	14.20	65.40	0.51	6.08	0.42	1.01	5.15	1.46	0.136
8	385647	18.00	58.80	0.72	6.74	0.65	0.38	6.81	1.40	0.190
9	385648	15.80	59.60	0.64	7.23	0.47	2.02	5.76	1.25	0.174
10	385649	17.40	60.30	0.59	5.43	0.40	0.96	7.03	1.31	0.160
11	385650	15.10	66.30	0.53	5.23	0.58	0.53	5.96	0.98	0.138
12	385651	15.70	67.50	0.54	4.60	0.20	0.71	5.73	0.93	0.152
13	385652	15.00	66.00	0.51	4.84	0.23	1.64	5.25	0.94	0.144
14	385653	14.30	67.00	0.52	4.48	0.31	1.77	4.95	0.90	0.132
15	385654	12.50	53.60	0.67	3.97	0.30	2.58	4.41	1.12	0.169
16	385502	15.70	57.10	0.65	5.08	1.55	3.20	6.34	0.99	0.157
17	385505	12.60	58.50	0.50	5.26	2.12	3.75	5.50	1.27	0.130
18	385513	4.33	50.70	0.22	1.62	0.07	0.76	1.50	0.17	0.045
19	385522	14.40	62.10	0.62	6.32	1.58	1.23	5.24	0.98	0.158
20	385532	15.30	61.80	0.64	5.71	1.23	1.15	5.42	0.79	0.145
21	385538	12.20	62.00	0.49	7.08	2.51	1.14	4.07	0.90	0.101
22	385546	15.60	59.30	0.94	6.32	1.70	1.48	5.06	1.05	0.162
23	385553	12.80	53.60	0.49	11.36	2.44	1.32	4.15	1.23	0.102
24	385557	15.00	54.80	0.64	9.75	2.06	1.39	4.62	1.27	0.166
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390712

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	11 OF 14

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	%	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

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SNR = sample not received

AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390713

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	12 OF 14

	SAMPLE No.	SO3	LOI	Total	Na2O					
METHOD		OX408	OX408	OX408	OX408					
1	385560	1.67	8.41	98.80	0.12					
2	385566	0.96	6.68	99.40	0.13					
3	385588	0.68	4.99	99.30	0.11					
4	385592	0.81	4.05	99.60	0.09					
5	385602	0.27	5.36	99.10	0.11					
6	385613	0.22	6.16	99.40	0.13					
7	385621	<0.01	6.12	100.20	3.17					
8	385622	0.20	6.65	99.10	2.97					
9	385623	0.04	6.83	100.20	3.64					
10	385624	0.08	6.00	99.80	2.30					
11	385625	<0.01	12.04	100.10	1.40					
12	385626	<0.01	20.03	100.00	1.66					
13	385627	1.82	5.20	99.00	2.47					
14	385628	<0.01	5.30	99.40	5.90					
15	385629	0.01	39.20	99.60	0.44					
16	385630	0.02	3.11	99.20	2.41					
17	385631	<0.01	3.36	99.40	1.79					
18	385632	<0.01	3.17	99.80	1.75					
19	385633	0.10	2.98	99.30	2.88					
20	385634	0.15	2.10	99.80	2.25					
21	385635	0.09	3.91	99.00	2.58					
22	385636	0.54	1.86	99.00	2.56					
23	385637	0.18	6.74	99.40	1.06					
24	385638	0.04	5.42	99.10	0.13					
25	385639	0.48	4.48	99.10	0.40					

Results in ppm unless otherwise specified
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ANNALABS

ANALYTICAL DATA

390714

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	13 OF 14

	SAMPLE No.	SO3	LOI	Total	Na2O					
METHOD		OX408	OX408	OX408	OX408					
1	385640	0.89	3.90	98.20	0.62					
2	385641	1.50	3.47	99.30	0.15					
3	385642	3.32	3.97	98.80	0.27					
4	385643	0.28	4.97	99.30	0.32					
5	385644	0.51	6.01	99.20	0.06					
6	385645	0.06	4.38	99.00	0.00					
7	385646	0.03	5.45	99.80	0.00					
8	385647	0.09	5.39	99.20	0.06					
9	385648	0.23	6.20	99.20	0.09					
10	385649	1.78	4.68	98.40	0.10					
11	385650	0.09	4.34	99.70	0.07					
12	385651	0.04	3.91	100.10	0.00					
13	385652	0.15	4.65	99.30	0.07					
14	385653	0.05	4.91	99.20	0.00					
15	385654	5.26	4.31	84.40	0.09					
16	385502	1.47	5.92	97.30	0.50					
17	385505	1.20	7.23	97.30	0.35					
18	385513	11.46	4.07	66.40	1.16					
19	385522	1.13	5.88	98.70	0.12					
20	385532	2.54	5.41	98.60	0.80					
21	385538	2.46	7.08	98.10	0.18					
22	385546	1.13	6.78	98.60	0.07					
23	385553	3.29	9.46	97.40	0.07					
24	385557	0.86	8.68	98.40	0.08					
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390715

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12563	19/12/96	GRANT MACDONA	14 OF 14

	SAMPLE No.	SO3	LOI	Total	Na2O					
METHOD		OX408	OX408	OX408	OX408					
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.01	0.01	0.05					
25	UNITS	%	%	%	%					

Results in ppm unless otherwise specified
— = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

14 Thirkell St. COOEE TAS 7320
Phone (004) 316837
Fax (004) 318890

390716

ANALYTICAL REPORT No. RES202.60.12589

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
17/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	07/01/97	1	70

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385681/750	CO Prep : GP033	Au,Au(R)/GG313
385681/750	CO Prep : GP033	Cu,Pb,Zn,Ag/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

SHD 1 copy

RESULTS TO

RESULTS TO

PP M.A. Goode
AUTHORISED OFFICER

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ANALYTICAL DATA

390717

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	1 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385681	<0.005	-	8	137	835	<1			
2	385682	<0.005	-	14	1026	1240	<1			
3	385683	<0.005	-	11	33	299	<1			
4	385684	<0.005	-	16	90	200	<1			
5	385685	<0.005	-	13	67	84	<1			
6	385686	<0.005	-	24	156	164	<1			
7	385687	<0.005	-	24	59	199	<1			
8	385688	<0.005	-	39	35	1046	<1			
9	385689	<0.005	-	20	23	176	<1			
10	385690	<0.005	-	21	37	95	<1			
11	385691	<0.005	-	20	60	182	<1			
12	385692	<0.005	<0.005	14	90	128	<1			
13	385693	<0.005	-	11	168	769	<1			
14	385694	<0.005	<0.005	30	120	305	<1			
15	385695	<0.005	-	25	40	264	<1			
16	385696	<0.005	-	21	29	193	<1			
17	385697	<0.005	-	14	23	143	<1			
18	385698	<0.005	-	30	19	154	<1			
19	385699	<0.005	-	19	15	158	<1			
20	385700	<0.005	-	35	24	239	<1			
21	385701	<0.005	-	42	21	188	<1			
22	385702	<0.005	<0.005	10	4	140	<1			
23	385703	<0.005	-	9	44	127	<1			
24	385704	<0.005	-	9	378	430	2			
25	385705	<0.005	-	14	66	79	<1			

in ppm unless otherwise specified
ent not determined

IS = insufficient sample
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390718

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	2 OF 3

	SAMPLE No	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385706	<0.005	-	56	739	501	4			
2	385707	<0.005	-	15	169	511	1			
3	385708	0.023	-	22	134	167	1			
4	385709	<0.005	-	17	109	229	<1			
5	385710	<0.005	-	20	66	178	<1			
6	385711	<0.005	-	25	85	717	<1			
7	385712	<0.005	-	30	26	155	<1			
8	385713	<0.005	<0.005	17	38	329	<1			
9	385714	0.005	-	444	22	103	<1			
10	385715	<0.005	-	49	57	170	1			
11	385716	0.007	-	46	20	368	<1			
12	385717	0.098	0.090	4	13	30	<1			
13	385718	0.032	-	169	140	512	2			
14	385719	<0.005	-	32	160	1106	1			
15	385720	<0.005	-	8	131	319	<1			
16	385721	<0.005	-	76	72	480	2			
17	385722	<0.005	-	461	22	355	5			
18	385723	<0.005	-	59	14	178	2			
19	385724	<0.005	-	35	28	77	1			
20	385725	<0.005	-	44	31	101	1			
21	385726	0.022	-	21	<3	114	<1			
22	385727	<0.005	<0.005	25	11	75	<1			
23	385728	<0.005	-	35	38	79	1			
24	385729	<0.005	-	14	110	509	2			
25	385730	<0.005	-	19	34	119	1			

Results in ppm unless otherwise specified
- = element not determined

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390719

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12589	07/01/97	GRANT MACDONA	3 OF 3

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag			
METHOD		GG313	GG313	GA140	GA140	GA140	GA140			
1	385731	<0.005	-	13	100	789	2			
2	385732	<0.005	<0.005	5	32	478	<1			
3	385733	0.040	-	28	14	90	<1			
4	385734	0.020	-	26	163	680	<1			
5	385735	0.011	-	29	30	333	<1			
6	385736	0.196	-	15	28	210	<1			
7	385737	0.016	-	14	12	136	<1			
8	385738	0.014	-	68	70	235	2			
9	385739	0.052	-	23	51	92	<1			
10	385740	0.070	-	14	55	133	1			
11	385741	<0.005	-	21	44	120	1			
12	385742	0.032	-	29	266	864	3			
13	385743	0.014	-	58	390	921	8			
14	385744	<0.005	-	31	142	666	3			
15	385745	<0.005	<0.005	20	64	240	<1			
16	385746	<0.005	-	21	12	54	<1			
17	385747	<0.005	-	25	11	61	<1			
18	385748	<0.005	-	24	19	109	<1			
19	385749	<0.005	-	33	114	105	1			
20	385750	<0.005	-	18	41	259	<1			
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1			
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm			

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

390720

ANALYTICAL REPORT No. RES202.60.12627

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
31/12/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
21	06/02/97	1	199

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384361/77 & others	SO Prep : GP031	Au,Au(R)/GG313
384361/77 & others	SO Prep : GP031	Cu,Pb,Zn,Ag,As/GA140,As/HA140
385751/2,385771/827	DC Prep : GP033	Au,Au(R)/GG313
385751/2,385771/827	DC Prep :	Cu,Pb,Zn,Ag/GA140
385772 & others	DC Prep : GP033	Al2O3,SiO2,TiO2,Fe2O3,MnO,CaO, .../OX40B

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Henty Canal
Acc Rd
"Workers"
SHD-2
264m - 322m

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ANALYTICAL DATA

390721

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	1 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384361	–	–	–	–	8	–	32	–	<50
2	384362	–	–	–	–	6	–	16	–	<50
3	384363	–	–	–	–	7	–	16	–	<50
4	384364	–	–	–	–	13	–	121	–	<50
5	384365	–	–	–	–	30	–	50	–	<50
6	384366	–	–	–	–	7	–	53	–	<50
7	384367	–	–	–	–	5	–	16	–	<50
8	384368	–	–	–	–	13	–	78	–	<50
9	384369	–	–	–	–	85	–	384	–	<50
10	384370	–	–	–	–	18	–	103	–	<50
11	384371	–	–	–	–	41	–	1543	–	146
12	384372	–	–	–	–	13	–	44	–	<50
13	384373	–	–	–	–	18	–	74	–	<50
14	384374	–	–	–	–	26	–	161	–	<50
15	384375	–	–	–	–	3	–	8	–	<50
16	384376	–	–	–	–	3	–	28	–	<50
17	384377	–	–	–	–	5	–	73	–	<50
18	384380	–	–	–	–	6	–	9	–	<50
19	384382	–	–	–	–	5	–	66	–	<50
20	384383	–	–	–	–	38	–	132	–	<50
21	384384	–	–	–	–	49	–	224	–	<50
22	384385	–	–	–	–	8	–	41	–	<50
23	384386	–	–	–	–	7	–	51	–	<50
24	384389	–	–	–	–	61	–	142	–	<50
25	384390	–	–	–	–	5	–	57	–	<50

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
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390722

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	2 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384391	–	–	–	–	12	–	46	–	<50
2	384392	–	–	–	–	6	–	34	–	<50
3	384393	–	–	–	–	3	–	40	–	<50
4	384394	–	–	–	–	25	–	54	–	<50
5	384395	–	–	–	–	47	–	44	–	<50
6	384396	–	–	–	–	3	–	9	–	<50
	384397	–	–	–	–	<2	–	8	–	<50
8	384398	–	–	–	–	<2	–	85	–	<50
9	384399	–	–	–	–	2	–	18	–	<50
10	384400	–	–	–	–	<2	–	48	–	<50
11	384401	–	–	–	–	<2	–	66	–	<50
12	384402	–	–	–	–	2	–	63	–	<50
13	384403	–	–	–	–	3	–	149	–	<50
14	384404	–	–	–	–	2	–	48	–	<50
15	384405	–	–	–	–	5	–	120	–	<50
16	384406	–	–	–	–	4	–	53	–	<50
17	384407	–	–	–	–	13	–	40	–	<50
18	384408	–	–	–	–	54	–	73	–	<50
19	384409	–	–	–	–	6	–	89	–	80
20	384410	–	–	–	–	24	–	62	–	<50
21	384412	–	–	–	–	10	–	26	–	<50
22	384413	–	–	–	–	15	–	55	–	<50
23	384414	–	–	–	–	19	–	75	–	<50
24	384415	–	–	–	–	37	–	68	–	<50
25	384416	–	–	–	–	18	–	62	–	<50

Results in ppm unless otherwise specified
– = element not determined

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AUTHORISED OFFICER

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390723

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	3 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384417	–	–	–	–	16	–	371	–	<50
2	384418	–	–	–	–	9	–	25	–	<50
3	384419	–	–	–	–	13	–	95	–	<50
4	384420	–	–	–	–	8	–	103	–	<50
5	384421	–	–	–	–	3	–	12	–	71
6	384422	–	–	–	–	5	–	47	–	<50
7	384423	–	–	–	–	3	–	18	–	<50
8	384424	–	–	–	–	3	–	28	–	<50
9	384425	–	–	–	–	3	–	54	–	<50
10	384431	–	–	–	–	5	–	55	–	<50
11	384432	–	–	–	–	16	–	91	–	<50
12	384433	–	–	–	–	9	–	57	–	<50
13	384434	–	–	–	–	3	–	106	–	<50
14	384435	–	–	–	–	136	–	79	–	<50
15	384436	–	–	–	–	39	–	77	–	<50
16	384437	–	–	–	–	96	–	205	–	<50
17	384438	–	–	–	–	<2	–	11	–	<50
18	384439	–	–	–	–	3	–	18	–	<50
19	384440	–	–	–	–	2	–	20	–	<50
20	384441	–	–	–	–	3	–	123	–	<50
21	384442	–	–	–	–	8	–	97	–	<50
22	384443	–	–	–	–	6	–	120	–	<50
23	384444	–	–	–	–	4	–	91	–	<50
24	384445	–	–	–	–	4	–	46	–	<50
25	384446	–	–	–	–	4	–	54	–	<50

Results in ppm unless otherwise specified
– = element not determined

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AUTHORISED OFFICER

ANALABS

390724

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	4 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384448	–	–	–	–	3	–	66	–	<50
2	384451	–	–	–	–	3	–	23	–	<50
3	384452	–	–	–	–	13	–	63	–	<50
4	384455	–	–	–	–	60	–	124	–	<50
5	384456	–	–	–	–	95	–	82	–	<50
6	384457	–	–	–	–	3	–	32	–	<50
7	384458	–	–	–	–	2	–	16	–	<50
8	384459	–	–	–	–	<2	–	21	–	<50
9	384460	–	–	–	–	2	–	17	–	<50
10	384462	–	–	–	–	12	–	17	–	72
11	384463	–	–	–	–	4	–	10	–	<50
12	384464	–	–	–	–	5	–	36	–	<50
13	384465	–	–	–	–	3	–	68	–	<50
14	384466	–	–	–	–	<2	–	5	–	<50
15	384467	–	–	–	–	11	–	285	–	69
16	384468	–	–	–	–	12	–	328	–	<50
17	384469	–	–	–	–	18	–	42	–	<50
18	384470	–	–	–	–	9	–	<2	–	<50
19	384471	–	–	–	–	9	–	80	–	<50
20	384472	–	–	–	–	5	–	100	–	<50
21	384473	–	–	–	–	7	–	30	–	<50
22	384474	–	–	–	–	9	–	23	–	<50
23	384475	–	–	–	–	9	–	34	–	<50
24	384476	–	–	–	–	17	–	51	–	<50
25	384477	–	–	–	–	14	–	60	–	<50

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390725

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	5 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384482	-	-	-	-	53	-	145	-	109
2	384483	-	-	-	-	3	-	29	-	<50
3	384484	-	-	-	-	6	-	50	-	<50
4	384485	-	-	-	-	17	-	74	-	<50
5	384487	-	-	-	-	2	-	15	-	<50
6	384488	-	-	-	-	2	-	30	-	<50
7	384489	-	-	-	-	5	-	28	-	<50
8	384490	-	-	-	-	4	-	10	-	<50
9	384493	-	-	-	-	17	-	60	-	<50
10	384494	-	-	-	-	27	-	45	-	<50
11	384495	-	-	-	-	16	-	71	-	<50
12	384496	-	-	-	-	27	-	36	-	<50
13	384497	-	-	-	-	32	-	84	-	57
14	384498	-	-	-	-	32	-	60	-	<50
15	384499	-	-	-	-	34	-	48	-	<50
16	384500	-	-	-	-	15	-	29	-	<50
17	384501	-	-	-	-	6	-	60	-	<50
18	384502	-	-	-	-	24	-	114	-	<50
19	384503	-	-	-	-	12	-	128	-	<50
20	384504	-	-	-	-	26	-	257	-	<50
21	384505	-	-	-	-	20	-	56	-	<50
22	384506	-	-	-	-	28	-	66	-	<50
23	384507	-	-	-	-	34	-	51	-	<50
24	384508	-	-	-	-	19	-	38	-	<50
25	384509	-	-	-	-	35	-	57	-	<50

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390726

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	6 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384510	–	–	–	–	133	–	37	–	<50
2	384511	–	–	–	–	16	–	28	–	<50
3	384512	–	–	–	–	23	–	36	–	<50
4	384513	–	–	–	–	39	–	55	–	<50
5	384514	–	–	–	–	33	–	86	–	<50
6	384515	–	–	–	–	20	–	43	–	<50
	384516	–	–	–	–	26	–	64	–	<50
8	384517	–	–	–	–	23	–	60	–	<50
9	384518	–	–	–	–	16	–	47	–	<50
10	384519	–	–	–	–	26	–	72	–	<50
11	384520	–	–	–	–	4	–	52	–	<50
12	384521	–	–	–	–	19	–	97	–	<50
13	384522	–	–	–	–	64	–	99	–	<50
14	384523	–	–	–	–	5	–	39	–	<50
15	384524	–	–	–	–	35	–	143	–	<50
16	385751	–	–	–	–	19	–	181	–	–
17	385752	–	–	–	–	59	–	905	–	–
18	385771	–	–	–	–	2887	–	32	–	–
19	385772	5.37	2485	1137	–	4533	–	94	–	<50
20	385773	–	–	–	–	48	–	383	–	–
21	385774	–	–	–	–	19	–	329	–	–
22	385775	–	–	–	–	17	–	226	–	–
23	385776	–	–	–	–	28	–	513	–	–
24	385777	–	–	–	–	141	–	>5000	0.74	–
25	385778	–	–	–	–	222	–	4108	–	–

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390727

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	7 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	385779	-	-	-	-	294	-	327	-	-
2	385780	-	-	-	-	215	-	404	-	-
3	385781	-	-	-	-	1837	-	126	-	-
4	385782	7.08	2490	140	-	175	-	27	-	<50
5	385783	-	-	-	-	356	-	40	-	-
6	385784	-	-	-	-	388	-	333	-	-
7	385785	8.43	2330	403	-	203	-	82	-	<50
8	385786	-	-	-	-	52	-	25	-	-
9	385787	-	-	-	-	2041	-	162	-	-
10	385788	-	-	-	-	452	-	358	-	-
11	385789	-	-	-	-	233	-	53	-	-
12	385790	-	-	-	-	515	-	194	-	-
13	385791	-	-	-	-	600	-	344	-	-
14	385792	-	-	-	-	392	-	671	-	-
15	385793	-	-	-	-	74	-	3657	-	-
16	385794	9.93	2295	21	-	50	-	347	-	<50
17	385795	-	-	-	-	728	-	222	-	-
18	385796	-	-	-	-	266	-	673	-	-
19	385797	0.16	2755	>5000	0.32	137	-	297	-	<50
20	385798	-	-	-	-	1100	-	229	-	-
21	385799	-	-	-	-	541	-	98	-	-
22	385800	-	-	-	-	309	-	792	-	-
23	385801	-	-	-	-	219	-	53	-	-
24	385802	-	-	-	-	219	-	87	-	-
25	385803	-	-	-	-	96	-	67	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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ANALYTICAL DATA

390728

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	8 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	385804	–	–	–	–	512	–	257	–	–
2	385805	–	–	–	–	338	–	92	–	–
3	385806	–	–	–	–	261	–	114	–	–
4	385807	–	–	–	–	21	–	187	–	–
5	385808	–	–	–	–	7	–	199	–	–
6	385809	–	–	–	–	32	–	183	–	–
7	385810	–	–	–	–	9	–	123	–	–
8	385811	–	–	–	–	32	–	223	–	–
9	385812	–	–	–	–	244	–	724	–	–
10	385813	–	–	–	–	25	–	287	–	–
11	385814	–	–	–	–	21	–	265	–	–
12	385815	–	–	–	–	15	–	186	–	–
13	385816	–	–	–	–	100	–	237	–	–
14	385817	4.69	2715	3696	–	3871	–	165	–	<50
15	385818	–	–	–	–	>5000	1.10	203	–	–
16	385819	–	–	–	–	1200	–	270	–	–
17	385820	–	–	–	–	744	–	167	–	–
18	385821	–	–	–	–	765	–	88	–	–
19	385822	–	–	–	–	2497	–	51	–	–
20	385823	–	–	–	–	1352	–	85	–	–
21	385824	–	–	–	–	2834	–	78	–	–
22	385825	–	–	–	–	1041	–	170	–	–
23	385826	–	–	–	–	2775	–	126	–	–
24	385827	–	–	–	–	581	–	220	–	–
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	9 OF 21

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Cu	Zn	Zn	As
METHOD		OM613	GX401	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	50	3	0.01	2	0.01	2	0.01	50
25	UNITS	%	ppm	ppm	%	ppm	%	ppm	%	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	10 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384361	17.8	–	–	<1	–	<0.005	5	–	–
2	384362	3.4	–	–	<1	–	<0.005	7	–	–
3	384363	3.4	–	–	<1	–	<0.005	4	–	–
4	384364	6.2	–	–	<1	–	<0.005	8	–	–
5	384365	1.3	–	–	<1	–	<0.005	10	–	–
6	384366	13.2	–	–	<1	–	<0.005	11	–	–
	384367	<0.5	–	–	<1	–	<0.005	11	–	–
8	384368	7.1	–	–	<1	–	<0.005	14	–	–
9	384369	7.1	–	–	<1	–	<0.005	61	–	–
10	384370	18.0	–	–	<1	–	<0.005	66	–	–
11	384371	–	–	–	15	–	<0.005	2370	–	–
12	384372	17.0	–	–	<1	–	<0.005	5	–	–
13	384373	26.1	–	–	<1	–	<0.005	28	–	–
14	384374	30.1	–	–	<1	–	<0.005	33	–	–
15	384375	3.3	–	–	<1	–	<0.005	18	–	–
16	384376	3.3	–	–	<1	–	<0.005	11	–	–
17	384377	8.6	–	–	<1	–	<0.005	4	–	–
18	384380	3.7	–	–	<1	–	<0.005	4	–	–
19	384382	2.9	–	–	<1	–	<0.005	5	–	–
20	384383	22.0	–	–	<1	–	<0.005	35	–	–
21	384384	17.0	–	–	<1	–	<0.005	115	–	–
22	384385	25.1	–	–	<1	–	<0.005	<3	–	–
23	384386	7.1	–	–	<1	–	<0.005	17	–	–
24	384389	19.4	–	–	<1	–	<0.005	14	–	–
25	384390	8.9	–	–	<1	–	<0.005	4	–	–

Results in ppm unless otherwise specified
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ANALYTICAL DATA

390731

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	11 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384391	32.9	-	-	<1	-	<0.005	22	-	-
2	384392	5.7	-	-	<1	-	<0.005	<3	-	-
3	384393	9.5	-	-	<1	-	<0.005	12	-	-
4	384394	19.9	-	-	<1	-	<0.005	10	-	-
5	384395	20.5	-	-	<1	-	<0.005	<3	-	-
6	384396	3.3	-	-	<1	-	<0.005	11	-	-
7	384397	2.7	-	-	<1	-	<0.005	<3	-	-
8	384398	7.3	-	-	<1	-	<0.005	5	-	-
9	384399	1.7	-	-	<1	-	<0.005	4	-	-
10	384400	4.0	-	-	<1	-	<0.005	7	-	-
11	384401	2.8	-	-	<1	-	<0.005	<3	-	-
12	384402	9.0	-	-	<1	-	<0.005	<3	-	-
13	384403	1.8	-	-	<1	-	<0.005	5	-	-
14	384404	10.4	-	-	<1	-	<0.005	19	-	-
15	384405	13.4	-	-	<1	-	<0.005	44	-	-
16	384406	3.5	-	-	<1	-	<0.005	8	-	-
17	384407	8.2	-	-	<1	-	<0.005	10	-	-
18	384408	34.1	-	-	<1	-	<0.005	11	-	-
19	384409	-	-	-	<1	-	<0.005	9	-	-
20	384410	27.8	-	-	<1	-	<0.005	17	-	-
21	384412	25.4	-	-	<1	-	<0.005	20	-	-
22	384413	17.2	-	-	<1	-	<0.005	15	-	-
23	384414	17.6	-	-	<1	-	<0.005	12	-	-
24	384415	20.3	-	-	<1	-	<0.005	14	-	-
25	384416	27.0	-	-	<1	-	<0.005	8	-	-

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390732

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	12 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384417	10.1	-	-	<1	-	<0.005	126	-	-
2	384418	5.8	-	-	<1	-	<0.005	17	-	-
3	384419	38.3	-	-	<1	-	<0.005	7	-	-
4	384420	7.6	-	-	<1	-	<0.005	60	-	-
5	384421	-	-	-	<1	-	<0.005	17	-	-
6	384422	29.9	-	-	<1	-	<0.005	21	-	-
7	384423	2.2	-	-	<1	-	<0.005	7	-	-
8	384424	2.7	-	-	<1	-	<0.005	6	-	-
9	384425	2.3	-	-	<1	-	<0.005	10	-	-
10	384431	4.4	-	-	<1	-	<0.005	17	-	-
11	384432	7.6	-	-	<1	-	<0.005	21	-	-
12	384433	4.5	-	-	<1	-	<0.005	9	-	-
13	384434	4.1	-	-	<1	-	<0.005	19	-	-
14	384435	8.4	-	-	<1	-	<0.005	16	-	-
15	384436	2.7	-	-	<1	-	<0.005	20	-	-
16	384437	10.6	-	-	<1	-	<0.005	25	-	-
17	384438	1.6	-	-	<1	-	<0.005	4	-	-
18	384439	2.3	-	-	<1	-	<0.005	7	-	-
19	384440	1.1	-	-	<1	-	<0.005	10	-	-
20	384441	7.9	-	-	<1	-	<0.005	15	-	-
21	384442	41.3	-	-	<1	-	<0.005	61	-	-
22	384443	21.4	-	-	<1	-	<0.005	101	-	-
23	384444	5.5	-	-	<1	-	<0.005	47	-	-
24	384445	4.3	-	-	<1	-	<0.005	14	-	-
25	384446	4.1	-	-	<1	-	<0.005	13	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

390733

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	13 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384448	4.7	-	-	<1	-	<0.005	15	-	-
2	384451	1.6	-	-	<1	-	<0.005	9	-	-
3	384452	5.3	-	-	<1	-	<0.005	18	-	-
4	384455	7.0	-	-	<1	-	<0.005	13	-	-
5	384456	4.9	-	-	<1	-	<0.005	15	-	-
6	384457	11.2	-	-	<1	-	<0.005	33	-	-
7	384458	3.3	-	-	2	-	<0.005	18	-	-
8	384459	3.8	-	-	<1	-	<0.005	205	-	-
9	384460	5.5	-	-	<1	-	<0.005	81	-	-
10	384462	-	-	-	<1	-	<0.005	113	-	-
11	384463	17.1	-	-	<1	-	<0.005	98	-	-
12	384464	36.8	-	-	<1	-	<0.005	16	-	-
13	384465	31.5	-	-	<1	-	<0.005	7	-	-
14	384466	3.2	-	-	<1	-	<0.005	7	-	-
15	384467	-	-	-	<1	-	<0.005	288	-	-
16	384468	21.2	-	-	<1	-	<0.005	13	-	-
17	384469	7.7	-	-	<1	-	<0.005	41	-	-
18	384470	8.3	-	-	<1	-	<0.005	13	-	-
19	384471	16.1	-	-	<1	-	<0.005	16	-	-
20	384472	4.1	-	-	<1	-	<0.005	18	-	-
21	384473	3.5	-	-	<1	-	<0.005	15	-	-
22	384474	28.7	-	-	<1	-	<0.005	19	-	-
23	384475	27.0	-	-	<1	-	<0.005	23	-	-
24	384476	6.5	-	-	<1	-	<0.005	25	-	-
25	384477	6.3	-	-	<1	-	<0.005	25	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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A N A L A B S

ANALYTICAL DATA

390734

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	14 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384482	-	-	-	<1	-	<0.005	279	-	-
2	384483	3.0	-	-	<1	-	<0.005	23	-	-
3	384484	2.8	-	-	<1	-	<0.005	22	-	-
4	384485	5.6	-	-	<1	-	<0.005	20	-	-
5	384487	0.9	-	-	<1	-	<0.005	11	-	-
6	384488	0.5	-	-	<1	-	<0.005	16	-	-
7	384489	0.6	-	-	<1	-	<0.005	16	-	-
8	384490	21.7	-	-	<1	-	<0.005	12	-	-
9	384493	17.7	-	-	<1	-	<0.005	37	-	-
10	384494	41.7	-	-	<1	-	<0.005	56	-	-
11	384495	23.9	-	-	<1	-	<0.005	15	-	-
12	384496	8.1	-	-	<1	-	<0.005	18	-	-
13	384497	-	-	-	<1	-	<0.005	30	-	-
14	384498	7.2	-	-	<1	-	<0.005	24	-	-
15	384499	39.8	-	-	<1	-	<0.005	56	-	-
16	384500	10.2	-	-	<1	-	<0.005	55	-	-
17	384501	25.9	-	-	<1	-	<0.005	15	-	-
18	384502	14.5	-	-	<1	-	<0.005	15	-	-
19	384503	26.8	-	-	<1	-	<0.005	17	-	-
20	384504	8.2	-	-	<1	-	<0.005	28	-	-
21	384505	33.2	-	-	<1	-	<0.005	12	-	-
22	384506	40.4	-	-	<1	-	<0.005	27	-	-
23	384507	6.4	-	-	<1	-	<0.005	5	-	-
24	384508	36.8	-	-	<1	-	<0.005	14	-	-
25	384509	41.0	-	-	<1	-	<0.005	24	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390735

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	15 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	384510	7.4	-	-	<1	-	<0.005	13	-	-
2	384511	4.4	-	-	<1	-	<0.005	6	-	-
3	384512	6.0	-	-	<1	-	<0.005	16	-	-
4	384513	2.8	-	-	<1	-	<0.005	10	-	-
5	384514	1.3	-	-	<1	-	<0.005	7	-	-
6	384515	4.7	-	-	<1	-	<0.005	8	-	-
	384516	2.8	-	-	<1	-	<0.005	6	-	-
8	384517	1.1	-	-	<1	-	<0.005	<3	-	-
9	384518	23.6	-	-	<1	-	<0.005	8	-	-
10	384519	17.8	-	-	<1	-	<0.005	24	-	-
11	384520	2.8	-	-	<1	-	<0.005	<3	-	-
12	384521	2.9	-	-	<1	-	<0.005	<3	-	-
13	384522	4.4	-	-	<1	-	<0.005	7	-	-
14	384523	2.7	-	-	<1	-	<0.005	6	-	-
15	384524	<0.5	-	-	<1	-	<0.005	6	-	-
16	385751	-	-	-	1	-	0.007	148	-	-
17	385752	-	-	-	5	-	0.009	818	-	-
18	385771	-	-	-	2	-	0.040	131	-	-
19	385772	10.1	243	5	2	1495	0.199	154	-	28
20	385773	-	-	-	1	-	0.017	415	-	-
21	385774	-	-	-	1	-	<0.005	401	-	-
22	385775	-	-	-	<1	-	<0.005	433	-	-
23	385776	-	-	-	1	-	<0.005	1087	-	-
24	385777	-	-	-	4	-	<0.005	3790	0.52	-
25	385778	-	-	-	1	-	0.008	687	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390736

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	16 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	385779	-	-	-	<1	-	0.017	42	-	-
2	385780	-	-	-	<1	-	0.030	3	-	-
3	385781	-	-	-	1	-	0.037	20	-	-
4	385782	49.1	244	7	1	1935	0.067	32	-	<10
5	385783	-	-	-	1	-	0.040	42	-	-
6	385784	-	-	-	1	-	0.040	18	-	-
	385785	36.1	226	6	<1	1980	0.328	28	-	13
8	385786	-	-	-	2	-	0.193	15	-	-
9	385787	-	-	-	2	-	0.162	6	-	-
10	385788	-	-	-	1	-	0.039	17	-	-
11	385789	-	-	-	2	-	0.111	9	-	-
12	385790	-	-	-	2	-	0.126	11	-	-
13	385791	-	-	-	2	-	0.053	29	-	-
14	385792	-	-	-	10	-	0.821	244	-	-
15	385793	-	-	-	10	-	0.289	3754	-	-
16	385794	41.1	209	<5	7	3820	1.502	461	-	<10
17	385795	-	-	-	5	-	0.515	14	-	-
18	385796	-	-	-	<1	-	0.020	14	-	-
19	385797	13.6	242	<5	<1	3490	0.008	15	-	<10
20	385798	-	-	-	1	-	0.057	22	-	-
21	385799	-	-	-	2	-	0.047	46	-	-
22	385800	-	-	-	1	-	0.030	20	-	-
23	385801	-	-	-	<1	-	0.381	30	-	-
24	385802	-	-	-	1	-	0.423	30	-	-
25	385803	-	-	-	<1	-	0.467	63	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390737

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	17 OF 21

	SAMPLE No.	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1	385804	–	–	–	2	–	0.818	386	–	–
2	385805	–	–	–	1	–	0.488	42	–	–
3	385806	–	–	–	<1	–	0.512	38	–	–
4	385807	–	–	–	<1	–	0.334	35	–	–
5	385808	–	–	–	<1	–	0.015	67	–	–
6	385809	–	–	–	<1	–	0.020	333	–	–
7	385810	–	–	–	<1	–	0.012	34	–	–
8	385811	–	–	–	<1	–	0.015	19	–	–
9	385812	–	–	–	<1	–	0.057	164	–	–
10	385813	–	–	–	<1	–	0.017	50	–	–
11	385814	–	–	–	<1	–	0.010	10	–	–
12	385815	–	–	–	<1	–	0.011	13	–	–
13	385816	–	–	–	<1	–	0.025	11	–	–
14	385817	7.0	226	<5	3	1715	0.071	7	–	18
15	385818	–	–	–	1	–	0.069	11	–	–
16	385819	–	–	–	<1	–	0.041	11	–	–
17	385820	–	–	–	<1	–	0.047	9	–	–
18	385821	–	–	–	<1	–	0.925	13	–	–
19	385822	–	–	–	<1	–	0.391	12	–	–
20	385823	–	–	–	<1	–	0.220	18	–	–
21	385824	–	–	–	1	–	0.199	13	–	–
22	385825	–	–	–	1	–	0.167	14	–	–
23	385826	–	–	–	<1	–	0.114	10	–	–
24	385827	–	–	–	<1	–	0.080	7	–	–
25										

Results in ppm unless otherwise specified
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ANALYTICAL DATA

390738

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	18 OF 21

	SAMPLE No	As	Zr	Mo	Ag	Ba	Au	Pb	Pb	Bi
METHOD		HA140	GX401	GA140	GA140	GX401	GG313	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.5	5	5	1	10	0.005	3	0.01	10
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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390739

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	19 OF 21

	SAMPLE No.	Au(R)	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		GG313	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	384372	<0.005	-	-	-	-	-	-	-	-
2	384385	<0.005	-	-	-	-	-	-	-	-
3	384402	<0.005	-	-	-	-	-	-	-	-
4	384413	<0.005	-	-	-	-	-	-	-	-
5	384418	<0.005	-	-	-	-	-	-	-	-
6	384433	<0.005	-	-	-	-	-	-	-	-
	384443	<0.005	-	-	-	-	-	-	-	-
8	384446	<0.005	-	-	-	-	-	-	-	-
9	384462	0.007	-	-	-	-	-	-	-	-
10	384463	<0.005	-	-	-	-	-	-	-	-
11	384464	<0.005	-	-	-	-	-	-	-	-
12	384474	<0.005	-	-	-	-	-	-	-	-
13	384496	<0.005	-	-	-	-	-	-	-	-
14	384506	<0.005	-	-	-	-	-	-	-	-
15	384511	<0.005	-	-	-	-	-	-	-	-
16	384521	<0.005	-	-	-	-	-	-	-	-
17	385772	-	64.90	0.52	8.51	0.15	0.65	3.75	0.50	0.143
18	385780	0.028	-	-	-	-	-	-	-	-
19	385782	-	63.90	0.51	10.44	0.02	0.24	3.86	0.25	0.189
20	385785	-	61.80	0.45	12.54	0.07	0.18	3.36	0.24	0.142
21	385790	0.120	-	-	-	-	-	-	-	-
22	385791	0.064	-	-	-	-	-	-	-	-
23	385794	-	60.90	0.42	14.45	<0.01	0.09	3.14	0.16	0.075
24	385797	-	66.40	0.55	6.37	1.11	0.33	3.93	0.78	0.157
25	385802	0.428	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
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390740

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	20 OF 21

	SAMPLE No.	Au(R)	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		GB313	OX40B	OX40B	OX40B	OX40B	OX40B	OX40B	OX40B	OX40B
1	385806	0.436	-	-	-	-	-	-	-	-
2	385815	0.008	-	-	-	-	-	-	-	-
3	385817	-	61.90	0.50	10.43	0.52	0.32	3.82	0.53	0.157
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	ppm	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified
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390741

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12627	06/02/97	GRANT MACDONA	21 OF 21

	SAMPLE No.	SO3	Na2O	LOI	Total	Al2O3				
METHOD		OX408	OX408	OX408	OX408	OX408				
1	385772	9.15	0.31	5.73	99.80	14.10				
2	385782	5.84	0.31	6.79	100.70	14.20				
3	385785	4.22	0.26	7.73	99.30	12.60				
4	385794	5.78	0.21	8.64	99.80	11.70				
5	385797	0.66	0.22	4.70	99.60	15.00				
6	385817	9.40	0.18	6.39	99.10	14.00				
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.05	0.01	0.01	0.05				
25	UNITS	%	%	%	%	%				

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs
****

Analabs Pty. Ltd.
A.C.N. 004 591 684

14 Thirkell St. CODEE TAS 7320

Phone (004) 316837

Fax (004) 318890

390742

ANALYTICAL REPORT No. RES202.60.12650

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
07/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
27	18/03/97	1	641

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384525/735	SO Prep : GP033	Au,Au(R)/GA313
384525/735 & others	SO Prep : GP033	Cu,Pb,Zn,Ag,As/GA140
387302/588,387590/732	SO Prep : GP033	Au,Au(R)/GA326

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

Waeles
Ty-Ck
H Coal
Acc Rd

RESULTS TO

RESULTS TO

pp

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390743

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	1 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384525	<0.005	-	8	3	92	<1	<50	15.6	-
2	384526	<0.005	-	80	47	174	<1	<50	11.3	-
3	384527	<0.005	-	81	8	225	<1	<50	5.0	-
4	384528	<0.005	-	97	41	220	<1	<50	15.7	-
5	384529	0.878	-	34	22	132	<1	<50	8.9	-
6	384530	0.006	-	18	16	146	<1	<50	9.2	-
7	384531	0.005	-	68	91	126	<1	<50	9.1	-
8	384532	<0.005	-	30	14	59	<1	<50	8.3	-
9	384533	<0.005	-	22	15	40	<1	<50	11.3	-
10	384534	<0.005	<0.005	35	5	64	<1	<50	21.9	-
11	384535	<0.005	-	36	68	135	<1	<50	34.1	-
12	384536	<0.005	<0.005	7	7	77	<1	<50	11.2	-
13	384537	0.009	-	10	63	42	<1	<50	13.2	-
14	384538	0.013	-	35	148	220	<1	<50	12.7	-
15	384539	0.019	-	18	33	219	<1	<50	16.3	-
16	384540	<0.005	-	39	57	344	<1	<50	40.7	-
17	384541	<0.005	-	56	1061	220	<1	<50	35.1	-
18	384542	0.007	-	10	43	88	<1	<50	7.5	-
19	384543	<0.005	-	51	187	320	<1	<50	15.3	-
20	384544	<0.005	-	75	46	156	<1	76	-	-
21	384545	0.005	-	90	122	148	<1	<50	15.4	-
22	384546	<0.005	<0.005	88	19	138	<1	59	-	-
23	384547	<0.005	-	30	125	290	<1	<50	9.4	-
24	384548	0.008	-	7	72	38	<1	<50	4.9	-
25	384549	<0.005	-	25	48	259	<1	<50	15.4	-

Results in ppm unless otherwise specified
- = element not determined

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390744

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	2 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384550	<0.005	-	14	29	106	<1	<50	9.8	-
2	384551	<0.005	-	59	11	96	<1	<50	15.0	-
3	384552	<0.005	-	19	5	113	<1	<50	18.4	-
4	384553	<0.005	-	20	7	72	<1	<50	10.4	-
5	384554	<0.005	-	17	11	66	<1	<50	21.7	-
6	384555	<0.005	-	48	11	100	<1	<50	12.0	-
7	384556	<0.005	-	20	4	54	<1	<50	12.5	-
8	384557	<0.005	-	19	62	101	<1	<50	10.3	-
9	384558	<0.005	<0.005	31	56	148	<1	<50	9.2	-
10	384559	<0.005	-	46	320	228	<1	<50	31.1	-
11	384560	<0.005	-	11	6	155	<1	<50	41.2	-
12	384561	<0.005	<0.005	11	6	118	<1	<50	10.2	-
13	384562	<0.005	-	40	12	313	<1	<50	8.1	-
14	384563	<0.005	-	8	7	168	<1	<50	10.6	-
15	384564	<0.005	-	29	10	250	<1	<50	31.7	-
16	384565	<0.005	-	20	10	79	<1	<50	11.9	-
17	384566	<0.005	<0.005	26	8	97	<1	<50	9.6	-
18	384567	<0.005	-	12	15	69	<1	<50	9.2	-
19	384568	<0.005	-	19	4	171	<1	<50	11.5	-
20	384569	<0.005	-	32	23	108	<1	<50	13.9	-
21	384570	<0.005	-	45	26	95	<1	<50	25.9	-
22	384571	<0.005	<0.005	46	20	103	<1	<50	12.9	-
23	384572	<0.005	-	56	48	131	<1	62	-	-
24	384573	<0.005	-	23	26	106	<1	<50	13.9	-
25	384574	0.157	-	20	18	67	<1	<50	13.2	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

390745

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	3 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384575	<0.005	-	52	112	186	<1	<50	37.5	-
2	384576	0.014	-	356	73	370	<1	<50	12.1	-
3	384577	<0.005	-	78	20	86	<1	<50	8.0	-
4	384578	<0.005	-	289	35	180	<1	<50	11.3	-
5	384579	<0.005	-	90	238	81	<1	73	-	-
6	384580	<0.005	-	38	21	139	<1	<50	22.3	-
7	384581	<0.005	-	39	41	440	<1	<50	30.6	-
8	384582	<0.005	-	61	33	391	<1	<50	13.9	-
9	384583	<0.005	-	88	47	182	<1	<50	20.8	-
10	384584	<0.005	-	10	47	33	<1	<50	10.0	-
11	384585	<0.005	-	89	37	170	<1	<50	24.8	-
12	384586	<0.005	<0.005	71	114	151	<1	<50	14.0	-
13	384587	<0.005	<0.005	28	19	82	<1	<50	21.9	-
14	384588	<0.005	-	19	12	230	<1	<50	37.0	-
15	384589	<0.005	-	8	12	90	<1	<50	5.8	-
16	384590	<0.005	-	12	20	125	<1	<50	2.4	-
17	384591	<0.005	-	7	7	40	<1	<50	6.0	-
18	384592	<0.005	-	4	35	<2	<1	<50	10.0	-
19	384593	<0.005	-	2	47	<2	<1	<50	<0.5	-
20	384594	<0.005	-	<2	<3	11	<1	<50	<0.5	-
21	384595	<0.005	-	2	<3	8	<1	<50	<0.5	-
22	384596	<0.005	<0.005	6	6	106	<1	<50	7.0	-
23	384597	<0.005	-	2	7	61	<1	<50	0.5	-
24	384598	<0.005	-	6	25	33	<1	<50	2.9	-
25	384599	<0.005	-	21	38	50	<1	<50	3.9	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

390746

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	4 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384600	<0.005	-	12	26	64	<1	<50	4.5	-
2	384601	<0.005	-	17	31	40	<1	<50	1.2	-
3	384602	<0.005	-	12	27	41	<1	<50	0.5	-
4	384603	<0.005	-	2	12	9	<1	<50	<0.5	-
5	384604	<0.005	-	2	15	13	<1	<50	<0.5	-
6	384605	<0.005	-	3	<3	24	<1	<50	<0.5	-
7	384606	<0.005	-	<2	<3	8	<1	<50	1.9	-
8	384607	<0.005	-	2	<3	7	<1	<50	<0.5	-
9	384608	<0.005	-	2	<3	9	<1	<50	<0.5	-
10	384609	<0.005	-	20	23	112	<1	<50	<0.5	-
11	384610	<0.005	-	3	<3	17	<1	<50	<0.5	-
12	384611	<0.005	<0.005	6	8	156	<1	<50	1.7	-
13	384612	<0.005	-	12	132	124	<1	<50	45.1	-
14	384613	<0.005	-	5	51	67	<1	<50	<0.5	-
15	384614	0.110	-	17	<3	34	<1	<50	<0.5	-
16	384615	<0.005	-	15	25	59	<1	<50	14.2	-
17	384616	<0.005	-	5	<3	16	<1	<50	<0.5	-
18	384617	<0.005	<0.005	5	<3	13	<1	<50	<0.5	-
19	384618	<0.005	-	4	4	13	<1	<50	<0.5	-
20	384619	<0.005	-	10	16	21	<1	<50	3.0	-
21	384620	<0.005	-	9	12	21	<1	<50	3.3	-
22	384621	<0.005	<0.005	11	<3	17	<1	<50	<0.5	-
23	384622	<0.005	-	7	<3	54	<1	<50	11.3	-
24	384623	<0.005	-	6	<3	37	<1	<50	7.6	-
25	384624	<0.005	-	13	24	35	<1	<50	5.3	-

Results in ppm unless otherwise specified
- = element not determined

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390747

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	5 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384625	<0.005	-	5	8	14	<1	<50	<0.5	-
2	384626	<0.005	-	20	18	43	<1	<50	2.2	-
3	384627	<0.005	<0.005	4	<3	8	<1	<50	<0.5	-
4	384628	<0.005	-	4	3	85	<1	<50	<0.5	-
5	384629	<0.005	-	8	18	13	<1	<50	<0.5	-
6	384630	<0.005	-	4	<3	5	<1	<50	<0.5	-
7	384631	<0.005	-	11	10	38	<1	<50	<0.5	-
8	384632	<0.005	-	6	17	49	<1	<50	3.1	-
9	384633	<0.005	-	4	8	10	<1	<50	<0.5	-
10	384634	<0.005	-	5	19	11	<1	<50	<0.5	-
11	384635	<0.005	-	17	118	80	<1	<50	26.8	-
12	384636	<0.005	<0.005	5	336	33	<1	<50	2.2	-
13	384637	<0.005	-	3	12	17	<1	<50	<0.5	-
14	384638	<0.005	-	22	18	108	<1	<50	<0.5	-
15	384639	<0.005	-	5	4	4	<1	<50	<0.5	-
16	384640	<0.005	-	4	3	323	<1	<50	2.7	-
17	384641	<0.005	-	26	14	74	<1	<50	2.7	-
18	384642	<0.005	-	8	10	101	<1	<50	18.7	-
19	384643	<0.005	-	27	4	69	<1	<50	5.3	-
20	384644	<0.005	-	35	58	136	<1	<50	<0.5	-
21	384645	<0.005	-	15	<3	76	<1	<50	<0.5	-
22	384646	<0.005	<0.005	11	17	132	<1	<50	1.5	-
23	384647	<0.005	-	40	<3	119	<1	<50	<0.5	-
24	384648	<0.005	-	65	<3	203	<1	<50	6.7	-
25	384649	<0.005	-	22	14	68	<1	<50	3.0	-

Results in ppm unless otherwise specified
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AUTHORISED OFFICER

A N A L A B S

390748

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	6 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384650	<0.005	-	27	<3	107	<1	<50	8.4	-
2	384651	<0.005	-	26	14	88	<1	<50	2.3	-
3	384652	<0.005	-	12	12	23	<1	<50	<0.5	-
4	384653	<0.005	-	7	9	12	<1	<50	<0.5	-
5	384654	<0.005	-	6	5	184	<1	<50	<0.5	-
6	384655	<0.005	-	9	10	21	<1	<50	<0.5	-
7	384656	<0.005	-	7	4	14	<1	<50	<0.5	-
8	384657	<0.005	-	8	11	26	<1	<50	<0.5	-
9	384658	<0.005	-	7	13	14	<1	<50	7.2	-
10	384659	<0.005	-	20	19	40	<1	<50	3.3	-
11	384660	0.027	-	6	20	9	<1	<50	0.8	-
12	384661	<0.005	<0.005	18	29	95	<1	<50	9.0	-
13	384662	<0.005	<0.005	8	13	160	<1	<50	0.5	-
14	384663	<0.005	-	11	9	247	<1	<50	2.4	-
15	384664	0.118	0.100	12	31	411	<1	<50	0.9	-
16	384665	0.016	-	10	3	22	<1	<50	0.6	-
17	384666	<0.005	-	17	11	59	<1	<50	<0.5	-
18	384667	<0.005	-	9	9	29	<1	<50	<0.5	-
19	384668	<0.005	-	6	8	8	<1	<50	<0.5	-
20	384669	<0.005	-	8	8	28	<1	<50	2.4	-
21	384670	<0.005	-	4	<3	6	<1	<50	<0.5	-
22	384671	<0.005	<0.005	5	4	5	<1	<50	<0.5	-
23	384672	<0.005	-	53	5	178	<1	<50	0.7	-
24	384673	0.035	-	62	7	260	<1	<50	2.8	-
25	384674	<0.005	-	21	9	142	<1	<50	14.5	-

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AUTHORISED OFFICER pp

ANALABS

390749

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	7 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384675	<0.005	-	6	4	44	<1	<50	0.8	-
2	384676	<0.005	-	4	7	13	<1	<50	<0.5	-
3	384677	<0.005	-	3	9	23	<1	<50	<0.5	-
4	384678	<0.005	-	4	71	15	<1	<50	1.5	-
5	384679	<0.005	-	3	13	13	<1	<50	<0.5	-
6	384680	<0.005	-	8	133	12	<1	<50	0.6	-
7	384681	0.015	-	6	25	17	<1	<50	<0.5	-
8	384682	0.009	-	5	620	21	<1	<50	1.6	-
9	384683	0.063	0.062	4	16	18	<1	<50	<0.5	-
10	384684	<0.005	-	7	25	33	<1	<50	5.2	-
11	384685	<0.005	-	28	24	67	<1	<50	5.3	-
12	384686	<0.005	<0.005	17	21	48	<1	<50	3.1	-
13	384687	<0.005	-	17	16	113	<1	<50	4.8	-
14	384688	<0.005	-	18	26	73	<1	<50	7.2	-
15	384689	<0.005	-	4	<3	9	<1	<50	<0.5	-
16	384690	<0.005	-	10	23	46	<1	<50	<0.5	-
17	384691	<0.005	-	34	364	57	<1	<50	31.3	-
18	384692	<0.005	-	4	388	14	<1	<50	0.5	-
19	384693	<0.005	-	6	44	13	<1	<50	<0.5	-
20	384694	<0.005	-	8	20	26	<1	<50	5.3	-
21	384695	<0.005	-	4	18	14	<1	<50	0.6	-
22	384696	<0.005	<0.005	34	5	99	<1	<50	3.7	-
23	384697	<0.005	-	53	6	72	<1	<50	5.9	-
24	384698	<0.005	-	12	6	43	<1	<50	3.4	-
25	384699	<0.005	<0.005	13	9	60	<1	<50	4.0	-

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AUTHORISED OFFICER pp

A N A L A B S

390750

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	8 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384700	<0.005	-	11	9	26	<1	<50	8.2	-
2	384701	<0.005	-	19	4	49	<1	<50	2.9	-
3	384702	<0.005	-	20	9	14	<1	<50	1.2	-
4	384703	<0.005	-	18	95	179	<1	<50	49.8	-
5	384704	0.042	-	79	443	192	<1	75	-	-
6	384705	<0.005	-	44	143	1058	<1	<50	23.4	-
7	384706	<0.005	-	26	307	235	<1	<50	45.7	-
8	384707	<0.005	-	57	25	135	<1	<50	34.1	-
9	384708	<0.005	-	49	11	98	<1	68	-	-
10	384709	<0.005	-	67	253	161	<1	62	-	-
11	384710	<0.005	-	65	34	187	<1	<50	49.8	-
12	384711	0.020	0.024	93	517	144	<1	<50	40.5	-
13	384712	<0.005	-	31	33	172	<1	79	-	-
14	384713	<0.005	-	69	<3	411	<1	<50	12.7	-
15	384714	<0.005	-	18	<3	170	<1	92	-	-
16	384715	<0.005	-	13	4	183	<1	<50	12.7	-
17	384716	<0.005	-	62	16	81	<1	57	-	-
18	384717	<0.005	-	38	24	279	<1	<50	29.0	-
19	384718	<0.005	-	48	29	239	<1	66	-	-
20	384719	<0.005	-	54	26	315	<1	64	-	-
21	384720	<0.005	-	51	280	134	<1	<50	16.5	-
22	384721	<0.005	<0.005	20	13	148	<1	<50	12.4	-
23	384722	<0.005	-	17	34	280	<1	<50	41.1	-
24	384723	<0.005	-	214	8	137	<1	<50	23.7	-
25	384724	<0.005	<0.005	54	43	213	<1	<50	47.6	-

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AUTHORISED OFFICER

A N A L A B S

390751

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	9 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	384725	<0.005	-	34	16	119	<1	77	-	-
2	384726	<0.005	-	31	68	287	<1	87	-	-
3	384727	<0.005	-	20	44	161	<1	<50	15.6	-
4	384728	<0.005	-	59	19	90	<1	<50	32.4	-
5	384729	<0.005	-	18	5	33	<1	<50	18.3	-
6	384730	<0.005	-	149	47	139	<1	<50	13.0	-
7	384731	<0.005	-	19	35	144	<1	<50	9.5	-
8	384732	<0.005	-	41	96	61	<1	<50	30.9	-
9	384733	<0.005	-	92	12	242	<1	64	-	-
10	384734	<0.005	-	51	26	73	<1	<50	34.1	-
11	384735	<0.005	-	63	7	1553	<1	<50	33.6	-
12	387302	-	-	6	10	22	<1	<50	15.8	<0.001
13	387303	-	-	7	6	20	<1	<50	22.4	<0.001
14	387304	-	-	4	5	8	<1	<50	5.7	<0.001
15	387305	-	-	9	8	40	<1	<50	11.8	<0.001
16	387306	-	-	11	6	17	<1	<50	49.3	<0.001
17	387307	-	-	6	3	11	<1	<50	10.5	<0.001
18	387308	-	-	4	5	9	<1	<50	4.4	<0.001
19	387309	-	-	6	14	14	<1	<50	11.9	0.001
20	387310	-	-	5	7	26	<1	<50	14.5	<0.001
21	387311	-	-	7	12	34	<1	<50	14.0	<0.001
22	387312	-	-	4	11	23	<1	<50	16.3	<0.001
23	387313	-	-	9	29	22	<1	<50	17.2	<0.001
24	387314	-	-	4	5	11	<1	<50	6.6	<0.001
25	387315	-	-	5	4	12	<1	<50	6.2	<0.001

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A N A L A B S

390752

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	10 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387316	-	-	4	7	36	<1	<50	5.2	<0.001
2	387317	-	-	6	8	18	<1	<50	13.1	<0.001
3	387318	-	-	5	16	15	<1	<50	9.8	<0.001
4	387319	-	-	6	11	16	<1	<50	10.8	<0.001
5	387320	-	-	5	4	11	<1	<50	1.8	<0.001
6	387321	-	-	4	<3	7	<1	<50	1.0	<0.001
7	387322	-	-	4	<3	6	<1	<50	6.9	<0.001
8	387323	-	-	6	<3	9	<1	<50	8.6	<0.001
9	387324	-	-	8	7	15	<1	<50	18.0	0.001
10	387325	-	-	12	5	11	<1	<50	0.6	0.020
11	387326	-	-	17	8	14	<1	<50	13.6	0.001
12	387327	-	-	9	<3	8	<1	<50	7.7	0.014
13	387328	-	-	4	<3	7	<1	<50	4.8	0.001
14	387329	-	-	7	<3	11	<1	<50	7.1	0.017
15	387330	-	-	5	<3	8	<1	<50	3.0	<0.001
16	387331	-	-	24	3	18	<1	<50	3.8	0.002
17	387332	-	-	8	3	13	<1	<50	19.7	<0.001
18	387333	-	-	6	<3	12	<1	<50	5.0	0.002
19	387334	-	-	7	3	13	<1	<50	13.4	<0.001
20	387335	-	-	6	8	24	<1	<50	21.9	0.001
21	387336	-	-	15	10	67	<1	<50	18.2	<0.001
22	387337	-	-	32	13	35	<1	<50	47.3	0.001
23	387338	-	-	8	5	14	<1	<50	25.5	<0.001
24	387339	-	-	13	8	18	<1	<50	42.4	0.001
25	387340	-	-	42	14	49	<1	148	-	<0.001

Results in ppm unless otherwise specified
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390753

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	11 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387341	-	-	12	8	15	<1	<50	15.8	0.001
2	387342	-	-	10	15	34	<1	<50	9.1	<0.001
3	387343	-	-	6	6	28	<1	<50	3.0	<0.001
4	387344	-	-	4	9	42	<1	<50	<0.5	<0.001
5	387345	-	-	3	9	48	<1	<50	36.7	0.001
6	387346	-	-	18	9	82	<1	80	-	<0.001
7	387347	-	-	14	6	29	<1	<50	27.3	<0.001
8	387348	-	-	10	<3	15	<1	<50	13.6	0.003
9	387349	-	-	6	<3	11	<1	<50	7.9	0.001
10	387350	-	-	7	54	15	<1	<50	10.2	0.003
11	387351	-	-	18	28	36	<1	<50	8.7	0.001
12	387352	-	-	13	15	67	<1	<50	22.9	<0.001
13	387353	-	-	14	9	36	<1	<50	22.4	0.001
14	387354	-	-	41	17	84	<1	<50	14.7	<0.001
15	387355	-	-	12	11	30	<1	<50	24.7	0.001
16	387356	-	-	16	20	51	<1	<50	30.2	<0.001
17	387357	-	-	15	14	27	<1	<50	16.9	0.001
18	387358	-	-	13	3	20	<1	<50	15.1	<0.001
19	387359	-	-	30	12	24	<1	<50	24.0	<0.001
20	387360	-	-	10	6	10	<1	<50	18.2	0.002
21	387361	-	-	37	8	30	<1	<50	46.1	0.001
22	387362	-	-	8	<3	15	<1	<50	14.0	0.001
23	387363	-	-	16	36	12	<1	<50	14.5	0.003
24	387364	-	-	8	<3	7	<1	<50	5.7	<0.001
25	387365	-	-	7	3	8	<1	<50	<0.5	<0.001

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	12 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387366	-	-	8	<3	7	<1	<50	2.1	<0.001
2	387367	-	-	9	<3	13	<1	<50	11.1	<0.001
3	387368	-	-	8	<3	29	<1	<50	4.8	<0.001
4	387369	-	-	9	8	16	<1	<50	24.5	<0.001
5	387370	-	-	6	<3	11	<1	<50	18.4	0.001
6	387371	-	-	6	<3	5	<1	<50	5.7	0.006
7	387372	-	-	7	<3	12	<1	<50	30.2	<0.001
8	387373	-	-	15	12	14	<1	65	-	0.001
9	387374	-	-	23	11	31	<1	<50	49.6	0.001
10	387375	-	-	14	11	7	<1	<50	4.2	0.015
11	387376	-	-	6	<3	6	<1	<50	11.6	0.001
12	387377	-	-	26	<3	30	<1	83	-	0.001
13	387378	-	-	11	7	31	<1	<50	31.4	<0.001
14	387379	-	-	9	4	24	<1	<50	33.2	<0.001
15	387380	-	-	10	12	19	<1	<50	21.8	0.001
16	387381	-	-	8	17	14	<1	<50	26.7	0.001
17	387382	-	-	7	24	15	<1	<50	19.6	0.002
18	387383	-	-	7	<3	6	<1	<50	1.5	0.001
19	387384	-	-	9	5	32	<1	<50	29.5	0.001
20	387385	-	-	10	28	23	<1	<50	19.2	0.001
21	387386	-	-	9	10	19	<1	<50	14.3	0.001
22	387387	-	-	7	10	10	<1	<50	2.3	0.016
23	387388	-	-	5	<3	11	<1	<50	6.2	<0.001
24	387389	-	-	12	<3	10	<1	<50	1.8	<0.001
25	387390	-	-	8	5	24	<1	<50	24.3	0.001

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ANALYTICAL DATA

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SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	13 OF 27

	SAMPLE No	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387391	-	-	7	<3	9	<1	<50	7.1	0.002
2	387392	-	-	9	22	22	<1	64	-	<0.001
3	387393	-	-	8	9	17	<1	<50	35.5	0.001
4	387394	-	-	5	<3	10	<1	<50	5.0	<0.001
5	387395	-	-	7	3	9	<1	<50	8.5	<0.001
6	387396	-	-	9	11	20	<1	<50	49.9	<0.001
7	387397	-	-	8	6	14	<1	<50	41.5	<0.001
8	387398	-	-	10	4	13	<1	72	-	0.001
9	387399	-	-	11	4	19	<1	81	-	<0.001
10	387400	-	-	29	7	32	<1	94	-	0.001
11	387401	-	-	18	7	25	<1	<50	50.0	0.001
12	387402	-	-	30	4	36	<1	<50	49.5	0.002
13	387403	-	-	46	<3	27	<1	<50	46.1	0.006
14	387404	-	-	34	<3	22	<1	<50	26.2	0.004
15	387405	-	-	24	<3	24	<1	<50	16.2	0.002
16	387406	-	-	33	7	25	<1	<50	18.5	0.002
17	387407	-	-	22	6	19	<1	71	-	<0.001
18	387408	-	-	19	13	22	<1	<50	25.4	0.002
19	387409	-	-	16	15	17	<1	<50	21.6	0.001
20	387410	-	-	18	13	15	<1	67	-	0.002
21	387411	-	-	15	8	18	<1	<50	49.0	0.002
22	387412	-	-	12	9	18	<1	<50	45.3	<0.001
23	387413	-	-	36	10	56	<1	<50	27.2	0.002
24	387414	-	-	11	<3	10	<1	<50	10.0	0.002
25	387415	-	-	34	4	24	<1	<50	44.9	0.002

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. A. Bond

A N A L A B S

390756

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	14 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387416	-	-	7	<3	8	<1	<50	2.9	<0.001
2	387417	-	-	8	<3	9	<1	<50	2.9	0.001
3	387418	-	-	19	<3	233	<1	<50	5.2	0.001
4	387419	-	-	7	<3	13	<1	<50	2.1	<0.001
5	387420	-	-	10	7	28	<1	<50	3.6	<0.001
6	387421	-	-	11	7	8	<1	<50	3.0	<0.001
7	387422	-	-	12	8	26	<1	67	-	0.001
8	387423	-	-	8	<3	9	<1	<50	9.1	<0.001
9	387424	-	-	10	<3	11	<1	<50	6.1	<0.001
10	387425	-	-	7	<3	12	<1	<50	12.3	<0.001
11	387426	-	-	6	<3	6	<1	<50	3.6	<0.001
12	387427	-	-	9	<3	7	<1	<50	2.0	<0.001
13	387428	-	-	6	<3	6	<1	<50	1.5	0.001
14	387429	-	-	9	3	7	<1	<50	1.3	<0.001
15	387430	-	-	10	<3	5	<1	<50	1.9	<0.001
16	387431	-	-	8	<3	7	<1	<50	1.2	<0.001
17	387432	-	-	16	<3	9	<1	<50	2.1	<0.001
18	387433	-	-	12	<3	8	<1	<50	7.8	0.001
19	387434	-	-	7	<3	6	<1	<50	2.8	<0.001
20	387435	-	-	9	<3	6	<1	<50	2.1	<0.001
21	387436	-	-	7	13	12	<1	63	-	<0.001
22	387437	-	-	12	5	12	<1	69	-	<0.001
23	387438	-	-	16	6	22	<1	137	-	0.001
24	387439	-	-	14	6	19	<1	63	-	<0.001
25	387440	-	-	10	5	13	<1	<50	39.8	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.D. Frost

ANALABS

390757

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	15 OF 27

	SAMPLE No.	Au	Au (R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387441	-	-	11	6	12	<1	63	-	0.001
2	387442	-	-	8	<3	36	<1	<50	10.4	<0.001
3	387443	-	-	10	7	59	<1	<50	20.8	<0.001
4	387444	-	-	11	<3	11	<1	<50	8.6	<0.001
5	387445	-	-	7	<3	12	<1	<50	12.4	<0.001
6	387446	-	-	10	<3	9	<1	<50	13.8	<0.001
7	387447	-	-	12	<3	13	<1	<50	14.3	<0.001
8	387448	-	-	8	<3	12	<1	<50	9.4	0.001
9	387449	-	-	9	10	23	<1	53	-	<0.001
10	387450	-	-	14	5	10	<1	<50	3.4	<0.001
11	387451	-	-	10	13	20	<1	<50	36.7	<0.001
12	387452	-	-	37	34	28	<1	<50	40.7	0.002
13	387453	-	-	42	26	33	<1	<50	24.7	0.005
14	387454	-	-	51	260	74	<1	<50	31.4	0.003
15	387455	-	-	37	23	39	<1	<50	33.3	0.004
16	387456	-	-	24	14	18	<1	70	-	0.010
17	387457	-	-	20	11	19	<1	<50	45.7	0.004
18	387458	-	-	49	28	20	<1	<50	32.3	0.004
19	387459	-	-	46	10	24	<1	<50	34.8	0.003
20	387460	-	-	18	16	37	<1	<50	32.5	0.002
21	387461	-	-	11	15	19	<1	<50	33.2	0.002
22	387462	-	-	10	6	10	<1	<50	9.8	<0.001
23	387463	-	-	7	44	13	<1	<50	30.0	0.001
24	387464	-	-	8	<3	7	<1	<50	2.3	<0.001
25	387465	-	-	13	<3	8	<1	<50	1.8	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

A N A L A B S

ANALYTICAL DATA

390758

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	16 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387466	-	-	5	<3	5	<1	<50	2.5	0.001
2	387467	-	-	7	4	16	<1	<50	20.6	<0.001
3	387468	-	-	19	8	24	<1	<50	32.2	0.001
4	387469	-	-	7	<3	10	<1	<50	1.4	0.001
5	387470	-	-	7	5	12	<1	<50	2.8	<0.001
6	387471	-	-	8	3	10	<1	<50	1.9	<0.001
7	387472	-	-	10	8	17	<1	<50	16.5	<0.001
8	387473	-	-	8	<3	9	<1	<50	0.9	0.001
9	387474	-	-	9	<3	13	<1	<50	<0.5	<0.001
10	387475	-	-	8	<3	6	<1	<50	<0.5	<0.001
11	387476	-	-	5	7	7	<1	<50	0.5	<0.001
12	387477	-	-	6	7	8	<1	<50	4.9	<0.001
13	387478	-	-	9	8	6	<1	<50	1.4	<0.001
14	387479	-	-	7	8	6	<1	<50	1.1	<0.001
15	387480	-	-	6	7	9	<1	<50	4.2	<0.001
16	387481	-	-	9	9	6	<1	<50	1.6	<0.001
17	387482	-	-	5	8	4	<1	<50	1.3	<0.001
18	387483	-	-	6	<3	10	<1	<50	7.6	0.001
19	387484	-	-	7	4	19	<1	<50	13.7	<0.001
20	387485	-	-	6	<3	15	<1	<50	7.3	<0.001
21	387486	-	-	6	<3	18	<1	<50	5.6	0.002
22	387487	-	-	10	<3	12	<1	<50	10.4	0.001
23	387488	-	-	6	4	14	<1	<50	8.4	<0.001
24	387489	-	-	4	3	9	<1	<50	7.1	<0.001
25	387490	-	-	6	4	14	<1	<50	10.2	0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390759

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	17 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387491	-	-	5	8	13	<1	<50	10.7	0.001
2	387492	-	-	8	<3	12	<1	<50	11.1	0.001
3	387493	-	-	7	4	13	<1	<50	10.7	<0.001
4	387494	-	-	6	<3	12	<1	<50	11.6	0.001
5	387495	-	-	7	3	9	<1	<50	5.0	0.001
6	387496	-	-	6	<3	17	<1	<50	12.2	0.001
7	387497	-	-	8	<3	6	<1	<50	9.1	0.002
8	387498	-	-	7	8	20	<1	<50	11.7	0.002
9	387499	-	-	6	<3	6	<1	<50	3.8	0.001
10	387500	-	-	7	<3	14	<1	<50	2.8	<0.001
11	387501	-	-	7	3	12	<1	<50	10.8	0.002
12	387502	-	-	6	<3	7	<1	<50	3.5	<0.001
13	387503	-	-	8	7	12	<1	<50	10.3	<0.001
14	387504	-	-	9	4	13	<1	<50	4.9	0.001
15	387505	-	-	3	8	11	<1	<50	16.3	0.001
16	387506	-	-	7	53	83	<1	<50	1.9	0.002
17	387507	-	-	11	3	110	<1	<50	19.3	0.001
18	387508	-	-	18	<3	336	<1	<50	18.0	0.002
19	387509	-	-	4	3	11	<1	<50	10.6	<0.001
20	387510	-	-	6	<3	31	<1	<50	9.4	<0.001
21	387511	-	-	19	3	107	<1	<50	37.3	0.003
22	387512	-	-	4	<3	13	<1	<50	27.4	<0.001
23	387513	-	-	9	<3	13	<1	81	-	<0.001
24	387514	-	-	6	5	55	<1	<50	46.3	<0.001
25	387515	-	-	6	4	14	<1	<50	39.2	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

390760

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	18 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387516	-	-	7	<3	12	<1	<50	46.5	0.001
2	387517	-	-	9	11	62	<1	<50	41.3	<0.001
3	387518	-	-	9	6	10	<1	58	-	0.001
4	387519	-	-	5	9	13	<1	<50	11.1	<0.001
5	387520	-	-	10	8	38	<1	<50	49.2	<0.001
6	387521	-	-	4	13	11	<1	<50	18.7	0.001
7	387522	-	-	4	11	9	<1	<50	15.1	0.001
8	387523	-	-	5	28	8	<1	<50	32.9	0.001
9	387524	-	-	3	14	8	<1	<50	17.0	<0.001
10	387525	-	-	5	38	19	<1	<50	29.8	0.002
11	387526	-	-	15	14	17	<1	<50	35.0	0.001
12	387527	-	-	9	8	15	<1	<50	36.7	<0.001
13	387528	-	-	47	<3	36	<1	<50	26.3	0.002
14	387529	-	-	7	6	14	<1	<50	6.9	<0.001
15	387530	-	-	10	10	25	<1	<50	10.5	<0.001
16	387531	-	-	7	11	27	<1	<50	3.6	0.001
17	387532	-	-	6	3	13	<1	<50	8.8	0.004
18	387533	-	-	11	3	15	<1	<50	2.2	<0.001
19	387534	-	-	4	4	6	<1	<50	6.3	0.001
20	387535	-	-	3	6	6	<1	<50	5.4	<0.001
21	387536	-	-	3	<3	7	<1	<50	<0.5	<0.001
22	387537	-	-	4	<3	9	<1	<50	1.2	0.001
23	387538	-	-	3	<3	12	<1	<50	0.9	0.001
24	387539	-	-	5	5	12	<1	<50	15.1	<0.001
25	387540	-	-	5	<3	8	<1	<50	1.6	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390761

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	19 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387541	-	-	5	<3	10	<1	<50	1.4	<0.001
2	387542	-	-	3	8	8	<1	<50	1.4	0.001
3	387543	-	-	4	10	11	<1	<50	8.8	<0.001
4	387544	-	-	3	<3	9	<1	<50	8.1	<0.001
5	387545	-	-	5	<3	7	<1	<50	0.8	0.001
6	387546	-	-	3	<3	10	<1	<50	2.9	<0.001
7	387547	-	-	3	<3	10	<1	<50	7.2	0.001
8	387548	-	-	4	<3	-	<1	<50	1.2	0.001
9	387549	-	-	5	<3	5	<1	<50	5.1	<0.001
10	387550	-	-	5	<3	14	<1	<50	9.5	0.001
11	387551	-	-	5	<3	5	<1	<50	7.5	<0.001
12	387552	-	-	4	<3	12	<1	<50	6.7	0.001
13	387553	-	-	4	<3	14	<1	<50	9.5	<0.001
14	387554	-	-	3	<3	3	<1	<50	1.3	<0.001
15	387555	-	-	5	3	11	<1	<50	16.5	0.001
16	387556	-	-	3	13	13	<1	<50	11.4	0.008
17	387557	-	-	4	3	10	<1	<50	5.4	<0.001
18	387558	-	-	5	6	14	<1	<50	10.5	<0.001
19	387559	-	-	4	11	15	<1	<50	16.2	0.001
20	387560	-	-	3	<3	5	<1	<50	1.9	0.001
21	387561	-	-	5	4	14	<1	<50	15.8	0.001
22	387562	-	-	5	3	10	<1	<50	16.9	0.001
23	387563	-	-	6	<3	10	<1	<50	2.7	0.001
24	387564	-	-	5	<3	6	<1	<50	8.1	<0.001
25	387565	-	-	2	<3	6	<1	<50	6.5	0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

ANALYTICAL DATA

390762

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	20 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387566	-	-	3	5	8	<1	<50	23.0	<0.001
2	387567	-	-	4	9	9	<1	<50	35.7	0.001
3	387568	-	-	4	10	13	<1	<50	41.0	<0.001
4	387569	-	-	3	7	11	<1	<50	32.2	<0.001
5	387570	-	-	4	<3	8	<1	<50	15.5	<0.001
6	387571	-	-	5	<3	9	<1	<50	14.6	0.001
7	387572	-	-	5	<3	7	<1	<50	10.0	<0.001
8	387573	-	-	5	3	9	<1	<50	22.0	0.001
9	387574	-	-	6	4	11	<1	<50	30.7	0.001
10	387575	-	-	8	6	12	<1	<50	43.6	0.001
11	387576	-	-	5	<3	6	<1	<50	12.2	<0.001
12	387577	-	-	7	8	23	<1	<50	42.1	0.002
13	387578	-	-	7	4	14	<1	<50	29.3	0.002
14	387579	-	-	9	15	16	<1	<50	36.9	0.002
15	387580	-	-	10	<3	15	<1	<50	31.4	0.003
16	387581	-	-	8	3	18	<1	<50	29.3	<0.001
17	387582	-	-	7	<3	23	<1	<50	34.3	0.002
18	387583	-	-	5	<3	18	<1	<50	12.9	0.001
19	387584	-	-	6	<3	17	<1	<50	10.4	0.001
20	387585	-	-	15	13	35	<1	<50	4.8	0.001
21	387586	-	-	11	5	19	<1	<50	9.9	0.001
22	387587	-	-	9	6	21	<1	<50	6.5	<0.001
23	387588	-	-	12	9	23	<1	<50	6.9	0.001
24	387590	-	-	5	<3	6	<1	<50	2.0	<0.001
25	387591	-	-	8	<3	8	<1	<50	2.2	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Lee

ANALABS

390763

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	21 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387592	-	-	5	3	12	<1	<50	14.0	<0.001
2	387593	-	-	3	<3	22	<1	<50	3.6	<0.001
3	387594	-	-	6	<3	7	<1	<50	2.0	<0.001
4	387595	-	-	5	<3	9	<1	<50	3.0	<0.001
5	387596	-	-	4	<3	10	<1	<50	2.8	<0.001
6	387597	-	-	4	<3	9	1	<50	24.7	<0.001
7	387598	-	-	2	<3	7	<1	<50	7.2	<0.001
8	387599	-	-	4	<3	15	<1	<50	5.5	0.002
9	387600	-	-	3	<3	8	<1	<50	3.9	<0.001
10	387601	-	-	10	<3	9	<1	<50	2.6	0.002
11	387602	-	-	5	4	15	2	<50	17.2	<0.001
12	387603	-	-	4	3	16	2	<50	23.1	<0.001
13	387604	-	-	3	<3	19	1	<50	8.8	<0.001
14	387605	-	-	3	<3	11	<1	<50	5.0	0.003
15	387606	-	-	3	<3	12	1	<50	21.7	<0.001
16	387607	-	-	2	<3	16	2	<50	21.8	0.001
17	387608	-	-	<2	<3	11	<1	<50	7.8	<0.001
18	387609	-	-	5	<3	11	<1	<50	6.8	<0.001
19	387610	-	-	4	<3	10	1	<50	6.4	0.001
20	387611	-	-	3	<3	10	1	<50	9.6	0.001
21	387612	-	-	4	<3	16	<1	<50	4.1	0.001
22	387613	-	-	6	<3	18	1	<50	14.6	<0.001
23	387614	-	-	3	<3	15	<1	<50	8.2	<0.001
24	387615	-	-	4	<3	12	1	<50	13.7	<0.001
25	387616	-	-	3	<3	10	1	<50	13.6	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390764

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	22 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387617	-	-	4	<3	15	1	<50	12.0	<0.001
2	387618	-	-	4	<3	20	2	<50	22.3	<0.001
3	387619	-	-	5	<3	18	1	<50	13.4	<0.001
4	387620	-	-	6	<3	15	1	<50	22.2	0.001
5	387621	-	-	4	<3	14	1	<50	20.6	<0.001
6	387622	-	-	3	<3	12	<1	<50	9.4	<0.001
7	387623	-	-	4	3	15	2	<50	15.9	<0.001
8	387624	-	-	2	<3	12	<1	<50	2.8	<0.001
9	387625	-	-	4	<3	15	1	<50	8.8	<0.001
10	387626	-	-	6	<3	16	1	<50	15.4	0.001
11	387627	-	-	7	4	19	1	<50	8.0	0.001
12	387628	-	-	5	<3	11	1	<50	6.1	<0.001
13	387629	-	-	5	<3	15	<1	<50	11.6	0.001
14	387630	-	-	5	<3	9	<1	<50	4.7	0.001
15	387631	-	-	4	<3	8	<1	<50	5.3	<0.001
16	387632	-	-	3	<3	8	<1	<50	1.9	<0.001
17	387633	-	-	5	<3	10	<1	<50	8.9	<0.001
18	387634	-	-	4	<3	10	<1	<50	<0.5	<0.001
19	387635	-	-	5	<3	9	<1	<50	11.1	<0.001
20	387636	-	-	4	<3	11	1	<50	15.2	<0.001
21	387637	-	-	3	3	10	1	<50	5.4	<0.001
22	387638	-	-	4	<3	12	<1	<50	4.1	<0.001
23	387639	-	-	5	<3	21	1	<50	15.4	<0.001
24	387640	-	-	5	<3	16	1	<50	10.0	<0.001
25	387641	-	-	5	<3	10	2	<50	11.6	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390765

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	23 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387642	-	-	7	<3	14	1	<50	8.5	<0.001
2	387643	-	-	4	6	8	<1	<50	5.5	0.002
3	387644	-	-	3	<3	8	<1	<50	6.0	<0.001
4	387645	-	-	2	<3	7	<1	<50	1.4	<0.001
5	387646	-	-	2	<3	5	<1	<50	1.0	<0.001
6	387647	-	-	3	3	7	<1	<50	3.1	<0.001
7	387648	-	-	2	<3	2	<1	<50	1.0	0.001
8	387649	-	-	3	4	5	1	<50	10.6	<0.001
9	387650	-	-	3	<3	7	<1	<50	3.4	<0.001
10	387651	-	-	3	<3	2	<1	<50	0.8	0.001
11	387652	-	-	3	3	4	<1	<50	4.7	<0.001
12	387653	-	-	5	4	9	<1	<50	2.6	<0.001
13	387654	-	-	2	<3	3	<1	<50	<0.5	<0.001
14	387655	-	-	3	<3	5	<1	<50	<0.5	0.001
15	387656	-	-	3	<3	4	<1	<50	<0.5	<0.001
16	387657	-	-	2	<3	5	<1	<50	<0.5	<0.001
17	387658	-	-	5	55	95	<1	<50	<0.5	0.002
18	387659	-	-	3	<3	10	<1	<50	12.8	0.001
19	387660	-	-	4	8	21	<1	<50	1.5	0.001
20	387661	-	-	4	<3	10	<1	<50	2.4	0.001
21	387662	-	-	5	3	10	<1	<50	1.3	0.001
22	387663	-	-	4	<3	5	<1	<50	9.1	<0.001
23	387664	-	-	4	4	14	<1	<50	0.8	<0.001
24	387665	-	-	4	<3	10	<1	<50	0.9	<0.001
25	387666	-	-	3	<3	9	<1	<50	2.0	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M.A. Gent

A N A L A B S

ANALYTICAL DATA

390766

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	24 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387667	-	-	3	<3	4	<1	<50	2.3	<0.001
2	387668	-	-	4	3	6	<1	<50	19.0	<0.001
3	387669	-	-	3	<3	4	<1	<50	1.7	<0.001
4	387670	-	-	4	8	14	<1	<50	11.6	<0.001
5	387671	-	-	5	10	7	<1	<50	16.3	0.002
6	387672	-	-	4	3	5	<1	<50	8.6	<0.001
7	387673	-	-	8	<3	5	<1	<50	0.9	0.004
8	387674	-	-	3	5	7	<1	<50	5.3	<0.001
9	387675	-	-	4	18	15	<1	<50	0.8	<0.001
10	387676	-	-	5	11	15	<1	<50	37.3	<0.001
11	387677	-	-	2	7	5	<1	<50	5.8	<0.001
12	387678	-	-	6	83	26	<1	<50	27.1	<0.001
13	387679	-	-	8	21	18	2	<50	12.0	<0.001
14	387680	-	-	4	13	21	1	<50	8.9	<0.001
15	387681	-	-	4	7	11	1	<50	11.2	<0.001
16	387682	-	-	6	7	12	<1	<50	7.4	<0.001
17	387683	-	-	3	3	17	<1	<50	2.7	<0.001
18	387684	-	-	7	4	15	1	<50	19.4	<0.001
19	387685	-	-	8	<3	23	1	<50	6.9	<0.001
20	387686	-	-	4	<3	7	1	<50	4.8	<0.001
21	387687	-	-	4	4	4	<1	<50	6.3	<0.001
22	387688	-	-	6	<3	4	<1	<50	10.3	<0.001
23	387689	-	-	3	3	8	<1	<50	9.5	<0.001
24	387690	-	-	4	<3	10	<1	<50	9.8	<0.001
25	387691	-	-	9	9	17	<1	<50	8.9	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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390767

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	25 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387692	-	-	4	<3	28	<1	<50	6.8	<0.001
2	387693	-	-	5	<3	30	<1	<50	10.2	<0.001
3	387694	-	-	10	<3	18	1	<50	42.4	<0.001
4	387695	-	-	8	<3	13	1	<50	42.1	<0.001
5	387696	-	-	7	<3	13	<1	56	>50.0	<0.001
	387697	-	-	6	<3	12	<1	<50	32.8	<0.001
7	387698	-	-	5	<3	12	<1	<50	29.0	<0.001
8	387699	-	-	6	<3	19	<1	54	>50.0	<0.001
9	387700	-	-	6	3	17	1	58	>50.0	0.002
10	387701	-	-	7	28	34	<1	54	>50.0	<0.001
11	387702	-	-	6	71	61	<1	<50	46.3	<0.001
12	387703	-	-	5	3	15	1	<50	31.1	<0.001
13	387704	-	-	5	3	12	1	<50	45.5	<0.001
14	387705	-	-	3	4	9	<1	<50	22.9	0.002
	387706	-	-	5	3	10	<1	<50	26.6	<0.001
16	387707	-	-	6	<3	14	1	51	>50.0	<0.001
17	387708	-	-	3	<3	10	<1	<50	28.6	<0.001
18	387709	-	-	5	<3	13	1	<50	42.5	0.003
19	387710	-	-	7	<3	10	<1	<50	12.9	<0.001
20	387711	-	-	4	<3	10	<1	<50	16.7	<0.001
21	387712	-	-	3	<3	10	<1	<50	38.4	<0.001
22	387713	-	-	4	<3	10	<1	<50	10.2	<0.001
23	387714	-	-	5	<3	13	1	<50	30.9	<0.001
24	387715	-	-	4	<3	13	1	<50	15.6	<0.001
25	387716	-	-	4	3	13	<1	<50	9.2	<0.001

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390768

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	26 OF 27

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Au
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GG326
1	387717	-	-	5	21	14	1	<50	13.2	0.001
2	387718	-	-	5	15	11	1	<50	23.4	<0.001
3	387719	-	-	7	8	16	<1	<50	20.3	0.001
4	387720	-	-	7	7	24	1	<50	30.0	<0.001
5	387721	-	-	6	5	23	<1	<50	25.7	<0.001
6	387722	-	-	8	7	11	1	<50	8.2	0.001
7	387723	-	-	4	5	8	<1	<50	5.2	<0.001
8	387724	-	-	3	3	6	<1	<50	<0.5	<0.001
9	387725	-	-	6	7	16	<1	<50	2.6	0.003
10	387726	-	-	4	<3	9	<1	<50	3.1	0.001
11	387727	-	-	2	<3	8	<1	<50	<0.5	<0.001
12	387728	-	-	4	<3	38	1	<50	7.5	0.001
13	387729	-	-	3	5	31	<1	<50	2.9	<0.001
14	387730	-	-	4	6	45	<1	<50	16.1	<0.001
15	387731	-	-	7	4	62	1	<50	8.0	<0.001
16	387732	-	-	5	4	75	1	<50	6.2	<0.001
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	0.001
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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AUTHORISED OFFICER pp M. L. Scott

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12650	18/03/97	GRANT MACDONA	27 OF 27

	SAMPLE No.	Au(R)								
METHOD		GG326								
1	387302	0.002								
2	387303	<0.001								
3	387305	0.001								
4	387306	0.001								
5	387312	0.001								
6	387327	0.008								
7	387362	0.001								
8	387367	0.001								
9	387423	<0.001								
10	387458	0.004								
11	387474	<0.001								
12	387511	0.002								
13	387527	<0.001								
14	387571	0.001								
15	387588	<0.001								
16	387618	<0.001								
17	387649	<0.001								
18	387653	0.001								
19	387695	<0.001								
20	387702	<0.001								
21	387723	<0.001								
22										
23										
24	DETECTION	0.001								
25	UNITS	ppm								

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

390770

ANALYTICAL REPORT No. RES202.60.12686

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
16/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	29/01/97	1	24

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
384736/49,385828/37	DC Prep : GP033	Au,Au(R)/GG313
384736/49,385828/37	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

Waches Tyn Ck
SHD-2

AUTHORISED OFFICER

A N A L A B S

390771

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Ag
METHOD		GG313	GG313	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	384736	<0.005	-	125	-	104	-	463	-	<1
2	384737	<0.005	-	15	-	22	-	433	-	<1
3	384738	0.012	-	18	-	12	-	420	-	1
4	384739	<0.005	-	49	-	6	-	366	-	<1
5	384740	<0.005	-	54	-	13	-	161	-	1
6	384741	<0.005	-	19	-	19	-	352	-	<1
7	384742	<0.005	-	75	-	91	-	170	-	<1
8	384743	<0.005	-	102	-	56	-	420	-	<1
9	384744	<0.005	-	115	-	289	-	10	-	<1
10	384745	<0.005	-	2	-	64	-	46	-	<1
11	384746	<0.005	-	98	-	1416	-	106	-	<1
12	384747	0.017	0.021	14	-	35	-	152	-	1
13	384748	0.033	-	412	-	46	-	58	-	1
14	384749	0.026	-	3	-	28	-	137	-	<1
15	385828	0.042	-	352	-	7	-	234	-	<1
16	385829	0.034	-	497	-	15	-	288	-	<1
17	385830	0.200	-	267	-	9	-	205	-	<1
18	385831	0.080	-	162	-	21	-	263	-	<1
19	385832	0.052	-	1245	-	<3	-	316	-	<1
20	385833	0.032	-	20	-	2696	0.57	>5000	-	3
21	385834	0.050	0.058	92	0.75	>5000	1.94	>5000	-	10
22	385835	0.090	-	156	1.04	>5000	1.91	>5000	-	16
23	385836	3.420	-	1300	11.70	>5000	18.20	>5000	220	>50
24	385837	0.062	-	95	0.75	>5000	1.23	>5000	-	11
25										

Results in ppm unless otherwise specified
- = element not determined

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390772

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Ag
METHOD		GG313	GG313	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	0.01	3	0.01	2	50	1
25	UNITS	ppm	ppm	ppm	%	ppm	%	ppm	ppm	ppm

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390773

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	3 OF 4

	SAMPLE No.	As	As							
METHOD		GA140	HA140							
1	384736	<50	18.3							
2	384737	<50	26.8							
3	384738	<50	11.8							
4	384739	<50	6.4							
5	384740	<50	11.5							
6	384741	<50	2.4							
7	384742	<50	5.1							
8	384743	<50	3.1							
9	384744	<50	2.3							
10	384745	<50	1.2							
11	384746	<50	20.2							
12	384747	<50	5.3							
13	384748	<50	21.0							
14	384749	<50	3.2							
15	385828	<50	18.0							
16	385829	<50	6.0							
17	385830	<50	16.8							
18	385831	<50	19.7							
19	385832	<50	5.2							
20	385833	<50	23.2							
21	385834	<50	20.1							
22	385835	<50	50.0							
23	385836	<50	40.9							
24	385837	<50	37.9							
25										

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390774

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12686	29/01/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	As	As							
METHOD		GA140	HA140							
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	0.5							
25	UNITS	ppm	ppm							

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs
****

Analabs Pty. Ltd.
A.C.N. 004 501 864

14 Thirkell St. COOEE TAS 7320
Phone (004) 316837
Fax (004) 318890

390775

ANALYTICAL REPORT No. RES202.60.12728

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
29/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
10	27/02/97	1	163

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
385838/6000	DC Prep : GP033	Au,Au(R),Au(S)/GG313
385838/6000	DC Prep : GP033	Cu,Pb,Zn,Ag,Mn/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

SHD-2
327-579

pp

AUTHORISED OFFICER

A N A L A B S

390776

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	1 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385838	0.082	-	405	11	-	179	-	1	2170
2	385839	0.016	-	118	63	-	700	-	<1	2070
3	385840	0.023	-	52	141	-	1230	-	1	2350
4	385841	0.010	-	31	264	-	790	-	<1	2200
5	385842	0.017	0.008	58	620	-	760	-	1	2300
6	385843	0.010	-	33	378	-	760	-	1	3610
7	385844	0.008	-	46	392	-	720	-	1	2560
8	385845	0.013	-	60	296	-	1050	-	<1	2620
9	385846	0.010	-	109	410	-	850	-	1	2260
10	385847	0.034	-	54	264	-	152	-	1	2420
11	385848	0.033	-	186	311	-	1030	-	2	3430
12	385849	0.019	0.038	35	55	-	266	-	<1	1860
13	385850	0.008	-	109	64	-	920	-	<1	1540
14	385851	0.009	-	128	91	-	335	-	1	2690
15	385852	0.112	-	2720	110	-	348	-	2	4210
16	385853	0.026	-	400	91	-	313	-	2	3920
17	385854	0.032	-	630	219	-	810	-	2	3440
18	385855	0.014	-	343	272	-	1010	-	2	2740
19	385856	<0.005	-	30	246	-	780	-	<1	3310
20	385857	0.011	-	28	262	-	650	-	<1	3330
21	385858	<0.005	-	27	253	-	890	-	<1	3330
22	385859	0.010	0.007	28	287	-	830	-	<1	3410
23	385860	0.026	-	66	291	-	1570	-	2	1980
24	385861	0.010	-	39	276	-	232	-	2	2696
25	385862	0.015	-	26	57	-	120	-	1	2760

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390777

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	2 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385863	0.012	-	23	19	-	103	-	1	3520
2	385864	0.012	-	28	83	-	107	-	<1	3650
3	385865	0.054	-	32	172	-	60	-	1	4120
4	385866	0.016	-	22	125	-	286	-	<1	4520
5	385867	0.016	-	41	394	-	1500	-	1	>5000
6	385868	0.011	-	30	325	-	1410	-	<1	>5000
7	385869	0.016	-	26	125	-	640	-	<1	>5000
8	385870	0.016	-	25	58	-	362	-	<1	>5000
9	385871	0.012	-	25	29	-	251	-	<1	>5000
10	385872	0.014	-	8	182	-	144	-	<1	>5000
11	385873	0.013	-	6	217	-	1330	-	1	>5000
12	385874	0.021	0.018	11	720	-	3250	-	<1	>5000
13	385875	0.020	-	10	1840	-	>5000	0.53	4	>5000
14	385876	0.023	-	12	950	-	2230	-	2	>5000
15	385877	0.018	-	8	1090	-	3650	-	3	>5000
16	385878	0.027	-	11	1250	-	2850	-	1	>5000
17	385879	0.026	-	10	1570	-	3120	-	1	>5000
18	385880	0.033	0.026	14	2360	-	3190	-	2	>5000
19	385881	0.036	-	37	1000	-	4300	-	2	>5000
20	385882	0.072	-	66	1430	-	3650	-	7	>5000
21	385883	0.026	-	31	4050	-	>5000	0.60	12	>5000
22	385884	0.010	0.016	16	960	-	1640	-	4	>5000
23	385885	0.011	-	19	810	-	2300	-	4	>5000
24	385886	0.012	-	13	270	-	1280	-	3	>5000
25	385887	0.008	-	21	600	-	2720	-	4	>5000

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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390778

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	3 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385888	0.010	-	10	147	-	114	-	2	>5000
2	385889	0.015	-	24	240	-	1150	-	3	>5000
3	385890	0.017	-	21	83	-	700	-	1	>5000
4	385891	0.011	-	14	48	-	219	-	1	>5000
5	385892	0.009	-	21	33	-	690	-	<1	>5000
	385893	<0.005	-	17	41	-	212	-	1	>5000
7	385894	0.005	-	12	240	-	207	-	1	>5000
8	385895	0.041	-	7	60	-	89	-	1	4000
9	385896	0.007	-	7	29	-	127	-	1	>5000
10	385897	0.009	-	139	374	-	720	-	33	>5000
11	385898	<0.005	-	22	87	-	1150	-	3	>5000
12	385899	<0.005	-	11	71	-	380	-	2	>5000
13	385900	<0.005	-	31	175	-	397	-	5	>5000
14	385901	<0.005	-	27	92	-	355	-	6	>5000
15	385902	<0.005	-	19	184	-	303	-	5	>5000
16	385903	<0.005	-	18	590	-	89	-	4	4140
17	385904	<0.005	-	15	176	-	385	-	2	>5000
18	385905	<0.005	-	16	209	-	1560	-	2	3330
19	385906	<0.005	-	12	670	-	1050	-	1	1430
20	385907	<0.005	-	24	320	-	750	-	1	2020
21	385908	<0.005	-	109	136	-	255	-	2	3630
22	385909	0.005	-	96	20	-	306	-	1	2700
23	385910	<0.005	-	45	20	-	272	-	<1	3120
24	385911	0.007	-	80	32	-	275	-	1	2880
25	385912	0.065	-	164	44	-	355	-	1	2540

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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A N A L A B S

390779

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	4 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385913	0.024	-	86	63	-	293	-	2	2290
2	385914	0.023	-	65	271	-	250	-	6	3370
3	385915	0.014	-	58	113	-	190	-	2	2020
4	385916	0.018	0.010	88	196	-	159	-	3	2360
5	385917	0.013	-	83	218	-	283	-	2	2420
6	385918	0.018	-	70	570	-	1360	-	6	1530
7	385919	0.015	-	47	334	-	960	-	4	4270
8	385920	0.008	-	38	102	-	730	-	2	>5000
9	385921	0.008	-	21	127	-	285	-	2	3800
10	385922	0.016	-	25	239	-	349	-	2	>5000
11	385923	0.019	-	16	332	-	401	-	1	>5000
12	385924	0.007	-	10	147	-	280	-	1	3810
13	385925	0.009	-	6	66	-	261	-	2	4680
14	385926	0.006	-	7	60	-	307	-	<1	>5000
15	385927	0.008	-	7	28	-	83	-	<1	>5000
16	385928	0.020	-	7	167	-	355	-	<1	>5000
17	385929	0.038	-	10	670	-	970	-	3	>5000
18	385930	0.036	-	8	480	-	850	-	2	>5000
19	385931	0.016	0.026	5	500	-	1060	-	<1	>5000
20	385932	0.008	-	13	157	-	1440	-	<1	>5000
21	385933	0.013	-	11	77	-	1270	-	1	>5000
22	385934	0.009	-	18	129	-	1330	-	<1	>5000
23	385935	0.013	-	27	180	-	860	-	<1	>5000
24	385936	0.010	-	17	206	-	880	-	<1	>5000
25	385937	0.008	-	9	227	-	930	-	<1	>5000

Results in ppm unless otherwise specified
- = element not determined

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390780

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	5 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385938	0.005	-	9	247	-	397	-	<1	2880
2	385939	0.010	-	8	258	-	311	-	<1	>5000
3	385940	0.018	-	5	83	-	410	-	<1	4660
4	385941	0.007	0.005	6	165	-	258	-	<1	4100
5	385942	0.005	-	4	284	-	204	-	<1	>5000
6	385943	<0.005	-	7	148	-	131	-	<1	4640
7	385944	0.006	-	5	89	-	134	-	<1	>5000
8	385945	<0.005	-	7	81	-	111	-	<1	4000
9	385946	<0.005	-	4	34	-	109	-	<1	2730
10	385947	<0.005	-	5	35	-	140	-	<1	3460
11	385948	0.007	-	38	36	-	295	-	<1	2660
12	385949	<0.005	-	97	72	-	399	-	1	3130
13	385950	0.006	-	84	23	-	410	-	1	3380
14	385951	<0.005	-	86	26	-	265	-	<1	2940
15	385952	0.178	-	23	206	-	267	-	<1	3690
16	385953	<0.005	-	62	81	-	560	-	<1	3560
17	385954	0.100	-	173	3350	-	>5000	0.51	3	4980
18	385955	0.005	-	58	384	-	730	-	2	>5000
19	385956	<0.005	-	11	216	-	325	-	1	>5000
20	385957	<0.005	-	8	152	-	332	-	1	>5000
21	385958	0.005	-	12	82	-	200	-	<1	3120
22	385959	0.009	0.010	14	394	-	1050	-	<1	>5000
23	385960	0.010	-	10	420	-	420	-	1	>5000
24	385961	0.008	-	7	149	-	336	-	1	>5000
25	385962	0.038	-	14	3000	-	>5000	0.66	2	>5000

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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390781

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	6 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385963	0.032	-	16	710	-	1160	-	1	>5000
2	385964	0.687	-	57	206	-	314	-	1	>5000
3	385965	0.019	-	15	56	-	136	-	<1	4210
4	385966	0.022	-	12	130	-	161	-	<1	4340
5	385967	0.012	-	11	162	-	144	-	1	3310
6	385968	0.020	-	7	230	-	173	-	<1	>5000
7	385969	0.005	-	7	158	-	133	-	<1	4220
8	385970	<0.005	-	20	156	-	750	-	<1	>5000
9	385971	0.005	0.011	24	1100	-	1280	-	<1	4430
10	385972	0.037	-	108	>5000	0.60	3500	-	3	>5000
11	385973	<0.005	-	56	43	-	530	-	1	3590
12	385974	<0.005	-	94	50	-	290	-	1	3160
13	385975	0.007	-	46	15	-	277	-	<1	2770
14	385976	<0.005	-	75	20	-	297	-	<1	3710
15	385977	<0.005	-	14	134	-	332	-	<1	3150
16	385978	<0.005	-	9	140	-	177	-	<1	2170
17	385979	0.005	-	6	68	-	148	-	<1	1780
18	385980	<0.005	-	6	57	-	108	-	<1	1420
19	385981	0.023	-	15	220	-	330	-	<1	1760
20	385982	0.007	-	12	49	-	200	-	<1	1250
21	385983	0.014	-	12	88	-	275	-	<1	990
22	385984	<0.005	-	19	34	-	140	-	<1	1230
23	385985	<0.005	-	16	<3	-	95	-	<1	890
24	385986	<0.005	-	17	21	-	145	-	<1	790
25	385987	0.007	-	20	32	-	162	-	<1	810

Results in ppm unless otherwise specified
- = element not determined

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390782

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	7 OF 10

	SAMPLE No.	Au	Au(R)	Cu	Pb	Pb	Zn	Zn	Ag	Mn
METHOD		GG313	GG313	GA140	GA140	GA104	GA140	GA104	GA140	GA140
1	385988	0.010	-	13	<3	-	80	-	<1	670
2	385989	0.011	-	11	<3	-	66	-	<1	550
3	385990	0.010	-	10	<3	-	92	-	<1	880
4	385991	0.008	-	11	18	-	86	-	<1	280
5	385992	<0.005	-	7	6	-	80	-	<1	1100
6	385993	0.017	-	8	6	-	69	-	<1	540
7	385994	0.016	-	6	3	-	63	-	<1	610
8	385995	0.007	-	5	<3	-	73	-	<1	580
9	385996	0.006	0.010	6	<3	-	69	-	1	440
10	385997	0.005	-	4	<3	-	69	-	<1	410
11	385998	<0.005	-	8	<3	-	64	-	<1	530
12	385999	0.006	-	15	81	-	307	-	1	690
13	386000	0.005	-	71	58	-	304	-	<1	560
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	0.01	2	0.01	1	3
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	%	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390783

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	27/02/97	GRANT MACDONA	8 OF 10

	SAMPLE No.	Mn								
METHOD		GA104								
1	385867	0.50								
2	385868	0.51								
3	385869	0.52								
4	385870	0.52								
5	385871	0.53								
6	385872	0.50								
7	385873	1.43								
8	385874	2.09								
9	385875	4.09								
10	385876	2.75								
11	385877	2.96								
12	385878	2.59								
13	385879	1.76								
14	385880	1.43								
15	385881	1.66								
16	385882	0.80								
17	385883	1.45								
18	385884	1.41								
19	385885	0.75								
20	385886	1.33								
21	385887	1.72								
22	385888	1.75								
23	385889	1.66								
24	385890	1.52								
25	385891	1.41								

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

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390784

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	9 OF 10

	SAMPLE No.	Mn								
METHOD		GA104								
1	385892	0.85								
2	385893	0.99								
3	385894	0.61								
4	385896	0.57								
5	385897	0.73								
6	385898	0.66								
7	385899	0.50								
8	385900	1.24								
9	385901	1.38								
10	385902	0.80								
11	385904	0.51								
12	385920	0.51								
13	385922	0.55								
14	385923	0.50								
15	385926	0.51								
16	385927	1.04								
17	385928	0.77								
18	385929	1.32								
19	385930	3.35								
20	385931	1.96								
21	385932	0.76								
22	385933	1.01								
23	385934	1.14								
24	385935	1.13								
25	385936	0.89								

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
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390785

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12728	26/02/97	GRANT MACDONA	10 OF 10

	SAMPLE No.	Mn								
METHOD		GA104								
1	385937	0.82								
2	385939	0.50								
3	385942	0.51								
4	385944	0.50								
5	385955	0.72								
6	385956	0.64								
7	385957	0.51								
8	385959	0.55								
9	385960	0.62								
10	385961	0.50								
11	385962	1.64								
12	385963	1.89								
13	385964	0.52								
14	385968	0.51								
15	385970	0.54								
16	385972	0.59								
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01								
25	UNITS	%								

Results in ppm unless otherwise specified
+ = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp

Analabs
****

Analabs Pty. Ltd.
A.C.N. 004 591 664

390786

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12721

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
28/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	12/02/97	1	11

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386011/21	DC Prep : GP033	Au,Au(R)/GG313
386011/21	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

SHD-4
46-57.65

RESULTS TO

RESULTS TO

AUTHORISED OFFICER

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390787

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12721	12/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386011	<0.005	<0.005	25	4	71	<1	<50	8.6	
2	386012	<0.005	-	41	17	53	<1	<50	8.8	
3	386013	0.014	-	57	15	41	1	<50	14.4	
4	386014	<0.005	-	27	3	39	<1	<50	8.8	
5	386015	<0.005	-	35	72	41	<1	<50	5.8	
6	386016	<0.005	-	32	9	53	<1	<50	4.0	
7	386017	<0.005	-	27	<3	53	1	<50	3.1	
8	386018	<0.005	-	30	<3	49	<1	<50	4.1	
9	386019	<0.005	-	33	<3	67	1	<50	10.5	
10	386020	<0.005	-	30	<3	69	<1	<50	3.9	
11	386021	<0.005	<0.005	44	21	60	1	<50	4.3	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs
****

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318990

390788

ANALYTICAL REPORT No. RE9202.60.12743

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
31/01/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	27/02/97	1	12

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386041/3,386047/55	DC Prep : GP033	Au,Au(R)/GG313
386041/3,386047/55	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140

RESULTS TO:
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

SHD-5
2-5-
8-17-

pp M.A. Good
AUTHORISED OFFICER

ANALABS

390789

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12743	27/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386041	0.028	-	10	<3	38	<1	<50	19.0	
2	386042	0.019	-	18	<3	53	1	<50	24.5	
3	386043	0.016	-	17	<3	41	<1	<50	17.2	
4	386047	0.014	-	31	80	30	2	<50	25.8	
5	386048	0.017	-	50	92	43	2	<50	1.2	
6	386049	0.010	-	52	133	54	2	<50	38.8	
7	386050	0.006	-	27	66	88	1	<50	11.6	
8	386051	0.009	-	19	36	132	1	<50	6.4	
9	386052	0.011	-	30	74	95	<1	<50	9.6	
10	386053	0.012	-	44	93	61	1	<50	11.1	
11	386054	0.006	-	59	64	107	1	<50	4.0	
12	386055	<0.005	0.009	95	35	72	1	<50	1.1	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs
Analabs Pty. Ltd.
A.C.N. 004 501 004

390790

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12781

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
06/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	27/02/97	1	32

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386044/46,386056/84	DC Prep : GP033	Au,Au(R)/GG313
386044/46,386056/84	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140,As/HA140

RESULTS TO:
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO:

RESULTS TO:

REMARKS

SHD-5
5-8-
17-47.2-

pp

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390791

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
'	RES202.60.12781	27/02/97	GRANT MACDONA	1 OF 2

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386044	0.008	-	47	5	23	<1	76	-	
2	386045	<0.005	-	31	62	32	<1	<50	50.0	
3	386046	<0.005	-	32	85	26	<1	<50	30.7	
4	386056	<0.005	<0.005	81	26	106	<1	<50	9.1	
5	386057	<0.005	-	47	13	122	<1	<50	7.6	
6	386058	<0.005	-	57	<3	119	<1	<50	10.0	
7	386059	<0.005	-	42	6	80	<1	<50	4.2	
8	386060	<0.005	-	29	37	56	<1	<50	10.2	
9	386061	<0.005	-	21	23	74	<1	<50	6.7	
10	386062	<0.005	-	38	15	132	<1	<50	6.8	
11	386063	<0.005	-	45	55	109	<1	<50	4.6	
12	386064	<0.005	0.006	38	30	99	<1	<50	4.0	
13	386065	<0.005	-	41	3	102	<1	<50	4.8	
14	386066	<0.005	-	30	12	146	<1	<50	2.9	
15	386067	<0.005	-	37	30	149	1	<50	8.9	
16	386068	<0.005	-	33	13	178	<1	<50	9.1	
17	386069	<0.005	-	25	5	182	<1	<50	6.6	
18	386070	<0.005	-	32	12	179	<1	<50	7.6	
19	386071	<0.005	-	164	63	82	2	60	-	
20	386072	<0.005	-	71	29	101	<1	<50	16.4	
21	386073	<0.005	-	63	30	131	1	<50	6.2	
22	386074	<0.005	-	60	30	117	<1	<50	3.8	
23	386075	<0.005	-	94	<3	127	3	<50	6.3	
24	386076	<0.005	<0.005	68	<3	124	<1	<50	8.2	
25	386077	<0.005	-	51	24	120	<1	<50	10.0	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Leonard

A N A L A B S

390792

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12781	27/02/97	GRANT MACDONA	2 OF 2

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	
1	386078	<0.005	-	37	<3	162	<1	<50	6.6	
2	386079	<0.005	-	45	<3	229	<1	<50	6.7	
3	386080	<0.005	-	26	<3	132	<1	<50	3.1	
4	386081	<0.005	-	23	<3	238	<1	<50	3.3	
5	386082	<0.005	-	29	<3	231	<1	<50	5.3	
6	386083	<0.005	-	37	<3	195	<1	<50	3.6	
7	386084	<0.005	-	27	<3	160	<1	<50	5.5	
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER pp M. Lund

Analabs

Analabs Pty. Ltd.
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14 Thirkell St. COOEE TAS 7320
Phone (004) 316837
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390793

ANALYTICAL REPORT No. RES202.60.12791

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
11/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
1	27/02/97	1

TOTAL No. OF SAMPLES: 17

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386101/8,386111/9	DC Prep : GP033	Au,Au(R)/66313
386101/9,386111/9	DC Prep : GP033	Cu,Pb,Zn,Ag,Mn,As/6A140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

SHD-6
153.5 – 162.7
SHD-8
12-21

PP M.A. Goode
AUTHORISED OFFICER

ANALABS

390794

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12791	27/02/97	GRANT MACDONA	1 OF 1

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	Mn	As	As
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	GA140	HA140
1	386101	<0.005	-	12	<3	17	<1	281	<50	14.7
2	386102	<0.005	-	10	<3	32	<1	362	<50	6.7
3	386103	<0.005	-	21	12	51	<1	329	<50	35.9
4	386104	<0.005	-	16	<3	80	<1	470	<50	8.7
5	386105	<0.005	-	19	6	28	<1	285	<50	9.9
6	386106	<0.005	<0.005	14	<3	63	<1	356	<50	3.5
7	386107	<0.005	-	5	<3	78	<1	410	<50	3.7
8	386108	<0.005	-	11	10	34	<1	252	<50	8.0
9	386111	<0.005	-	23	169	389	<1	3420	<50	18.4
10	386112	<0.005	-	35	237	333	1	4590	<50	16.9
11	386113	0.033	-	34	80	410	<1	3500	<50	27.1
12	386114	0.100	0.122	65	161	38	1	126	<50	42.0
13	386115	0.130	-	386	242	24	2	99	<50	30.8
14	386116	0.014	-	170	125	1590	1	2870	<50	28.8
15	386117	0.012	-	130	26	128	1	3710	<50	23.6
16	386118	0.040	-	490	52	206	1	4530	<50	28.2
17	386119	0.050	-	1290	135	580	2	1970	<50	13.2
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	3	50	0.5
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs

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390795

ANALYTICAL REPORT No. RES202.60.12813

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
19/02/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
5	09/04/97	1	77

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
386131/7 & others	DC Prep : GP033	Au,Au(R)/GG313
386131/7 & others	DC Prep : GP033	Cu,Pb,Zn,Ag,As/GA140,As/HA140
386131/7 & others	DC Prep : GP033	Mn/GA140

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

REMARKS

SHD-8

RESULTS TO

RESULTS TO

AUTHORISED OFFICER

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390796

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	1 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	386131	<0.005	-	31	98	191	<1	-	16.7	2131
2	386132	<0.005	-	24	46	154	<1	-	15.3	>5000
3	386133	<0.005	-	48	77	268	<1	-	4.9	760
4	386134	<0.005	-	19	9	13	<1	-	0.8	73
5	386135	0.013	-	61	32	17	<1	-	2.0	25
6	386136	0.006	-	273	30	127	<1	-	17.1	28
7	386137	<0.005	-	215	134	205	<1	-	20.0	33
8	386142	0.027	-	1024	281	1041	<1	-	31.4	3790
9	386143	0.010	-	162	314	768	<1	-	39.6	>5000
10	386144	0.016	-	91	532	778	<1	110	-	>5000
11	386149	0.015	-	508	76	871	<1	-	12.9	>5000
12	386150	0.009	-	220	146	223	<1	-	12.2	>5000
13	386151	0.511	-	822	197	210	<1	-	5.3	>5000
14	386152	0.010	-	226	102	305	<1	-	6.4	>5000
15	386153	0.236	-	1469	154	471	<1	-	6.7	>5000
16	386154	0.019	-	277	124	620	<1	-	20.4	>5000
17	386155	<0.005	-	33	167	464	<1	-	26.0	>5000
18	386160	<0.005	-	17	517	656	<1	-	16.4	>5000
19	386161	<0.005	-	15	396	393	<1	-	8.0	3165
20	386162	0.015	-	247	666	1418	<1	-	9.5	4430
21	386163	0.039	-	60	129	342	<1	-	2.5	4318
22	386164	0.051	-	246	225	437	<1	-	25.5	>5000
23	386165	0.047	-	51	54	530	<1	-	24.4	>5000
24	386166	0.054	-	87	65	544	<1	-	34.5	>5000
25	386167	0.044	-	61	190	454	<1	-	37.8	>5000

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390797

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	2 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	386168	0.037	-	384	139	646	<1	-	25.0	>5000
2	386169	0.103	-	503	747	762	<1	-	25.0	>5000
3	386170	0.017	-	285	840	2988	<1	-	29.0	>5000
4	386171	0.035	-	221	628	2074	<1	-	25.5	>5000
5	386172	0.015	-	92	528	826	<1	-	25.6	>5000
6	386173	<0.005	-	85	83	297	<1	-	22.2	1926
7	386174	0.006	-	40	175	331	<1	-	30.9	3259
8	386175	<0.005	-	21	589	1611	<1	-	16.2	3343
9	388171	<0.005	-	54	<3	40	<1	57	-	-
10	388172	<0.005	-	17	13	26	<1	201	-	-
11	388173	<0.005	-	86	<3	187	<1	108	-	-
12	388174	<0.005	-	12	<3	24	<1	-	44.4	-
13	388175	<0.005	-	3	<3	8	<1	-	5.5	-
14	388176	<0.005	-	4	<3	5	<1	-	6.0	-
15	388177	<0.005	-	<2	13	39	<1	-	15.1	-
16	388178	<0.005	-	313	3	104	<1	1813	-	-
17	388179	<0.005	-	468	<3	228	<1	-	39.4	-
18	388180	<0.005	-	361	5	134	<1	1806	-	-
19	388181	<0.005	-	164	9	16	<1	-	43.7	-
20	388182	<0.005	-	3	3	7	<1	-	40.0	-
21	388183	<0.005	-	20	8	12	<1	-	48.3	-
22	388184	0.007	-	39	6	33	<1	-	7.7	-
23	388185	0.017	-	132	9	66	<1	-	38.5	-
24	388186	0.009	-	130	6	44	<1	138	-	-
25	388187	<0.005	-	49	<3	136	<1	254	-	-

Results in ppm unless otherwise specified
- = element not determined

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AUTHORISED OFFICER

A N A L A B S

390798

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	3 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	388188	<0.005	-	53	5	38	<1	-	37.9	-
2	388189	<0.005	-	4	9	13	<1	-	10.8	-
3	388190	<0.005	-	10	57	27	<1	-	29.8	-
4	388191	<0.005	-	5	7	16	<1	-	3.2	-
5	388192	<0.005	-	2	13	9	<1	-	5.9	-
6	388193	<0.005	-	50	48	53	<1	-	41.8	-
7	388194	<0.005	-	18	8	12	<1	-	12.5	-
8	388195	<0.005	-	75	351	152	<1	381	-	-
9	388196	<0.005	-	6	<3	13	<1	-	21.1	-
10	388197	<0.005	-	2	<3	9	<1	-	15.5	-
11	388198	<0.005	-	21	<3	39	<1	629	-	-
12	388199	<0.005	-	19	<3	38	<1	-	44.1	-
13	388200	<0.005	-	8	<3	7	<1	108	-	-
14	388201	<0.005	-	10	<3	9	<1	125	-	-
15	388202	<0.005	-	19	<3	12	<1	237	-	-
16	388203	<0.005	-	37	<3	49	<1	130	-	-
17	388204	<0.005	-	12	17	19	<1	-	28.2	-
18	388205	<0.005	-	2	<3	7	<1	-	22.5	-
19	388206	<0.005	-	7	<3	7	<1	-	3.8	-
20	388207	<0.005	-	7	5	13	<1	-	16.1	-
21	388208	<0.005	-	16	6	13	<1	-	0.6	-
22	388209	<0.005	-	3	6	7	<1	-	<0.5	-
23	388210	<0.005	-	38	5	72	<1	62	-	-
24	388211	<0.005	-	37	<3	36	<1	75	-	-
25	388212	<0.005	-	24	<3	29	<1	-	45.1	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390799

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	4 OF 5

	SAMPLE No.	Au	Au(R)	Cu	Pb	Zn	Ag	As	As	Mn
METHOD		GG313	GG313	GA140	GA140	GA140	GA140	GA140	HA140	GA140
1	388213	<0.005	-	129	8	119	<1	79	-	-
2	388214	<0.005	-	8	<3	12	<1	-	7.8	-
3										
4										
5										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.005	0.005	2	3	2	1	50	0.5	3
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390800

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12811	09/04/97	GRANT MACDONA	5 OF 5

	SAMPLE No.	Mn
METHOD		GA104
1	386132	0.66
2	386143	0.67
3	386144	0.65
4	386149	0.90
5	386150	0.66
6	386151	0.76
7	386152	0.88
8	386153	1.17
9	386154	0.69
10	386155	0.77
11	386160	1.22
12	386164	0.79
13	386165	0.78
14	386166	0.81
15	386167	0.82
16	386168	0.55
17	386169	0.96
18	386170	0.68
19	386171	0.79
20	386172	0.83
21		
22		
23		
24	DETECTION	0.01
25	UNITS	%

Results in ppm unless otherwise specified
– = element not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390801

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	1 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
388216	20	<5	28	<1	68	-	0.01	-	-
388217	12	5	12	<1	<50	-	0.01	-	-
388218	5	<5	2	<1	52	-	<0.01	-	-
388219	5	<5	2	<1	52	-	<0.01	-	-
388220	2	<5	2	<1	60	-	<0.01	-	-
388221	68	<5	7	<1	226	-	<0.01	-	-
388222	2	25	4	<1	82	-	<0.01	-	-
388223	11	<5	<2	<1	<50	-	<0.01	-	-
388224	10	6	6	<1	<50	-	<0.01	-	-
388225	2	7	<2	<1	<50	-	<0.01	-	-
388226	8	12	4	<1	<50	-	<0.01	-	-
388227	12	<5	3	<1	152	-	<0.01	-	-
388228	41	25	45	<1	412	-	<0.01	-	-
388229	42	<5	10	<1	<50	-	<0.01	-	-
388230	18	5	17	<1	<50	-	<0.01	-	-
388231	9	24	30	<1	151	-	0.01	-	-
388232	9	<5	2	<1	79	-	0.01	-	-
388233	8	<5	2	<1	<50	-	0.01	-	-
388234	<2	<5	4	<1	<50	-	0.01	-	-
388235	10	<5	<2	<1	<50	-	<0.01	-	-
388236	11	6	30	<1	179	-	<0.01	-	-
388237	4	<5	4	<1	80	-	<0.01		-
388238	9	<5	2	<1	<50	-	<0.01	-	-
388239	34	7	58	<1	97	-	<0.01	-	-
388240	28	6	8	<1	108	-	<0.01	-	-

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ANALYTICAL DATA

390802

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	2 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
388241	11	<5	<2	<1	60	-	<0.01	-	-
388242	7	<5	3	<1	78	-	<0.01	-	-
388243	<2	<5	2	<1	85	-	0.01	-	-
388244	7	8	25	<1	242	-	0.01	0.02	-
388245	9	95	19	<1	183	-	0.01	0.02	-
388246	<2	<5	15	<1	60	-	<0.01	-	-
388247	11	<5	8	<1	66	-	<0.01	-	-
388248	22	<5	8	<1	77	-	<0.01	-	-
388249	9	<5	7	<1	<50	-	<0.01	-	-
388250	7	<5	3	<1	<50	-	<0.01	-	-
388251	15	<5	3	<1	<50	-	0.01	-	-
384751	-	-	-	-	-	-	-	-	2783
384752	-	-	-	-	-	-	-	-	2646
384753	-	-	-	-	-	-	-	-	1774
384754	-	-	-	-	-	-	-	-	3537
384755	-	-	-	-	-	-	-	-	2698
384756	-	-	-	-	-	-	-	-	2135
384757	-	-	-	-	-	-	-	-	3605
384758	<2	<5	6	-	-	-	0.01	-	1157
384759	35	502	59	-	-	-	<0.01	-	2431
384760	7	35	67	-	-	-	<0.01	-	2698
384761	11	10	179	-	-	-	<0.01	-	2928
384762	14	6	119	-	-	-	0.01	-	2899
384763	11	<5	114	-	-	-	<0.01	-	3369
386281	7	<5	150	<1	<50	2925	0.01	-	-

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ANALYTICAL DATA 390803

CLIENT PREFIX	REPORT NUMBER	RÉPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	3 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
386282	10	6	153	<1	<50	2942	0.01	-	-
386283	33	7	109	<1	<50	1965	<0.01	-	-
386284	13	<5	184	<1	<50	2376	<0.01	-	-
386285	8	<5	194	<1	<50	2671	<0.01	-	-
386286	10	<5	190	<1	<50	3252	<0.01	-	-
386287	7	5	184	<1	<50	3234	<0.01	-	-
386288	10	6	182	<1	<50	3133	0.01	-	-
386289	14	5	203	<1	65	2737	<0.01	-	-
386290	8	5	157	<1	<50	2272	<0.01	-	-
386291	18	8	172	<1	56	3304	<0.01	-	-
386292	18	10	189	<1	78	3920	<0.01	-	-
386293	15	6	154	<1	<50	3596	<0.01	-	-
386294	57	9	155	<1	<50	3104	<0.01	-	-
386295	18	6	99	<1	<50	3703	<0.01	-	-
386296	24	5	178	<1	<50	2866	<0.01	-	-
386297	22	8	139	<1	64	3137	<0.01	-	-
386298	9	<5	72	<1	<50	2829	0.01	-	-
386299	18	<5	109	<1	75	4888	<0.01	-	-
386300	34	9	132	<1	64	3696	<0.01	-	-
386301	17	8	147	<1	<50	4847	<0.01	-	-
386302	66	6	166	<1	58	3276	<0.01	-	-
386303	57	6	206	<1	74	3507	<0.01	-	-
386304	108	19	171	<1	<50	2906	<0.01	-	-
386305	95	7	164	<1	56	3388	<0.01	-	-
386306	38	26	205	<1	64	3886	<0.01	-	-

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ANALYTICAL DATA 390804

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	4 OF 5

SAMPLE	Cu GA140	Pb GA140	Zn GA140	Ag GA140	As GA140	Mn GA140	Au GG313	Au(R) GG313	Ti GX401
386307	45	16	242	<1	67	5238	<0.01	-	-
PLEASE NOTE: As/HA140 Results to follow.									
DETECTION	2	5	2	1	50	3	0.01	0.01	50
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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ANALYTICAL DATA 390805

CLIENT PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	21/04/97	GRANT MACDONA	5 OF 5

SAMPLE	Zr GX401	Ba GX401
384751	157	920
384752	132	665
384753	292	663
384754	171	1294
384755	204	724
384756	197	792
384757	453	848
384758	202	418
384759	367	1712
384760	217	1082
384761	215	834
384762	230	726
384763	227	563
DETECTION	5	10
UNITS	ppm	ppm

PLEASE NOTE: As/HA140 Results to follow.

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

390806

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. RES202.60.12950

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ikstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
21/03/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
4	20/05/97	1	76

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
388216/51	CO Prep : GP033	Au,Au(R)/GG313
388216/51	CO Prep : GP033	Cu,Pb,Zn,Ag,As/GA140
384751/63	CO Prep : GP033	Ti,Zr/GX401
384759	CO Prep : GP033	Ba/GX401
384758/63	CO Prep : GP033	Au,Au(R)/GG313

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

AUTHORISED OFFICER

A N A L A B S

390807

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	1 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GB313	GB313
1	388216	6	<5	10	<1	-	0.5	-	0.01	-
2	388217	20	<5	28	<1	68	-	-	0.01	-
3	388218	12	5	12	<1	-	1.2	-	<0.01	-
4	388219	5	<5	2	<1	52	-	-	<0.01	-
5	388220	2	<5	2	<1	60	-	-	<0.01	-
6	388221	68	<5	7	<1	226	-	-	<0.01	-
7	388222	2	25	4	<1	82	-	-	<0.01	-
8	388223	11	<5	<2	<1	-	7.4	-	<0.01	-
9	388224	10	6	6	<1	-	4.2	-	<0.01	-
10	388225	2	7	<2	<1	-	5.9	-	<0.01	-
11	388226	8	12	4	<1	-	12.4	-	<0.01	-
12	388227	12	<5	3	<1	152	-	-	<0.01	-
13	388228	41	25	45	<1	412	-	-	<0.01	-
14	388229	42	<5	10	<1	120	-	-	<0.01	-
15	388230	18	5	17	<1	-	23.6	-	<0.01	-
16	388231	9	24	30	<1	151	-	-	0.01	-
17	388232	9	<5	2	<1	79	-	-	0.01	-
18	388233	8	<5	2	<1	-	3.7	-	0.01	-
19	388234	<2	<5	4	<1	-	6.4	-	0.01	-
20	388235	10	<5	<2	<1	-	2.3	-	<0.01	-
21	388236	11	6	30	<1	179	-	-	<0.01	-
22	388237	4	<5	4	<1	80	-	-	<0.01	-
23	388238	9	<5	2	<1	-	2.7	-	<0.01	-
24	388239	34	7	58	<1	97	-	-	<0.01	-
25	388240	28	6	8	<1	108	-	-	<0.01	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390808

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	2 OF 4

	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GG313	GG313
1	388241	11	<5	<2	<1	60	-	-	<0.01	-
2	388242	7	<5	3	<1	78	-	-	<0.01	-
3	388243	<2	<5	2	<1	85	-	-	0.01	-
4	388244	7	8	25	<1	242	-	-	0.01	0.02
5	388245	9	95	19	<1	183	-	-	0.01	0.02
6	388246	<2	<5	15	<1	60	-	-	<0.01	-
7	388247	11	<5	8	<1	66	-	-	<0.01	-
8	388248	22	<5	8	<1	77	-	-	<0.01	-
9	388249	9	<5	7	<1	-	20.5	-	0.01	-
10	388250	7	<5	3	<1	-	1.8	-	<0.01	-
11	388251	15	<5	3	<1	-	3.2	-	0.01	-
12	384758	<2	<5	6	-	-	-	-	0.01	-
13	384759	35	502	59	-	-	-	-	<0.01	-
14	384760	7	35	67	-	-	-	-	<0.01	-
15	384761	11	10	179	-	-	-	-	<0.01	-
16	384762	14	6	119	-	-	-	-	0.01	-
17	384763	11	<5	114	-	-	-	-	<0.01	-
18	386281	7	<5	150	<1	-	9.0	2925	0.01	-
19	386282	10	6	153	<1	-	9.4	2942	0.01	-
20	386283	33	7	109	<1	-	10.2	1965	<0.01	-
21	386284	13	<5	184	<1	-	5.0	2376	<0.01	-
22	386285	8	<5	194	<1	-	3.1	2671	<0.01	-
23	386286	10	<5	190	<1	-	1.7	3252	<0.01	-
24	386287	7	5	184	<1	-	1.1	3234	<0.01	-
25	386288	10	6	182	<1	-	1.4	3133	0.01	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390809

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	3 OF 4

	SAMPLE No.	Co	Pb	Zn	Ag	As	As	Mn	Au	Au(R)
METHOD		GA140	GA140	GA140	GA140	GA140	HA140	GA140	GG313	GG313
1	386289	14	5	203	<1	65	-	2737	<0.01	-
2	386290	8	5	157	<1	-	12.0	2272	<0.01	-
3	386291	18	8	172	<1	56	-	3304	<0.01	-
4	386292	18	10	189	<1	78	-	3920	<0.01	-
5	386293	15	6	154	<1	-	14.1	3596	<0.01	-
6	386294	57	9	155	<1	-	23.0	3104	<0.01	-
7	386295	18	6	99	<1	-	45.4	3703	<0.01	-
8	386296	24	5	178	<1	-	23.7	2866	<0.01	-
9	386297	22	8	139	<1	64	-	3137	<0.01	-
10	386298	9	<5	72	<1	-	47.8	2829	0.01	-
11	386299	18	<5	109	<1	75	-	4888	<0.01	-
12	386300	34	9	132	<1	64	-	3696	<0.01	-
13	386301	17	8	147	<1	-	14.9	4847	<0.01	-
14	386302	66	6	166	<1	58	-	3276	<0.01	-
15	386303	57	6	206	<1	74	-	3507	<0.01	-
16	386304	108	19	171	<1	-	35.4	2906	<0.01	-
17	386305	95	7	164	<1	56	-	3388	<0.01	-
18	386306	38	26	205	<1	64	-	3886	<0.01	-
19	386307	45	16	242	<1	67	-	5238	<0.01	-
20										
21										
22										
23										
24	DETECTION	2	5	2	1	50	0.5	3	0.01	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390810

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12950	20/05/97	GRANT MACDONA	4 OF 4

	SAMPLE No.	Ti	Zr	Ba						
METHOD		GX401	GX401	GX401						
1	384751	2783	157	920						
2	384752	2646	132	665						
3	384753	1774	292	663						
4	384754	3537	171	1294						
5	384755	2698	204	724						
6	384756	2135	197	792						
7	384757	3605	453	848						
8	384758	1157	202	418						
9	384759	2431	367	1712						
10	384760	2698	217	1082						
11	384761	2928	215	834						
12	384762	2899	230	726						
13	384763	3369	227	563						
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	50	5	10						
25	UNITS	ppm	ppm	ppm						

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

Analabs
Analabs Pty. Ltd.
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390811

ANALYTICAL REPORT No. RES202.60.12860

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
John Ekstrums
Resolute Resources Limited
P.O. Box 7232
Cloisters Square
PERTH WA 6000

ORDER No.	PROJECT
GRANT MACDON	

DATE RECEIVED	RESULTS REQUIRED
03/03/97	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
66	29/05/97	1	516

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
387751/8160,386251/7	SO Prep : GP032	Au,Au(R)/GB326
387751/8160	SO Prep : GP032	Cu,Pb,Zn,Ag,As/GA140
386251/7	DC Prep : GP033	Cu,Pb,Zn,Ag/GA140
386251/7	DC Prep : GP033	Ce,Gd,Nd,Dy,Py,Yb,Er,La,Sm,Eu/GS
386191/238 & others	SO Prep : GP033	Au,Au(R)/GB313

RESULTS TO
Grant MacDonald
Resolute Resources Limited
PO Box 63
ZEEHAN TAS 7469

RESULTS TO

RESULTS TO

REMARKS

AUTHORISED OFFICER

ANALABS

390812

ANALYTICAL DATA

SAMPLE PREF	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	1 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387751	-	-	-	-	5	29	<0.5	-	-
2	387752	-	-	-	-	3	43	4.2	-	-
3	387753	-	-	-	-	2	11	3.1	-	-
4	387754	-	-	-	-	10	15	<0.5	-	-
5	387755	-	-	-	-	2	11	<0.5	-	-
6	387756	-	-	-	-	4	14	<0.5	-	-
7	387757	-	-	-	-	6	27	<0.5	-	-
8	387758	-	-	-	-	2	14	<0.5	-	-
9	387759	-	-	-	-	6	19	<0.5	-	-
10	387760	-	-	-	-	33	31	49.9	-	-
11	387761	-	-	-	-	7	15	5.7	-	-
12	387762	-	-	-	-	6	13	7.8	-	-
13	387763	-	-	-	-	6	17	9.2	-	-
14	387764	-	-	-	-	9	22	34.2	-	-
15	387765	-	-	-	-	11	30	42.4	-	-
16	387766	-	-	-	-	13	16	26.6	-	-
17	387767	-	-	-	-	19	27	41.6	-	-
18	387768	-	-	-	-	10	16	17.1	-	-
19	387769	-	-	-	-	3	12	4.9	-	-
20	387770	-	-	-	-	<2	9	7.4	-	-
21	387771	-	-	-	-	4	21	30.4	-	-
22	387772	-	-	-	-	23	42	-	66	-
23	387773	-	-	-	-	11	26	20.1	-	-
24	387774	-	-	-	-	6	14	5.5	-	-
25	387775	-	-	-	-	3	9	3.1	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390813

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	2 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387776	-	-	-	-	7	16	8.8	-	-
2	387777	-	-	-	-	4	11	3.2	-	-
3	387778	-	-	-	-	2	25	3.9	-	-
4	387779	-	-	-	-	6	25	9.4	-	-
5	387780	-	-	-	-	8	20	9.3	-	-
6	387781	-	-	-	-	8	17	8.1	-	-
7	387782	-	-	-	-	7	24	9.4	-	-
8	387783	-	-	-	-	6	31	18.6	-	-
9	387784	-	-	-	-	4	32	9.9	-	-
10	387785	-	-	-	-	5	22	11.7	-	-
11	387786	-	-	-	-	4	16	11.7	-	-
12	387787	-	-	-	-	5	17	5.3	-	-
13	387788	-	-	-	-	2	8	1.1	-	-
14	387789	-	-	-	-	6	24	10.5	-	-
15	387790	-	-	-	-	8	17	28.6	-	-
16	387791	-	-	-	-	34	33	-	64	-
17	387792	-	-	-	-	4	17	1.1	-	-
18	387793	-	-	-	-	16	15	20.5	-	-
19	387794	-	-	-	-	6	6	4.3	-	-
20	387795	-	-	-	-	4	12	2.8	-	-
21	387796	-	-	-	-	2	9	3.4	-	-
22	387797	-	-	-	-	4	7	0.8	-	-
23	387798	-	-	-	-	6	9	<0.5	-	-
24	387799	-	-	-	-	5	15	17.0	-	-
25	387800	-	-	-	-	9	13	10.7	-	-

sults in ppm unless otherwise specified
element not determined

S = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

390814

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	3 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387801	-	-	-	-	2	5	<0.5	-	-
2	387802	-	-	-	-	<2	5	<0.5	-	-
3	387803	-	-	-	-	18	26	-	71	-
4	387804	-	-	-	-	30	43	-	131	-
5	387805	-	-	-	-	19	60	22.3	-	-
6	387806	-	-	-	-	12	16	31.3	-	-
7	387807	-	-	-	-	28	22	-	61	-
8	387808	-	-	-	-	12	16	34.9	-	-
9	387809	-	-	-	-	6	12	8.9	-	-
10	387810	-	-	-	-	9	18	14.0	-	-
11	387811	-	-	-	-	3	4	<0.5	-	-
12	387812	-	-	-	-	3	6	1.3	-	-
13	387813	-	-	-	-	3	12	11.5	-	-
14	387814	-	-	-	-	8	23	44.4	-	-
15	387815	-	-	-	-	7	12	4.6	-	-
16	387816	-	-	-	-	2	4	2.4	-	-
17	387817	-	-	-	-	<2	8	2.0	-	-
18	387818	-	-	-	-	5	5	2.2	-	-
19	387819	-	-	-	-	<2	5	2.7	-	-
20	387820	-	-	-	-	3	7	9.5	-	-
21	387821	-	-	-	-	<2	8	2.4	-	-
22	387822	-	-	-	-	<2	6	2.8	-	-
23	387823	-	-	-	-	4	13	18.5	-	-
24	387824	-	-	-	-	<2	4	1.5	-	-
25	387825	-	-	-	-	3	9	6.5	-	-

esults in ppm unless otherwise specified
e element not determined

IS = insufficient sample
SNR = sample not received

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390815

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	4 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387826	-	-	-	-	7	2	1.6	-	-
2	387827	-	-	-	-	6	9	1.7	-	-
3	387828	-	-	-	-	39	21	-	80	-
4	387829	-	-	-	-	6	10	29.7	-	-
5	387830	-	-	-	-	9	16	49.8	-	-
6	387831	-	-	-	-	30	17	-	73	-
7	387832	-	-	-	-	7	13	23.9	-	-
8	387833	-	-	-	-	7	25	11.2	-	-
9	387834	-	-	-	-	4	18	8.4	-	-
10	387835	-	-	-	-	3	7	<0.5	-	-
11	387836	-	-	-	-	2	6	<0.5	-	-
12	387837	-	-	-	-	5	7	<0.5	-	-
13	387838	-	-	-	-	4	19	13.8	-	-
14	387839	-	-	-	-	5	22	13.7	-	-
15	387840	-	-	-	-	5	18	11.4	-	-
16	387841	-	-	-	-	8	12	12.0	-	-
17	387842	-	-	-	-	15	19	3.6	-	-
18	387843	-	-	-	-	5	11	3.3	-	-
19	387844	-	-	-	-	<2	54	2.3	-	-
20	387845	-	-	-	-	<2	13	1.6	-	-
21	387846	-	-	-	-	<2	3	<0.5	-	-
22	387847	-	-	-	-	<2	9	7.8	-	-
23	387848	-	-	-	-	2	6	6.7	-	-
24	387849	-	-	-	-	<2	77	4.7	-	-
25	387850	-	-	-	-	<2	8	0.6	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390816

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	5 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387851	-	-	-	-	4	6	1.3	-	-
2	387852	-	-	-	-	5	16	31.9	-	-
3	387853	-	-	-	-	7	9	-	72	-
4	387854	-	-	-	-	11	42	-	67	-
5	387855	-	-	-	-	11	18	28.6	-	-
6	387856	-	-	-	-	7	17	19.0	-	-
7	387857	-	-	-	-	11	21	7.5	-	-
8	387858	-	-	-	-	3	9	14.2	-	-
9	387859	-	-	-	-	2	14	1.2	-	-
10	387860	-	-	-	-	<2	7	5.0	-	-
11	387861	-	-	-	-	8	15	30.1	-	-
12	387862	-	-	-	-	3	12	6.7	-	-
13	387863	-	-	-	-	4	16	25.9	-	-
14	387864	-	-	-	-	2	10	0.8	-	-
15	387865	-	-	-	-	2	7	0.7	-	-
16	387866	-	-	-	-	2	5	0.7	-	-
17	387867	-	-	-	-	2	30	0.8	-	-
18	387868	-	-	-	-	<2	8	1.0	-	-
19	387869	-	-	-	-	3	25	39.0	-	-
20	387870	-	-	-	-	6	40	14.9	-	-
21	387871	-	-	-	-	<2	7	<0.5	-	-
22	387872	-	-	-	-	3	54	9.7	-	-
23	387873	-	-	-	-	<2	8	0.8	-	-
24	387874	-	-	-	-	6	23	15.8	-	-
25	387875	-	-	-	-	3	18	40.2	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390817

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	6 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387876	-	-	-	-	7	6	1.4	-	-
2	387877	-	-	-	-	3	7	15.0	-	-
3	387878	-	-	-	-	4	18	-	65	-
4	387879	-	-	-	-	4	10	14.7	-	-
5	387880	-	-	-	-	8	16	21.2	-	-
6	387881	-	-	-	-	8	14	-	70	-
7	387882	-	-	-	-	26	180	-	71	-
8	387883	-	-	-	-	19	24	45.7	-	-
9	387884	-	-	-	-	15	21	-	69	-
10	387885	-	-	-	-	18	27	-	80	-
11	387886	-	-	-	-	81	30	-	82	-
12	387887	-	-	-	-	4	294	12.6	-	-
13	387888	-	-	-	-	3	4	2.8	-	-
14	387889	-	-	-	-	23	23	19.9	-	-
15	387890	-	-	-	-	21	11	7.7	-	-
16	387891	-	-	-	-	17	17	17.2	-	-
17	387892	-	-	-	-	17	29	8.2	-	-
18	387893	-	-	-	-	31	15	22.7	-	-
19	387894	-	-	-	-	32	19	28.5	-	-
20	387895	-	-	-	-	48	24	33.2	-	-
21	387896	-	-	-	-	15	13	34.6	-	-
22	387897	-	-	-	-	5	36	8.2	-	-
23	387898	-	-	-	-	5	7	8.1	-	-
24	387899	-	-	-	-	4	8	1.9	-	-
25	387900	-	-	-	-	7	7	6.0		-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390818

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	7 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387901	-	-	-	-	6	19	2.7	-	-
2	387902	-	-	-	-	9	23	5.2	-	-
3	387903	-	-	-	-	25	37	-	66	-
4	387904	-	-	-	-	6	10	7.3	-	-
5	387905	-	-	-	-	6	11	2.5	-	-
6	387906	-	-	-	-	7	14	2.8	-	-
7	387907	-	-	-	-	6	9	0.9	-	-
8	387908	-	-	-	-	5	9	25.3	-	-
9	387909	-	-	-	-	10	30	19.4	-	-
10	387910	-	-	-	-	14	91	17.3	-	-
11	387911	-	-	-	-	42	26	5.4	-	-
12	387912	-	-	-	-	8	15	6.2	-	-
13	387913	-	-	-	-	7	12	6.2	-	-
14	387914	-	-	-	-	16	30	10.4	-	-
15	387915	-	-	-	-	12	17	5.4	-	-
16	387916	-	-	-	-	7	20	14.7	-	-
17	387917	-	-	-	-	4	16	47.3	-	-
18	387918	-	-	-	-	6	16	10.6	-	-
19	387919	-	-	-	-	41	46	32.5	-	-
20	387920	-	-	-	-	6	10	5.6	-	-
21	387921	-	-	-	-	2	8	2.9	-	-
22	387922	-	-	-	-	3	8	2.3	-	-
23	387923	-	-	-	-	3	7	6.4	-	-
24	387924	-	-	-	-	5	8	28.6	-	-
25	387925	-	-	-	-	3	9	2.1	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390819

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	8 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387926	-	-	-	-	3	7	<0.5	-	-
2	387927	-	-	-	-	2	7	2.7	-	-
3	387928	-	-	-	-	3	8	4.0	-	-
4	387929	-	-	-	-	5	11	22.6	-	-
5	387930	-	-	-	-	4	7	0.9	-	-
6	387931	-	-	-	-	5	6	0.6	-	-
7	387932	-	-	-	-	2	6	<0.5	-	-
8	387933	-	-	-	-	7	7	<0.5	-	-
9	387934	-	-	-	-	3	6	1.3	-	-
10	387935	-	-	-	-	5	7	<0.5	-	-
11	387936	-	-	-	-	5	7	<0.5	-	-
12	387937	-	-	-	-	4	7	<0.5	-	-
13	387938	-	-	-	-	3	13	<0.5	-	-
14	387939	-	-	-	-	3	6	<0.5	-	-
15	387940	-	-	-	-	3	8	<0.5	-	-
16	387941	-	-	-	-	3	6	<0.5	-	-
17	387942	-	-	-	-	3	6	<0.5	-	-
18	387943	-	-	-	-	2	17	1.7	-	-
19	387944	-	-	-	-	3	5	1.0	-	-
20	387945	-	-	-	-	2	4	0.7	-	-
21	387946	-	-	-	-	3	5	0.5	-	-
22	387947	-	-	-	-	2	5	2.0	-	-
23	387948	-	-	-	-	2	9	7.0	-	-
24	387949	-	-	-	-	3	3	<0.5	-	-
25	387950	-	-	-	-	2	4	1.0	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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A N A L A B S

ANALYTICAL DATA

390820

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	9 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387951	-	-	-	-	<2	4	1.8	-	-
2	387952	-	-	-	-	4	13	-	79	-
3	387953	-	-	-	-	6	27	-	87	-
4	387954	-	-	-	-	2	3	5.5	-	-
5	387955	-	-	-	-	4	7	1.4	-	-
6	387956	-	-	-	-	2	8	16.0	-	-
7	387957	-	-	-	-	2	9	9.3	-	-
8	387958	-	-	-	-	5	13	18.0	-	-
9	387959	-	-	-	-	3	10	10.2	-	-
10	387960	-	-	-	-	12	11	8.5	-	-
11	387961	-	-	-	-	15	14	18.2	-	-
12	387962	-	-	-	-	13	12	8.0	-	-
13	387963	-	-	-	-	30	25	35.5	-	-
14	387964	-	-	-	-	36	25	23.1	-	-
15	387965	-	-	-	-	14	13	9.2	-	-
16	387966	-	-	-	-	9	19	-	81	-
17	387967	-	-	-	-	7	17	-	96	-
18	387968	-	-	-	-	7	17	-	73	-
19	387969	-	-	-	-	4	8	20.8	-	-
20	387970	-	-	-	-	8	11	32.1	-	-
21	387971	-	-	-	-	6	11	21.9	-	-
22	387972	-	-	-	-	4	8	9.0	-	-
23	387973	-	-	-	-	18	17	-	75	-
24	387974	-	-	-	-	6	7	15.9	-	-
25	387975	-	-	-	-	3	9	9.0	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

A N A L A B S

390821

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	10 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	387976	-	-	-	-	3	7	<0.5	-	-
2	387977	-	-	-	-	2	9	<0.5	-	-
3	387978	-	-	-	-	3	4	<0.5	-	-
4	387979	-	-	-	-	3	3	2.6	-	-
5	387980	-	-	-	-	2	5	1.7	-	-
6	387981	-	-	-	-	5	11	31.5	-	-
7	387982	-	-	-	-	5	5	15.7	-	-
8	387983	-	-	-	-	3	8	27.2	-	-
9	387984	-	-	-	-	6	12	37.9	-	-
10	387985	-	-	-	-	2	8	5.3	-	-
11	387986	-	-	-	-	<2	<2	<0.5	-	-
12	387987	-	-	-	-	4	5	0.8	-	-
13	387988	-	-	-	-	3	7	2.9	-	-
14	387989	-	-	-	-	2	14	7.3	-	-
15	387990	-	-	-	-	2	5	0.6	-	-
16	387991	-	-	-	-	<2	9	-	64	-
17	387992	-	-	-	-	3	11	<0.5	-	-
18	387993	-	-	-	-	8	16	40.9	-	-
19	387994	-	-	-	-	5	17	-	64	-
20	387995	-	-	-	-	8	17	-	71	-
21	387996	-	-	-	-	7	17	-	96	-
22	387997	-	-	-	-	5	12	34.8	-	-
23	387998	-	-	-	-	7	12	-	96	-
24	387999	-	-	-	-	18	18	-	101	-
25	388000	-	-	-	-	26	15	-	76	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390822

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	11 OF 66

	SAMPLE No	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388001	-	-	-	-	7	20	-	58	-
2	388002	-	-	-	-	8	18	-	80	-
3	388003	-	-	-	-	22	20	21.0	-	-
4	388004	-	-	-	-	14	17	24.0	-	-
5	388005	-	-	-	-	5	17	-	62	-
6	388006	-	-	-	-	4	18	48.0	-	-
7	388007	-	-	-	-	4	15	35.5	-	-
8	388008	-	-	-	-	3	9	17.3	-	-
9	388009	-	-	-	-	3	5	1.1	-	-
10	388010	-	-	-	-	<2	2	-	75	-
11	388011	-	-	-	-	2	7	-	299	-
12	388012	-	-	-	-	2	7	-	134	-
13	388013	-	-	-	-	2	6	17.5	-	-
14	388014	-	-	-	-	<2	5	3.5	-	-
15	388015	-	-	-	-	5	6	1.4	-	-
16	388016	-	-	-	-	8	20	-	69	-
17	388017	-	-	-	-	6	16	-	70	-
18	388018	-	-	-	-	8	21	-	62	-
19	388019	-	-	-	-	8	15	-	60	-
20	388020	-	-	-	-	3	6	7.5	-	-
21	388021	-	-	-	-	4	12	28.0	-	-
22	388022	-	-	-	-	2	5	5.2	-	-
23	388023	-	-	-	-	3	8	29.3	-	-
24	388024	-	-	-	-	3	5	3.1	-	-
25	388025	-	-	-	-	25	10	24.4	-	-

Results in ppm unless otherwise specified
-=element not determined

IS = insufficient sample
SNR = sample not received

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390823

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	12 OF 66

	SAMPLE No	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388026	-	-	-	-	12	11	13.3	-	-
2	388027	-	-	-	-	3	9	4.8	-	-
3	388028	-	-	-	-	4	15	17.8	-	-
4	388029	-	-	-	-	4	17	5.4	-	-
5	388030	-	-	-	-	2	13	1.9	-	-
6	388031	-	-	-	-	3	12	11.8	-	-
7	388032	-	-	-	-	4	13	9.6	-	-
8	388033	-	-	-	-	4	10	16.2	-	-
9	388034	-	-	-	-	3	10	4.2	-	-
10	388035	-	-	-	-	3	17	10.6	-	-
11	388036	-	-	-	-	2	7	<0.5	-	-
12	388037	-	-	-	-	2	4	<0.5	-	-
13	388038	-	-	-	-	<2	7	<0.5	-	-
14	388039	-	-	-	-	2	8	<0.5	-	-
15	388040	-	-	-	-	2	8	<0.5	-	-
16	388041	-	-	-	-	<2	6	3.3	-	-
17	388042	-	-	-	-	3	13	6.8	-	-
18	388043	-	-	-	-	2	8	1.0	-	-
19	388044	-	-	-	-	3	8	<0.5	-	-
20	388045	-	-	-	-	2	18	0.9	-	-
21	388046	-	-	-	-	2	6	<0.5	-	-
22	388047	-	-	-	-	3	6	0.9	-	-
23	388048	-	-	-	-	2	8	<0.5	-	-
4	388049	-	-	-	-	4	12	24.6	-	-
5	388050	-	-	-	-	2	13	8.2	-	-

s in ppm unless otherwise specified
ament not determined

IS = insufficient sample
SNR = sample not received

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390824

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	13 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388051	-	-	-	-	4	10	22.9	-	-
2	388052	-	-	-	-	4	16	28.3	-	-
3	388053	-	-	-	-	4	12	50.0	-	-
4	388054	-	-	-	-	4	21	30.9	-	-
5	388055	-	-	-	-	2	23	24.8	-	-
6	388056	-	-	-	-	7	25	28.9	-	-
7	388057	-	-	-	-	4	15	7.9	-	-
8	388058	-	-	-	-	6	16	20.3	-	-
9	388059	-	-	-	-	4	12	3.7	-	-
10	388060	-	-	-	-	2	9	<0.5	-	-
11	388061	-	-	-	-	3	10	5.0	-	-
12	388062	-	-	-	-	3	15	2.3	-	-
13	388063	-	-	-	-	3	10	1.5	-	-
14	388064	-	-	-	-	4	10	26.8	-	-
15	388065	-	-	-	-	4	11	13.3	-	-
16	388066	-	-	-	-	17	17	9.9	-	-
17	388067	-	-	-	-	4	10	8.8	-	-
18	388068	-	-	-	-	4	13	18.2	-	-
19	388069	-	-	-	-	5	17	-	72	-
20	388070	-	-	-	-	9	16	50.0	-	-
21	388071	-	-	-	-	11	12	39.5	-	-
22	388072	-	-	-	-	5	10	8.4	-	-
23	388073	-	-	-	-	5	15	5.7	-	-
24	388074	-	-	-	-	5	14	25.0	-	-
25	388075	-	-	-	-	3	14	12.9		-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	14 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388076	-	-	-	-	4	13	15.1	-	-
2	388077	-	-	-	-	4	16	4.1	-	-
3	388078	-	-	-	-	5	16	15.3	-	-
4	388079	-	-	-	-	3	14	7.6	-	-
5	388080	-	-	-	-	5	16	15.3	-	-
6	388081	-	-	-	-	4	10	13.7	-	-
7	388082	-	-	-	-	3	15	17.7	-	-
8	388083	-	-	-	-	4	8	22.5	-	-
9	388084	-	-	-	-	10	27	43.2	-	-
10	388085	-	-	-	-	17	38	37.9	-	-
11	388086	-	-	-	-	4	12	6.5	-	-
12	388087	-	-	-	-	7	13	3.4	-	-
13	388088	-	-	-	-	6	15	19.0	-	-
14	388089	-	-	-	-	12	20	41.9	-	-
15	388090	-	-	-	-	3	8	3.3	-	-
16	388091	-	-	-	-	2	6	0.8	-	-
17	388092	-	-	-	-	4	6	1.4	-	-
18	388093	-	-	-	-	5	13	20.7	-	-
19	388094	-	-	-	-	5	16	16.0	-	-
20	388095	-	-	-	-	4	11	21.7	-	-
21	388096	-	-	-	-	5	10	31.9	-	-
22	388097	-	-	-	-	10	26	5.4	-	-
23	388098	-	-	-	-	7	18	38.1	-	-
24	388099	-	-	-	-	6	14	18.3	-	-
25	388100	-	-	-	-	6	13	36.8	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	15 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388101	-	-	-	-	8	18	-	55	-
2	388102	-	-	-	-	6	12	5.7	-	-
3	388103	-	-	-	-	6	17	-	60	-
4	388104	-	-	-	-	8	18	46.5	-	-
5	388105	-	-	-	-	26	29	-	64	-
6	388106	-	-	-	-	10	20	-	71	-
7	388107	-	-	-	-	7	4	3.1	-	-
8	388108	-	-	-	-	7	9	2.0	-	-
9	388109	-	-	-	-	9	25	7.8	-	-
10	388110	-	-	-	-	7	13	10.5	-	-
11	388111	-	-	-	-	8	8	12.7	-	-
12	388112	-	-	-	-	6	8	12.7	-	-
13	388113	-	-	-	-	8	7	24.1	-	-
14	388114	-	-	-	-	6	67	11.1	-	-
15	388115	-	-	-	-	10	7	5.2	-	-
16	388116	-	-	-	-	6	14	-	63	-
17	388117	-	-	-	-	10	14	-	68	-
18	388118	-	-	-	-	5	10	12.1	-	-
19	388119	-	-	-	-	4	12	3.3	-	-
20	388120	-	-	-	-	7	8	3.7	-	-
21	388121	-	-	-	-	10	6	5.9	-	-
22	388122	-	-	-	-	6	3	<0.5	-	-
23	388123	-	-	-	-	5	4	2.6	-	-
24	388124	-	-	-	-	6	5	9.4	-	-
25	388125	-	-	-	-	7	12	14.4	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	16 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388126	-	-	-	-	10	9	-	93	-
2	388127	-	-	-	-	6	5	-	60	-
3	388128	-	-	-	-	10	18	-	84	-
4	388129	-	-	-	-	6	11	-	71	-
5	388130	-	-	-	-	6	10	27.9	-	-
6	388131	-	-	-	-	10	13	37.8	-	-
7	388132	-	-	-	-	7	10	39.9	-	-
8	388133	-	-	-	-	5	8	10.4	-	-
9	388134	-	-	-	-	4	6	14.7	-	-
10	388135	-	-	-	-	5	11	36.1	-	-
11	388136	-	-	-	-	4	8	3.9	-	-
12	388137	-	-	-	-	5	10	18.9	-	-
13	388138	-	-	-	-	5	4	5.4	-	-
14	388139	-	-	-	-	3	10	4.1	-	-
15	388140	-	-	-	-	6	8	11.6	-	-
16	388141	-	-	-	-	6	19	37.0	-	-
17	388142	-	-	-	-	6	10	10.9	-	-
18	388143	-	-	-	-	5	10	6.6	-	-
19	388144	-	-	-	-	3	7	7.9	-	-
20	388145	-	-	-	-	6	9	6.9	-	-
21	388146	-	-	-	-	6	6	4.1	-	-
22	388147	-	-	-	-	6	6	25.8	-	-
23	388148	-	-	-	-	5	6	6.7	-	-
24	388149	-	-	-	-	5	3	1.2	-	-
25	388150	-	-	-	-	7	8	1.2	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	17 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	388151	-	-	-	-	5	7	5.1	-	-
2	388152	-	-	-	-	6	7	10.6	-	-
3	388153	-	-	-	-	8	5	2.6	-	-
4	388154	-	-	-	-	7	3	1.4	-	-
5	388155	-	-	-	-	6	21	34.0	-	-
6	388156	-	-	-	-	9	7	27.9	-	-
7	388157	-	-	-	-	10	7	-	69	-
8	388158	-	-	-	-	10	8	-	61	-
9	388159	-	-	-	-	7	8	48.1	-	-
10	388160	-	-	-	-	8	55	49.3	-	-
11	386251	1.090	2020	-	-	69	197	-	-	159
12	386252	0.039	2010	-	-	9	152	-	-	156
13	386253	0.150	1869	-	-	11	174	-	-	159
14	386254	0.860	1975	-	-	85	242	-	-	166
15	386255	0.230	2365	-	-	7	53	-	-	126
16	386256	0.014	2336	-	-	34	84	-	-	118
17	386257	0.075	2778	-	-	18	80	-	-	118
18	386191	-	-	250	-	76	165	5.5	-	-
19	386192	-	-	436	-	75	207	5.8	-	-
20	386193	-	-	701	-	84	243	1.3	-	-
21	386194	-	-	476	-	70	125	<0.5	-	-
22	386195	-	-	259	-	45	120	<0.5	-	-
23	386196	-	-	488	-	39	130	<0.5	-	-
24	386197	-	-	471	-	31	184	0.5	-	-
25	386198	-	-	1093	-	30	220	<0.5	-	-

Results in ppm unless otherwise specified
- = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	18 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386199	-	-	491	-	24	170	<0.5	-	-
2	386200	-	-	380	-	39	133	9.2	-	-
3	386201	-	-	497	-	27	153	1.0	-	-
4	386202	-	-	268	-	16	176	2.0	-	-
5	386203	-	-	191	-	26	175	0.7	-	-
6	386204	-	-	69	-	25	80	<0.5	-	-
7	386205	-	-	56	-	35	75	<0.5	-	-
8	386206	-	-	61	-	29	82	<0.5	-	-
9	386207	-	-	48	-	16	64	<0.5	-	-
10	386208	-	-	65	-	11	66	<0.5	-	-
11	386209	-	-	57	-	11	68	<0.5	-	-
12	386210	-	-	31	-	9	40	4.3	-	-
13	386211	-	-	41	-	19	52	<0.5	-	-
14	386212	-	-	46	-	14	63	1.9	-	-
15	386213	-	-	82	-	15	46	3.5	-	-
16	386214	-	-	138	-	20	91	3.1	-	-
17	386215	-	-	187	-	16	57	<0.5	-	-
18	386216	-	-	344	-	27	88	<0.5	-	-
19	386217	-	-	575	-	34	204	5.0	-	-
20	386218	-	-	407	-	48	366	5.9	-	-
21	386219	-	-	588	-	47	305	9.2	-	-
22	386220	-	-	308	-	45	203	4.1	-	-
23	386221	-	-	54	-	79	48	<0.5	-	-
24	386222	-	-	55	-	13	59	<0.5	-	-
25	386223	-	-	61	-	14	61	<0.5	-	-

Results in ppm unless otherwise specified
- = element not determined

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390830

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	19 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386224	-	-	51	-	14	63	<0.5	-	-
2	386225	-	-	54	-	30	37	<0.5	-	-
3	386226	-	-	46	-	17	38	<0.5	-	-
4	386227	-	-	47	-	29	59	5.3	-	-
5	386228	-	-	196	-	40	175	3.8	-	-
6	386229	-	-	327	-	47	171	3.8	-	-
7	386230	-	-	349	-	29	150	6.2	-	-
8	386231	-	-	334	-	29	145	7.7	-	-
9	386232	-	-	363	-	14	156	15.0	-	-
10	386233	-	-	277	-	17	136	18.9	-	-
11	386234	-	-	1098	-	26	119	15.4	-	-
12	386235	-	-	495	-	27	116	6.6	-	-
13	386236	-	-	210	-	63	46	>50.0	97	-
14	386237	-	-	405	-	40	87	5.8	-	-
15	386238	-	-	182	-	84	68	16.8	-	-
16	386138	-	-	29	-	24	145	10.4	-	-
17	386139	-	-	24	-	23	117	8.4	-	-
18	386140	-	-	1982	-	19	101	29.4	-	-
19	386141	-	-	3777	-	11	141	11.2	-	-
20	386145	-	-	>5000	0.81	132	780	<0.5	-	-
21	386146	-	-	>5000	0.86	36	883	<0.5	-	-
22	386147	-	-	>5000	0.66	28	223	2.0	-	-
23	386148	-	-	>5000	0.81	137	147	32.0	-	-
24	386156	-	-	>5000	0.85	437	193	26.1	-	-
25	386157	-	-	1981	-	46	673	15.4	-	-

Results in ppm unless otherwise specified
- = element not determined

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390831

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	20 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	386158	-	-	>5000	1.18	34	453	16.6	-	-
2	386159	-	-	>5000	1.15	51	1030	11.4	-	-
3	386264	0.390	4797	-	-	-	-	-	-	100
4	386265	0.026	4000	-	-	-	-	-	-	84
5	386266	0.140	2251	-	-	-	-	-	-	198
6	386267	0.009	5137	-	-	-	-	-	-	148
7	386268	0.011	4877	-	-	-	-	-	-	135
8	386269	0.020	1468	-	-	-	-	-	-	29
9	384051	0.380	465	-	-	-	-	-	-	127
10	385830	0.930	3085	-	-	-	-	-	-	249
11	385835	1.660	2159	-	-	-	-	-	-	192
12	385836	13.630	760	-	-	-	-	-	-	303
13	385818	3.550	2762	-	-	-	-	-	-	203
14	385821	3.490	2744	-	-	-	-	-	-	208
15	385846	0.550	2356	-	-	-	-	-	-	193
16	385856	0.270	2706	-	-	-	-	-	-	219
17	385867	0.890	2522	-	-	-	-	-	-	210
18	385876	0.160	2540	-	-	-	-	-	-	199
19	385891	0.130	2358	-	-	-	-	-	-	172
20	385907	0.360	3103	-	-	-	-	-	-	184
21	385911	0.092	4384	-	-	-	-	-	-	101
22	385925	0.230	1727	-	-	-	-	-	-	289
23	385933	0.110	1678	-	-	-	-	-	-	279
24	385938	0.034	1751	-	-	-	-	-	-	298
25	385946	0.044	1745	-	-	-	-	-	-	285

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390832

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	21 OF 66

	SAMPLE No.	S	Ti	Mn	Mn	Cu	Zn	As	As	Zr
METHOD		OM613	GX401	GA140	GA104	GA140	GA140	HA140	GA140	GX401
1	385954	0.430	4163	-	-	-	-	-	-	123
2	385957	0.022	1817	-	-	-	-	-	-	297
3	385964	1.410	2402	-	-	-	-	-	-	248
4	385975	0.011	4594	-	-	-	-	-	-	99
5	385985	0.420	2967	-	-	-	-	-	-	178
6	385995	0.260	2196	-	-	-	-	-	-	346
7	386112	0.079	2739	-	-	-	-	-	-	208
8	386114	13.600	1956	-	-	-	-	-	-	157
9	386118	1.780	2774	-	-	-	-	-	-	214
10	386103	0.300	1824	-	-	-	-	-	-	237
11	386258	-	1717	-	-	-	-	-	-	213
12	386259	-	1819	-	-	-	-	-	-	226
13	386260	-	1607	-	-	-	-	-	-	220
14	386261	-	1390	-	-	-	-	-	-	196
15	386262	-	1446	-	-	-	-	-	-	204
16	386263	-	1483	-	-	-	-	-	-	201
17	385918	-	3278	-	-	-	-	-	-	183
18	385921	-	2729	-	-	-	-	-	-	204
19										
20										
21										
22										
23										
24	DETECTION	0.005	50	3	0.01	2	2	0.5	50	5
25	UNITS	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	22 OF 66

	SAMPLE No	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387751	<1	-	-	-	-	-	-	-	-
2	387752	<1	-	-	-	-	-	-	-	-
3	387753	<1	-	-	-	-	-	-	-	-
4	387754	<1	-	-	-	-	-	-	-	-
5	387755	<1	-	-	-	-	-	-	-	-
6	387756	<1	-	-	-	-	-	-	-	-
7	387757	<1	-	-	-	-	-	-	-	-
8	387758	<1	-	-	-	-	-	-	-	-
9	387759	<1	-	-	-	-	-	-	-	-
10	387760	<1	-	-	-	-	-	-	-	-
11	387761	<1	-	-	-	-	-	-	-	-
12	387762	<1	-	-	-	-	-	-	-	-
13	387763	<1	-	-	-	-	-	-	-	-
14	387764	<1	-	-	-	-	-	-	-	-
15	387765	<1	-	-	-	-	-	-	-	-
16	387766	<1	-	-	-	-	-	-	-	-
17	387767	<1	-	-	-	-	-	-	-	-
18	387768	1	-	-	-	-	-	-	-	-
19	387769	<1	-	-	-	-	-	-	-	-
20	387770	1	-	-	-	-	-	-	-	-
21	387771	<1	-	-	-	-	-	-	-	-
22	387772	<1	-	-	-	-	-	-	-	-
23	387773	<1	-	-	-	-	-	-	-	-
24	387774	<1	-	-	-	-	-	-	-	-
25	387775	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390834

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	23 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387776	<1	-	-	-	-	-	-	-	-
2	387777	1	-	-	-	-	-	-	-	-
3	387778	<1	-	-	-	-	-	-	-	-
4	387779	<1	-	-	-	-	-	-	-	-
5	387780	<1	-	-	-	-	-	-	-	-
6	387781	<1	-	-	-	-	-	-	-	-
7	387782	<1	-	-	-	-	-	-	-	-
8	387783	1	-	-	-	-	-	-	-	-
9	387784	1	-	-	-	-	-	-	-	-
10	387785	1	-	-	-	-	-	-	-	-
11	387786	<1	-	-	-	-	-	-	-	-
12	387787	<1	-	-	-	-	-	-	-	-
13	387788	1	-	-	-	-	-	-	-	-
14	387789	1	-	-	-	-	-	-	-	-
15	387790	1	-	-	-	-	-	-	-	-
16	387791	<1	-	-	-	-	-	-	-	-
17	387792	1	-	-	-	-	-	-	-	-
18	387793	<1	-	-	-	-	-	-	-	-
19	387794	<1	-	-	-	-	-	-	-	-
20	387795	<1	-	-	-	-	-	-	-	-
21	387796	<1	-	-	-	-	-	-	-	-
22	387797	<1	-	-	-	-	-	-	-	-
23	387798	<1	-	-	-	-	-	-	-	-
24	387799	<1	-	-	-	-	-	-	-	-
25	387800	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

ANALYTICAL DATA

390835

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	24 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387801	<1	-	-	-	-	-	-	-	-
2	387802	<1	-	-	-	-	-	-	-	-
3	387803	<1	-	-	-	-	-	-	-	-
4	387804	<1	-	-	-	-	-	-	-	-
5	387805	<1	-	-	-	-	-	-	-	-
6	387806	<1	-	-	-	-	-	-	-	-
7	387807	<1	-	-	-	-	-	-	-	-
8	387808	<1	-	-	-	-	-	-	-	-
9	387809	<1	-	-	-	-	-	-	-	-
10	387810	<1	-	-	-	-	-	-	-	-
11	387811	<1	-	-	-	-	-	-	-	-
12	387812	<1	-	-	-	-	-	-	-	-
13	387813	<1	-	-	-	-	-	-	-	-
14	387814	<1	-	-	-	-	-	-	-	-
15	387815	1	-	-	-	-	-	-	-	-
16	387816	<1	-	-	-	-	-	-	-	-
17	387817	<1	-	-	-	-	-	-	-	-
18	387818	<1	-	-	-	-	-	-	-	-
19	387819	1	-	-	-	-	-	-	-	-
20	387820	<1	-	-	-	-	-	-	-	-
21	387821	<1	-	-	-	-	-	-	-	-
22	387822	<1	-	-	-	-	-	-	-	-
23	387823	<1	-	-	-	-	-	-	-	-
24	387824	<1	-	-	-	-	-	-	-	-
25	387825	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALABS

390836

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	25 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387826	<1	-	-	-	-	-	-	-	-
2	387827	<1	-	-	-	-	-	-	-	-
3	387828	<1	-	-	-	-	-	-	-	-
4	387829	<1	-	-	-	-	-	-	-	-
5	387830	<1	-	-	-	-	-	-	-	-
6	387831	<1	-	-	-	-	-	-	-	-
7	387832	<1	-	-	-	-	-	-	-	-
8	387833	<1	-	-	-	-	-	-	-	-
9	387834	<1	-	-	-	-	-	-	-	-
10	387835	<1	-	-	-	-	-	-	-	-
11	387836	<1	-	-	-	-	-	-	-	-
12	387837	<1	-	-	-	-	-	-	-	-
13	387838	<1	-	-	-	-	-	-	-	-
14	387839	<1	-	-	-	-	-	-	-	-
15	387840	<1	-	-	-	-	-	-	-	-
16	387841	<1	-	-	-	-	-	-	-	-
17	387842	<1	-	-	-	-	-	-	-	-
18	387843	<1	-	-	-	-	-	-	-	-
19	387844	<1	-	-	-	-	-	-	-	-
20	387845	<1	-	-	-	-	-	-	-	-
21	387846	<1	-	-	-	-	-	-	-	-
22	387847	<1	-	-	-	-	-	-	-	-
23	387848	<1	-	-	-	-	-	-	-	-
24	387849	<1	-	-	-	-	-	-	-	-
25	387850	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

390837

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	26 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387851	<1	-	-	-	-	-	-	-	-
2	387852	<1	-	-	-	-	-	-	-	-
3	387853	<1	-	-	-	-	-	-	-	-
4	387854	<1	-	-	-	-	-	-	-	-
5	387855	<1	-	-	-	-	-	-	-	-
6	387856	<1	-	-	-	-	-	-	-	-
7	387857	<1	-	-	-	-	-	-	-	-
8	387858	<1	-	-	-	-	-	-	-	-
9	387859	<1	-	-	-	-	-	-	-	-
10	387860	<1	-	-	-	-	-	-	-	-
11	387861	<1	-	-	-	-	-	-	-	-
12	387862	<1	-	-	-	-	-	-	-	-
13	387863	<1	-	-	-	-	-	-	-	-
14	387864	<1	-	-	-	-	-	-	-	-
15	387865	<1	-	-	-	-	-	-	-	-
16	387866	<1	-	-	-	-	-	-	-	-
17	387867	<1	-	-	-	-	-	-	-	-
18	387868	<1	-	-	-	-	-	-	-	-
19	387869	<1	-	-	-	-	-	-	-	-
20	387870	<1	-	-	-	-	-	-	-	-
21	387871	<1	-	-	-	-	-	-	-	-
22	387872	<1	-	-	-	-	-	-	-	-
23	387873	<1	-	-	-	-	-	-	-	-
24	387874	<1	-	-	-	-	-	-	-	-
25	387875	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390838

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	27 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387876	<1	-	-	-	-	-	-	-	-
2	387877	<1	-	-	-	-	-	-	-	-
3	387878	<1	-	-	-	-	-	-	-	-
4	387879	<1	-	-	-	-	-	-	-	-
5	387880	<1	-	-	-	-	-	-	-	-
6	387881	<1	-	-	-	-	-	-	-	-
7	387882	<1	-	-	-	-	-	-	-	-
8	387883	<1	-	-	-	-	-	-	-	-
9	387884	<1	-	-	-	-	-	-	-	-
10	387885	<1	-	-	-	-	-	-	-	-
11	387886	<1	-	-	-	-	-	-	-	-
12	387887	<1	-	-	-	-	-	-	-	-
13	387888	<1	-	-	-	-	-	-	-	-
14	387889	<1	-	-	-	-	-	-	-	-
15	387890	<1	-	-	-	-	-	-	-	-
16	387891	<1	-	-	-	-	-	-	-	-
17	387892	<1	-	-	-	-	-	-	-	-
18	387893	<1	-	-	-	-	-	-	-	-
19	387894	<1	-	-	-	-	-	-	-	-
20	387895	<1	-	-	-	-	-	-	-	-
21	387896	<1	-	-	-	-	-	-	-	-
22	387897	<1	-	-	-	-	-	-	-	-
23	387898	<1	-	-	-	-	-	-	-	-
24	387899	<1	-	-	-	-	-	-	-	-
25	387900	1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390839

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	28 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387901	<1	-	-	-	-	-	-	-	-
2	387902	<1	-	-	-	-	-	-	-	-
3	387903	<1	-	-	-	-	-	-	-	-
4	387904	<1	-	-	-	-	-	-	-	-
5	387905	<1	-	-	-	-	-	-	-	-
6	387906	<1	-	-	-	-	-	-	-	-
7	387907	<1	-	-	-	-	-	-	-	-
8	387908	<1	-	-	-	-	-	-	-	-
9	387909	<1	-	-	-	-	-	-	-	-
10	387910	<1	-	-	-	-	-	-	-	-
11	387911	<1	-	-	-	-	-	-	-	-
12	387912	<1	-	-	-	-	-	-	-	-
13	387913	<1	-	-	-	-	-	-	-	-
14	387914	<1	-	-	-	-	-	-	-	-
15	387915	<1	-	-	-	-	-	-	-	-
16	387916	1	-	-	-	-	-	-	-	-
17	387917	<1	-	-	-	-	-	-	-	-
18	387918	<1	-	-	-	-	-	-	-	-
19	387919	<1	-	-	-	-	-	-	-	-
20	387920	<1	-	-	-	-	-	-	-	-
21	387921	<1	-	-	-	-	-	-	-	-
22	387922	<1	-	-	-	-	-	-	-	-
23	387923	<1	-	-	-	-	-	-	-	-
24	387924	<1	-	-	-	-	-	-	-	-
25	387925	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390840

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	29 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387926	<1	-	-	-	-	-	-	-	-
2	387927	<1	-	-	-	-	-	-	-	-
3	387928	<1	-	-	-	-	-	-	-	-
4	387929	1	-	-	-	-	-	-	-	-
5	387930	<1	-	-	-	-	-	-	-	-
6	387931	<1	-	-	-	-	-	-	-	-
7	387932	<1	-	-	-	-	-	-	-	-
8	387933	<1	-	-	-	-	-	-	-	-
9	387934	<1	-	-	-	-	-	-	-	-
10	387935	<1	-	-	-	-	-	-	-	-
11	387936	<1	-	-	-	-	-	-	-	-
12	387937	<1	-	-	-	-	-	-	-	-
13	387938	<1	-	-	-	-	-	-	-	-
14	387939	<1	-	-	-	-	-	-	-	-
15	387940	<1	-	-	-	-	-	-	-	-
16	387941	<1	-	-	-	-	-	-	-	-
17	387942	<1	-	-	-	-	-	-	-	-
18	387943	<1	-	-	-	-	-	-	-	-
19	387944	<1	-	-	-	-	-	-	-	-
20	387945	<1	-	-	-	-	-	-	-	-
21	387946	<1	-	-	-	-	-	-	-	-
22	387947	<1	-	-	-	-	-	-	-	-
23	387948	<1	-	-	-	-	-	-	-	-
24	387949	<1	-	-	-	-	-	-	-	-
25	387950	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390841

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	30 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387951	<1	-	-	-	-	-	-	-	-
2	387952	<1	-	-	-	-	-	-	-	-
3	387953	<1	-	-	-	-	-	-	-	-
4	387954	<1	-	-	-	-	-	-	-	-
5	387955	<1	-	-	-	-	-	-	-	-
6	387956	<1	-	-	-	-	-	-	-	-
7	387957	<1	-	-	-	-	-	-	-	-
8	387958	<1	-	-	-	-	-	-	-	-
9	387959	<1	-	-	-	-	-	-	-	-
10	387960	<1	-	-	-	-	-	-	-	-
11	387961	<1	-	-	-	-	-	-	-	-
12	387962	<1	-	-	-	-	-	-	-	-
13	387963	<1	-	-	-	-	-	-	-	-
14	387964	<1	-	-	-	-	-	-	-	-
15	387965	<1	-	-	-	-	-	-	-	-
16	387966	<1	-	-	-	-	-	-	-	-
17	387967	<1	-	-	-	-	-	-	-	-
18	387968	<1	-	-	-	-	-	-	-	-
19	387969	<1	-	-	-	-	-	-	-	-
20	387970	<1	-	-	-	-	-	-	-	-
21	387971	<1	-	-	-	-	-	-	-	-
22	387972	<1	-	-	-	-	-	-	-	-
23	387973	<1	-	-	-	-	-	-	-	-
24	387974	<1	-	-	-	-	-	-	-	-
25	387975	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

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390842

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	31 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	387976	<1	-	-	-	-	-	-	-	-
2	387977	<1	-	-	-	-	-	-	-	-
3	387978	<1	-	-	-	-	-	-	-	-
4	387979	<1	-	-	-	-	-	-	-	-
5	387980	<1	-	-	-	-	-	-	-	-
6	387981	<1	-	-	-	-	-	-	-	-
7	387982	<1	-	-	-	-	-	-	-	-
8	387983	<1	-	-	-	-	-	-	-	-
9	387984	<1	-	-	-	-	-	-	-	-
10	387985	<1	-	-	-	-	-	-	-	-
11	387986	<1	-	-	-	-	-	-	-	-
12	387987	<1	-	-	-	-	-	-	-	-
13	387988	<1	-	-	-	-	-	-	-	-
14	387989	<1	-	-	-	-	-	-	-	-
15	387990	<1	-	-	-	-	-	-	-	-
16	387991	<1	-	-	-	-	-	-	-	-
17	387992	<1	-	-	-	-	-	-	-	-
18	387993	<1	-	-	-	-	-	-	-	-
19	387994	<1	-	-	-	-	-	-	-	-
20	387995	<1	-	-	-	-	-	-	-	-
21	387996	<1	-	-	-	-	-	-	-	-
22	387997	<1	-	-	-	-	-	-	-	-
23	387998	2	-	-	-	-	-	-	-	-
24	387999	<1	-	-	-	-	-	-	-	-
25	388000	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390843

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	32 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388001	<1	-	-	-	-	-	-	-	-
2	388002	<1	-	-	-	-	-	-	-	-
3	388003	1	-	-	-	-	-	-	-	-
4	388004	<1	-	-	-	-	-	-	-	-
5	388005	<1	-	-	-	-	-	-	-	-
6	388006	<1	-	-	-	-	-	-	-	-
7	388007	<1	-	-	-	-	-	-	-	-
8	388008	<1	-	-	-	-	-	-	-	-
9	388009	<1	-	-	-	-	-	-	-	-
10	388010	<1	-	-	-	-	-	-	-	-
11	388011	<1	-	-	-	-	-	-	-	-
12	388012	<1	-	-	-	-	-	-	-	-
13	388013	<1	-	-	-	-	-	-	-	-
14	388014	<1	-	-	-	-	-	-	-	-
15	388015	<1	-	-	-	-	-	-	-	-
16	388016	<1	-	-	-	-	-	-	-	-
17	388017	<1	-	-	-	-	-	-	-	-
18	388018	<1	-	-	-	-	-	-	-	-
19	388019	<1	-	-	-	-	-	-	-	-
20	388020	<1	-	-	-	-	-	-	-	-
21	388021	<1	-	-	-	-	-	-	-	-
22	388022	<1	-	-	-	-	-	-	-	-
23	388023	<1	-	-	-	-	-	-	-	-
24	388024	<1	-	-	-	-	-	-	-	-
25	388025	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390844

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	33 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388026	<1	-	-	-	-	-	-	-	-
2	388027	<1	-	-	-	-	-	-	-	-
3	388028	<1	-	-	-	-	-	-	-	-
4	388029	<1	-	-	-	-	-	-	-	-
5	388030	<1	-	-	-	-	-	-	-	-
6	388031	<1	-	-	-	-	-	-	-	-
7	388032	<1	-	-	-	-	-	-	-	-
8	388033	<1	-	-	-	-	-	-	-	-
9	388034	<1	-	-	-	-	-	-	-	-
10	388035	<1	-	-	-	-	-	-	-	-
11	388036	<1	-	-	-	-	-	-	-	-
12	388037	<1	-	-	-	-	-	-	-	-
13	388038	<1	-	-	-	-	-	-	-	-
14	388039	<1	-	-	-	-	-	-	-	-
15	388040	<1	-	-	-	-	-	-	-	-
16	388041	<1	-	-	-	-	-	-	-	-
17	388042	<1	-	-	-	-	-	-	-	-
18	388043	<1	-	-	-	-	-	-	-	-
19	388044	<1	-	-	-	-	-	-	-	-
20	388045	1	-	-	-	-	-	-	-	-
21	388046	<1	-	-	-	-	-	-	-	-
22	388047	<1	-	-	-	-	-	-	-	-
23	388048	<1	-	-	-	-	-	-	-	-
24	388049	<1	-	-	-	-	-	-	-	-
25	388050	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390845

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	34 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388051	<1	-	-	-	-	-	-	-	-
2	388052	<1	-	-	-	-	-	-	-	-
3	388053	<1	-	-	-	-	-	-	-	-
4	388054	<1	-	-	-	-	-	-	-	-
5	388055	<1	-	-	-	-	-	-	-	-
6	388056	<1	-	-	-	-	-	-	-	-
7	388057	<1	-	-	-	-	-	-	-	-
8	388058	<1	-	-	-	-	-	-	-	-
9	388059	<1	-	-	-	-	-	-	-	-
10	388060	<1	-	-	-	-	-	-	-	-
11	388061	<1	-	-	-	-	-	-	-	-
12	388062	<1	-	-	-	-	-	-	-	-
13	388063	<1	-	-	-	-	-	-	-	-
14	388064	<1	-	-	-	-	-	-	-	-
15	388065	<1	-	-	-	-	-	-	-	-
16	388066	<1	-	-	-	-	-	-	-	-
17	388067	<1	-	-	-	-	-	-	-	-
18	388068	<1	-	-	-	-	-	-	-	-
19	388069	<1	-	-	-	-	-	-	-	-
20	388070	<1	-	-	-	-	-	-	-	-
21	388071	<1	-	-	-	-	-	-	-	-
22	388072	<1	-	-	-	-	-	-	-	-
23	388073	<1	-	-	-	-	-	-	-	-
24	388074	<1	-	-	-	-	-	-	-	-
25	388075	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	35 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388076	<1	-	-	-	-	-	-	-	-
2	388077	<1	-	-	-	-	-	-	-	-
3	388078	<1	-	-	-	-	-	-	-	-
4	388079	<1	-	-	-	-	-	-	-	-
5	388080	<1	-	-	-	-	-	-	-	-
6	388081	<1	-	-	-	-	-	-	-	-
7	388082	<1	-	-	-	-	-	-	-	-
8	388083	<1	-	-	-	-	-	-	-	-
9	388084	<1	-	-	-	-	-	-	-	-
10	388085	<1	-	-	-	-	-	-	-	-
11	388086	<1	-	-	-	-	-	-	-	-
12	388087	<1	-	-	-	-	-	-	-	-
13	388088	<1	-	-	-	-	-	-	-	-
14	388089	<1	-	-	-	-	-	-	-	-
15	388090	<1	-	-	-	-	-	-	-	-
16	388091	<1	-	-	-	-	-	-	-	-
17	388092	<1	-	-	-	-	-	-	-	-
18	388093	<1	-	-	-	-	-	-	-	-
19	388094	<1	-	-	-	-	-	-	-	-
20	388095	<1	-	-	-	-	-	-	-	-
21	388096	<1	-	-	-	-	-	-	-	-
22	388097	<1	-	-	-	-	-	-	-	-
23	388098	<1	-	-	-	-	-	-	-	-
24	388099	<1	-	-	-	-	-	-	-	-
25	388100	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	36 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388101	<1	-	-	-	-	-	-	-	-
2	388102	<1	-	-	-	-	-	-	-	-
3	388103	<1	-	-	-	-	-	-	-	-
4	388104	<1	-	-	-	-	-	-	-	-
5	388105	<1	-	-	-	-	-	-	-	-
6	388106	<1	-	-	-	-	-	-	-	-
7	388107	<1	-	-	-	-	-	-	-	-
8	388108	<1	-	-	-	-	-	-	-	-
9	388109	<1	-	-	-	-	-	-	-	-
10	388110	<1	-	-	-	-	-	-	-	-
11	388111	<1	-	-	-	-	-	-	-	-
12	388112	<1	-	-	-	-	-	-	-	-
13	388113	<1	-	-	-	-	-	-	-	-
14	388114	<1	-	-	-	-	-	-	-	-
15	388115	<1	-	-	-	-	-	-	-	-
16	388116	<1	-	-	-	-	-	-	-	-
17	388117	<1	-	-	-	-	-	-	-	-
18	388118	<1	-	-	-	-	-	-	-	-
19	388119	1	-	-	-	-	-	-	-	-
20	388120	<1	-	-	-	-	-	-	-	-
21	388121	<1	-	-	-	-	-	-	-	-
22	388122	<1	-	-	-	-	-	-	-	-
23	388123	<1	-	-	-	-	-	-	-	-
24	388124	<1	-	-	-	-	-	-	-	-
25	388125	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	37 OF 66

	SAMPLE No	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388126	<1	-	-	-	-	-	-	-	-
2	388127	<1	-	-	-	-	-	-	-	-
3	388128	<1	-	-	-	-	-	-	-	-
4	388129	<1	-	-	-	-	-	-	-	-
5	388130	<1	-	-	-	-	-	-	-	-
6	388131	<1	-	-	-	-	-	-	-	-
7	388132	<1	-	-	-	-	-	-	-	-
8	388133	<1	-	-	-	-	-	-	-	-
9	388134	<1	-	-	-	-	-	-	-	-
10	388135	<1	-	-	-	-	-	-	-	-
11	388136	<1	-	-	-	-	-	-	-	-
12	388137	<1	-	-	-	-	-	-	-	-
13	388138	<1	-	-	-	-	-	-	-	-
14	388139	<1	-	-	-	-	-	-	-	-
15	388140	<1	-	-	-	-	-	-	-	-
16	388141	<1	-	-	-	-	-	-	-	-
17	388142	<1	-	-	-	-	-	-	-	-
18	388143	<1	-	-	-	-	-	-	-	-
19	388144	<1	-	-	-	-	-	-	-	-
20	388145	<1	-	-	-	-	-	-	-	-
21	388146	<1	-	-	-	-	-	-	-	-
22	388147	<1	-	-	-	-	-	-	-	-
23	388148	<1	-	-	-	-	-	-	-	-
24	388149	<1	-	-	-	-	-	-	-	-
25	388150	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

S = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	38 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	388151	<1	-	-	-	-	-	-	-	-
2	388152	<1	-	-	-	-	-	-	-	-
3	388153	<1	-	-	-	-	-	-	-	-
4	388154	<1	-	-	-	-	-	-	-	-
5	388155	<1	-	-	-	-	-	-	-	-
6	388156	<1	-	-	-	-	-	-	-	-
7	388157	<1	-	-	-	-	-	-	-	-
8	388158	<1	-	-	-	-	-	-	-	-
9	388159	<1	-	-	-	-	-	-	-	-
10	388160	<1	-	-	-	-	-	-	-	-
11	386251	<1	1416	43.50	70.40	8.40	28.3	4.3	1.21	4.2
12	386252	<1	1449	63.10	106.00	11.50	39.0	6.0	1.42	6.2
13	386253	<1	1558	61.10	104.00	11.40	38.0	5.9	1.45	5.9
14	386254	1	1558	57.10	100.00	11.40	38.5	6.1	1.51	6.0
15	386255	<1	940	49.80	85.80	9.39	32.8	5.2	1.29	5.1
16	386256	<1	843	47.30	78.90	8.92	30.7	5.1	1.24	5.0
17	386257	<1	1300	49.70	83.90	9.21	31.3	5.1	1.21	5.1
18	386191	<1	-	-	-	-	-	-	-	-
19	386192	<1	-	-	-	-	-	-	-	-
20	386193	<1	-	-	-	-	-	-	-	-
21	386194	<1	-	-	-	-	-	-	-	-
22	386195	<1	-	-	-	-	-	-	-	-
23	386196	<1	-	-	-	-	-	-	-	-
24	386197	<1	-	-	-	-	-	-	-	-
25	386198	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	39 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386199	<1	-	-	-	-	-	-	-	-
2	386200	<1	-	-	-	-	-	-	-	-
3	386201	<1	-	-	-	-	-	-	-	-
4	386202	<1	-	-	-	-	-	-	-	-
5	386203	<1	-	-	-	-	-	-	-	-
6	386204	<1	-	-	-	-	-	-	-	-
7	386205	<1	-	-	-	-	-	-	-	-
8	386206	<1	-	-	-	-	-	-	-	-
9	386207	<1	-	-	-	-	-	-	-	-
10	386208	<1	-	-	-	-	-	-	-	-
11	386209	<1	-	-	-	-	-	-	-	-
12	386210	<1	-	-	-	-	-	-	-	-
13	386211	<1	-	-	-	-	-	-	-	-
14	386212	<1	-	-	-	-	-	-	-	-
15	386213	<1	-	-	-	-	-	-	-	-
16	386214	<1	-	-	-	-	-	-	-	-
17	386215	<1	-	-	-	-	-	-	-	-
18	386216	<1	-	-	-	-	-	-	-	-
19	386217	<1	-	-	-	-	-	-	-	-
20	386218	<1	-	-	-	-	-	-	-	-
21	386219	<1	-	-	-	-	-	-	-	-
22	386220	<1	-	-	-	-	-	-	-	-
23	386221	<1	-	-	-	-	-	-	-	-
24	386222	<1	-	-	-	-	-	-	-	-
25	386223	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	40 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386224	<1	-	-	-	-	-	-	-	-
2	386225	<1	-	-	-	-	-	-	-	-
3	386226	<1	-	-	-	-	-	-	-	-
4	386227	<1	-	-	-	-	-	-	-	-
5	386228	<1	-	-	-	-	-	-	-	-
6	386229	<1	-	-	-	-	-	-	-	-
7	386230	<1	-	-	-	-	-	-	-	-
8	386231	<1	-	-	-	-	-	-	-	-
9	386232	<1	-	-	-	-	-	-	-	-
10	386233	<1	-	-	-	-	-	-	-	-
11	386234	<1	-	-	-	-	-	-	-	-
12	386235	<1	-	-	-	-	-	-	-	-
13	386236	<1	-	-	-	-	-	-	-	-
14	386237	<1	-	-	-	-	-	-	-	-
15	386238	<1	-	-	-	-	-	-	-	-
16	386138	<1	-	-	-	-	-	-	-	-
17	386139	<1	-	-	-	-	-	-	-	-
18	386140	<1	-	-	-	-	-	-	-	-
19	386141	<1	-	-	-	-	-	-	-	-
20	386145	<1	-	-	-	-	-	-	-	-
21	386146	<1	-	-	-	-	-	-	-	-
22	386147	<1	-	-	-	-	-	-	-	-
23	386148	<1	-	-	-	-	-	-	-	-
24	386156	<1	-	-	-	-	-	-	-	-
25	386157	<1	-	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	41 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	386158	<1	-	-	-	-	-	-	-	-
2	386159	<1	-	-	-	-	-	-	-	-
3	386264	-	854	-	-	-	-	-	-	-
4	386265	-	272	-	-	-	-	-	-	-
5	386266	-	1675	-	-	-	-	-	-	-
6	386267	-	525	-	-	-	-	-	-	-
7	386268	-	506	-	-	-	-	-	-	-
8	386269	-	531	-	-	-	-	-	-	-
9	384051	-	1309	-	-	-	-	-	-	-
10	385830	-	1399	-	-	-	-	-	-	-
11	385835	-	408	-	-	-	-	-	-	-
12	385836	-	218	-	-	-	-	-	-	-
13	385818	-	1562	-	-	-	-	-	-	-
14	385821	-	1462	-	-	-	-	-	-	-
15	385846	-	624	-	-	-	-	-	-	-
16	385856	-	485	-	-	-	-	-	-	-
17	385867	-	510	-	-	-	-	-	-	-
18	385876	-	412	-	-	-	-	-	-	-
19	385891	-	566	-	-	-	-	-	-	-
20	385907	-	1909	-	-	-	-	-	-	-
21	385911	-	502	-	-	-	-	-	-	-
22	385925	-	397	-	-	-	-	-	-	-
23	385933	-	364	-	-	-	-	-	-	-
24	385938	-	429	-	-	-	-	-	-	-
25	385946	-	590	-	-	-	-	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	42 OF 66

	SAMPLE No.	Ag	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd
METHOD		GA140	GX401	GS201	GS201	GS201	GS201	GS201	GS201	GS201
1	385954	-	487	-	-	-	-	-	-	-
2	385957	-	633	-	-	-	-	-	-	-
3	385964	-	598	-	-	-	-	-	-	-
4	385975	-	680	-	-	-	-	-	-	-
5	385985	-	891	-	-	-	-	-	-	-
6	385995	-	986	-	-	-	-	-	-	-
7	386112	-	755	-	-	-	-	-	-	-
8	386114	-	552	-	-	-	-	-	-	-
9	386118	-	772	-	-	-	-	-	-	-
10	386103	-	236	-	-	-	-	-	-	-
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	1	10	0.05	0.05	0.05	0.1	0.1	0.05	0.1
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined
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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	43 OF 66

	SAMPLE No	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387751	-	-	-	0.002	-	10	-	-	-
2	387752	-	-	-	0.001	-	4	-	-	-
3	387753	-	-	-	0.001	-	8	-	-	-
4	387754	-	-	-	<0.001	-	<3	-	-	-
5	387755	-	-	-	<0.001	-	<3	-	-	-
6	387756	-	-	-	<0.001	-	<3	-	-	-
7	387757	-	-	-	<0.001	-	5	-	-	-
8	387758	-	-	-	<0.001	-	6	-	-	-
9	387759	-	-	-	<0.001	-	5	-	-	-
10	387760	-	-	-	<0.001	-	7	-	-	-
11	387761	-	-	-	0.001	-	4	-	-	-
12	387762	-	-	-	<0.001	-	3	-	-	-
13	387763	-	-	-	<0.001	-	<3	-	0.001	-
14	387764	-	-	-	<0.001	-	5	-	-	-
15	387765	-	-	-	<0.001	-	9	-	-	-
16	387766	-	-	-	<0.001	-	<3	<0.001	-	-
17	387767	-	-	-	0.001	-	7	-	-	-
18	387768	-	-	-	0.001	-	8	-	-	-
19	387769	-	-	-	<0.001	-	<3	-	-	-
20	387770	-	-	-	<0.001	-	<3	-	-	-
21	387771	-	-	-	<0.001	-	8	-	-	-
22	387772	-	-	-	0.001	-	15	-	-	-
23	387773	-	-	-	0.001	-	11	-	-	-
24	387774	-	-	-	<0.001	-	<3	-	-	-
25	387775	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = Insufficient sample
SNR = sample not received

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390855

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	44 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387776	-	-	-	<0.001	-	7	-	-	-
2	387777	-	-	-	<0.001	-	6	-	-	-
3	387778	-	-	-	<0.001	-	10	-	-	-
4	387779	-	-	-	<0.001	-	17	-	-	-
5	387780	-	-	-	<0.001	-	15	-	-	-
6	387781	-	-	-	<0.001	-	6	-	-	-
7	387782	-	-	-	<0.001	-	7	-	-	-
8	387783	-	-	-	<0.001	-	5	-	-	-
9	387784	-	-	-	<0.001	-	11	-	-	-
10	387785	-	-	-	<0.001	-	13	-	-	-
11	387786	-	-	-	<0.001	-	14	<0.001	-	-
12	387787	-	-	-	<0.001	-	<3	-	-	-
13	387788	-	-	-	<0.001	-	<3	-	-	-
14	387789	-	-	-	0.002	-	10	-	-	-
15	387790	-	-	-	0.001	-	25	-	-	-
16	387791	-	-	-	0.001	-	5	-	-	-
17	387792	-	-	-	0.001	-	<3	-	-	-
18	387793	-	-	-	0.002	-	<3	-	-	-
19	387794	-	-	-	0.001	-	4	-	-	-
20	387795	-	-	-	<0.001	-	6	-	-	-
21	387796	-	-	-	0.001	-	<3	-	-	-
22	387797	-	-	-	0.001	-	<3	-	-	-
23	387798	-	-	-	<0.001	-	<3	-	-	-
24	387799	-	-	-	<0.001	-	<3	-	-	-
25	387800	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	45 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387801	-	-	-	<0.001	-	<3	-	-	-
2	387802	-	-	-	<0.001	-	<3	-	-	-
3	387803	-	-	-	<0.001	-	10	-	-	-
4	387804	-	-	-	<0.001	-	10	-	-	-
5	387805	-	-	-	0.001	-	7	-	-	-
6	387806	-	-	-	0.001	-	<3	-	-	-
7	387807	-	-	-	0.002	-	13	-	-	-
8	387808	-	-	-	<0.001	-	11	-	-	-
9	387809	-	-	-	0.001	-	6	-	-	-
10	387810	-	-	-	0.001	-	6	-	-	-
11	387811	-	-	-	0.001	-	<3	-	-	-
12	387812	-	-	-	<0.001	-	9	-	-	-
13	387813	-	-	-	<0.001	-	3	-	-	-
14	387814	-	-	-	<0.001	-	11	-	-	-
15	387815	-	-	-	0.001	-	8	-	-	-
16	387816	-	-	-	<0.001	-	<3	-	-	-
17	387817	-	-	-	<0.001	-	5	-	-	-
18	387818	-	-	-	<0.001	-	<3	-	-	-
19	387819	-	-	-	0.001	-	3	-	-	-
20	387820	-	-	-	<0.001	-	<3	-	-	-
21	387821	-	-	-	<0.001	-	<3	-	-	-
22	387822	-	-	-	<0.001	-	<3	-	-	-
23	387823	-	-	-	<0.001	-	8	-	-	-
24	387824	-	-	-	0.001	-	4	-	-	-
25	387825	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	46 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387826	-	-	-	<0.001	-	<3	-	-	-
2	387827	-	-	-	<0.001	-	<3	-	-	-
3	387828	-	-	-	<0.001	-	3	<0.001	-	-
4	387829	-	-	-	<0.001	-	5	-	-	-
5	387830	-	-	-	<0.001	-	<3	-	-	-
6	387831	-	-	-	<0.001	-	7	-	-	-
7	387832	-	-	-	0.001	-	<3	-	-	-
8	387833	-	-	-	<0.001	-	5	-	-	-
9	387834	-	-	-	0.001	-	<3	-	-	-
10	387835	-	-	-	<0.001	-	8	<0.001	-	-
11	387836	-	-	-	<0.001	-	<3	-	-	-
12	387837	-	-	-	0.001	-	<3	-	-	-
13	387838	-	-	-	<0.001	-	3	-	-	-
14	387839	-	-	-	<0.001	-	7	-	-	-
15	387840	-	-	-	<0.001	-	8	-	-	-
16	387841	-	-	-	<0.001	-	4	-	-	-
17	387842	-	-	-	<0.001	-	<3	-	-	-
18	387843	-	-	-	0.001	-	<3	-	-	-
19	387844	-	-	-	0.002	-	<3	0.001	-	-
20	387845	-	-	-	<0.001	-	<3	-	-	-
21	387846	-	-	-	<0.001	-	7	-	-	-
22	387847	-	-	-	0.001	-	6	-	-	-
23	387848	-	-	-	0.001	-	3	-	-	-
24	387849	-	-	-	0.001	-	5	-	-	-
25	387850	-	-	-	0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined
IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	47 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387851	-	-	-	<0.001	-	<3	-	-	-
2	387852	-	-	-	0.002	-	3	-	-	-
3	387853	-	-	-	<0.001	-	5	-	-	-
4	387854	-	-	-	0.001	-	<3	-	-	-
5	387855	-	-	-	0.001	-	7	-	-	-
6	387856	-	-	-	0.001	-	5	-	-	-
7	387857	-	-	-	0.001	-	7	-	-	-
8	387858	-	-	-	0.001	-	<3	-	-	-
9	387859	-	-	-	<0.001	-	<3	-	-	-
10	387860	-	-	-	<0.001	-	5	-	-	-
11	387861	-	-	-	<0.001	-	5	-	-	-
12	387862	-	-	-	<0.001	-	3	-	-	-
13	387863	-	-	-	0.001	-	<3	-	-	-
14	387864	-	-	-	<0.001	-	6	-	-	-
15	387865	-	-	-	<0.001	-	5	-	-	-
16	387866	-	-	-	<0.001	-	8	-	-	-
17	387867	-	-	-	<0.001	-	7	-	-	-
18	387868	-	-	-	0.001	-	6	-	-	-
19	387869	-	-	-	0.001	-	50	0.001	-	-
20	387870	-	-	-	0.001	-	5	-	-	-
21	387871	-	-	-	0.001	-	<3	-	-	-
22	387872	-	-	-	0.001	-	<3	-	-	-
23	387873	-	-	-	<0.001	-	<3	-	-	-
24	387874	-	-	-	0.002	-	5	-	-	-
25	387875	-	-	-	<0.001	-	6	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

390859

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	48 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387876	-	-	-	<0.001	-	<3	-	-	-
2	387877	-	-	-	0.001	-	18	-	-	-
3	387878	-	-	-	0.001	-	7	-	-	-
4	387879	-	-	-	0.001	-	17	-	-	-
5	387880	-	-	-	<0.001	-	21	-	-	-
6	387881	-	-	-	0.001	-	10	-	-	-
7	387882	-	-	-	0.003	-	7	-	-	-
8	387883	-	-	-	0.004	-	6	-	-	-
9	387884	-	-	-	0.001	-	10	-	-	-
10	387885	-	-	-	0.001	-	21	-	-	-
11	387886	-	-	-	<0.001	-	12	-	-	-
12	387887	-	-	-	0.001	-	8	-	-	-
13	387888	-	-	-	<0.001	-	<3	-	-	-
14	387889	-	-	-	0.002	-	8	-	-	-
15	387890	-	-	-	0.001	-	7	-	-	-
16	387891	-	-	-	0.002	-	7	-	-	-
17	387892	-	-	-	0.002	-	10	-	-	-
18	387893	-	-	-	0.003	-	15	-	-	-
19	387894	-	-	-	0.001	-	10	-	-	-
20	387895	-	-	-	0.005	-	14	-	-	-
21	387896	-	-	-	0.001	-	10	-	-	-
22	387897	-	-	-	<0.001	-	5	-	-	-
23	387898	-	-	-	<0.001	-	<3	-	-	-
24	387899	-	-	-	<0.001	-	<3	-	-	-
25	387900	-	-	-	<0.001	-	3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	49 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387901	-	-	-	<0.001	-	4	-	-	-
2	387902	-	-	-	<0.001	-	9	-	-	-
3	387903	-	-	-	0.001	-	8	-	-	-
4	387904	-	-	-	0.001	-	<3	-	-	-
5	387905	-	-	-	<0.001	-	<3	-	-	-
6	387906	-	-	-	<0.001	-	4	-	-	-
7	387907	-	-	-	<0.001	-	<3	-	-	-
8	387908	-	-	-	0.001	-	<3	-	-	-
9	387909	-	-	-	<0.001	-	<3	-	-	-
10	387910	-	-	-	0.001	-	6	-	-	-
11	387911	-	-	-	<0.001	-	4	-	-	-
12	387912	-	-	-	0.001	-	5	0.001	-	-
13	387913	-	-	-	0.004	-	9	-	-	-
14	387914	-	-	-	0.001	-	7	-	-	-
15	387915	-	-	-	0.001	-	18	-	-	-
16	387916	-	-	-	<0.001	-	13	-	-	-
17	387917	-	-	-	<0.001	-	7	-	-	-
18	387918	-	-	-	<0.001	-	6	-	-	-
19	387919	-	-	-	<0.001	-	36	-	-	-
20	387920	-	-	-	<0.001	-	7	-	-	-
21	387921	-	-	-	<0.001	-	<3	-	-	-
22	387922	-	-	-	0.001	-	<3	-	-	-
23	387923	-	-	-	<0.001	-	3	<0.001	-	-
24	387924	-	-	-	0.001	-	5	-	-	-
25	387925	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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390861

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	50 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387926	-	-	-	<0.001	-	7	-	-	-
2	387927	-	-	-	<0.001	-	6	-	-	-
3	387928	-	-	-	<0.001	-	9	-	-	-
4	387929	-	-	-	0.003	-	14	-	-	-
5	387930	-	-	-	0.001	-	9	-	-	-
6	387931	-	-	-	0.001	-	7	-	-	-
7	387932	-	-	-	0.001	-	14	-	-	-
8	387933	-	-	-	<0.001	-	7	-	-	-
9	387934	-	-	-	<0.001	-	<3	-	-	-
10	387935	-	-	-	0.003	-	<3	-	-	-
11	387936	-	-	-	<0.001	-	<3	-	-	-
12	387937	-	-	-	<0.001	-	<3	-	-	-
13	387938	-	-	-	<0.001	-	<3	-	-	-
14	387939	-	-	-	<0.001	-	3	-	-	-
15	387940	-	-	-	<0.001	-	8	-	-	-
16	387941	-	-	-	<0.001	-	3	<0.001	-	-
17	387942	-	-	-	<0.001	-	4	-	-	-
18	387943	-	-	-	<0.001	-	<3	-	-	-
19	387944	-	-	-	<0.001	-	<3	-	-	-
20	387945	-	-	-	<0.001	-	4	-	-	-
21	387946	-	-	-	<0.001	-	<3	-	-	-
22	387947	-	-	-	<0.001	-	6	-	-	-
23	387948	-	-	-	<0.001	-	<3	-	-	-
24	387949	-	-	-	<0.001	-	5	-	-	-
25	387950	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	51 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387951	-	-	-	<0.001	-	6	-	-	-
2	387952	-	-	-	<0.001	-	7	-	-	-
3	387953	-	-	-	<0.001	-	22	-	-	-
4	387954	-	-	-	<0.001	-	5	-	-	-
5	387955	-	-	-	<0.001	-	<3	-	-	-
6	387956	-	-	-	<0.001	-	6	-	-	-
7	387957	-	-	-	<0.001	-	<3	-	-	-
8	387958	-	-	-	<0.001	-	<3	-	-	-
9	387959	-	-	-	<0.001	-	5	-	-	-
10	387960	-	-	-	0.001	-	10	-	-	-
11	387961	-	-	-	<0.001	-	3	-	-	-
12	387962	-	-	-	<0.001	-	7	-	-	-
13	387963	-	-	-	0.002	-	10	-	-	-
14	387964	-	-	-	0.002	-	9	-	-	-
15	387965	-	-	-	<0.001	-	10	<0.001	-	-
16	387966	-	-	-	<0.001	-	10	-	-	-
17	387967	-	-	-	<0.001	-	13	-	-	-
18	387968	-	-	-	<0.001	-	15	-	-	-
19	387969	-	-	-	<0.001	-	3	-	-	-
20	387970	-	-	-	<0.001	-	8	-	-	-
21	387971	-	-	-	<0.001	-	8	-	-	-
22	387972	-	-	-	<0.001	-	<3	-	-	-
23	387973	-	-	-	0.002	-	4	-	-	-
24	387974	-	-	-	0.002	-	10	-	-	-
25	387975	-	-	-	0.002	-	9	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	52 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	387976	-	-	-	<0.001	-	<3	-	-	-
2	387977	-	-	-	0.002	-	4	-	-	-
3	387978	-	-	-	<0.001	-	3	-	-	-
4	387979	-	-	-	<0.001	-	5	-	-	-
5	387980	-	-	-	<0.001	-	5	-	-	-
6	387981	-	-	-	<0.001	-	5	-	-	-
7	387982	-	-	-	<0.001	-	9	-	-	-
8	387983	-	-	-	<0.001	-	10	-	-	-
9	387984	-	-	-	<0.001	-	13	-	-	-
10	387985	-	-	-	<0.001	-	5	-	-	-
11	387986	-	-	-	<0.001	-	11	-	-	-
12	387987	-	-	-	<0.001	-	8	-	-	-
13	387988	-	-	-	<0.001	-	8	-	-	-
14	387989	-	-	-	<0.001	-	4	<0.001	-	-
15	387990	-	-	-	<0.001	-	<3	-	-	-
16	387991	-	-	-	<0.001	-	4	<0.001	-	-
17	387992	-	-	-	<0.001	-	4	-	-	-
18	387993	-	-	-	<0.001	-	7	-	-	-
19	387994	-	-	-	<0.001	-	6	-	-	-
20	387995	-	-	-	<0.001	-	4	-	-	-
21	387996	-	-	-	<0.001	-	7	-	-	-
22	387997	-	-	-	<0.001	-	6	-	-	-
23	387998	-	-	-	0.001	-	<3	-	-	-
24	387999	-	-	-	0.002	-	12	-	-	-
25	388000	-	-	-	<0.001	-	12	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	53 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388001	-	-	-	0.002	-	10	-	-	-
2	388002	-	-	-	0.001	-	10	-	-	-
3	388003	-	-	-	0.001	-	13	-	-	-
4	388004	-	-	-	<0.001	-	5	-	-	-
5	388005	-	-	-	<0.001	-	9	-	-	-
6	388006	-	-	-	<0.001	-	7	-	-	-
7	388007	-	-	-	<0.001	-	5	-	-	-
8	388008	-	-	-	<0.001	-	4	-	-	-
9	388009	-	-	-	<0.001	-	3	-	-	-
10	388010	-	-	-	<0.001	-	6	-	-	-
11	388011	-	-	-	0.001	-	5	-	-	-
12	388012	-	-	-	0.001	-	<3	-	-	-
13	388013	-	-	-	<0.001	-	4	<0.001	-	-
14	388014	-	-	-	<0.001	-	13	-	-	-
15	388015	-	-	-	<0.001	-	15	-	-	-
16	388016	-	-	-	0.001	-	8	-	0.001	-
17	388017	-	-	-	<0.001	-	20	-	-	-
18	388018	-	-	-	0.001	-	8	-	-	-
19	388019	-	-	-	0.002	-	9	-	-	-
20	388020	-	-	-	<0.001	-	4	-	-	-
21	388021	-	-	-	<0.001	-	<3	-	-	-
22	388022	-	-	-	<0.001	-	4	-	-	-
23	388023	-	-	-	<0.001	-	<3	<0.001	-	-
24	388024	-	-	-	<0.001	-	9	-	<0.001	-
25	388025	-	-	-	<0.001	-	5	-		-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	54 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388026	-	-	-	<0.001	-	5	-	-	-
2	388027	-	-	-	<0.001	-	<3	-	-	-
3	388028	-	-	-	0.001	-	<3	-	-	-
4	388029	-	-	-	0.001	-	<3	-	-	-
5	388030	-	-	-	<0.001	-	<3	-	-	-
6	388031	-	-	-	<0.001	-	8	-	-	-
7	388032	-	-	-	0.001	-	7	-	-	-
8	388033	-	-	-	0.001	-	<3	-	-	-
9	388034	-	-	-	<0.001	-	3	-	-	-
10	388035	-	-	-	<0.001	-	<3	-	<0.001	-
11	388036	-	-	-	<0.001	-	<3	-	-	-
12	388037	-	-	-	0.001	-	<3	-	-	-
13	388038	-	-	-	<0.001	-	<3	-	-	-
14	388039	-	-	-	0.001	-	4	-	-	-
15	388040	-	-	-	<0.001	-	5	-	-	-
16	388041	-	-	-	<0.001	-	<3	-	-	-
17	388042	-	-	-	<0.001	-	6	-	-	-
18	388043	-	-	-	<0.001	-	6	-	-	-
19	388044	-	-	-	<0.001	-	7	-	-	-
20	388045	-	-	-	<0.001	-	9	-	-	-
21	388046	-	-	-	<0.001	-	4	-	-	-
22	388047	-	-	-	<0.001	-	<3	-	-	-
23	388048	-	-	-	<0.001	-	<3	-	<0.001	-
24	388049	-	-	-	<0.001	-	<3	-	-	-
25	388050	-	-	-	0.001	-	4	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	55 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388051	-	-	-	<0.001	-	<3	-	-	-
2	388052	-	-	-	<0.001	-	5	-	-	-
3	388053	-	-	-	<0.001	-	<3	-	-	-
4	388054	-	-	-	<0.001	-	5	-	-	-
5	388055	-	-	-	<0.001	-	8	-	-	-
6	388056	-	-	-	<0.001	-	3	-	-	-
7	388057	-	-	-	<0.001	-	7	-	-	-
8	388058	-	-	-	<0.001	-	11	-	-	-
9	388059	-	-	-	<0.001	-	14	-	-	-
10	388060	-	-	-	<0.001	-	<3	-	-	-
11	388061	-	-	-	<0.001	-	<3	<0.001	-	-
12	388062	-	-	-	<0.001	-	8	-	-	-
13	388063	-	-	-	0.001	-	6	-	-	-
14	388064	-	-	-	<0.001	-	3	-	-	-
15	388065	-	-	-	<0.001	-	<3	-	-	-
16	388066	-	-	-	0.002	-	12	-	-	-
17	388067	-	-	-	<0.001	-	6	-	-	-
18	388068	-	-	-	0.001	-	12	-	-	-
19	388069	-	-	-	<0.001	-	14	-	-	-
20	388070	-	-	-	0.001	-	10	0.002	<0.001	-
21	388071	-	-	-	<0.001	-	<3	-	-	-
22	388072	-	-	-	<0.001	-	18	-	-	-
23	388073	-	-	-	0.001	-	5	-	-	-
24	388074	-	-	-	0.001	-	9	-	-	-
25	388075	-	-	-	0.001	-	6	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	56 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388076	-	-	-	<0.001	-	10	-	-	-
2	388077	-	-	-	<0.001	-	12	-	-	-
3	388078	-	-	-	<0.001	-	6	-	-	-
4	388079	-	-	-	0.001	-	16	-	-	-
5	388080	-	-	-	<0.001	-	14	-	-	-
6	388081	-	-	-	<0.001	-	5	-	<0.001	-
7	388082	-	-	-	<0.001	-	5	-	-	-
8	388083	-	-	-	<0.001	-	<3	-	-	-
9	388084	-	-	-	<0.001	-	27	-	-	-
10	388085	-	-	-	0.002	-	31	-	-	-
11	388086	-	-	-	<0.001	-	13	-	-	-
12	388087	-	-	-	<0.001	-	5	-	-	-
13	388088	-	-	-	<0.001	-	7	<0.001	-	-
14	388089	-	-	-	<0.001	-	5	-	-	-
15	388090	-	-	-	<0.001	-	<3	-	-	-
16	388091	-	-	-	<0.001	-	4	-	-	-
17	388092	-	-	-	<0.001	-	<3	-	-	-
18	388093	-	-	-	<0.001	-	<3	-	-	-
19	388094	-	-	-	<0.001	-	3	-	-	-
20	388095	-	-	-	<0.001	-	8	-	-	-
21	388096	-	-	-	<0.001	-	<3	-	-	-
22	388097	-	-	-	<0.001	-	13	-	-	-
23	388098	-	-	-	0.001	-	<3	-	-	-
24	388099	-	-	-	<0.001	-	5	-	-	-
25	388100	-	-	-	<0.001	-	4	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	57 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388101	-	-	-	<0.001	-	6	-	-	-
2	388102	-	-	-	0.001	-	9	-	-	-
3	388103	-	-	-	<0.001	-	<3	-	-	-
4	388104	-	-	-	<0.001	-	11	-	-	-
5	388105	-	-	-	<0.001	-	19	-	-	-
6	388106	-	-	-	0.001	-	22	-	-	-
7	388107	-	-	-	<0.001	-	<3	-	-	-
8	388108	-	-	-	<0.001	-	<3	-	<0.001	-
9	388109	-	-	-	<0.001	-	<3	-	-	-
10	388110	-	-	-	0.003	-	3	-	-	-
11	388111	-	-	-	<0.001	-	<3	-	-	-
12	388112	-	-	-	<0.001	-	<3	-	-	-
13	388113	-	-	-	<0.001	-	<3	-	-	-
14	388114	-	-	-	<0.001	-	<3	-	-	-
15	388115	-	-	-	<0.001	-	<3	-	-	-
16	388116	-	-	-	0.001	-	<3	-	-	-
17	388117	-	-	-	<0.001	-	<3	<0.001	-	-
18	388118	-	-	-	<0.001	-	<3	-	-	-
19	388119	-	-	-	<0.001	-	<3	-	-	-
20	388120	-	-	-	<0.001	-	<3	-	-	-
21	388121	-	-	-	<0.001	-	<3	-	-	-
22	388122	-	-	-	<0.001	-	<3	-	-	-
23	388123	-	-	-	<0.001	-	<3	-	-	-
24	388124	-	-	-	<0.001	-	<3	-	-	-
25	388125	-	-	-	0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	58 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388126	-	-	-	<0.001	-	<3	-	-	-
2	388127	-	-	-	<0.001	-	<3	-	-	-
3	388128	-	-	-	<0.001	-	<3	-	-	-
4	388129	-	-	-	<0.001	-	<3	-	-	-
5	388130	-	-	-	<0.001	-	3	-	<0.001	-
6	388131	-	-	-	0.001	-	4	-	-	-
7	388132	-	-	-	<0.001	-	<3	-	-	-
8	388133	-	-	-	<0.001	-	<3	-	-	-
9	388134	-	-	-	<0.001	-	<3	-	-	-
10	388135	-	-	-	<0.001	-	<3	-	-	-
11	388136	-	-	-	0.001	-	3	-	-	-
12	388137	-	-	-	<0.001	-	10	-	<0.001	-
13	388138	-	-	-	<0.001	-	<3	-	-	-
14	388139	-	-	-	<0.001	-	<3	-	-	-
15	388140	-	-	-	<0.001	-	3	-	-	-
16	388141	-	-	-	<0.001	-	6	-	-	-
17	388142	-	-	-	<0.001	-	<3	-	-	-
18	388143	-	-	-	<0.001	-	<3	-	-	-
19	388144	-	-	-	<0.001	-	<3	-	-	-
20	388145	-	-	-	<0.001	-	3	-	-	-
21	388146	-	-	-	<0.001	-	<3	-	-	-
22	388147	-	-	-	<0.001	-	<3	-	-	-
23	388148	-	-	-	<0.001	-	<3	-	-	-
24	388149	-	-	-	<0.001	-	<3	-	-	-
25	388150	-	-	-	<0.001	-	<3	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	59 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	388151	-	-	-	<0.001	-	<3	-	-	-
2	388152	-	-	-	<0.001	-	5	-	-	-
3	388153	-	-	-	<0.001	-	<3	-	-	-
4	388154	-	-	-	0.001	-	<3	-	-	-
5	388155	-	-	-	0.001	-	<3	-	-	-
6	388156	-	-	-	0.001	-	<3	-	-	-
7	388157	-	-	-	<0.001	-	<3	<0.001	-	-
8	388158	-	-	-	0.001	-	<3	-	-	-
9	388159	-	-	-	0.001	-	<3	-	-	-
10	388160	-	-	-	<0.001	-	<3	-	-	-
11	386251	2.3	1.4	1.5	0.016	-	22	0.018	-	-
12	386252	3.3	1.9	1.9	0.001	-	<3	-	-	-
13	386253	2.8	1.5	1.6	0.001	-	<3	0.001	-	-
14	386254	3.1	1.8	1.9	0.002	-	15	-	-	-
15	386255	3.0	1.9	2.0	<0.001	-	<3	-	-	-
16	386256	3.1	2.0	2.0	<0.001	-	4	<0.001	-	-
17	386257	3.0	1.9	1.9	0.001	-	6	-	-	-
18	386191	-	-	-	-	0.02	14	-	-	-
19	386192	-	-	-	-	0.02	15	-	-	-
20	386193	-	-	-	-	<0.01	13	-	-	-
21	386194	-	-	-	-	0.01	11	-	-	-
22	386195	-	-	-	-	<0.01	3	-	-	-
23	386196	-	-	-	-	<0.01	<3	-	-	-
24	386197	-	-	-	-	<0.01	<3	-	-	-
25	386198	-	-	-	-	<0.01	<3	-	-	-

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	60 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386199	-	-	-	-	<0.01	<3	-	-	-
2	386200	-	-	-	-	0.01	<3	-	-	-
3	386201	-	-	-	-	<0.01	<3	-	-	-
4	386202	-	-	-	-	<0.01	<3	-	-	0.01
5	386203	-	-	-	-	<0.01	3	-	-	-
6	386204	-	-	-	-	<0.01	11	-	-	-
7	386205	-	-	-	-	<0.01	<3	-	-	-
8	386206	-	-	-	-	<0.01	<3	-	-	-
9	386207	-	-	-	-	<0.01	8	-	-	-
10	386208	-	-	-	-	0.01	6	-	-	-
11	386209	-	-	-	-	0.01	20	-	-	-
12	386210	-	-	-	-	0.02	6	-	-	-
13	386211	-	-	-	-	0.02	11	-	-	-
14	386212	-	-	-	-	0.01	15	-	-	<0.01
15	386213	-	-	-	-	0.01	43	-	-	-
16	386214	-	-	-	-	<0.01	21	-	-	-
17	386215	-	-	-	-	<0.01	15	-	-	-
18	386216	-	-	-	-	<0.01	26	-	-	-
19	386217	-	-	-	-	<0.01	51	-	-	-
20	386218	-	-	-	-	0.02	27	-	-	-
21	386219	-	-	-	-	<0.01	32	-	-	-
22	386220	-	-	-	-	<0.01	4	-	-	-
23	386221	-	-	-	-	<0.01	19	-	-	-
24	386222	-	-	-	-	<0.01	11	-	-	-
25	386223	-	-	-	-	<0.01	8	-	-	-

Results in ppm unless otherwise specified
- = element not determined

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SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	61 OF 66

	SAMPLE No.	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386224	-	-	-	-	<0.01	18	-	-	-
2	386225	-	-	-	-	<0.01	10	-	-	-
3	386226	-	-	-	-	<0.01	3	-	-	-
4	386227	-	-	-	-	<0.01	6	-	-	<0.01
5	386228	-	-	-	-	0.01	24	-	-	-
6	386229	-	-	-	-	<0.01	39	-	-	0.01
7	386230	-	-	-	-	<0.01	38	-	-	-
8	386231	-	-	-	-	<0.01	69	-	-	-
9	386232	-	-	-	-	<0.01	14	-	-	-
10	386233	-	-	-	-	<0.01	29	-	-	-
11	386234	-	-	-	-	<0.01	31	-	-	-
12	386235	-	-	-	-	<0.01	27	-	-	-
13	386236	-	-	-	-	<0.01	124	-	-	-
14	386237	-	-	-	-	<0.01	30	-	-	<0.01
15	386238	-	-	-	-	<0.01	135	-	-	-
16	386138	-	-	-	-	<0.01	20	-	-	-
17	386139	-	-	-	-	<0.01	33	-	-	-
18	386140	-	-	-	-	<0.01	36	-	-	-
19	386141	-	-	-	-	<0.01	61	-	-	-
20	386145	-	-	-	-	<0.01	184	-	-	-
21	386146	-	-	-	-	<0.01	685	-	-	-
22	386147	-	-	-	-	<0.01	141	-	-	<0.01
23	386148	-	-	-	-	<0.01	31	-	-	-
24	386156	-	-	-	-	<0.01	47	-	-	-
25	386157	-	-	-	-	<0.01	285	-	-	-

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	62 OF 66

	SAMPLE No	Dy	Er	Yb	Au	Au	Pb	Au(R)	Au(S)	Au(R)
METHOD		GS201	GS201	GS201	GG326	GG313	GA140	GG326	GG326	GG313
1	386158	-	-	-	-	<0.01	596	-	-	-
2	386159	-	-	-	-	<0.01	395	-	-	-
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.1	0.1	0.1	0.001	0.01	3	0.001	0.001	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	63 OF 66

	SAMPLE No	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408
1	386251	15.30	65.30	0.38	6.44	0.53	0.31	7.44	0.72	0.180
2	386252	16.30	63.00	0.36	3.73	0.51	2.04	9.37	0.67	0.183
3	386253	15.60	64.50	0.36	4.04	0.48	1.56	9.98	0.56	0.180
4	386254	16.40	61.60	0.36	4.27	0.54	1.79	10.17	0.50	0.203
5	386255	15.60	62.60	0.45	7.13	0.15	2.95	2.46	0.92	0.141
6	386256	15.30	60.80	0.48	6.74	0.16	4.36	3.04	0.81	0.136
7	386257	14.80	61.00	0.44	6.45	0.18	2.71	1.05	3.37	0.125
8	386264	16.30	46.30	0.76	9.14	0.60	8.70	3.28	2.38	0.119
9	386265	13.10	43.80	0.62	14.33	0.21	9.18	0.31	5.72	0.071
10	386266	12.40	70.00	0.43	4.58	0.47	2.93	2.43	1.14	0.112
11	386267	19.40	48.60	0.99	10.11	0.17	5.38	1.08	3.13	0.297
12	386268	17.90	49.90	0.92	8.80	0.13	6.85	2.02	2.19	0.278
13	386269	4.91	31.00	0.23	6.50	1.29	22.49	1.18	5.22	0.053
14	384051	11.40	76.10	0.07	1.70	0.03	0.74	5.94	0.93	0.006
15	385830	16.80	56.70	0.65	12.14	0.49	0.43	4.40	1.14	0.176
16	385835	12.10	66.40	0.42	6.98	1.01	0.20	3.22	0.44	0.115
17	385836	5.29	38.40	0.15	4.03	0.15	0.03	1.22	0.26	0.026
18	385818	13.60	63.00	0.51	9.60	0.63	0.30	3.70	0.57	0.173
	385821	14.10	66.70	0.52	7.48	0.55	0.26	4.06	0.43	0.166
20	385846	12.30	69.30	0.42	7.85	0.40	0.62	2.89	1.16	0.105
	385856	14.50	64.10	0.52	4.45	0.53	3.65	3.99	1.27	0.138
22	385867	13.90	62.10	0.50	5.60	0.90	4.31	3.72	0.84	0.143
23	385876	13.10	59.90	0.49	6.67	5.29	0.53	3.80	0.72	0.133
24	385891	12.70	59.90	0.48	9.40	3.29	1.44	3.40	0.64	0.122
25	385907	14.60	63.90	0.69	6.09	0.36	3.70	2.88	1.38	0.175

Results in ppm unless otherwise specified
- element not determined
* = insufficient sample
NA = sample not received

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390875

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	64 OF 66

	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
METHOD		0X408	0X408	0X408	0X408	0X408	0X408	0X408	0X408	0X408
1	385911	14.30	48.50	0.66	9.19	0.47	7.97	2.61	3.23	0.110
2	385925	12.60	70.90	0.35	3.34	0.66	2.49	3.58	1.03	0.050
3	385933	11.80	70.20	0.33	5.59	2.07	0.18	3.47	0.59	0.045
4	385938	13.30	72.70	0.35	3.07	0.51	1.73	3.91	0.83	0.054
5	385946	13.00	70.40	0.34	3.04	0.45	2.85	3.94	0.85	0.048
6	385954	14.10	53.80	0.63	9.65	0.87	5.59	3.05	2.47	0.093
7	385957	13.10	68.70	0.37	3.40	0.87	3.22	3.91	1.04	0.052
8	385964	13.40	65.80	0.42	6.26	0.99	2.79	3.74	1.07	0.068
9	385975	15.10	49.50	0.69	10.30	0.50	7.76	2.84	3.39	0.114
10	385985	14.00	67.10	0.51	4.63	0.14	3.04	3.41	1.24	0.103
11	385995	15.40	66.20	0.45	4.34	0.09	2.53	3.61	1.67	0.079
12	386112	14.10	63.60	0.51	9.24	0.90	0.34	3.91	0.43	0.143
13	386114	9.88	53.80	0.33	20.05	0.01	0.16	2.83	0.14	0.130
14	386118	14.10	62.70	0.50	9.71	0.77	0.27	4.03	0.74	0.145
15	386103	11.80	75.30	0.30	3.20	0.03	0.85	0.45	0.84	0.051
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005
25	UNITS	%	%	%	%	%	%	%	%	%

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

390876

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	65 OF 66

	SAMPLE No.	SO3	Na2O	LOI	Total					
METHOD		OX40B	OX40B	OX40B	OX40B					
1	386251	2.88	1.31	2.50	100.40					
2	386252	0.10	0.92	2.80	99.80					
3	386253	0.40	0.48	2.53	100.40					
4	386254	1.67	0.41	3.05	99.30					
5	386255	0.04	4.09	3.51	100.00					
6	386256	0.03	3.69	4.03	99.60					
7	386257	0.16	4.95	4.12	99.30					
8	386264	1.01	0.96	10.40	99.00					
9	386265	0.05	1.29	11.55	100.10					
10	386266	0.34	0.44	4.60	99.60					
11	386267	<0.01	5.02	5.57	99.80					
12	386268	0.01	3.61	6.84	99.40					
13	386269	0.04	0.58	25.87	99.30					
14	384051	0.94	0.85	1.24	99.10					
15	385830	2.17	0.17	7.05	100.20					
16	385835	3.44	0.13	5.44	98.40					
17	385836	1.81	1.62	7.91	73.50					
18	385818	6.13	0.19	5.87	99.20					
19	385821	6.99	0.18	5.46	99.90					
20	385846	1.14	0.11	4.65	99.90					
21	385856	0.69	0.15	5.69	99.10					
22	385867	2.10	0.16	5.95	98.30					
23	385876	0.41	0.16	8.54	99.50					
24	385891	0.34	0.18	8.10	99.70					
25	385907	0.85	0.44	4.84	99.10					

Results in ppm unless otherwise specified
– = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

390877

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	RES202.60.12860	29/05/97	GRANT MACDONA	66 OF 66

	SAMPLE No.	SO3	Na2O	LOI	Total					
METHOD		OX408	OX408	OX408	OX408					
1	385911	0.20	1.33	11.02	99.30					
2	385925	0.50	0.16	4.45	99.60					
3	385933	0.27	0.12	4.89	99.40					
4	385938	0.08	0.14	3.82	100.50					
5	385946	0.10	0.12	4.52	99.60					
6	385954	1.04	0.09	7.02	97.90					
7	385957	0.04	0.10	5.10	99.90					
8	385964	3.10	0.16	4.40	99.10					
9	385975	0.02	0.51	8.84	99.40					
10	385985	0.86	0.94	4.37	99.50					
11	385995	0.54	1.37	3.83	99.60					
12	386112	0.17	0.14	7.00	100.40					
13	386114	4.22	0.09	11.64	99.00					
14	386118	2.87	0.15	7.30	100.50					
15	386103	0.70	5.84	1.30	100.00					
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.05	0.01	0.01					
25	UNITS	%	%	%	%					

sults in ppm unless otherwise specified
element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

39067 8

A N A L A B S

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St. Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

Our reference : BU013402
Your reference : **Grant MacDonald**
Project code :
Date received : 22/07/97
Date reported : 29/07/97

Grant MacDonald

Resolute Resources Limited
P.O. Box 63
ZEEHAN

TAS 7469

Number of pages of results : 2
Number of Samples : 58
First Sample : 354001
Last Sample : 854058

Invoice to:
Grant MacDonald

Resolute Resources Limited
P.O. Box 63
ZEEHAN

TAS 7469

Electronic Data Transmission :
Modem / /
Facsimile / /
Disk Report / /

Results to:

Results to:

SHD-13
Assays.

Remarks :

Authorised by .....
On behalf of:

Richard Newman
Laboratory Manager

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

390879

A N A L A B S

Our reference : BU013402
Your reference : *Grant MacDonald*
Project code :
Report date : 29/07/97
Report status : Final
Page : 1 of 2

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St. Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

ANALYTICAL DATA

Sample	Au	Cu	Pb	Zn	Ag	Mn
854001	<0.01	57	362	788	3	698
854002	<0.01	76	246	189	2	489
854003	<0.01	75	195	181	2	558
854004	<0.01	66	126	434	1	514
854005	<0.01	50	96	269	1	625
854006	<0.01	52	102	209	1	1034
854007	<0.01	88	213	3[illegible]	2	667
854008	0.02	101	244	2[illegible]	2	439
854009	0.04	86	124	173	1	3[illegible]
854010	0.03	84	103	272	<1	8[illegible]
854011	0.01	139	105	243	<1	646
854012	<0.01	66	103	189	<1	264
854013	<0.01	73	96	350	<1	480
854014	<0.01	33	76	230	<1	661
854015	<0.01	8	32	184	<1	1179
854016	<0.01	18	180	1073	<1	521
854017	<0.01	26	123	266	<1	1198
854018	<0.01	16	82	225	<1	698
854019	<0.01	25	298	206	<1	1648
854020	<0.01	20	82	150	<1	1081
854021	<0.01	15	58	55	<1	1340
854022	<0.01	14	50	77	<1	818
854023	<0.01	8	19	69	<1	1039
854024	<0.01	9	13	58	<1	1278
854025	<0.01	17	26	161	<1	1417
854026	<0.01	3	22	188	<1	3050
854027	<0.01	8	214	1157	<1	1622
854028	<0.01	12	176	899	1	3068
854029	<0.01	6	117	247	1	3317
854030	<0.01	9	114	190	1	2012
854031	<0.01	18	794	484	4	922
854032	<0.01	13	43	61	1	2388
854033	<0.01	47	23	60	<1	4289
854034	<0.01	8	56	255	<1	1965
854035	<0.01	9	39	72	<1	4617
854036	<0.01	7	43	68	1	2816
854037	0.08	6	<3	38	<1	2012
854038	<0.01	61	8	32	<1	1702
854039	<0.01	111	8	65	<1	4246
854040	<0.01	9		41	<1	2823
854041	<0.01	6	16	28	<1	1127
854042	<0.01	4	22	28	<1	1141
854043	<0.01	4	26	26	<1	845
854044	<0.01	4	4	18	<1	1000
854045	<0.01	5	9	25	<1	1137
854046	<0.01	5	21	25	<1	1128
854047	<0.01	4	11	15	<1	1291
854048	<0.01	6	17	15	<1	2175
854049	<0.01	5	21	25	<1	2561
854050	<0.01	4	25	31	<1	1103
Method	F630	A102	A102	A102	A102	A102
Units	*ppm*	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.01	2	3	2	1	3
Upper Method						A103

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

390880

A N A L A B S

Our reference : 18/01/1402
Your reference : Grant MacDonald
Project code :
Report date : 29/07/97
Report status : Final
Page : 2 of 2

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St, Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

ANALYTICAL DATA

Sample	Au	Cu	Pb	Zn	Ag	Mn
854051	<0.01	8	40	73	<1	1303
854052	<0.01	6	8	48	<1	1[illegible]
854053	<0.01	6	48	89	<1	2478
854054	<0.01	6	171	195	1	2562
854055	0.02	289	301	869	3	2918
854056	<0.01	34	[illegible]	232	<1	3586
854057	<0.01	15	[illegible]	111	<1	[illegible]22
854058	<0.01	10	[illegible]	115	[illegible]	[illegible]397

Method	F630	A102	A102	A102	A102	A102
Units	ppm	ppm	ppm	ppm	ppm	ppm
Limit	0.0[illegible]	2	3	2	1	3
Method						A103

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

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Vol 4 of 5
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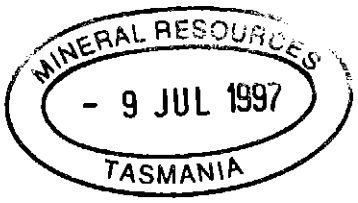
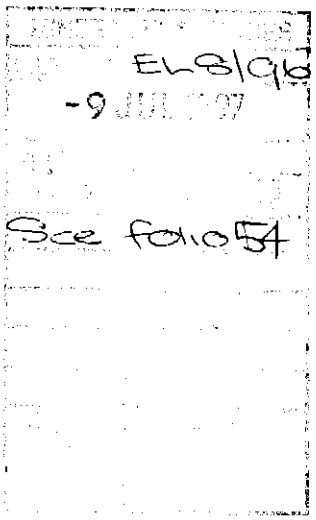


E.L. 8/96 "SOUTH HENTY"

Annual Report on Exploration
June '96 to June '97

Resolute Limited

Volume 4/5



97-4026
ANNUAL REPORT - VOL 4OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Grant MacDonald BSc (Hons)
Project Geologist
July 1997

Appendix D

Diamond drill logs

GRAPHIC CORE LOG		Hole No. SHD-1	Depth 779.0 m
Scale 1:1000		Project "SOUTH HENTY" EL. 8196	
By (GRANT MACDONALD)		Section	
Date JAN '97		Collar co-ords E	N RL
Page 1 of 4		Az. °G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
			1.5m - 2.0m glacial rubble.
		bg(ba?)40°	Blotchy to banded pk/gn (alb/chl) altered (non-hydrothermal)
20			F > Q xtal sst ± dst. Mt. Becomes bx
		bg(ba?) 45°	below ~95m ± ~2% clasts ^ & gg bx
40			slt (occ ± fg dsd pg) ± rare QFpR)
			5 cm
60			
80			Similar to m. unit but not part of same graded unit so fault must have seen some movement.
100		Fault 105.0 - 105.2m @ 20°-30° ca.	Dk gn gn. (occ. blotchy pk)
		aphyric rhyo 104.9m - 108.8m	^ F > Q xtal sst > slt ± bx (clasts pk/grn QFpR aphyric rhyolite?). Det Mt including Mt rich tops to graded sst/slt ~163m.
120			~5% clasts above ~165m becoming >50%
			below 165m.
140			
160		So (plag banding) 50°	
		Mt rich slt So 45°	
		So 38°	
180			Polymict bx/sst/slt ± silty top to soft sed slump bx m clasts of sltg mW FpB, F(Q)p, QFpR (lt (occ dsm rare basalt) a phyric QFpR. Somewhat marly nr.
			Polymict bx / marly slt. Polymict bx ± clasts of lst., slt, F(Q)p in a marly slt m. Large raft of silty lst 1819 - 1838
T1/2r 38-1	385621		Fp Basalt. Coherent but foliated @ ~35° ca. Similar in appearance to underlying coherent unit (blw) v/c.
200			Correlate d unit 1838m - 312-430m in VC1 PTO(A)
			Polymict bx (FpBasalt >> lst.) Dominantly derived from underlying/overlying basalts but ± a minor lst component plus possibly some gg cherty slt. Weakly pgritic in part
37-4	385622		Fp Basalt. Coherent but foliated (wg) @ ~35° ca.
36-2	385623		± F xtals; ± chl ± calc. filled vesicles (to 3mm). forming glomeroporphyritic clots to 1.5m.
240			

390633

3900881

GRAPHIC CORE LOG		Hole No. SHD-1	Depth m
Scale 1:1000		Project	
By		Section	
Date		Collar co-ords	RL
Page 2 of 4		Az. °G	°

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
T.12r 13.3 47.1 45.8 15.5 41.8 20.0 13.6 18.7 15.0 15.2 14.2 18.1 18.0 14.5 13.3 37.9 23.5 14.5 17.2 20.4	160 290 310 330 350 370 390 410 430 450 470 490 500	385624 385625 385626 385627 385628 385629 385630 385631 385632 385633 385634 385635 385636 385637 385638 385639 385640 385641 385642 385643	FpB Br.. Actually polymict ± rare pink/org Fp D (interpd as clasts ~ 250 - 253.3 but 99.9% basalt clasts. Green slt/sst Gn sst ± lrge rafts/beds of gn slt Sp(Si?) ~ 30° ca Hawaiite Basalt Breccia Hae phyric strongly foliated clast breccia. Green slt/sst as for 168.0 - to 271 - FpB - probably extrusive, coherent - massive. Polymict Volcaniclastic Breccia/sandstone ± angular to wispy dk gn clasts (basaltic?) + pk/org FpD (porosity an all effect) in a Fxtal mx ± Feldspar > Quartz Xtal Volcaniclastic - similar in appearance to xtal volcaniclastics above ~ 160m but without pk/org albite alt: Correlate of unit in NC4 165 - to 183 - Marly sst ± nodules of cb (scale) as growth in unconsolidated sst Contact arbitrary - bt it just marly sst but more cb Lst ? pk/org. Vg mx lt gy marly sst Fossils ac: often hmt. Some mxng ± Fp Qz xtal sst Dacitic volcaniclastic.. Weakly chl ± ser ± hmt hydrothermally altered (non F destructive, non Na depleting) volcaniclastic ± ~ 25% pink/orange F (1-2mm) xtals irregularly t/o. Either Fxtal v/clastic or dacitic pumiceous v/clastic Apparent pumice clasts ~ 376m - irreg. gy slt clasts @ 318.2m - 318.6m Alt: gives a mottled appearance. Apparent chl clasts (esp 318.0 - 363.0) are interpd as pseudoclasts Tc py, weakly silicified from 374.5 - to 376.0 - ± tc py. Foliated @ 35° Ca t/o Volcaniclastic (dacitic?) Similar to prev unit but no lithogeale Sandy/ashy graded top ± So 45° Weakly chl-si altered (PT) Volcaniclastic (andesitic) sst/lst fg to mg F xtal pumiceous? vlc (PT) Volcaniclastic (andesitic) sst/lst Texturally same in appearance as 388 - 394 but this is ser altd ± sd unit (PT) Dacitic volcaniclastic. Similar in appearance to 318.0 - 388.0 m. Only weakly hydrothermally chl ± ser altd ± no Na depletion. Weakly magnetic in the upper part. Basalt intrusive Sharp upper & lower contacts. F part ± Volcaniclastic (dacitic/andesitic?) Foliated, weak to moderately hydrothermally ser altd volcaniclastic ± F. generally visible. Either Fxtal v/clastic or pumiceous v/clastic ± the latter more likely Negligible sulphides until 459.0 Blw 459.0 to ~ 491.0 the rock is moderately ser-si ± py (to ~ 0.5% max but gly lower) altered ± alt: pervasive. Shows here as one unit but not certain as the alt: makes lithological recognition difficult (PTO) Volcaniclastic breccia ± rdd pk/org FpD (~ 50%) (PTO)

GRAPHIC CORE LOG		Hole No. SHD-1	Depth m
Scale	1: 1000	Project	
By		Section	5 cm
Date		Collar co-ords	RL
Page	3 of 4	Az.	°

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
385643			Basaltic (?) intrusive, similar in appearance to 440.3-443.3 m. T/Zr sim. Ages 4 (P10)
385644			Volcaniclastic bx as for the basal part of 445.3-448. (P10)
			Volcaniclastic bx. Graded unit ~ f-m sandy top - base bx as for immediately overlying bx's (P
			Volcaniclastic (dacitic) pumiceous (?) bx. Non-descript rock consisting of mainly (cb altd?) F t/a (~ 15% of rock) ~ distrib: suggestive of pumice. The two narrow units of vlclastic bx ~ rdd FpDa ARA type QFp D(R) are interped as erosional units. Pumiceous rock contains v. occ't sil clasts of m. FpD (?) (P10)
385645		two paleosols of volcaniclastic bx.	
385646			
385647			Volcaniclastic (dacitic pumiceous?) bx. Rock has a grey colour ~ sm. Fs & alt ARA type Q xtals (P10)
385648			Basaltic dyke. Sharp upper & lower contacts, leopard spot text (Fk) + cb filled vesicles as for
385649			Volcaniclastic (pumiceous) F P pumice - dacitic compos'n Siltstone (cream, volcaniclastic) ~ clast of pumice Volcaniclastic (pumiceous, dacitic) F xtal Y alt ~ q vn ~ g-sy Volcaniclastic (pumiceous, dacitic) bx. F xtals clearly recognisable to 599.5. Below this the rock has a strong apparent foliation due to defining foliation @ 30° ca, but interped as part of the same unit. Above 628m the rock is monomictic consisting of pumice (altered). Below this the core contains occasional rafts of cream/grey ashy silt to sand. Rock ~ wk/mg sericite altd ~ t/a ~ dsd py ~ tr dsd sphalerite downhole.
385650			
385651			
385652			
385653			Strongly sericite-silica - Mn(CO_3?) - sulphide altered Volcaniclastic. Yellow green in colour. Primary textures hard to see. Zone ~ 654m of intermixed gy ashy material. Foliated t/o
385502			Sulphides py, gn, sph (from org/bn to cm) occur t/o as dsd blebs & in pre-deformational vn's often associated ~ cb (two types of cb, wt calcite & yw bn). Sericite-silica alt is pervasive. Mn(CO_3) alt is suggested by yw/bn CO_3 & elevated Mn. Volcaniclastic is distinguished by andesitic T/Zr & ARA type Q xtals (sparse but distinct). Anomalous Ba ~ 676-677m. Two generations of veins ~ deformed q-cb-cd (average ~ parallel to foliation cross-cut by fibrous q-cb-sd vn (averaging ~ to). Interped as V.H.M.S. footwall style alt (P10)
385505			
385532			
385538			
385546			
385553			
385560			
385566			Strongly altered volcaniclastic. Distinguished by lack of ARA Q xtals & more felsic T/Zr. Usually alt ~ similar ~ sericite-silica altd mx, cb altd (?) F - blebby & vnt sulphides inc org/bn sphalerite. Zone of intermixed gy ashy material ~ 714 - 739.

350.65

390886

GRAPHIC CORE LOG	Hole No. SHD-1	Depth m
Scale 1:1000	Project	
By	Section	5 cm
Date	Collar co-ords	RL
Page 4 of 4	Az. °G	°

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
T:12c 7.3 6.2	750 385585 385592		Appears to be same unit perhaps to EOH as there are no obvious breaks. Basal part contains rounded clasts v.p to 100 mm of cm gn and dk gy ± F. These are difficult to interpret. They appear to both be the same ± the dk gy overprinting the cm gn clasts. The dk gy could be v.fg pg. The initial clasts are Fp - probably dacites - this is supported by T:12c 12.3 for 385613. 14 clasts make v.p ~ 30% of this basal part ± the matrix pumiceous as for the overlying rock
6.9 24.0	385602 385513 770		
12.3	385613 779 EOH.		

169.7 178.3 Polymict bx/sst/slt. Silty soft sediment bx in upper part (down to 175.9) ± F wkly - clasts of lst, gr FpD, clearly frags in a less marly mx than 178.3-188.0 though otherwise v similar. Fro- 175.4 to 176.1 is a pk/org ± C QFpR, however, some of the pk/org is poss due to albite alt. The gr slt/sst from 176.1 to 178.3 is more similar to rocks above 169.7. Is slump bx intermixing of the above ± blotchy alb/chl alt?

178.3 188.0 Polymict bx / Marly slt. Soft sediment slump bx ± semi-coherent raft of silty lst from 181.9 - 183.8. The rest of the unit consists of clasts of silty lst, raft of slt, gr vols ± F pnr (?) - ie FA>, ± SD clasts in a marly mx. Similar in appearance to unit at 276.2 to 282.4.

but to ~ 1.5 cm glomeroporph clots

188.0 199.8 FMcpB. Coherent but weakly foliated (@ ~ 35° ca) F (plagioclase to 0.5 cm ~ 15%) Mc(?) porphyritic basalt. The upper contact is sharp - weakly sheared (movement on contact) @ 15° ca. The lower contact is sharp @ 20° ca. The lower contact is defined by a change to an apparently more xtal rich ± interpreted to be volcaniclastic. The rock has a distinctive spotted appearance. This is partly due to plt/arg F phenocrysts which form glomeroporphyritic clots, often with radiating shapes ie: Fs are partially obliterated. The other 'spots' are green ~ 1.5 cm ± at least some of these are clt ± calc filled vesicles, however, others are almost certainly mc phenocrysts though it is not clear if they are Hb or Px (Angite) - the latter is suspected based on petrology from correlated unit in NC1. Minor late stage calcite veining/brecciation. The unit is very similar in appearance to the underlying coherent unit & discussions regarding the lithogeochemical samples from this latter unit are considered applicable to this.

The contacts (particularly the lower) suggest an extrusive origin ± an apron of clastic debris spalling off the advancing flow.

Apart from regional style chl, calc veining etc the rock is unaltered & contains negligible sulphide.

199.8 218.6 Polymict Volcaniclastic Breccia. Somewhat non-descript ± arguably coherent zones (interpreted as clasts). Massive, weakly foliated (~ 35° ca) basalt clast rich bx ± mx rdd lst clasts from 212.4 - 213.6 and a F xtal rich top (from ~ 199.8 to 200.5). Pyrite (upto 0.5%) from 205 - 217.5 ± trace chalcopyrite. The upper part of this unit (ie from ~ 200.5 to ~ 211) is arguably coherent as it is lacking textures typical of the msv. basalt units. Brecciation is possibly pseudo- & hydrothermal in origin however, the setting of these rocks between F xtal rich (top) & sand/breccia (bottom) volcaniclastics suggests a similar origin. Fg gg clasts (rdd) in the sand ir bottom part are possibly silty clasts. Pyrite from 205 to 217.5 as disseminations & irregular zones. The lower contact is indistinct. Lithogenic ± ~ 200.5 to 202.5 contains coher mt in mx as well as clasts - the ± is weakly clt-mx altered suggesting that the MW may be hydrothermal. Sample 385621 (~ 203.3) was taken from a zone of msv basalt interpreted to be a clast. It is discussed below.

218.6 248.3 FMcpB. Essentially similar to msv unit from 188.0 to 199.8. Coherent but weakly foliated F porphyritic basalt ± rdd chl± calc filled vesicles Mc's are not obvious - previously interpd mafics may have been vesicles (need petrology). No recognisable difference between magnetic - non-magnetic parts. Mt is rare in coherent volcanics.

Samples 385622 & 385623 are of typical basalt from this unit. These plus 385621 are typical of the coherent basalt in both this coherent unit, the upper coherent unit & the coherent clasts in the volcaniclastic unit between. Geochemically the rocks are basalts ± SiO_2 in 385621, 622 & 623 48.8, 44.6 & 46% (respectively) Ti/Zr 38.1, 37.4 & 36.2 respectively. P_2O_5/TiO_2 of 0.46, 0.28 & 0.33 respectively indicates they are not part of the ARA complex. The basalts are distinctive both visually (glomeroporph. ± & chl± calc vesicles giving a 'leopard-like spotted' appearance) & lithogeochemically (high Ti/Zr, low SiO_2). They are correlates of the units intersected in NC1 between ~ 310 - 430 & 475 - 705 (possibly more similar to the upper unit). Visually & lithogeochemically there are slight differences ± the 'Howards Basalt' intersected in HA3, HA6, NC4 & NC2. The latter has slightly higher Ti/Zr & SiO_2 & clasts are generally wispier, however, these rocks (& NC1) are correlated & the HB3 & considered to be a more massive facies of this unit.

390889

316-80

Moderately chlorite - sericite - silica ± haematite altered foliated dacitic volcaniclastic. Either a F xtal set or pumiceous v/c. Alt^n not intense as F xtals (1-2mm, ~35%) are recognisable in most zones and sulph.de levels are g/g low (unless noted below). Cream yellow leucoxene visible in many zones. Gross colour variations in zones are due to relative abundances of chl, ser or haem. Unless more strongly ser this gives a mottled appearance. The haematitic zones only persist downhole to 350.8m

379.3	388.0	Possibly similar provenance to above unit ± Fs as above in zones. Wk/mod silicification from 381.0 to 383.5. Mn sulphides inc pg, spkl in rare fine si-chl vnl'
388.0	394.0	Andesitic volcaniclastic, fine grained top becoming more F xtal rich towards base. Fine part is 'apparently evenly' porphyritic but this may be a product of the foliation - rock was initially interpd as a coherent volc (- intrusive?) but this is unlikely. Most likely consists of pumice - F.
394.0	404.0	Andesitic volcaniclastic. Similar to prev. unit but this is ser-sialtd ± pg-sph-gn sd' in smoky q vnl' from 394.0 to 397.0. Weakly magnetic in mattered parts
440.3	445.3	Fp B ± foliated texture & vesicles filled ± cb ± chl ± sd' Sharp upper - lower contacts parallel foliation at 35° ca. Feeder dyke to basalts higher in sequence. Na is low (38565 Na = 0.09%). Sulph.dis gn-sph-pg from 440.2 to 440.8 ± sd' in fracs. Magnetic.
445.3	498	Volcaniclastic (dacitic? andesitic?). Below 492~ the unit contains angular (conchoidal fracture) (~ 50% of rock) gn F porph volcanic fragments suggesting medial hyaloclastite origin. Rhyolocktem radicales and andesitic composition even though this basal bx is somewhat polymict ± some cherty volcanics + slt. There are some sparse Q xtals in the altd ± ± none seen above or below suggesting that there may be more than one discrete unit.
498.0	499.1	Volcaniclastic bx. (cont) clasts to ~ 50~ in a mx ± occasional q xtals. Rock is moderately silicified - pyritic. Has sharp upper contact - doesn't appear to be a basal part of this upper unit.
499.1	501.7	Volcaniclastic bx ± ang gn clasts (F porph?) ~ 30-50% of rock ± F xtals + occ chert slt fragments Tc dsd pg Again it is possibly a medial hyaloclastite.
a 503.1	506.9	
501.7	503.1	Basaltic(?) dyke. Visually similar to basaltic dykes in this hole - NC4 however T.I.R. says 27.0 ie andesitic. Interpd as basaltic dyke foliated ± F xtals & cb ± chl filled veins/cbs Na depleted slt. + non-magnetic as opposed to dyke from 440.3 to 445.3. Probable apophyses of this dyke at 504.5 - 504.7.
506.9	514.2	Volcaniclastic bx as for 499.1 - 501.7 + 503.1 - 506.9. Possible medial hyaloclastite of andesitic composition.
514.2	546.9	Volcaniclastic bx (dacitic, pumiceous) Some wispy tube like textures visible - parts but no clasts. Somewhat greener colour than underlying py bx. Only mod alt ± cb alt ± (?) ser alt of mx. Negligible sulphides.
546.9	575.9	Volcaniclastic bx (andesitic pumiceous) ± F xtals + occasional ~ 1 definite AGM type Q xtals (embayed ± inclusions). Cm scale ± cb alt of F + not cb (?) ser alt of mx. Fine shearing (sulphidic but lots stags) top marks contact.

390891

575.9	579.4	Volcaniclastic bx (pumiceous) Fp pumiceous v/clastic ± no AOA type Q grey/cryst Fcb altd ? Probable dacitic composition.
579.4	580.5	Siltstone Cream (felsic tuffaceous) massive but bxd ± cb infill in or fractures ± pyrite. Sharp irregular lower contact @ ~ 30° ca. Foliated
580.15	582.50	Volcaniclastic (pumiceous, dacitic) Smoky + medium grey Q rr ± galena + red/brown sphalerite Foliated.
582.5	584.5	Siltstone Cream (tuffaceous felsic) massive + similar to 579.4m to 580.15m bx not bxd. Contains fibrous q-c vn post or syn foliation ± galena, sphalerite, chalcopyrite + black mineral bladed ?

643.20 The base of the pumiceous mass flow has ~~33~~ slt as rip up clasts but more often as finely mixed mx. Mx is mg ser-cb-ε' altd. Poss cb altd Fs xtals in mx also
In more pumiceous path gg only minor pj, however, red/bn mineral @ 638.8 - 639.60 - looks to be sphal (c.f. sphal dth) but is not assd ε pj or gn? - check.
In more silty parts eg 639.80-639.90 & 641.10-641.20 & 641.80-641.60 pj sphal (~0.5%) are in q ± cb vnt. Pm bx extends below lowest slt ε apparent rdd clasts - these appear to be pseudoclasts. Cb alt is quite strong ε Mx mx - below.

643.20 - 646.55 Discrete graded pumiceous mass flow ε ser "fiamme" Mod/str ser-cb-si altd t/o. Only mn dsd pj (ε sph) in sil z'

646.55 - 649.40 Distinctive unit ε tab cb (2--) alt Fsl. Upper + lower contacts indistinct sed. unit - cs occ 2-4-- rdd q xtals typical of ARA. Pj (0.5%) irregular deformed fine vnt. Unit ser-cb altd. Finer grained

649.40 - 653.80 Pm bx - possibly base of ov Fiamme? Has gg clayey/silty mx only mn dsd pj except in discrete siliceous zones. Ser-cb-si altd ε ser "fiamme". Becomes more fiam from 652.70 - 653.00 and blw 653.30

653.80 - 655.70 Dk gg clayey slt (80%) ε wispy z' (20%) of similar cb altd. Fine irreg vnt at pj/organic spk + occ acp ε cb ± Mn spm t/o. Base cubic clasts

655.70 - 661.70 Ashy pumiceous? / sandy v/clastic ser/cb/si altd ε mn pj. Clastic appearance is pseudoclastic. fn/so? 664.00 @ 75-090, s— gg z from @ 664.10 @ 30-000

661.70 - 666.60 More strongly si-ser-cb altd v/clastic - nondescript. 20cm fine wispy top. S— q-pj-sph-gn vn @ 661.70

663.20 - 663.70 gg sil z' ε pgsph-gn (~0.5% combined base metals)
664.10 - 664.40 becomes more sil dk ε increasing pj
664.40 - 665.10 sil ε pj-sph-gn in silicification ε 30cm q-cb-gn-sph-pj stringer @ 665.00 @ 82-270
665.80 - 664.40 occ dsd clots pj-sph-gn in ser altd
664.40 - 664.45 f blows q-sph-gn vn @ 65-030
664.50 - 664.65 " " @ 80-050
664.65 - 666.00 si-ser altd ε occ clots pj-sph
666.60 - 666.80 two occ pj-gn-sph stringers. — @ 80-250 & 80-255

666.80 - 672.10 si-ser altd t/o ε cg ARA type q pmd. Occ sil z' and mn pj t/o ε occ clots sph-gn elsewhere. Si z' @ 85-060 @ 668.60, 85-070 @ 668.70
q-cb vnt (~ 3000 ppm Zn) - sd in fine cb-pj clast vnt

672.10 - 673.00 Strongly sil particulate z' ε q-cb (calc vnt) mg ~ 4% pj, 1% gn, 1% sph

673.00 - 675.90 si-ser altd ε mn dsd pj in dkr - vnt

675.90 - 678.00 sm pervasive si'd calc z' as for 672.1 - 673.0
675.90 - 676.60 3% pj, 1% sph 1% gn
676.60 - 678.00 5% pj, + sph + gn (~ 0.5% combined total)
sd in blebby z' pt to 676.55
eg 75-250 @
677.20 @ 75-285
677.40 @ 85-090
677.30 @ 87-240
678.00 @ 90-125
85-240

q-calc - sd vn @ 678.40 @ 85-025

678.00 - 678.60 si-ser altd ε clots pj ± mn sphal/gn
678.60 - 678.65 f blows q-cb-cp-gn-sph vn @ 30-335
678.65 - 680.40 si-ser altd ε mn dsd pj/sph/gn in more sil z'
680.40 - 680.45 20cm thick q-cb (calc) - pj-gn-sph stringer @ 75-245

680.45 - 684.80 si-ser altd - pale gn colour ε mn dsd pj - pocs mn dsd sph/gn giving gn colour
684.80 - 687.80 ser-si altd - less sdc bx ε mn pj - gn/sph
687.80 - 689.80 similar to 680.45 - 684.80
689.80 - 693.45 ser-cb-si altd
693.45 - 693.55 q-cb (gn) - pj - cpy (ε sph/gn) 70— thk stringer
693.55 - ser-si altd ε irreg vnt pj ad/or q-cb-pj <5cm thk but ε diffuse selvedges ~ 10cm thk ε mn gn/sph + lesser cpy

fn 687.90 @ 90-045
687.30 @ 85-260 - fine pj vnt @ 688.20 85-270
688.80 90-070

678.80 8cm q cb @ 75-005
clearly x cutting bleb pj gn vn @ 90-065
679.90 diffuse selvedges of gn @ 70-010
680.10 2cm calc-q-gn-sph vn @ 85-245 ε 82-250

693.55 693.70 calc-si - lt vng pt fr eg 80-245 @ 693.65 - 85-065 @ 693.70

693.70 700.50 sg sdr-si-cb altd t/o ↑ fine (< 5 m) pg-calc - calc-pg-gr-sph vn' ↑ gg stringers - two dominant orientations but vr' coeval

80-070 @ 694.80
80-130 @ 694.85
85-040 @ 694.90

695.30 85-050
695.10 85-130
695.50 80-310 = 85-235

696.00 90-050
696.10 85-310
695.70 80-045
695.80 50-130
695.85 85-040

697.00 - 697.20 yw cb gr alt/rng 50 cm th.

697.50 50 cm th gr-cb(yw) gr sph vr

700.50 - 701.40 more sg cil g

701.40 703.60 sim to 693.70 - 700.50

~~703.50~~
703.60 713.20 sdr-cb-si altd t/o ↑ gly mm sd ← not logged in detail

713.20 713.60 more si ↑ gr-cb-sd vng pt fr

713.60 714.10 as for 703.60 - 713.20

714.10 714.25 gg ashy slty ↑ pt fr eg 85-270 @ 714.10
90-090 @ 714.25

714.25 - 716.10 pu ↑ Dashy frg

716.10 - ~~7191~~ 7267 yw cb prominent t/o ↑ fine <5 m from vnt
Var' mc yw cb-q-gr-sph-Pg - more Pg = dsd Pg + sph/gr
eg 90-070 @ 716.40
82-085 @ 716.55 2 m Pg pt fr
50-140 @ 716.60 10 m Pg fr cb q cb gr sph
90-322 @ 717.90 yw cb q gr sph
75-270 @ 717.60 "
75-135 @ 717.65 "

726.7 730.3 Initially fine grained then ↑ p cm jumbled chaotic Fc in sericitic mx w/ lab pu bx ie grades top Sd' in fine vnts + at dsn's. L assd ↑ cb?

730.3 738.7 Intermixed gg ashy component ↑ pumiceous zones. Sd' gr red/bn sph
" Pg assd ↑ cb?

738.7 749.3 Yw bn cb altd F? ↑ cvlsi mx. Sd' defining following cb foliated. Pu bx. Sulphides in dsd clots ↑ cb.

749.3 761 Gradational upper - lower contacts
Stringy sr altd ↑ p pnk to p ph rng ↑ ↑ ↑ sr altd ↑ Dsd gr-sph developed blw 752 Splotchy ? poss

761 768 Sg sdr ↑ fol ↑ sd clasts + rld ↑ clasts Still Pg altd. Pumiceous ↑ F bnr fgs thgo + adjoining T/BR ?

768 779 Unusual conglomeratic texture in + around the pumiceous mx ~ 30% dsdp ↑ dl gg - cm gr. Dk gg is altd (v fg py?) cl comp clasts. Cm gr clasts look to be F pg (or Fp Rhyolite) foliated.

These are definitely part of the same unit - look just the same 385.60z - 385.13

3.0 ↑ ore zone so adjacent ore possibly more?

390894

GRAPHIC CORE LOG		Hole No. SHD2	Depth m
Scale	1: 1000	Project	
By		Section	
Date		Collar co-ords	5 cm — RL
Page 1 of 3		Az. °G	°

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
T:/Zr			Glacial overburden
20		Brittle sandy fault (orn?)	QFpD i.Msvg.gr. porphyritic rock ~ 20% ~1-2mm cm to pk org F ~ 5% ~ 4mm Q xtals. Q xtals have rdd - embayed edges - have cm to gn inclusions ie Q is ARA type. Possible ocl Mc phenocrysts ± chl - leucoxene alt'n.
40			HQ/NQ 38.10 mm. V. occ late stage qtz vng. No sd.
60			
21.4 386255 80			
100			
120			
140			
24.4 386256 160			
180			
200			
220			
240			
250			

390895

GRAPHIC CORE LOG

Hole No. SHD2 Depth m

Scale 1: 1000 Project

By Section 5 cm

Date Collar co-ords RL

Page 2 of 3 Az. °G °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
22.4	386259		FQzD (cont). Becomes foliated @ 40° ra blw 262m
12.8	385772	42° fa	Dacitic pumiceous volcaniclastic. Highly sericite (± chlorite) - silica - pyrite (± galena, sphalerite, chalcopyrite) - carbonate (Mn?) altered & strongly foliated.
12.5	385782		
11.9	385785	45° fa	Alt^n is predom. pervasive ser ± fg intergrowths of
12.0	385794		variable si or chl. Cb occurs as discrete blebs/irreg vn'
13.6	385797		as well as dsd in mx. Sulphides as fg dsn & vn' cont to fg
			~100 thick but gly 2mm - 10mm ± bxd py. Sulphides &
			alt^n apparently coeval & all are pre (or poss syn) deformational.
13.3	385817	50° fa	Apparent contact 289.5m may be alt^n. Unit interpred as
15.1	385818		some kind of mass flow ± a turbulent bed base.
15.0	385821		Upper contact is probably intrusive. Good looking
15.7	385830		alt^n & sulphides. [PTO]
	330		
13.0	385846	50° fa (vn')	Dacitic(?) pumiceous volcaniclastic ± ~50% ash stone
			intermixed - probably as slump bx. Alt^d as per
14.2	385856	30° fa	previous unit; fg slt has cb^n (Mn^) ± sd^n in vn'. [PTO]
	350		Black shale, strongly foliated. Some sulphides but
14.3	385867		Dacitic(?) pumiceous volcaniclastic, not bedded. [PTO] highly
			alt^d as above. Appears as one discrete mass flow
14.8	385876		± sandy top 1m. Contains major sulphide
	370	major stringer	stringer @ 377.3 - 377.8. [PTO]
	370.45 377.1		Black shale, graphitic [PTO] Altered
16.7	385891		Dacitic volcaniclastic ash stone too fg to see pumice,
	390		but pumiceous looking v/clastic - altered & foliated/ poss cf. fl.
			by clasts of dacite (hyaloclastite) in
			pumiceous mx. Basal part polymictic
22.5	385907	fa (ac 397.2m)	± v. occasional clasts of basalt from
			underlying unit. [PTO]
	410		
	417.0		
		fa 35°	Basalt. Dk grn, fol, moramict. FgB bx. Clasts dk grn to lt grn ± (rare) dk grn > ppl. Clasts commonly >60% (gly ~90%)
	430		of lens ± a sandy dk grn basalt mx.
44.2	386265 (TS)		Not alld or mod fg ± chl filled vl, wispy edges.
		fa 35°-40°	Typical Spillman Basalt Bx except pervasive
			ppl clastic (lava?) foliation. More schistose ?
	450		from 474.7 - 480.5 may represent pillow rim (?)
			(± cbg overprint (<1%) as dsd vn's & dsd
		fa 35°-40°	bbl colonies). Le is defined by change from
			massive basalt to polygonal D > L.
	470		
45.6	386265 (TS)	fa 35°	or equally possibly just calc > q. vn
47.5	386269		Limestone. Cream ± cross-cutting calcite veining. [PTO]
39.2	385911		Basalt bx. Wispy ang dk grn B clasts (ca >60% to 50mm but
	490		gly ≤20mm. Mx to valid mx as dsd bb (to 5%) [PTO]
17.9	385918	So 45°	
13.4	385921	So 85-048	Siltstones. Ashy ± some soft sed deformation, some
	500		coarser zones ± basalt fragments. [PTO]

390896

GRAPHIC CORE LOG		Hole No. SHD 2	Depth m
Scale 1: 1000		Project	
By		Section	
Date		Collar co-ords	5 cm — RL
Page 3 of 3		Az. °	°

Ti/Zr

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
7.3 385925	500	fn 40°	Rhyolitic pumiceous v/clastic. Interpd @ fw pu bx (FPB) but doesn't have pk clasts typical of (FPB), however
7.1 385933			Ti/Zr typical. Matt texture due to bbly bn
7.0 385938	520	fn 40°	cb alt? Only mn dsd bb' pg. mg ser alt'd.
7.2 385946			~ blotchy cm gr gg + gr gg colour
30.7 385954	526.0 529.2 531.0	fn 35°	Basaltic bx Dk gn sim to 486.5-493.0 fol. Clast [PTO] Rhyolitic(?) pumice breccia [PTO]
7.5 385957	533.7		Basaltic(?) bx sim to 526.0-529.2 Mn pg, preg alt? [PTO]
10.2 385964	540		Rhyolitic pu bx. Sim to or Rpu bx but not matt.
			Wkly mod alt? = cb bn as bb' + ser Sd' gn/sph (org/bn)
	550.8		assd ~ bn cb vng cont fn [PTO]
41.8 385975	554.9		Basaltic (?) bx V sim to or basaltic bx (not main interval)
	559.2		Dacitic(?) pumice(?) bx Difficult to pick [PTO]
17.2 385985	560		Polymict bx ~50% clasts, Clr gly ~10% bn vp to 80% vol. Clasts predom dk gn, ang (curvi-planar)
7.8 385995	573		+ Fp ~ Q interpd as v fill > gg chy clt. [PTO]
386263	580	So 45° cont fn	Siltstone/lg sst Mthy to slt + fg sst
			Calg slt ~ 6% sst blw
			Mn bx = 597-600 Mod to bedded
	600	So 40° cont fn	Ti/Zr indicates elsic provenance.
386262		So 50° cont fn	Slt/sst are p. gy to p. an
			From 599.0-599.7 is ~90% q vn
386261			~ inclusions gn clc/ser slt.
	620		bx from 599.0 to 599.7 is difficult to pick but looks like Fp B(or D) ~30% clasts
386260			in ashy mx. This slt/sst > bx unit
386259		So 50° cont fn	is interpd to be YOLANDE RIVER SEQUENCE
	640		
386258			
EOH 655			

264.8 330.5 Dacite pumiceous v/clastic bx [cont]

264.8 266.3 gg "ashy" looking but due to s:l + ser (strong) alt^n i. fg py, v stg fol/sts @ 45°. 30cm stg fol cm cb i ser planes + some py adj to contact. Cpy occurs i py in fol blebs.

266.3 271.0 mottled gy gn appearance due to variations in chl, ser, s:l + overprinting by bx cb.
Strongly foliated @ 42° @ 268.0m which is 78° to 044° (TW)
268.4m 78° to 048° (TW)
268.5m 74° to 054° (TW)
~ 2-3% dsd py t/o sy deformed into fn.

271.0 273.0 sim to prev. zone but high levels Zn + Pb. Sphal has scaly white habit in smoky gy z (fg galena) i py. All pre-deformational.

273.0 274.4 sim to 266.3m to 271.0m.

274.4 289.5 more sulphidic i 4-5% py in a generally paler, ~1dm to 300 pervasive s:l-ser alt^n mx. Sy deformed / foliated i the fn @ 45° @ 283.0m 73° to 044° (TW)
283.7m 79° to 045° (TW)
Cpy as bb' i py. Gn i Sph (scaly cm coloured) in gy z ~ 287.1 - 287.8m.

289.5 311.3 less sulphidic 2%-3% - probably finer grained (sandy as opposed to bx) mod cm to cm gn, sy fol i sdi^ in dsi^ - vn in fn. Py vn in fn @ 298 gn " @ 40° ie @ 85° to 038° (TW). Has quite pronounced fn of altd F.

311.3 320.7 Sy anomalous Cu. Cpy i py in vnt in fn. Some i bx cb. Veins ~ 1-5 mm
Vn @ 312.7 ~ 45° to 270° (TW)
312.8 88° to 087° (TW)
313.8 85° to 080° (TW)
312.3 @ 50° @ ~ 50° to 100° (TW)
Fn @ 313.3 74° to 039° (TW)
313.6 75° to 044° (TW)
312.5 75° to 030° (TW)
Generally mod gn to cm gn as for prev. int. (ie there is no difference between rocks except for Cpy).

320.7 326.8 Turbulent alt^n textures probably reflecting soft sed or bx textures in protolith. More bx cb + chl

326.8 327.2 Soft sed deformed (folded) cmy finely bedded ts slt-fgm

327.2 328.7 Sim to 320.7 - 326.8

328.7 330.5 Bx. polymict i rdd py s:l ghosted F phenos (~5% to 30mm, rdd), v/spy fg bx i fg py (ag, elongate to 50mm, 2%), rdd qtz(?) pebbles, (~1% to 20mm) rosr pumiceous mx. Sharp base to this unit.

330.5 348.9 Dacite pumiceous v/clastic bx [cont]. The genesis of the rocks in the interval is unclear i thick intervals of ashy slt sim. to that included in the mx of the more pumiceous zones. Some form of turbulent intermixing of a mass flow. Some occl clots rdd/bn sph.

330.5 331.8 ashy gn gy slt

331.8 335.6 ~ 50% ashy slt + 50% F p pumiceous v/clastic - altered as above / blw.

335.6 340.6 cm gn to med gy ashy slt. Cb alt^n as discrete clusters as if radiating xtals to 8mm dly ~ 4mm. So conf to fn @ 50°.

340.6 344.3 ~ 50% ashy slt + 50% altd F p bx as above (same cb as vn) poss So 305/4w @ 75 to 060 (TW)

344.3 348.9 p bx altd ser > s:l + cb. Cb probly more pervasive. Some clots rdd/bn sphal esp 345.6m, 347.0m. fn @ 345.9 @ 50° @ 80 to 060 (TW)

348.9 350.2 Black shale [cont] ^ Graphitic. So conf to fn @ 50°.

350.2 376.45 Dacitic pumiceous ± clastic bx: [cont]. Essentially consistent jumbled texture, foliated, mod gn to p bn in colour. Pervasive ser > si > chl + cb alt^, Pumice clasts rdd sil in part preserve textures. Rock interpod to be almost all pumice ± some clasts preferentially sil altd ∴ hence preserved during def^.

350.2 363.0 aa. Only ~ 1% - 2% fg py in fine vnt'

363.0 368.4 p bn pervasively cb altd - high Mn to 4%

mn red/bn sph ± galena dsd

368.4 372.3 sulphidic selvedge to 0.5m wide zone of red/bn sphal, galena, py vng. from 372.3 - 372.8. Altd pumice bx ± sd' as dsd bb' ± at least some aft F. Sd' assd ± cb alt^. Sy ± sore mn.

372.3 372.8 red/bn sphalerite > galena + pyrite vn' - 3 over 0.5m - essentially ± stringers (central vn deformed but grossly 20°. Either side vn' now in fn @ 40°. Fine ashy material in mx to pm bx

372.8 376.45 Selvedge to vein Sim to 368.4 - 372.3. Strong dsd cb alt^ + sd' in dsd bb'. Fine gy ashy material in mx to pm bx. fn 373.2m @ 90° to 055° (TW) 85° to 070° (TW) fn 375.3 - @ 85° to 070° (TW) So(?) conf fn @ 376.45 ∟ shale contact @ 80°-075° (TW) also So(?) 78° to 062° conf fn.

376.45 377.1 Black shale [cont] Graphitic So conf fn @ 45°

377.1 415.0 Dacitic polymict ^ pumiceous / hyaloclastic bx (polymict towards base) [cont]
Possibly two units in fault contact @ 397.2 -, though not shown as so.

377.1 396.7 Upper part ~ 377.1 to 397.2 is grossly ± sim to preceding pumiceous bx ± sim alt^ (ser > si > chl + bn cb) - ~ 1% sulphides but this unit is clast rich becoming increasingly so dh blw 386m. 377.1 to 397.2 the rock is fol @ 40°. Clasts > 30% (pass more as mx is pumx) ± clasts dominantly gy > cmy gy fg slt + minty FpD. Clasts vy sub ang to sub rdd to 30 mm. Lge clast py assd ± vn @ 391.1 ~ conf to fn - vn @ 85-015. Becomes visibly less clast rich blw ~ 392 blw which the rock becomes more minty + poss pumx clasts. Occ clots py are not clasts. Neg gn/sph blw ~ 382.0. Above this sd' are in vn' conf to fn - bb' as for previous nzd ∴. Still ± anomalous Mn (in cb:) A healed flt bx (~ 30mm) @ 396.70 may represent upper edge of flt. - main bc @ 397.20

396.7 401.1 From 396.70 to 401.10 the core is fg fol @ 35° ± F stall ^ helping define fn - still clastic so F prob xtals in pm clasts. also at least one sub rdd unit

401.1 415.0 Pumiceous dacitic ^ hyalo(?) bx ± ang (750%) clasts ^ FpD ± ^ occ gy fg slt(?), basalt (as blw) + at least one sub rdd QFp D/R(?) @ 401.40 - ^ fol @ 40°. Dacitic hyaloclastic bx has slumped or moved across basalt / slt incorporating a few clasts. No obv pumx like 377.1 to 396.7. Neg sd' + not sig altd.

Contact ± w B is conf ± mixing D + B over ~ 80cm.

486.3 486.5 Lst / Cb vn (?) [cont]. Cm grainy texture (ie not pure cb). Sweat out calc vn' Uc diffuse, lc @ 25° marked by calc vn.

486.5 493.0 Basalt bx [cont] Mx is gy ± ashier ie sim to m slt. Lc is sp. arbitrary but defined by first slt "bed". Unaltered (except for cb) - only ^ mzn. (dsd bb' py)

493.0 501.0 Siltstones + mn sst [cont] Gy, ± bedded (45° @ 497 -) to msv. Finer + ashier gly above ~ 497.5 becoming sandier blw. Lc is conf + somewhat grad. So 497.3) 80-048.

526.0 528.2 Basaltic bx [cont] ± clasts >50% to 100mm(?) - wispy elongate. Rdd) interpod to be vl infilling. Clasts not as clearly basaltic as in the main interval but almost certainly so. Cb as bb' (aa) - only ^ mzn dsd py bb' fn @ 526 is @ 85-035.

fn @ 393.5 @ 40° is @ 86-047 77-042

529.2	531.0	Rhyolitic (?) pumice bx (cont). Essentially same as for 501.0 - 526.0 Mh py g 530.3 conf to fn. Cb bb' (aa) else. Wy to my ser altd.
531.0	533.7	Basaltic (?) bx. Sim to 486.5-493.0 + 526.0-529.2 > 70% clasts dk gn Fp B, wispy elongate to 30mm in P gy mx + fol. Unaltered + only mn py, mn cb aa. Ti/Zr of 30.7 suggests same mixing of provenance perhaps B clasts in more felsic/int. mx. Sd' 532-533 is vn conf to fn.
533.7	550.8	Rhyolitic pi bx (cont). No pk ltc' but v. ↑ probably FPB. Sd' is vn'/bb' conf to fn spl is org'an
550.8	554.9	Basaltic(?) bx (cont) dk gn clasts (>50%) ↑ FpB, wispy, elongate to angular in P gy mx. Poss prox hyalo. fn 547.4 @ 85-070 fn 547.8 @ 90-065
554.9	559.2	Dacitic (?) pumx (?) bx (cont). Sub rdd clasts to wispy to 30mm ↑ in FpD? fg s.l (?) clasts make up ~ 50% ± mx pumx in appearance. M. dsd py, wk/mod ser alt.
559.2	577.3	Polymict bx (cont). Fp clasts look sim. to B but could be D. Mx is probably pumx ± some chy clasts poss pu. Fol wk/mod ser alt. ± some fg dsd py + cg clots in the cg (clast) z. Ti/Zr of the upper ± lower 2 lines zones py g's suggests mixing of B (or D) ± R pu.

390900

GRAPHIC CORE LOG		Hole No. SHD3		Depth 56.15 m
Scale	1: 250	Project	SOUTH HENTY - EL 8196	
By	G. MacDonald	Section	TYNDALL CREEK LINE 400W	
Date	Jan '97	Collar co-ords	E	N RL
Page	1 of 1	Az.	°G °M	Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
NO CORE 1.0			
			F Hbp Andesite. Predominantly mcv. clearly Hb (d gn, tab to 5mm, ~5% vol). F (p gn, cb/chl altd, tab to 3mm, ~10% vol) Fresh. Negligible sd' or vng. Possibly weakly foliated 4lw ~ 47.0 – ~ 30°
10			5 cm
20			
30			
NQ 34.3 BQ			
40			
50			
56.15 EOH.			

390901

GRAPHIC CORE LOG

Hole No. SHD 4 Depth 57.65 m

Scale 1: 250

By

Date

Page of

Project

Section

Collar co-ords E N RL

Az. °G °M Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
10			F Hbp A. Moderately weathered to ~23.0~, fresh to weakly weathered blw 23.0~. Hb (gn., to 5~, tab., ~5% vol) ± F (to 3~, tab, ~10% vol) porphyritic coherent Andesite. Weakly foliated @ ~50° rcs.
20			
30			
40			
50		← 30° fn	Zone of stronger fn focussed on 51.5 m @ 30° Asd ± thin ir. some pg. vrg. glg. assd ± calc. ± sub pt. core axis. ag. 47.05-47.85 10 mm @ 10° ca. 48.50-49.50 v fn vnl. sub pt. cpo. Also some later slope scale ± chl vrg.
57.65 EOH.			

5 cm

390902

GRAPHIC CORE LOG		Hole No. SHD 5	Depth 472 m
Scale 1: 250		Project SOUTH HENTY	
By		Section TYNDALL CREEK 300W	
Date		Collar co-ords 300 WE 940 N	RL
Page 1 of 1		Az. °G 210.5 °M	-50° Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
			0 - 2.0 m no core
			2.00 - 472 m Hb Fp A, Mix
			Hb (~15% to 10 mm) F (~10% to 2 mm)
			lt gn sr pk sr pk/org mx Mg
			wkd +/o Bxd ± msv py vnlt
			filling bx
10			wkd ± oxd frac parallel to dh+v
		~1-2% py	vnlt @ 45°-70° - no fresh py
		2% py	~5% py ± vg wkd dargey z
			fn 45°
20		py 10° frac	
			5 cm
			oxd frac ± py
30		~2% py	fine grn pyrite frac
40			
EOH 472 m			

390903

GRAPHIC CORE LOG	Hole No. SHD6	Depth 249.50 m
Scale 1:1000	Project SOUTH HENTY	
By GRANT MACDONALD	Section	
Date FEB '97	Collar co-ords	5 cm
Page 1 of 1	Az. °G	RL o

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
			No core to 3.5m Glacials 3.5 - 5.0m
			F>Q xtal sst/bx. Bx contains <5% clasts of gn s/ QFpR (MJR) ± aphyric p.gn. Bleaching alb/chl alt°
20			Gy slt
			Bx ± F>Q xtal sst/bx ± QFpR (MJR) clasts ~8% ± rocks
			Green/dark grey finely laminated slt/sl. So ~ 65° ca
			Pale F>Q xtal sst/bx ± QFpR (MJR) clasts
40			Gn s/st ± some sandier zones. So ~ 50° ca.
			Bx. Clast rich ~ 50% in F>Q xtal mx. Clasts predominantly QFpR (MJR) ± minor aphyric gn clasts (slt° alt°)
			Pinky red colour ± some alb/chl alt°
60			
			Sandstone Green/grey dacitic F xtal sst ± 1% rdd pl long aphyric (or Fp) D clasts
80			Limestone Pale to reddish ppl (hmt) lst. Very fossiliferous. Some sandy interbeds.
			QFpR Hyaloclastic upper part, massive ± minor bx base (advancing apron?) Red/org ± angular q xtals to 2mm, 5%; F to 2mm, pink/orange ~5%. Basal bx appears to be associated ± massive R - may be advancing apron. R becomes dk gn over last few metres. No sulphides or alt°
100			
120			
140			
			Dacite volcaniclastic Dk gn/gy to smoky wt, mcolour ± ~5% wt F to 2mm - ~2-3% rdd s/l FpD clasts. F xtals ubiquitous but somewhat irregularly distributed. This ± ocl clasts ~ ocl pumiceous textures suggests rock is a Dacitic pumice bx. Diffuse wt alt° (had so s/ at least) is similar to my memory of alb/s/ alt° at ~ this stratigraphic level at Henty. Minor sd' Alt° weaker blw 186m
160			
180			
			Black shale/s/st ± marly mx. So ~ 40° ca (coarsening up - becomes more marly downhole)
200			Limestone. Pale - green to grey. As f lst has formed in sst mx. Silty top So ~ 80° ca coarsening up downhole. Limey mx ± lst component increasing downhole.
			Dacitic pumice bx/ marly limestone. lst ± textures of pm bx
			Black sh/s/l interbed.
220			Dacitic pumice bx ± ocl dd aphyric dig (or Fp?) clasts. Mg coloured at ~70° ca, unaltered ± no sulphides
240			- Howards Basalt. Hyaloclastic top - then massive. Like basalt in NCl ± upper massive intersection in SHD-1
EOH 249.50			

390904

GRAPHIC CORE LOG

Hole No. SHD-7 Depth 52.00 m

Scale 1: 250

Project SOUTH HENTY

By GRANT MACDONALD

Section

Date FEB 97

Collar co-ords

Page 1 of 1

Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description
0			0.0-1.0 NO CORE
			HbFpA. Moderately weathered, variably weak to moderately foliated porphyritic andesite ī ~ 5-7% Hb ~ 4mm and 5-7% F ~ 1-2mm
5			Occasional ferruginous fractures to 11.5m
			Strongly weathered & ferruginous from 11.5m to 19.9m. 23.3m to 24.5m the latter ī minor pyrite veinlet
10		S_1 ~ 35°ca	
15			
NQ BQ			
20			
25			
			Strongly foliated around a shear / fault @ 30.2m ī associated py veinlets in the foliation
		S_1 ~ 45°ca	
30		mn. py in veinlets	
35			
			5-10mm massive py vein running sub-parallel to core axis from 37.9m - 38.7m. Vein is a brittle breccia infill vein.
40			
45		S_1 ~ 30°ca	
50			

390905

GRAPHIC CORE LOG

Hole No. SHD8 Depth 5?.00 m

Scale 1: 250

Project [illegible]

By G. Mar[illegible]

Section Accr[illegible] Rd > 5930ON.

Date 5.97

Collar co-ords E N RL

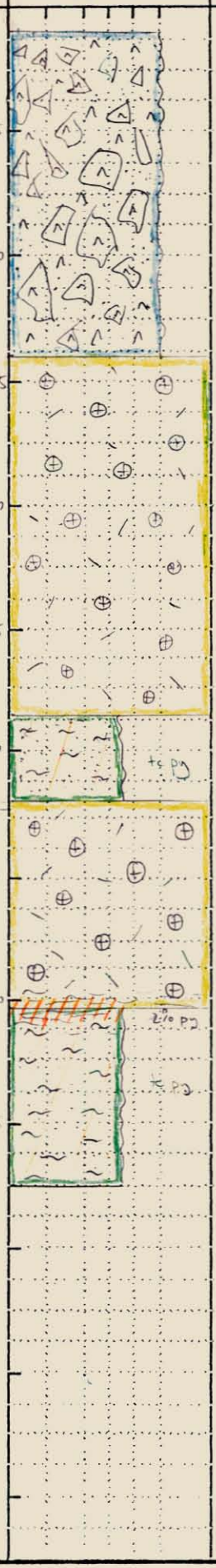
Page 1 of 1

Az. °G °M Incl. °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
10			Strongly sericite + silica + pyrite + cb altd pumx vlclastics – v similar to rocks in SHD-2 below 265 – interpd to be FP pumx vlclastics. Sy sric vns @ ~35°, bleached Alt² is pervasive P [illegible] mm py altd sy vns & py – disturbed stringers/blebs etc. Cb appears to be late stage P [illegible] altd & silic mm py
20			P bx sericite cb altd & silic sy bx py now S° @ 30°–40° P bx [illegible] altd & silic py (~2%) vnlt py (cb) also cross gal ~cm apart
30			Fine gy ashy xtal rich [illegible] 335–350
40			5 cm Below 39 altd clasts to dom arg etc & cb + sericite py mm veins/veinlets pervasive
50			
60			

390906

GRAPHIC CORE LOG		Hole No. SHD 9	Depth 47.5 m
Scale	1: 250	Project SOUTH HENTY	
By	GRANT MACDONALD	Section	
Date	FEB' 97	Collar co-ords	RL.
Page	1 of 1	Az. °G	5 cm



No CORE

FHbpA. Strongly weathered ± most core just tan to orange clay. Brd textures in a number of z' suggest A is a proximal hyaloclastite (as shown). Possibly some more coherent sections. No veining or (weathered) sulphides. Lower contact is in very weathered gnggy core.

QFpD. Strongly weathered ± core as tan ug ± ARA type qz xtals. Strongly foliated @ 35° to ca. Some fg z eg 153 suggest some variation or different unit but too weathered to confidentally recognise. No weathered sulphides or veining.

Dacite? Murky green (chl ±) rock ± fg dsd py. Grossly similar to volcaniclastic below. May be a discrete unit e.g. pugny lower contact may be a fault i.e. this unit is fault repeat of lower. Alternatively it may be a murky intrusive (though less likely).

QFpD. Similar to previous QFpD but more moderately weathered. Purple in zones due to haematite (diffuse) ± ppl / org banding due to weathering. Foliated @ 35° ca becoming shallower (~ 20° ca) + stronger downhole to the contact.

Dacite (pumiceous?) volcaniclastic. Mottled green + pale green (variable chl + ser alt°) ± fg dsd py. Foliated ± foliation strongest at upper contact. Murky ? non-descript but looks like dacitic pumiceous v/clastics elsewhere. Some leached fiamme ± possibly altd mm Cb vn.

* Contact ± from ~ 40.3 - 41.1 m is strongly sericitic + pyritic (~ 2% py) ± foliated ± ARA type Q visible down to ~ 40.6~

GRAPHIC CORE LOG		Hole No. SHD-10	Depth 574.0 m
Scale	1:1000	Project "SOUTH HENTY" EL 8196	
By	GRANT MACDONALD	Section	
Date		Collar co-ords	
Page	1 of 3	Az. °G	5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
		So 0°	Core from 0.80m.
		So 40°	Siltstone. Light grey green / green well bedded (beds
20			~5mm to 50mm g'ly) defined by narrower darker green
		So 5°	coarser siltstone / sandstone beds between broader
		So 10°	lighter finer grained beds. Towards the bottom of the
		So 0°	unit the coarser grained beds contain v. occasional Q
			xtals similar to those in underlying sst / bx. Core
40			contains numerous microfaults + fractures c v. fine g., chl, cb
		So 20°	and/or py vnts. From 32.2m - 35.3m is a s.g. foliated zone c
		So 15°	foliation sub-parallel to core axis, slickensides indicate strike
55.0			or obligue slip. V. puggy zone from 54.5m - 54.6m [PTO.]
60			Rhyolitic volcaniclastic bx. Q>>F xtal rich c
			~10% sub-rounded QFpR (up to 30% from ~72m -
			100m) in a matrix c 50% - 70% Q xtals +
			remainder F. Q xtals are 2-3mm + have chl
80			inclusions. F are pk/org + ~2mm. QFpR clasts
			are pk/org, occasionally gn (chl). The mx is
			w.v. chloritic in part. Some bleachy alb/chl
100			alt" from 91 - 155m " Zone of cubic py
			from 135.3 - 135.8m, otherwise only v. mn
110.6 HQ/NQ			pyrite.
120			
140			
		Faulted contact @ 15-30° ca	Fault 155.0m - 156.0m
160			Rhyolitic volcaniclastic bx. Similarities but also
			significant differences across the fault. Grey green
			(due to more pervasive chl alt" of mx) Q>>F xtal
180			mx c QFpR clasts but clasts g'ly < 10mm c
			only occasional larger (to 100-200mm) clasts.
190.4			Unit coarsens up below 181m.
			Polymict (slump) bx. Package of large clasts/rafts
200			of QFpR (to 5m's) in intermixed gn sst, QF xtal
			lithic (QFpR) sst/bx + carbonate (fossiliferous but not
213.8			fizzy). Relationship suggestive of formation by [PTO.]
220			QFp Rhyolite. Pk/org Q (~10% to 4mm)
			F (~5-8% to 3mm) porphyritic rhyolite. Q xtals
228.2			have chl inclusions.
~234.0			Bx. Hyaloclastic in part but also QF xtal / QFpR bx.
240			QFpR aa

390907

390908

GRAPHIC CORE LOG

Hole No. SHD-10 Depth m

Scale 1:1000

By GRANT MACDONALD

Date

Page 2 of 3

Project

Section

Collar co-ords

Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
			gy. cherty. slt. ± peperitic
270			
		275.5	Rhyolitic volcaniclastic bx ± sub-angular to sub-rounded QFpR clasts in Q, F xtal rich mx. Similar to zone from 206.0 – 213.8 m.
290			Cb clast (p.pink due to hmt) from 288.0 – 288.5 m similar to cb from 210.7 – 211.3 m
		303	
			QFpR
310			
		319.5	
		322.8	Possible hyaloclastic bx
			QFpR
330			
350		Fault @ 350 m @ 85° ca	Fault is healed ± py
370			
390			
410			
		Fault @ 426m @ ~5° ca	Below 420 m core becomes pale green / cream ± ghosted Q xtals due to silicification, probably associated ± faults
430			
450			
		Fault @ 470.5 m @ 5°–10° ca	
470			Sandstone Ghosted but gritty Q, F xtal sst. > slt.
474.2		So 28° ca	Siltstone / sandstone. Grey green ± Q, F xtals (< 5%)
		So 18° ca	in silty mx
		So 28° ca	
		So 30° ca	
487.8			QFpR Possibly quenched margins. Upper + lower contacts @ ~10° ca.
490			Siltstones / sandstones as for 474.2 – 487.8 m.
493.5		So 45° ca	
496.2			QFpR. Possibly quenched margins

390909

GRAPHIC CORE LOG	Hole No. SHD - 10	Depth m
Scale 1: 1000	Project	
By	Section	
Date	Collar co-ords	RL
Page 3 of 3	Az. °G	°

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
510.2			Polymict (soft sediment) bx ± intermixed gn slt, gn sst/bx (Q-F xtal ± QFpR clasts) ± larger QFpR clasts (aphyric pale colored)
520		So 20° ca So 28° ca So 20°-25° ca So 35° ca	
531.0		So 40° ca So 38° ca	QFpR Silicified ± p. pink to p. gy gn smoky colour. Numerous fine brittle fractures @ 85° ca. Faulted lower contact
540			Major fault @ ~ 15° ca from 5462-547m (bxn continues to 544.8m)
			Sandstones Silicified Q F xtal ssts [PTO]
			V dark grey shaley siltstone [PTO]
			Quartz pebble conglomerate [PTO]
560			V. Dark grey shaley siltstone [PTO]
		So 25° ca	Quartz pebble conglomerate [PTO]
E.O.H. 574.0m			Polymict epiclastic ± rounded QFpR and Precambrian metasediment clasts in a Q xtal rich mx [PTO]

← Mt Julia Member of Comstock Fm.

Zig Zag Hill Fm

390910

GRAPHIC CORE LOG

Scale 1: 250
By GRANT MACDONALD
Date FEB '97
Page 1 of 1

Hole No. SHD 11 Depth 56.50 m
Project SOUTH HENTY
Section
Collar co-ords RL
Az. ° 5 cm °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	
			0 - 0.5m NO CORE
			QFpD. Weakly (to moderately in parts) foliated porphyritic rock consisting of ~ 15% rounded, embayed Q xtals (glg) ^ to 4-5mm & cb (glg, calc, occ more Fe/Mn Cb) and/or chl inclusions; ~ 8% tabular F xtals ^ 1-2mm pink (less cb altd) to white (more cb altd) & occasional chloritic (? glomerocrysts ?) mafic (Hb?) phenocrysts ~ 2mm. Also minor magnetite often partly oxidised but sufficient for the rock to be moderately? (see mag sus.) magnetic and trace pyrite. The Mx is very weakly chloritic & this may be diagenetic / regional metamorphic though more distal hydrothermal alt^n is an equal possibility. There is a zone of weak Fe? Cb alt^n ~ 23 m. The rock is cut by occasional calcite - chlorite ± pk cb(?)
5			
386251			
10			
15			
20			
386252		tc dsd	late stage tensional veinlets which contain no
25		py	sweat-out sulphides. There is a zone of more
			of these veins from ~ 35m to 40m.
30			There are more Q xtals in this porphyry
Na Bq			than that intersected in SHD-2 but they
35			otherwise appear very similar. This concentration may
386253			be partly due to the foliation.
45			The angle of foliation is variable but
45			gly ~ 10 - 30° a
50			
386254		tc to mm py	
55			
EOH 56.5			

390911

GRAPHIC CORE LOG

Hole No. SHD-12 Depth 643 m

Scale 1:1000

By Grant MacDonald

Date May 97

Page 1 of 3

Project 'SOUTH HENTY' EL 8196

Section

Collar co-ords

Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
			← casing from surface
			QFp Dacite. Single msv, coherent, evenly Q (15% ~ 4 mm) & F (10% ~ 2 mm) porphyritic dacite ± no clastic parts.
20			(500' below) Gy gn, only wy fol in parts. No sol' late stage cb-chl vn' (inc pk & wt cb')
			in upper part of hole.
40			typical AGA type Q & wt/gn inclusions & embayed edges. F pink to org/bn.
			Becomes foliated dth towards lr @ ~25°-30°
60			
HQ 59.0m NQ			
80			
100			
120			
140			
160			
180			182.5-183 q > cb vn on contact. Dacitic pumiceous v/clastic. Msv, fol @ 25°-30°, Scattered pk/org F xtals (~10%, 1-2 mm)
197.7			V. suggestive of pm bx, Unaltered & no mzn. [PTO]
200		← ship pentant cont fn @ 20°-25°	Basalt bx/sst (equivocally non-clast) dk gn > dk ppl gn
		← fn 20°-25°	Apparently clastic t/o ± zones monomict basalt bx
			(clas. ~50%-90%, typically 5mm-20mm wispy ragged
			fg d gn ± dk gn cht filled amygdales (?) sub-ang-now
220		← fn 20°	fol; & zones msv d gn sandy(?) (accessional
		← clot. spg. in late stage q-chl±cb vn	clast textures & diffuse So(?) bands ~ & hence considered non-coherent). Clasts in dk ppl gn & less wispy fg & flattened ± a grading F.p texture. (F non calc.) No significant
240			alteration (chl in basalt regional) except for intriguing
		← fn 15°-20°	(cont.)

390912

GRAPHIC CORE LOG	Hole No. SHJ-12	Depth m
Scale 1: 1000	Project	
By	Section	
Date	Collar co-ords	5 cm
Page 2 of 3	Az. °G	RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
270		d. ppl. gn. ẑ. ẑ calc.	calc in scattered ẑ but especially dk ppl gn ẑ 262m - 278.5m) also calc v.rg. occ ẑ Ht giving p. ppl colour. Epi all: ~322m - 410m as v fg vnt ~ bb'. Only tc. py noticed. ẑ ẑ yel/br late stage cb vn' predominantly ~247m - 267m
290		wk fn (pol. on) @ 25° @ ~25-005 (?)	D. gn sst (possibly bx in parts ẑ murky gn masking textures) — monomict basaltic detritus. (Possibly murky coherent but not likely)
310			
330			Clastic textures primary in parts. Pseudo clastic textures assd ẑ wk cb/epi?) alt' possibly also primary)
350		mm shear 20°-25° mm shear 35°-40°	
370			
390		wk fn @ 38° @ 35° @ ~35-230 (?)	
410			
430		3 calc >> hm (ppl) vn'	Shown as sst but possibly bx in parts at least.
450		vk fn @ 435°, 20° @ ~85-070 (?)	
470		262m Sa at	Sparse (< 10%) c'stzs in sst (?) diffuse banding @ 25° Basaltic sst probably not coherent x not obvious sig. clasts. Diffuse banding in ocl^ ẑ interpd to be primary Sa.
490			

390913

GRAPHIC CORE LOG

Hole No. SHD-12 Depth m

Scale 1:1000

By

Date

Page 3 of 3

Project

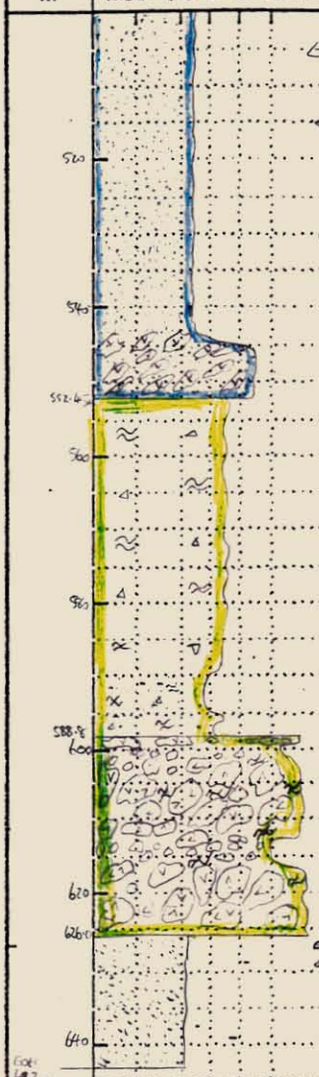
Section

Collar co-ords

Az. °G

5 cm

RL °



(Clasts dk ppl gn bxt in gn mx.
F.p. pu bx. Gy gn, fol., F.xtal (~10%) p. pu bx
ε scattered wdd pk/org F.p.D. clasts (~2% of rock, up to
40 mm). v. sim. F.W pu bx (matrix poss). Fresh org/bn F
to 2mm in mx ε nosig. alt° or sd'. Uc. marked by
20— calc >> chl, blebs v. tg pu. fn conformable @ 40°
Not graded above 589m. Below 589m some grain size variation
bxt not in discrete units. Possibly pockets finer material within flow.
Lower contact ε sub bx is gradational ε this
mx of the bx v. sim. this pu bx ε it is at uppermost
large pebble/cobble bxt change clast poor ⇒ clast rich is
abrupt. As if two segregated parts of removal flow. [PTO]
Cobble > pebble, monomict, F.p.D. rich bx ε
~15% pumiceous matrix as for (552.45 - 588.8) bxt
no pk/org. pk/org F.p.D. F.p.D clasts gy gn to
off wt. Bleached bxt not sig. altd [PTO]
P gn gn poorly bedded felsic tuffaceous siltstone ε
V. sim to slt at depth in SHD-2. Possible primary
us ε soft intermixing F.xtal pumiceous ss/(v. sim to
mx or bx) ε gy slt. Slt becomes v. foliated
near us. Bedding gly indistinct (slt to m. pale, bland slt
others) bxt probably S ~ 15°

390914

GRAPHIC CORE LOG

Scale 1: 1000
By Grant MacDonald
Date
Page 1 of 5

Hole No. SHD-13 Depth m
Project
Section
Collar co-ords
Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
20			QFpR mass. Q 1-2 mm sub ang Q xtals ~15% 1-2 mm pk/lorg F xtals ~ 8-10% pk/lorg mx
32.3		← Gygn slt/sst ± rhy. clasts	
40		← So 40°	Pk arg mst sst gy gn slt
60		Diam proxy fl. 40°	gy gn slt ± rod aphyric R cl.
			blotchy pk alb and F >> Q xtal sst
		← top bxd	gy gn slt ± aphyric pk rhyo clasts transitional to or sst/lex
80			QFpR
			QFpR Massive Q (1-2 mm, sub arg, 15%) & F (1-2 mm, wt, 10%) p R - Mt
			Julia Rhyolite
120			
			10° @ 232
			18° @ 249
			10° @ 263
			25° @ 278
			15° @ 303 ~
160			
			gygn ^F>Q xtal sst/bx ^sst. Pockets of F>Q xtal sst/bx clast sch ± ~50% QFpR to ~ 5 cm 20 mm & lesser (~20%) gy gn sst/slt. Slt/sst layers as rafts in bx also as poorly graded beds ± sharp erosional contacts ± bx mtrx. The flow mechanism was not conducive to grading. So readings possibly incorrect. More sst/slt units from ~202 - 280 ~
180			
200			
		← So 15°	
220		← So 18°	

390915

GRAPHIC CORE LOG	Hole No. SHD-13	Depth m
Scale 1:1000	Project	
By Grant MacDonald	Section	5 cm
Date	Collar co-ords	RL
Page 2 of 5	Az. °G	

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ø & Structure	Description
			F > Q sst/bx (QFpR > slt) [cont]
210			
290			
310			
330		F 326-328.7 25°	
		F 328-331.7 25°-30°	F > Q xtal sst. Bright pk/red in parts, overall pink >> green. Faulted upper contact. Similarly orld chl in fx in persists down to ~350. Fdg marked by ot alb alt°. F > Q ~ 1-2 m. Lower contact defined by ond of alb alt° possibly corresponding to a change in lithology
350			
370 331.1			F > Q xtal sst/bx ± ~5% clasts (except for 398m - 409m & 415m - 427m ~ 10 - 20% clasts) of gg, gp, slt, QFpR, FpD (p.gr) in xtal mx. Only incl m internal grading
390			
410		Subtle banding Sub 35°	
		Subtle banding Sub 30°-35°	
430			
450		Subtle banding Sub 35°	
470			
490			

390916

GRAPHIC CORE LOG

Hole No. SHD-13 Depth 1051.0 m

Scale 1:1000 Project

By G. MacDonald Section

Date Collar co-ords

Page 3 of 5 Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
500			
520			poss not flt but gnd water
529.4		f. 60°	Limestone wt to p pk. Sharp upper contact
			thorough, ngw. & xpd healed ex. – similar basal contact
543			Siltstone/bx – marly slt becoming soft sed'
			sharp bx c. parts ē p. cm qz frags ī
551.3			Some lst clasts in immediate fw to mcv lst, else
			cm s.d? QFpR or aphyric.
580			F>Q xtal sst ē QFpR >clasts
585.2			F>Q xtal sst/bx (clasts <10% QFp 2)
			mcv., gyg gn
580			
600			
606.4			Marly gy slt ī calc nodules growing in situ
607.1		So 25°	Pumiceous F xtal v/clastic Aphyric clasts in fining upwards unit [PTO]
614.7			Marly slt/sh ē calc nodules growing in situ. fn (So?) @ 25° ca [PTO]
620			Limestone. Pink to wt (variable hmt) typical lst – probably
			fossiliferous in lower 0.5m. Most lst has grown in the slt/sst
629.7			mx ī gn slt stylolites ± ocl z' ī sandy text. Fn 25-30° ca [PTO]
634.2			Basalt bx. Dk ppl (hmt) basalt clasts (>98%) in mn. mx ī [PTO]
640		639.7 uc conf fn @25°	F xtal pumiceous v/clastic Irreg F xtals (~25%) in unit [PTO]
		640.0	Basalt. Gly coherent except def clastic z. Gly dk ppl to bge [PTO]
649.5			F xtal pumx v/clastic – dacitic ie pumx FpD v/clastics. Blotchy p. ppl (hmt) [PTO]
			Basalt Pklorg glomeroporphyritic F (1-2 mm). Somewhat ragged [PTO]
655.7		lc 58° ~ conf fn	F xtal pumx v/clastics – dacitic ~25% irreg pklorg F
660			xtals in wg sacc mx – ocl pklorg aphyric lapilli (as for FPB) [PTO]
664m			Basalt pklorg to dk ppl ī F's pklorg to olgn respectively [PTO]
673.3		10° ca contact	F xtal pumx v/clastics as above fol p.ppl/gn but maltered
680			visually. Wispy p/l to p.ppl clasts? / apophyses? of basalt 678.5-679
			Basalt Dk ppl to dkgyn F pklorg 2 mm glomeroporph like
		Flt 692-693m	probably ⊥ or thogonal to So as strain not partitioned into hmt basalt
		699.8	~15% of total rock. Shp upper + lower contacts -- intrusive.
700			Small z of pumx v/clastic either incorporated in melt or at edge of intrusive
			F xtal pumx v/clastics – clasts 700.0-702.5 from 667.5-687
715.4		uc 35°	Basalt dyke ↑ are prob FpD – not basalt
718.2		lc 35°	Dk gy gn (chl) aly ppl (hmt) ī
720		uc 0°-35°	Basalt dyke pseudoclastic chl alt ~740-750 F xtals ~25%
720.2		lc 35°	Basalt dykes – new ī calc filled vl irreg distrib
723		v shp 40°	in wg chl/ser altd mx – poss
729.6		70°	wk peripheral Na ↓ alt
730.2		734.2 - 35°	vg sd.
731.6		738.6 - 35°	Basalt dyke
731.9			
743			
750			

06.4 607.3 Pumiceous dacitic F xtal vlclastic [cont] Neg cb in mx. 1-2 mm F xtals ~25% in fol. wy serc(?) mx. Not hydrothermally altd - no sd'. Small pulses of reworked pumx vlclastic.

07.3 614.7 Marly slt/sh. Typical nodular cb slt ± 'pods' of calc. growing in silty mx. Lower contact defined by reasonably sharp change to more purer lst.

614.7 629.7 Limestone. Sweat out calcite vng. Lower contact is defined by uppermost basalt but sedimentary cb decreases fairly quickly in underlying basalt bx.

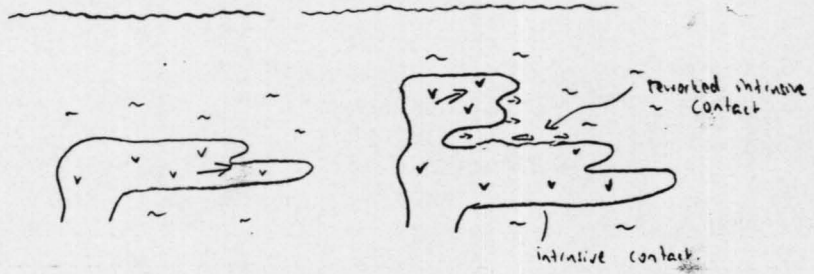
629.7 634.2 Basalt. [cont] wt F (1mm) in wispy serc(?) material ← sim to in pu bx. predominantly in upper part. Basalt clasts are dk ppl ± gn flecks here aft 1-2 mm tab plag xtals & not vls as in other holes. Chl & calc in mx & vng t/o. Lower contact apparently conformable. Visually quite flattened clasts but one suspects that not a huge strain would be required to deform hmt+chl+calc altd (not necess hydrothermally) basalt. Clasts have sharp ragged margins as if shreddded - ejected viciously. Some smaller clasts bleached. Fn @ 25° ca. Some form of graded mass flow of basalt clasts, caused by some form of fire fountain breccia erupting into a pumiceous unit.

634.2 639.7 Pumiceous vlclastics. [cont] serc mx but not significantly visually altd - correlate of STD-1 dacitic pumiceous vlclastics.

639.7 644.0 Coherent upper & lower zones with an apparently clastic centre. Probably some form of sill into unconsolidated pumx vlclastics. Clastic ± (640.8 - 641.4) has ~ 10% wispy ppl basalt ± chl altd F in pumx mx.

644.0 644.5 $^{pumx}_{\wedge}$FpD vlclastic (cont), gn (chl) or p pk (bleached? cb?) but not significantly visually hydrothermally altd - no sd'.

6[illegible] 655.7 Basalt (cont) upper contact suggestive of some degree of extension ie



Other forms of disruption of a basalt sill intruded into unconsolidated pu bx can be envoked.

With lower contact sharp @ 50° ca

655.7 666m $^{pumx}_{\wedge}$FpD vlclastic [cont] - these pk/org aphyric clasts are not distinctive to this pu bx unit (= to Roseberry/Hercules fw according to Rod Allen in his interp of the spillway sequence for Rasmisco (~ 1993-4?) - there is perhaps a genetic link between pumx vlclastic, D pu bx + pk/org aphyric clasts.

666m 673.3 Basalt (cont) Uc shap ~ 80°, lc shp 15-20° ca. then runs sub-parallel to core for ~ 1 m to 673.3m.

390917

390918

GRAPHIC CORE LOG

Hole No. SHD-13 Depth 1051.0 m

Scale 1:1000

By G.Mac Donald

Date

Page 4 of 5

Project SOUTH HEAT

Section

Collar co-ords

Az. °G

5 cm

RL °

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
769		25° but ī	some fragmentation on ctc ie
775.8		25° coat fx	25° Basalt dyke ī shp basal contact, fragmented upper contact
781			Basalt dyke - contacts indistinct
790		fx 28°	Dacitic pumiceous volcaniclastics as for s.m rocks (probably same unit) up to 634.2 m ~ 20% F xtals irreg orld F 1-2 mm x plag to clear Gly gy.gn ī occ paler ? due to weak chl/ser - reg sd' S_0 fol as shown.
810			
830		fx 25°	
839			Gy.gn slt poorly bedded top to segregated flow ī pumx base. Change is sharp ish @ 841.7 Base cs ~ 10% gy.gn slt ~ 90% F xtal pumx vlclastic as above.
845.9			Sim 839-845.9 ī ~ 40cm bedded ashy top to S_0 fol
850			
859		S_0 40°	gy.gn pumx F xtal vlclastic ie Similar unit to ov unit
864		S_0 75°	Sim graded slt/pumx vlclastic unit. Well bedded slt 40° also 10-15° in adj folds (soft sed?)
870			Gy.gn slt bedded 75°
			FpD. Foliated but ī evenly distributed F xtals in gn clc mx. Moderately flattened ie Only one possibly non-coherent zone from logs but this best explained tectonically.
893			Upper contact is sharp ī tongue like intrusion into ov slt - shallow intrusive. Lower contact is too [illegible] at the contact
910			
915.1			Round gy.gn to pale (bleached) FpD clasts ī ~ 20% F xtal pumx vlclastic like above. Juvenile hyalo ? peperite - suggests ov dyke is shallow burrowing intrusive sill
918		S_0 40°	F xtal pumx vlclastic as for prev Sim units.
			Gy.gn vlcl chl reg sd' fol 25° 0.5m sandy top.
930			Poorly intermixed slt > pumx vlclastic above ~938 - ī more pumx + occ FpD clasts in lower part.
943			FpD clasts NOT obviously related to un FpD
950			FpD. Gy gn fol as above - sharp - upper
953			lower contacts - mm lab stage cubic / worm trail ?
960.6			Polymict bx ī rounded FpD - juv hyalo - ī irreg gn slr
966			FpD ī ↑ probably hyalo top. espec bl-t 956. Blkd pgn
970			FpD clasts in clasts look like basalt but are F
			F xtal pumx vlclastic mx - as if advancing hyalo apron associated ī ov sill ~ 25% clast / vol - prob relatively proximal but not juvenile. Hyalo
984.3			
990		slt as mx or discrete rafted beds.	Package graded slt / pumx vlclastic units but ī poor segregation ie chaotic movements. Black slt gly bl - fol only bdd nor conductive (tested)

390919

GRAPHIC CORE LOG	Hole No. SHD-13	Depth 1051.0 m
Scale 1: 1000	Project "South Henty"	
By G. MacDonald	Section	
Date	Collar co-ords	5 cm
Page of 5	Az. °G	RL °

Ser + $Mn CO_3$ alt^n

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
1000			Bk s.lt.stone (not graphitic) Finely bedded @ 35°-50° ca
1000.5		⇐	interbedded - lower contact ~ m bx ? °
			Ragged F▷D clasts juvenile hyalclast c ~ 50%
1020	lge sltstg. ppy	>cpy>sph+py	in pumx mx ie wispy gy/lgn ~ F xl's irreg
			dist'buted - † is this mx which is ppy w gn to ▷pk.
		⇐	Sd' rd to sph > gn pre or syn def
1040			Pumx v/clastic - bge in colour but are in vnt'
			but murky Ocl scattered ARF type Q xl's
			eg ~ 1047m Late stage but pervasive/vnt/blebby
			tan cb pre (or syn) def^n - Mn(?) Cb -
1051.0m	1048.7	⇐ 10.5m(tw) Pyr. he vnt/shear puggy	Mn levels to 4000 ppm P pk in colour
EOH			from 1028.5 - 1030.7 Rare sd' are in
			pre/syn def^n bleb's Some v m gy ashy material
			in the mx in parts

390920

GRAPHIC CORE LOG

Scale 1: 1000

By G MacDonald July 1997

Date

Page of

Hole No. HA4 Depth 403 m

Project

Section

Collar co-ords RL

Az. °G °

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	
20			No core 0 - 37m
37 40			Gn F xtal sst ± clasts, pk/org. FpD → p ppl/cm lst (base lithic vol?) in F xtal mx ≥ 20% clasts
623787 @ 58.3 T.1Zr=161 60	sandy interbed	Py conf So in beds	Gn ashy tuffaceous slt ± graded. Contact 1½° p top to underlying F xtal sst. in beds in So. Sandy interbed @ 58.5m ± 45° So variable but not obviously shallow to core axis with 50° at 66.0m ± conf to So bond of py
83 82			ppl/pgn marly sst / lst. foliated ∨ 10° ca
this probly best shown as Basalt in V 100			Hmt Fp Andesite (similar to 168 - 222 blw but interpd as A) hyaloclastic bx ± clasts in mx of marly sst/lst
140	pos		Dk ppl to gn, F xtal rich, foliated 50° ca. Fs look parsh but text sandier (thinly foliated)
136 138 140			Possibly largely mass flow tuff. Lower contact hard to pick. Probable adcrete compaction. Only small corner remains of 3cm sphal+gn+ba band at 136-138 - sph ± p. yellow/cm ± sd' appear as vein, st. over lite?
160			
180 623788			Ppl hmt clasts. Wispy ragged edges. Sy foliated. Could be Fpd ∘ nor basalt as the c m lasts are based more on hmt. fs. Interpd to be Fp Howards Basalt. More F xtal mx rich upper - clast rich base.
200			Calc as pore sed intergrowths also mark cont to fn - late stage. Sy fol ± Ag vein ± blebby foliated Ba / hmt / cb / alte, 7.5% Ba has Ba ± hmt + cb in band cont to fn, ccl bx pre dislocation of ccb (ie sim to cb - occurs ⟹ pre diagenetic bits pick + re oolited but pre mid deformation
220			gy gn foliated 50° ca ± wispy clasts cor basalt like clasts in typical ppl/pgn lst to marly sst. More pure lst to marly sst. Foliated 50° ca.
Best shown as Basalt in V → 623789 240 250			Sulphidic. Foliated, hmt, bx/sst ± fol hmt Fp A? clasts + sandier/silt or zones. Overprinting cb (bn) + Ag cd' + ba in blebs + pervasive zones. At 243m bands of pyrite conf to So @ 35° ca.

390921

GRAPHIC CORE LOG

Scale 1:

By

Date

Page of

Hole No. Depth m

Project

Section

Collar co-ords RL

Az. °G MN Incl. °

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast φ & Structure	Description
250		mud/low ca	
623790		40°	
267			
270			PGgn clast Fp - v densely F ± poss pumx text
623791			either FpD/M or pumx FpD clasts ±
			marly cb nodules/clasts in F xtal mx Probly
623792			just different alt? distinguishes underlying unit
290			blw ~295 where clasts now hmt
			Ocl zone: more sedimentary cb
			rich (also later stage recrab calc veining)
310			
330			
350			
370			
		mm lm ← So 10°	
		← So 75°	Fol mstn marly ss-f/bx ± clasts/xtals hmt elongate ∧ to
390			~4mm ~40% So low angle to core axis
623794		low angle to core, 35°	
403.1		← So 75°	
		mst hmt	
410			
430			

T: 12r 49.4

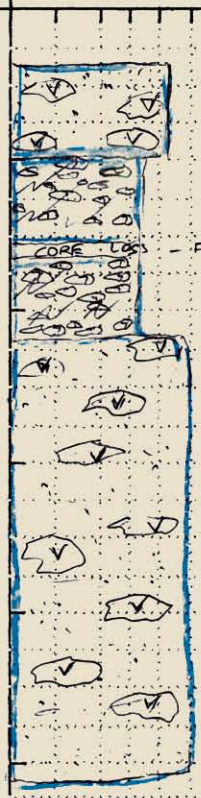
Best shown as Basalt ✓

390922

GRAPHIC CORE LOG		Hole No. HEC 3183	Depth m
Scale 1: 100		Project	
By		Section	
Date		Collar co-ords	RL
Page of		Az. °C	°

5 cm

Depth m	Mean Grainsize Mud 0.5 2 8 32 mm	Max. clast ϕ & Structure	Description



NO CORE - CLAY

Bx ± ldd clasts inc Spillway Basalt in gr mrkly mx - had to ~~~ recognise clasts in part. ~ ± cl clasts alt px. Bx but fine Clasts FpB in gn mx becoming sy hol sub pt ex. Cl-q ~~ @ 53 - Foliated around Fem lt. >75% clasts

Bx Mrkly gn ± clasts v rg often had to pick Msv ± no ^ sd or vvg. Clasts mostly FpBasalt ~~~~~ Some mx epidote alt in patches. Apparently more mx supported.

390923

Appendix E

DHEM surveys

390924

OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

Geophysical Contracting Services

100% Australian Owned

35 Fleming Street,
(P.O. Box 1754)
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Volume 1 of 2

Client	:	Resolute Samantha Limited
Prospect	:	South Henty.
Area	:	Zeehan. Tas.
Survey	:	Borehole PEM Survey
Survey Period	:	6th to 31st January 1997.
Operator	:	Kent Honner/Bruce Broardbent.

DAILY LOGS: Resolute Samantha Limited - January, 1997

DATE	COMMENT	CHARGES
6.1.97	Flew to Melbourne and then caught a taxi to Melrose Parking to pick up the Toyota and gear. Drove back to Ansett Air Freight and picked up five boxes of equipment and then drove to the ferry. Overnight on boat.	
	1 Mob. day	$ 550.00
7.1.97	Disembarked at Devonport and drove to Zeehan, where we sorted out accommodation and met Grant McDonald. We drove out to the South Henty prospect and dummied hole #1 to 780+m - all OK. Repaired the generator (ie fitted alternator and modified mounts) and laid out most of eastern loop. Returned to town by 6.00pm.	
	1/2 Mob. day	$ 275.00
	1/2 Survey day	$ 625.00
	1/2 Field Assist. day	$ 90.00
8.1.97	Drove out to the prospect (with a boat). Set up the borehole equipment and test it all to ensure all was operative. The rest of the east loop was laid by fieldies. Set up and read the Z component - quite a bit of detailing required. Read part of the X-Y components. The fieldies used the boat to lay part of the western loop. There are powerlines, a pump station and a sub-station all in the vicinity - all contributing to noisy data. There is an off-hole response plus rising middle channels at end of hole. Returned to town by 6.15pm.	
	SURVEY PARAMETERS:	
	Loop East :450 x 500m 80900E, 58700N; 81310E, 58700N; 81400E, 58925N; 81400E, 59170N; 81260E, 59155N; 80900E, 59165N.	
	Current :10 Amps	
	Time Base :20 ms	
	Ramp Time :0.5ms	
	Sync :Cable	
	Hole No. **:SHD-1** 81000E, 58935N	
	Depth :780m (X-Y to 230m)	
	Channels :31	
	Components :Z,X,Y	
	1 Survey. day	$1250.00
	1 Field Assist. day	$ 180.00
9.1.97	Acquired loop and hole details from Grant. Drove out to the	

site and set up. Completed the X-Y component readings - the data was noisy so took double stacks most of day. Picked up one wire to be used for the west loop. Moved the gear to the West loop and completed laying out the loop. Removed the wires from Anthony Rd. and returned to town by 6.20pm. Grant came around at 9.15pm to pick up the plots to be faxed to John Bishop.

SURVEY PARAMETERS:

Loop East :450 x 500m
80900E, 58700N; 81310E, 58700N;
81400E, 58925N; 81400E, 59170N;
81260E, 59155N; 80900E, 59165N.
Current :10 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-1**
81000E, 58935N
Depth :240-780
Channels :31
Components :X,Y

1 Survey day	$1250.00
1 Field Assist. day	$ 180.00

10.1.97 Drove to site, set up on the West loop and completed laying out the sync cable. Read the Z component for hole #1. Started reading the X-Y components - the drillers pulled out loop wire. Packed up and returned to town by 6.00pm. Dumped, processed and plotted the data and made up a disk for John Bishop.

SURVEY PARAMETERS:

Loop West :600 x 500m
80000E, 58840N; 80175E, 58740N;
80500E, 58700N; 80600E, 58700N;
80600E, 59040N; 80530E, 59190N;
80000E, 59190N.
Current :13 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-1**
81000E, 58935N
Depth :780m (X-Y to 120m)
Channels :31
Components :Z,X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

11.1.97 Drove out to the prospect, set up and completed reading the X-Y components for the West loop. Packed up all the gear except the loops and drove back to Zeehan. Dumped the gear at Resolute's yard and made up total field plots for John Bishop.

SURVEY PARAMETERS:

Loop West :600 x 500m
80000E, 58840N; 80175E, 58740N;
80500E, 58700N; 80600E, 58700N;
80600E, 59040N; 80530E, 59190N;
80000E, 59190N.
Current :13 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-1**
81000E, 58935N
Depth :130-780m
Channels :31
Components :X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

26.1.97 Drove from motel in Hobart to collect keys for the trailer and the cruiser. Then proceeded to the airport to collect the X-Y probe. We then travelled to Zeehan, booked into the motel and collected the trailer. The survey equipment was taken to site and the hole dummied. The loop was tested and we then returned to Zeehan for the evening.

1 Mob. day $ 550:00

27.1.97 Drove out to site, met up with the drillers and arranged for them to carry our gear in to site on their Bombardier. We set up the survey gear and dummied the hole, SHD#2; 660m. We then walked back the 500m to the road, set up the transmitter and connected the sync. The survey gear was set up and the Z component read, with stacking to try and reduce the noise. After processing the data the consultant was called and it was suggested to repeat the survey with plenty of repeat readings.

SURVEY PARAMETERS:

Loop West :450 x 500m
80600E, 58700N; 80600E, 59040N;

80530E, 59190N; 80000E, 59190N;
80000E, 58840N; 80175E, 58740N.
Current :13 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-2**
80335E, 58900N
Depth :660m
Channels :31
Components :Z

1 Survey day $1250:00
1 Field Assist. day $ 180:00

28.1.97 Repeated the Z component survey from the previous day of SHD#2. All went well with two and three readings per station. We then put the X-Y component probe together to begin the radial component survey. The (+) battery drained, and survey could not continue. We returned to Zeehan to notify head office of the need for a replacement.

SURVEY PARAMETERS:

Loop West :450 x 500m
80600E, 58700N; 80600E, 59040N;
80530E, 59190N; 80000E, 59190N;
80000E, 58840N; 80175E, 58740N.
Current :13 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-2**
80335E, 58900N
Depth :660m
Channels :31
Components :Z

1/2 Survey day $ 625:00
1/2 Field Assist. day $ 90:00
1/2 Breakdown day N/C

29.1.97 Moved one wire over to connect up the Eastern loop, set up the transmitter and connected up the sync. There was a break in the sync cable where a small Tasmanian Beastie had chewed it. This was repaired and Z component survey for SHD#2 was completed for the East loop. We returned to Zeehan to find out if the replacement probes had arrived, then travelled to Wynyard to collect them, returning to Zeehan by 11:00pm.

SURVEY PARAMETERS:

Loop East :450 x 500m
81310E, 58700N; 81400E, 58925N;
81260E, 59155N; 80900E, 59165N;
80900E, 58700N.
Current :10 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-2**
80335E, 58900N
Depth :660m
Channels :31
Components :Z

1/2 Survey day	$ 625:00
1/2 Field Assist. day	$ 90:00
1/2 Breakdown day	N/A

30.1.97 Proceeded out to site, set up the transmitter and began surveying the XY components for SHD#2. All went well with two readings at all stations because of noise. The Western loop was then connected up, the transmitter set up and radial component survey commenced for the Western loop.

SURVEY PARAMETERS:

Loop East :450 x 500m
81310E, 58700N; 81400E, 58925N;
81260E, 59155N; 80900E, 59165N;
80900E, 58700N.
Current :10 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-2**
80335E, 58900N
Depth :660m
Channels :31
Components :X,Y

1 Survey day	$1250:00
1 Field Assist. day	$ 180:00

31.1.97 The survey was continued for the X-Y components using the West loop, and completed by 1:30pm. The Bombardier was then used to collect all the survey equipment from the drill site and transport it to the cruiser. We then returned to Zeehan to process the data and give a disc to the client to

take with him to the consultant in Hobart.

SURVEY PARAMETERS:

Loop West :450 x 500m
80600E, 58700N; 80600E, 59040N;
80530E, 59190N; 80000E, 59190N;
80000E, 58840N; 80175E, 58740N.
Current :13 Amps
Time Base :20 ms
Ramp Time :0.5ms
Sync :Cable

Hole No. **:SHD-2**
80335E, 58900N
Depth :660m
Channels :31
Components :X,Y

1 Survey day $1250:00
1 Field Assist. day $ 180:00

1-2-97 Pulled in the loops, having some difficulty getting them out of the bush, with one being stuck, to be pulled in later. The survey equipment was then loaded up for the next survey.

1/2 Survey day $ 625:00
1/2 Field Assist. day $ 90:00

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APPENDIX

CRONE PULSE EM SYSTEM

SYSTEM DESCRIPTION

The Crone Pulse EM system is a time domain electromagnetic method (TDEM) that utilizes an alternating pulsed primary current with a controlled shut-off and measures the rate of decay of the induced secondary field across a series of time windows during the off-time. The system uses a transmit loop of any size or shape. A portable power source feeds a transmitter which provides a precise current waveform through the loop. The receiver apparatus is moved along surface lines or down boreholes.

The transmitter cycle consists of slowly increasing the current over a few milliseconds, a constant current, abrupt linear termination of the current, and finally zero current for a selected length of time in milliseconds. The EMF created by the shutting-off of the current induces eddy currents in nearby conductive material thus setting-up a secondary magnetic field. When the primary field is terminated, this magnetic field will decay with time. The amplitude of the secondary field and the decay rate are dependent on the quality and size of the conductor. The receiver, which is synchronized to the off-time of the transmitter, measures this transient magnetic field where it cuts the surface coil or borehole probe. These readings are across fixed time windows or "channels".

SYSTEM TERMINOLOGY

Ramp Time

"Ramp time" refers to the controlled shut-off of the transmitter current. Three ramp times are selectable by the operator; 0.5ms, 1.0ms, and 1.5ms. By controlling the shut-off rather than having it depend on the loop size and current ensures that the same waveform is maintained for different loops so data can be properly compared.

The 1.5ms ramp is the normally used setting for good conductors. It keeps the early channel responses on scale and decreases the chance of overload. The faster ramp times of 1.0ms and 0.5ms will enhance the early time responses. This can be useful for weak conductors when data from the higher end of the frequency spectrum is desired.

Time Base

Time base is the length of time the transmitter current is off (it includes the ramp time). This also equals the on time of the current. Eight time bases are selectable by the operator. They include the original time bases used in the analog system as well as time bases to eliminate the effects of powerline interference. The eight time bases are as follows: compatible to analog Rx: 10.89ms, 21.79ms; 60hz powerline noise reduction: 8.33ms, 16.66ms, & 33.33ms; 50hz powerline noise reduction: 10.00ms, 20.00ms, 50.00ms and 150ms.

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

Zero Time Set

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

Receiver Channels

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

PP Channel

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

Synchronization

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

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

SURVEY METHODS

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

Moving Coil

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

Moving Loop

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

Moving In-Loop

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

Large In-Loop

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

Deepem

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

Borehole (Z Component only)

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

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

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

3-D Borehole

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

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

Underground Borehole

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

Resistivity Soundings

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

EQUIPMENT

Transmit Loops

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

Power Supply

The PEM system normally operates with an input voltage from 24v to 120v. The maximum current is 20 amps in a single loop but the effective current can be increased by doubling the loop wire in series. For low power surveys a 20amp/hr 24v battery can be used. The power supply requires a motor generator and a voltage regulator to control and filter the input voltage to the transmitter.

Specifications: PEM Motor Generator

- 4.5 hp Wisconsin, (2 kw)
- belt drive to D.C. alternator
- cable output to regulator
- maximum output: 120v, 20amp (2 kw);
- fuse type overload protection
- steel frame
- external gas tank
- unit weight: 33kg (2 kw); 52kg (4 kw)

Specifications: PEM Variable Voltage Regulator

- selectable voltage between 24v and 120v or 48v and 240v
- 20amp maximum current
- fuse and internal circuit breaker protection

Transmitter

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

Specifications: PEM Transmitter

- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 50ms 150ms
- ramp times: 0.5ms, 1.0ms, 1.5ms
- operating voltage: 24v to 120v (2 kw); 48v to 240v (4 kw)
- output current: 5amp to 20amp
- monitors for input voltage, output current, shut-off ramp, tx loop continuity, instrument temperature, and overload output current
- automatic shut-off for open loop, high instrument temperature, and overload
- fuse and circuit breaker overload protection
- three sync modes: 1) built-in radio and antenna
  2) cable sync output for direct wire link to receiver or remote radio
  3) connectors for the crystal clock

Receiver

The receivers measure the rate of decay of the secondary field across several time channels. Three types of receivers are available with the PEM system: Analog Rx, Datalogger Rx, and Digital Rx. The Analog Rx and Datalogger Rx read eight fixed time channels while the Digital Rx, under software control, offers a variety of channel configurations. The Digital Rx has been used in the field for contract surveys since 1987.

Specifications: Digital PEM Receiver

- operating temperature -40°C to 50°C
- unit weight 15kg, shipping weight 25.5kg

Hardware:

- 24v rechargeable gel cell battery supply
- two CMOS microprocessors (NSC800)
- alphanumeric keyboard

- 2 x 16 character cold weather display
- 16 x 40 character (256 x 128 pixels graphic) display
- 64k byte solid state memory storage
- cable, radio or crystal clock synchronization
- RS-232 serial I/O

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

Menu driven operating software system offering the following functions:
- controls channel positions, channel widths, and number of channels using a basic slice of 4.5µsec
- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 50ms and 150ms
- ramp time selectable in 4.5µsec steps
- sample stacking from 512 to 65536
- scrolling routines for viewing data
- graphic display of decay curve and profile with various plotting options
- routines for memory management
- control of data transmission
- provides information on instrument and operating status

Sync Equipment

There are three modes of synchronization available, radio, cable, and crystal clock. The radio sync signal can be transmitted through a booster antenna from either the PEM Transmitter internal radio or through a Remote Radio.

Specifications: Sync Cable
- 2 conductor, 24awg, teflon coated
- approx. 900m per aluminum spool with connectors

Specifications: Remote Radio
- operating frequency 27.12mhz
- 12v rechargeable gel cell battery supply
- fuse protection
- sync wire link to transmitter
- coaxial link to booster antenna

Specifications: Booster Antenna
- 8m, 4 section aluminum mast
- guide rope support
- ¼ wave CB fiberglass antenna
- range up to 2km
- coaxial connection to transmitter or remote radio

Specification: Crystal Clocks
- heat stabilized crystals
- 24v rechargeable gel cell battery supply
- rx unit can be separate or housed in the receiver
- outlet for external supplementary battery supply

Surface PEM Receive Coil

The Surface PEM Receive Coil picks up the EM field to be measured by the receiver. The coil is mounted on a tripod that can be positioned to take readings of any component of the field.

Specifications: Surface PEM Receive Coil
- ferrite core antenna
- built-in preamplifier
- VLF filter
- 10khz bandwidth
- 23:1 amplifier gain
- two 9v transistor battery supply
- tripod adjustable to all planes

Borehole PEM Z Component Probe

The Z component probe measures the axial component of the EM field. The Z component data is not affected

by probe rotation so no correction are required.

Specifications: Borehole PEM Z Component Probe

- ferrite core
- built-in preamplifier
- dimensions: length - 1.6m; dia - 3.02cm (3.15cm for high pressure tested probes)
- internal rechargeable ni-cad battery supply
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths 2800m

Borehole PEM XY Component Probe

The XY probe measures two orthogonal components of the EM field perpendicular to the axis of the hole. Correction for probe rotation can be achieved by two methods. The standard approach is to use the measurement of the primary field from the "PP" channel, apply a "cleaning" algorithm to remove most of the secondary field contamination, and compare this to theoretical values. The amount of probe rotation is then calculated, and the correction can be made. The second method involves the use of an optional orientation device for the X-Y probe that uses dipmeters to calculate the probe rotation.

Specifications: Borehole PEM XY Component Probe

- ferrite core
- built-in preamplifier
- dimensions: length - 2.01m; dia - 3.02cm
- internal rechargeable ni-cad battery supply
- selection of X or Y coils by means of a swich box on surface or automatic switching with Digital receiver
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths to 2800m

Orientation Device

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

Specifications: Orientation Device

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

Borehole Equipment

To lower the probe down a drill hole requires a cable and spool, winch assembly frame and cable counter. Borehole surveys also require equipment to "dummy probe" the hole before doing the survey.

Specifications: Borehole Cable

- two conductor shielded cable
- kevlar strengthened
- currently 1500m but will shortly have cabability of surveying to depths of 3000m.

Specifications: Slip Ring

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

Specifications: Borehole Counter

- attaches to the drill hole casing
- calibrated in meters

Specifications: Dummy Probe and Cable

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

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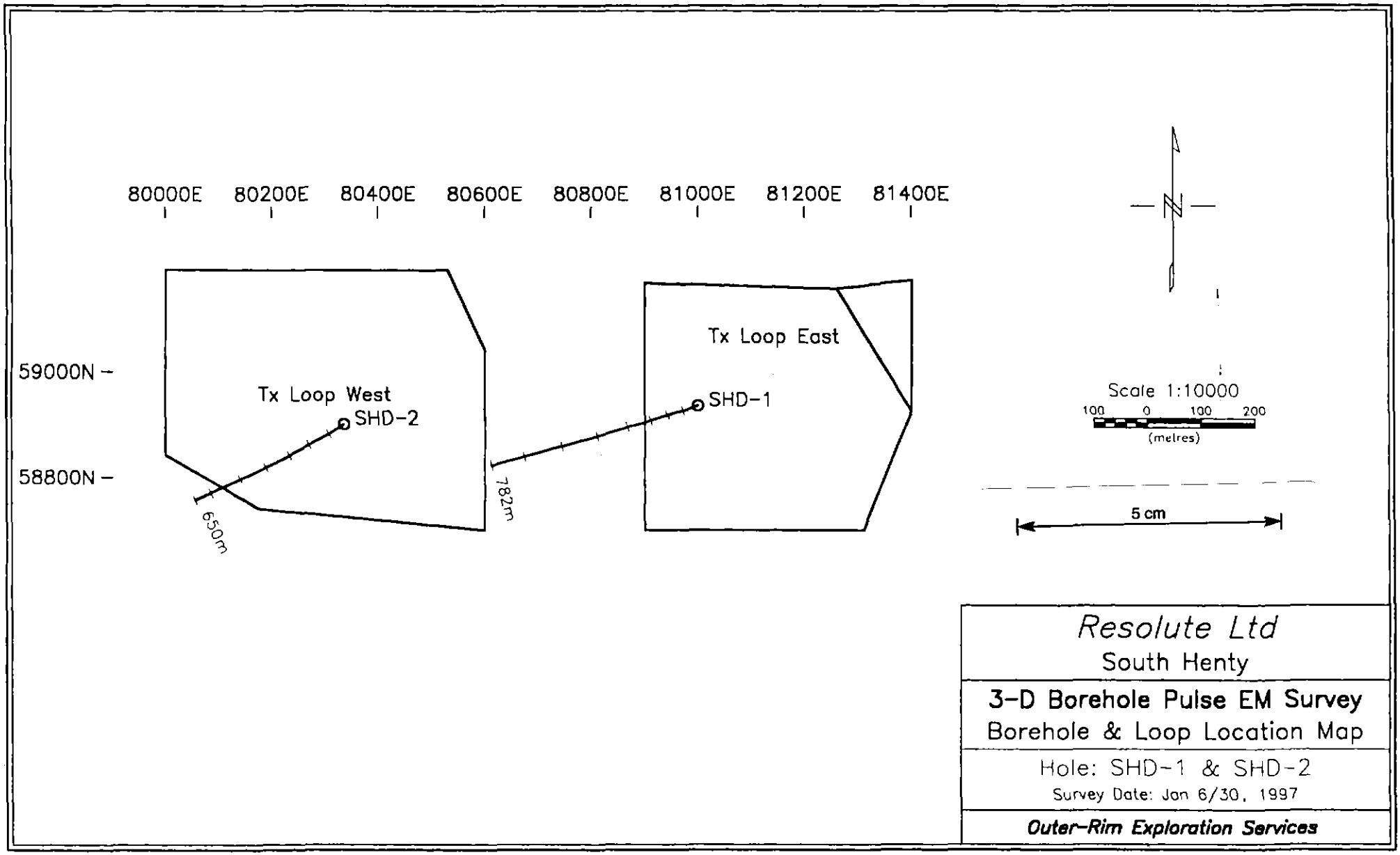
PLOTS

CONTENTS

CONTENTS



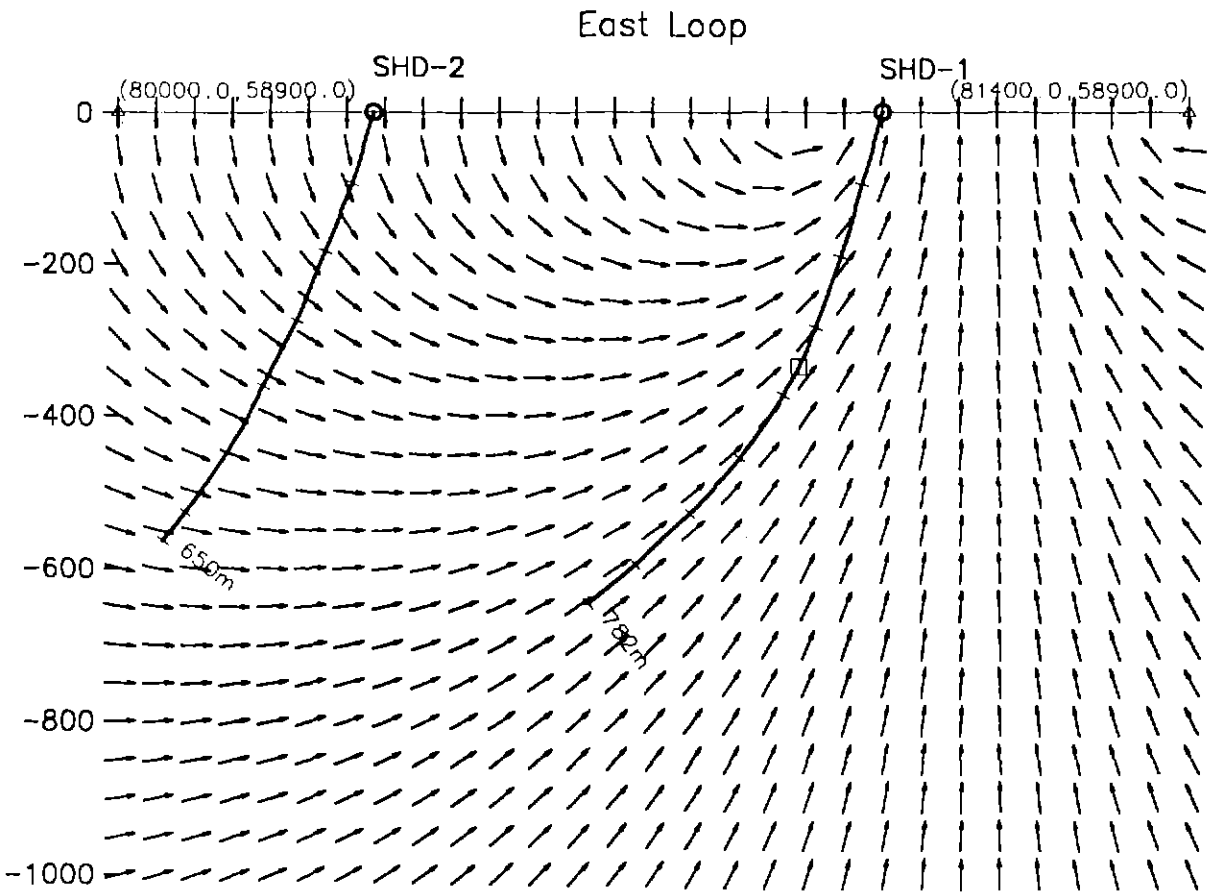
Resolute Ltd
South Henty

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

Hole: SHD-1 & SHD-2
Survey Date: Jan 6/30, 1997

Outer-Rim Exploration Services

3909040



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100 0 100 200

(metres)

5 cm

Resolute Ltd

South Henty

3-D Borehole Pulse EM Survey

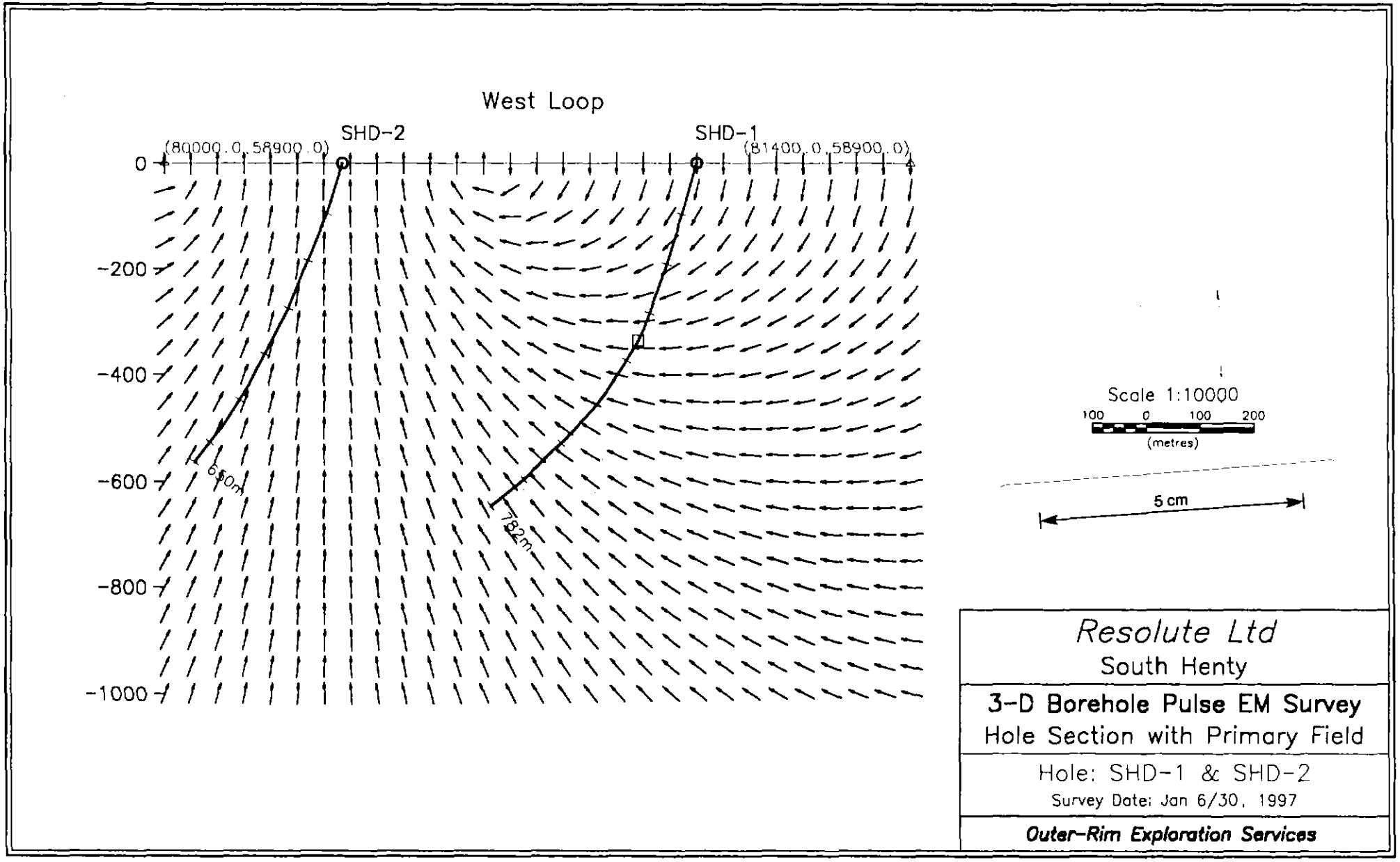
Hole Section with Primary Field

Hole: SHD-1 & SHD-2

Survey Date: Jan 6/30, 1997

Outer-Rim Exploration Services

3909941


West Loop
SHD-2
SHD-1
(80000.0, 58900.0)
(81400.0, 58900.0)
0
-200
-400
-600
-800
-1000
690m
782m
Scale 1:10000
100 0 100 200
(metres)
5 cm
Resolute Ltd
South Henty
3-D Borehole Pulse EM Survey
Hole Section with Primary Field
Hole: SHD-1 & SHD-2
Survey Date: Jan 6/30, 1997
Outer-Rim Exploration Services

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OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390943

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1ZE.PEM
Time Base	: 20.00 ms	# Readings	: 95
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 450m X 500m	Receiver	: Digital #106
Current	: 10 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 80900m, 58700m, 0m	2. 81310m, 58700m, 0m
3. 81400m, 58925m, 0m	4. 81400m, 59170m, 0m
5. 81260m, 59155m, 0m	6. 80900m, 59165m, 0m

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

1. 81000m, 58935m, 0m	2. 250deg, 73deg, 9m
3. 250.2deg, 73deg, 23m	4. 251deg, 73deg, 29m
5. 251.5deg, 73deg, 30m	6. 253deg, 72.8deg, 30m
7. 255.2deg, 73.2deg, 30m	8. 254deg, 72.2deg, 30m
9. 252.8deg, 71.2deg, 30m	10. 252.5deg, 70.2deg, 30m
11. 252deg, 69.7deg, 30m	12. 251.5deg, 69.2deg, 30m
13. 252.2deg, 68.7deg, 30m	14. 253.5deg, 64.3deg, 20m
15. 254.7deg, 61.8deg, 10m	16. 257deg, 60.4deg, 12m
17. 257.5deg, 59deg, 12m	18. 253deg, 58.2deg, 12m
19. 253deg, 57.4deg, 12m	20. 253deg, 56.4deg, 14m
21. 252.8deg, 55.2deg, 22m	22. 253deg, 53deg, 30m
23. 253.5deg, 51deg, 30m	24. 254deg, 49deg, 30m
25. 254.5deg, 46.2deg, 30m	26. 254.5deg, 44.7deg, 30m
27. 254.5deg, 44deg, 30m	28. 253.5deg, 43deg, 30m
29. 253.5deg, 41.8deg, 30m	30. 253.5deg, 40.5deg, 33m
31. 254.7deg, 39.6deg, 34m	32. 255deg, 37.3deg, 30m

Channel Times (usec)

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

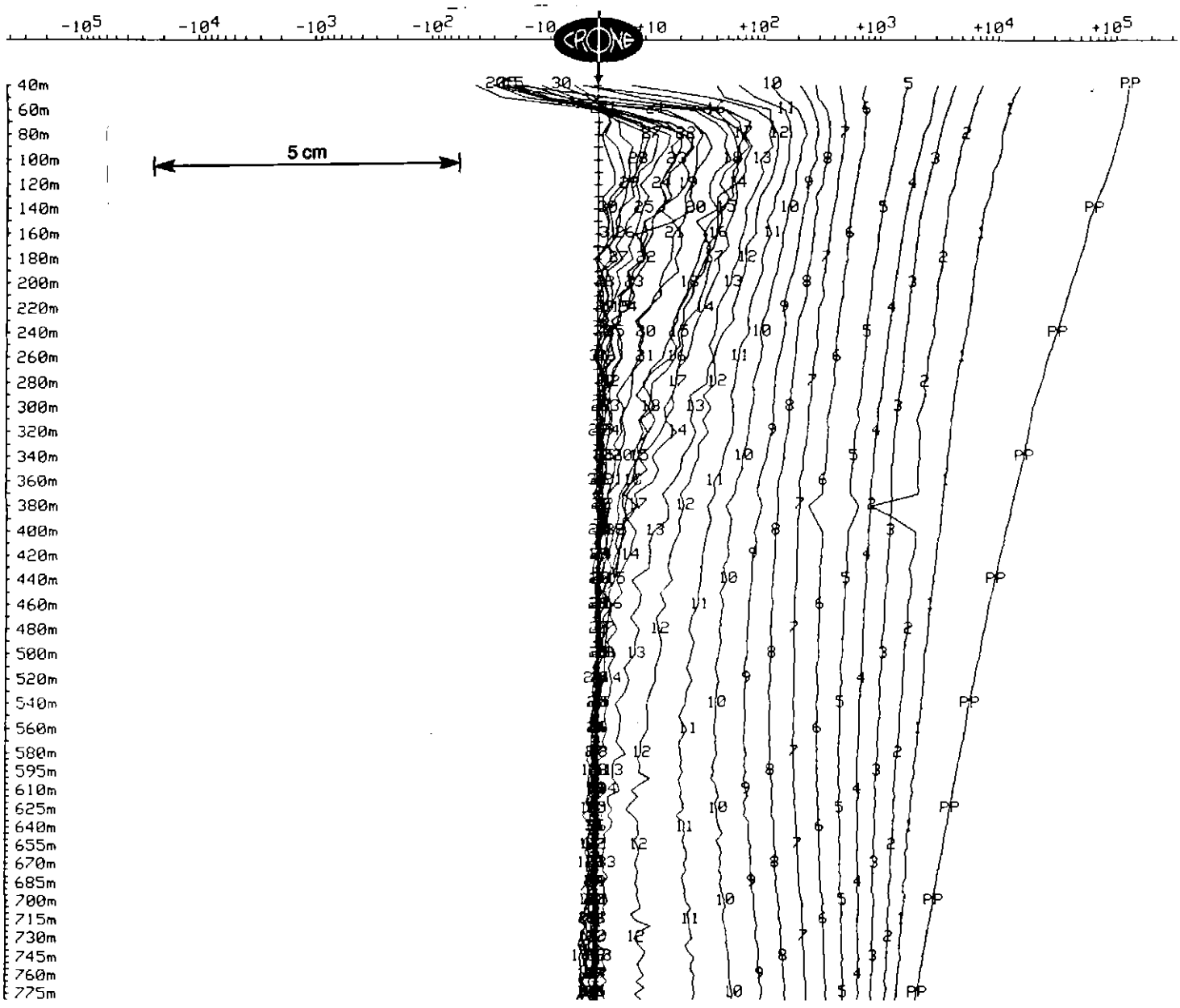
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390944

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



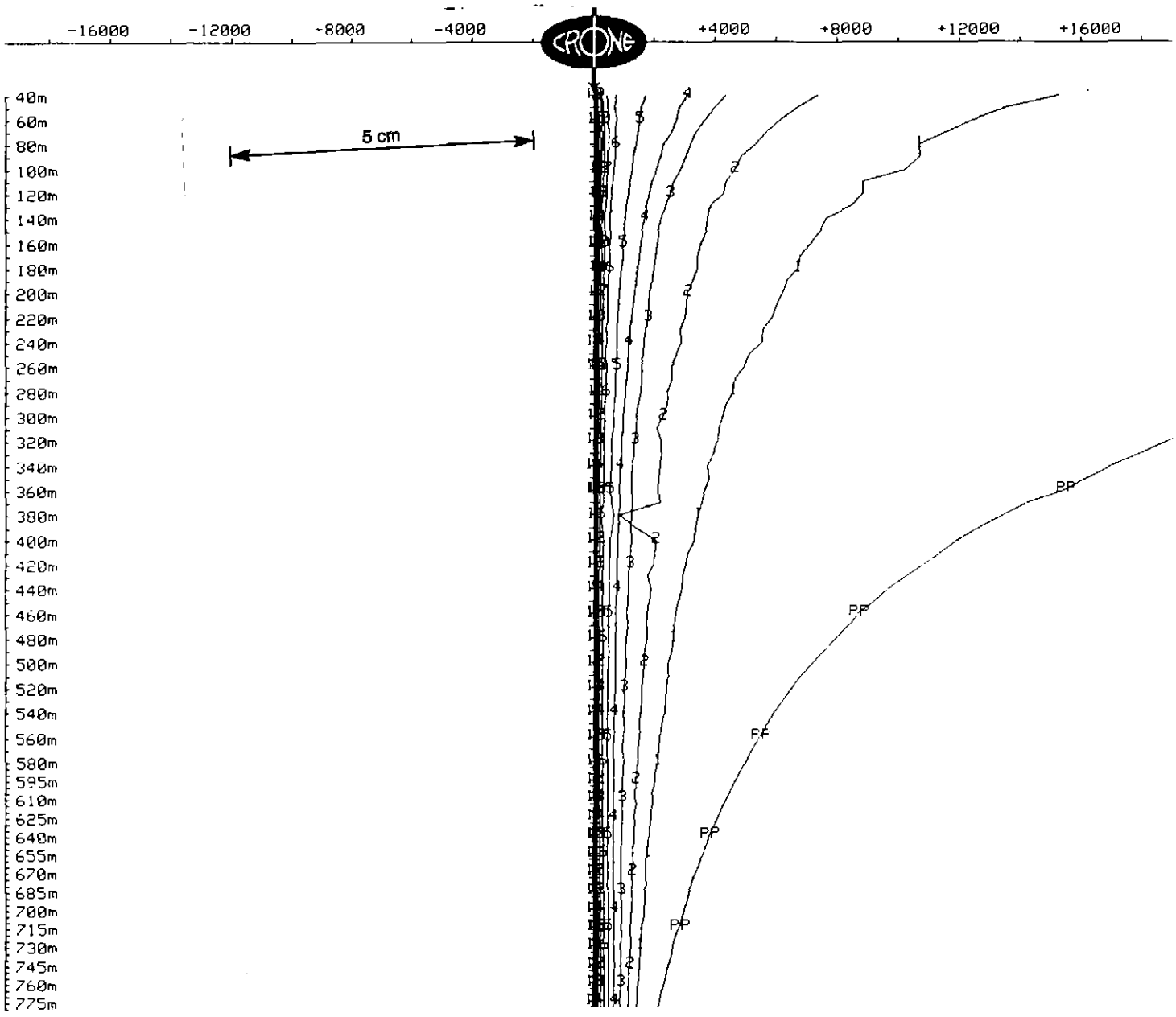
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390945

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/



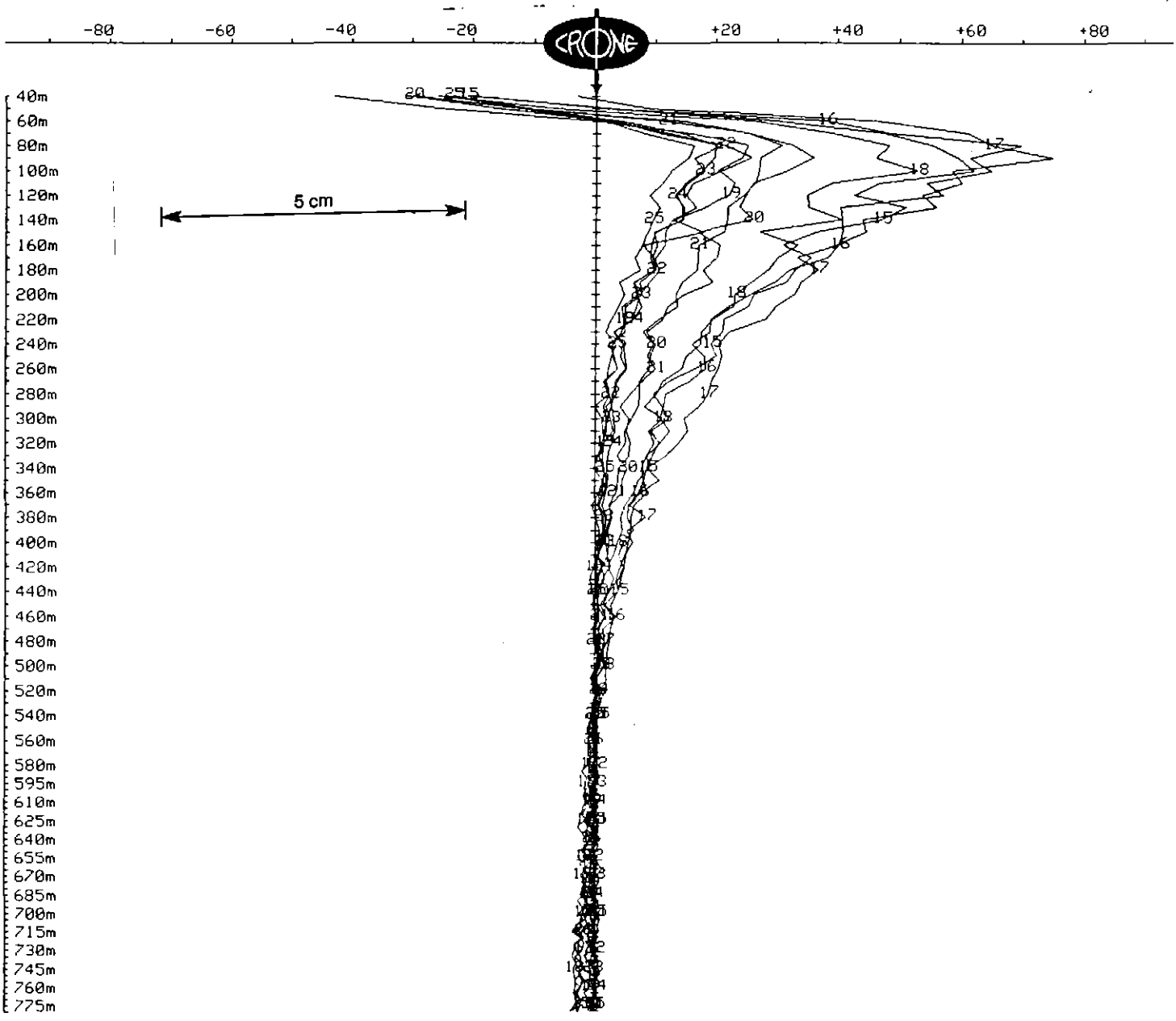
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390946

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



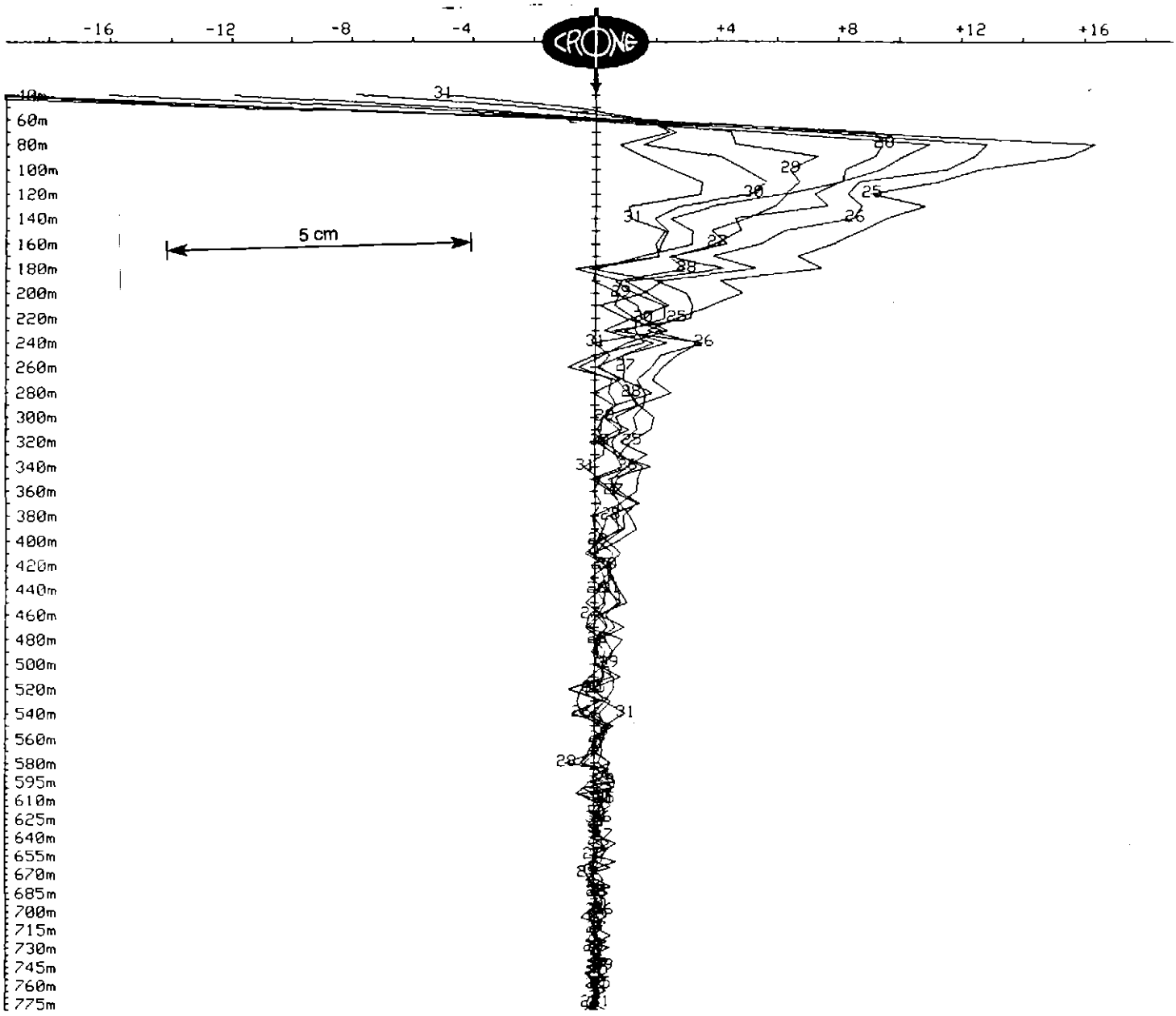
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390947

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



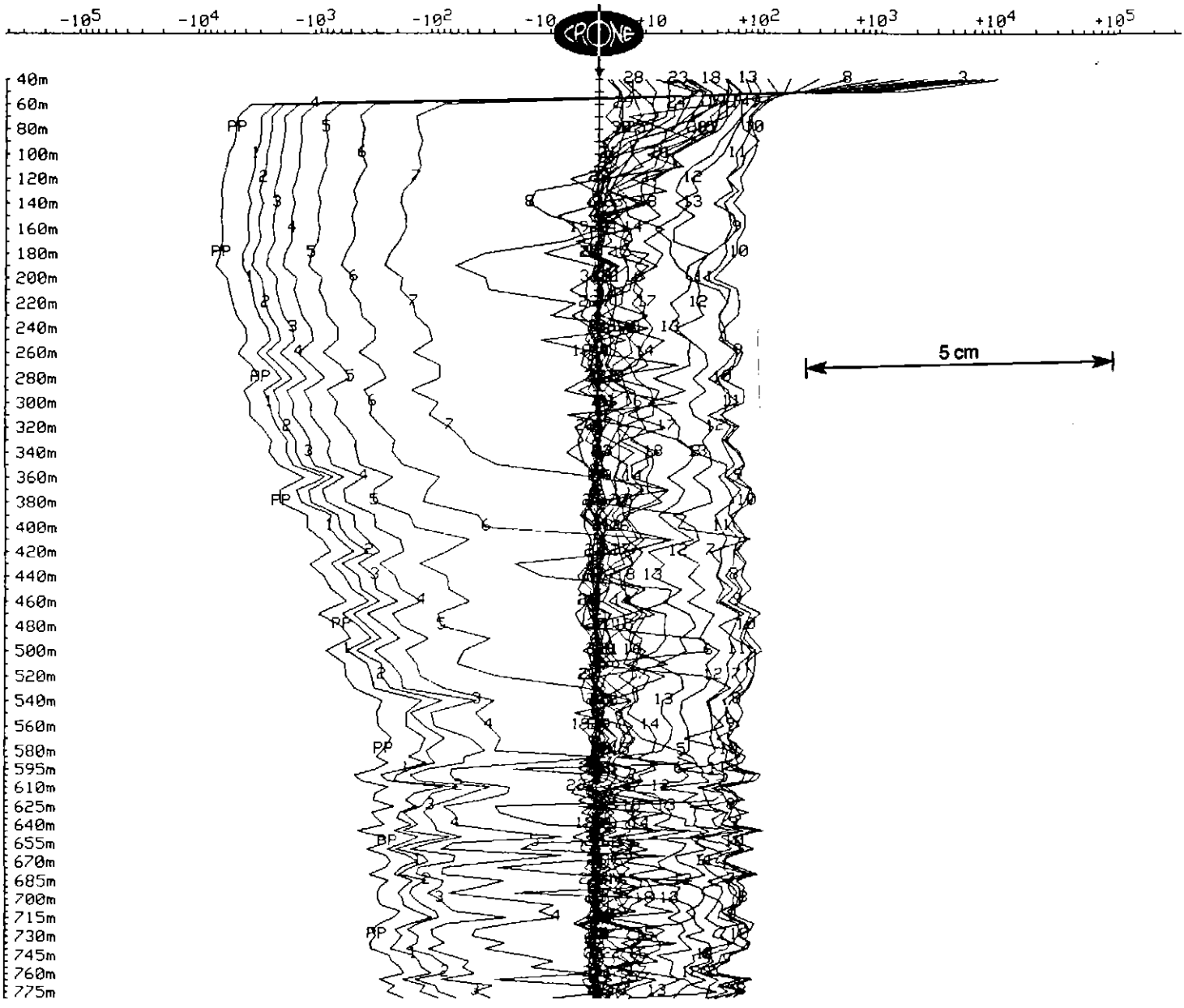
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390948

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



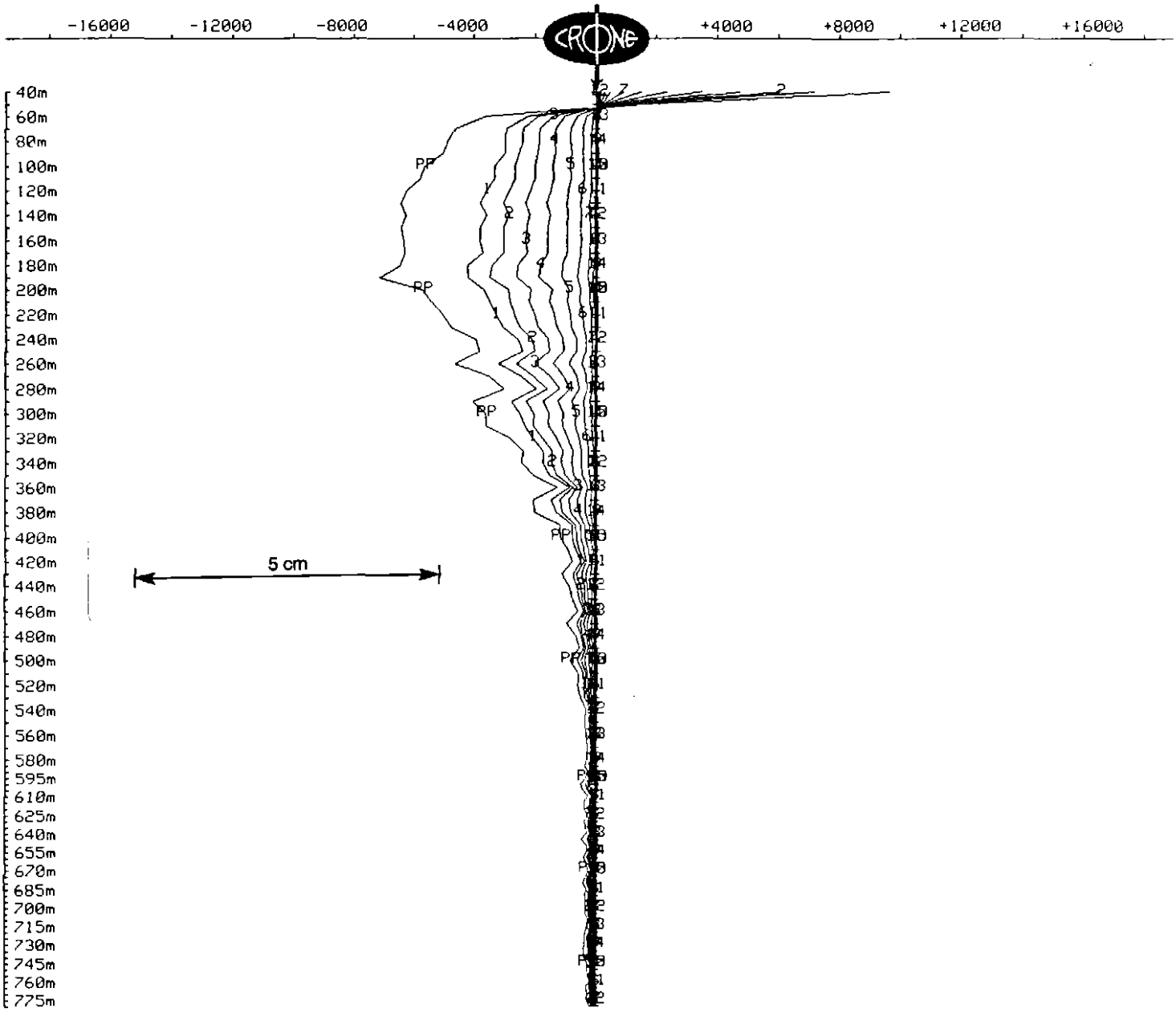
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390949

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/



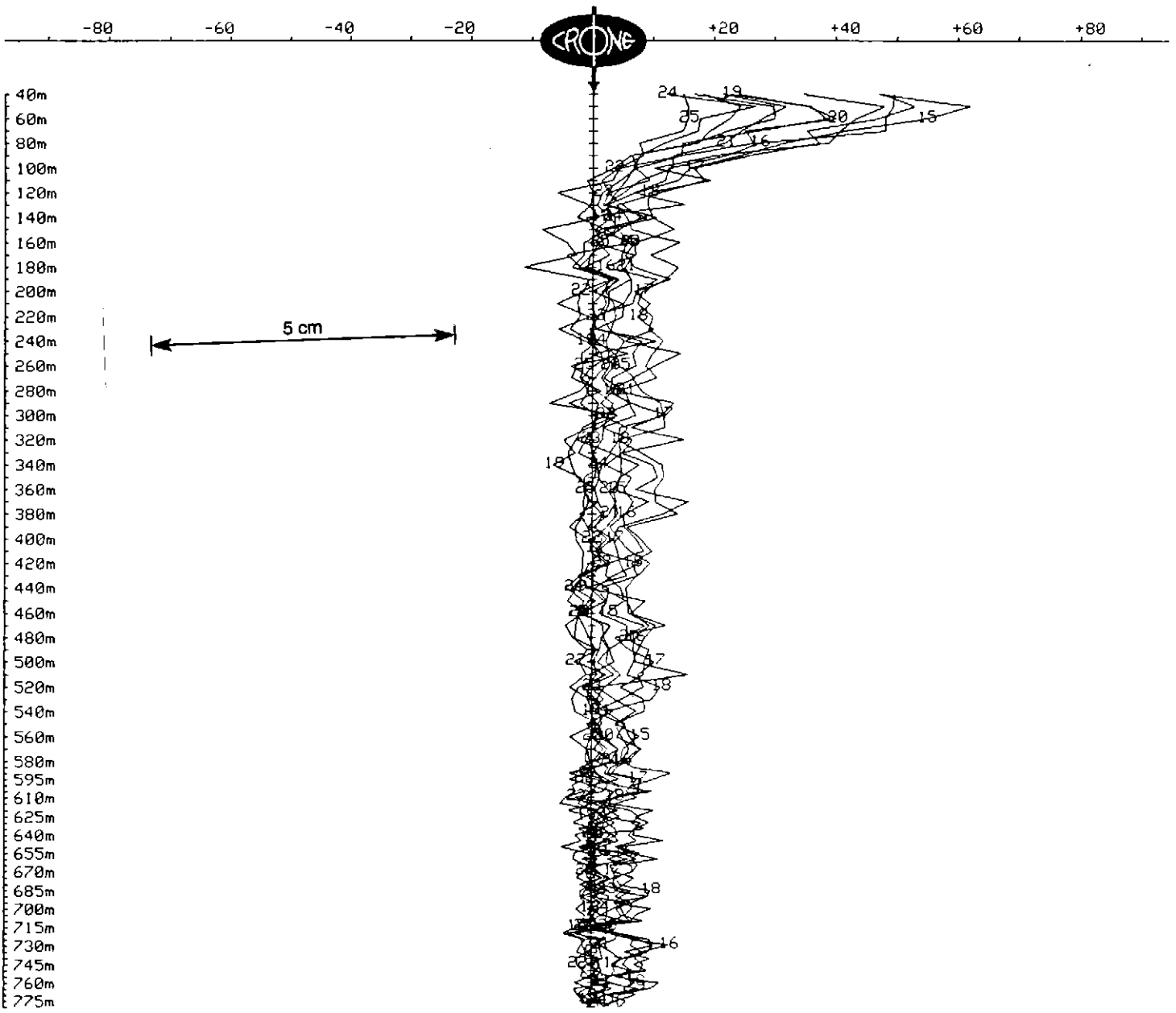
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390950

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



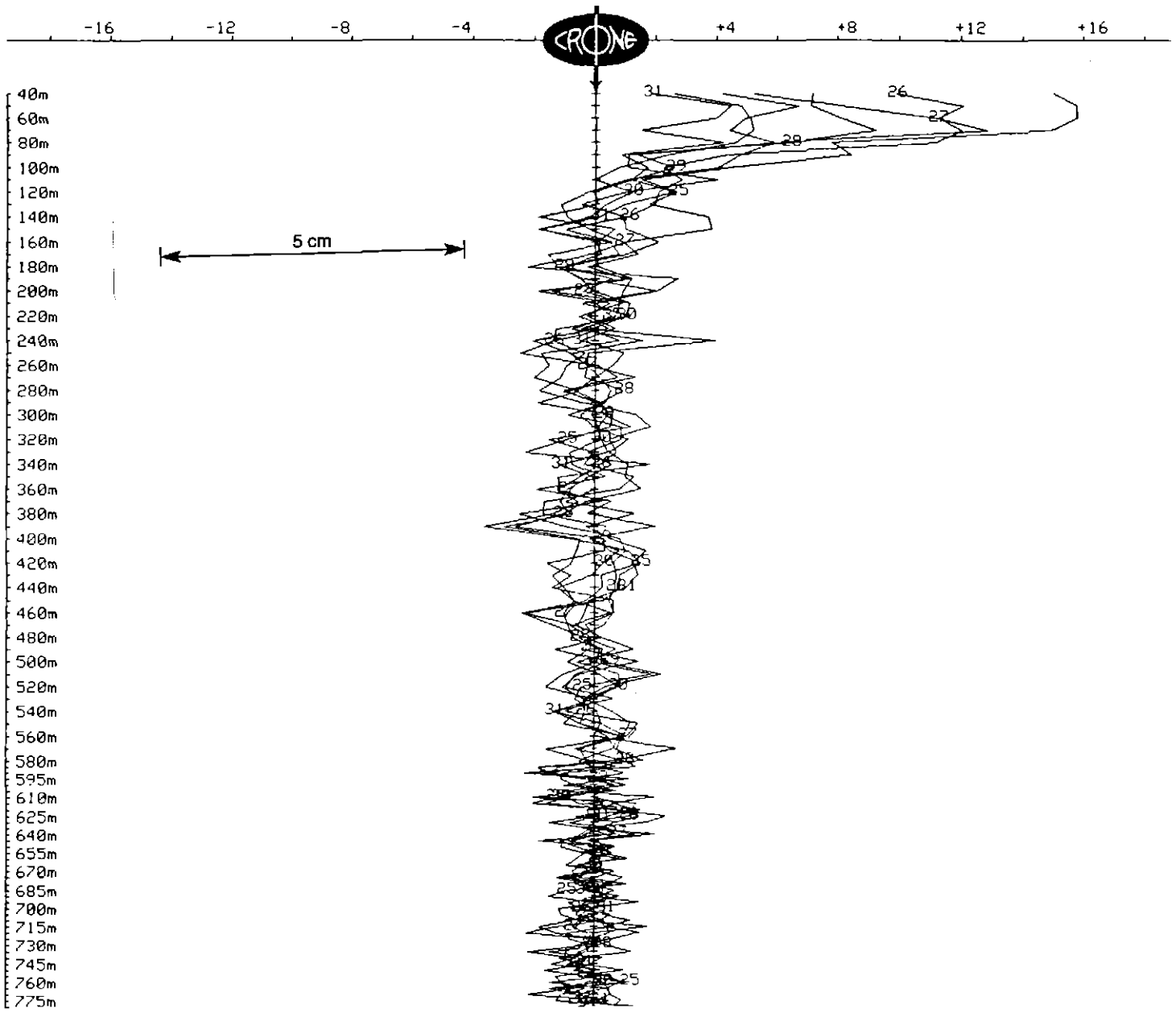
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390951

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



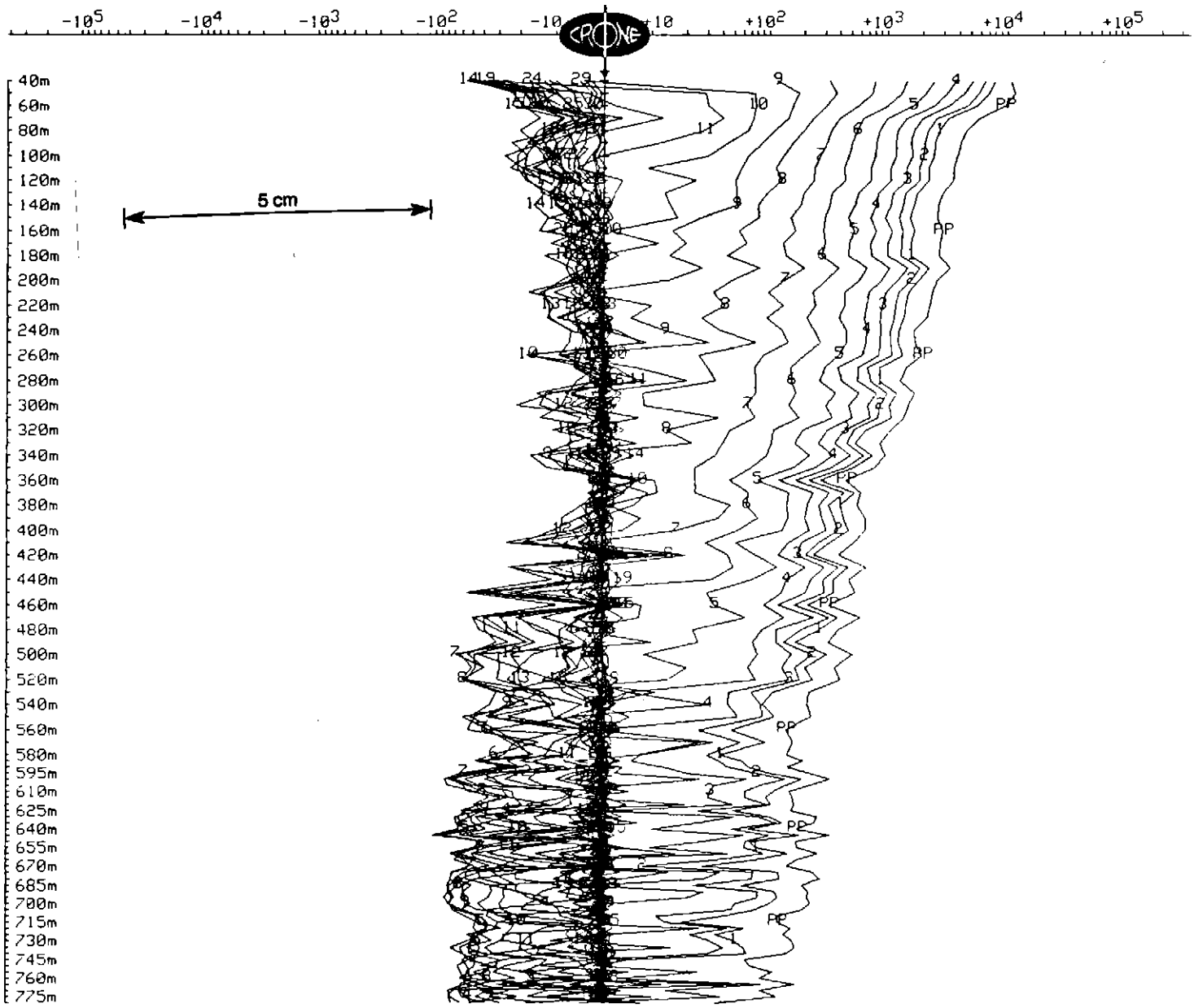
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390952

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



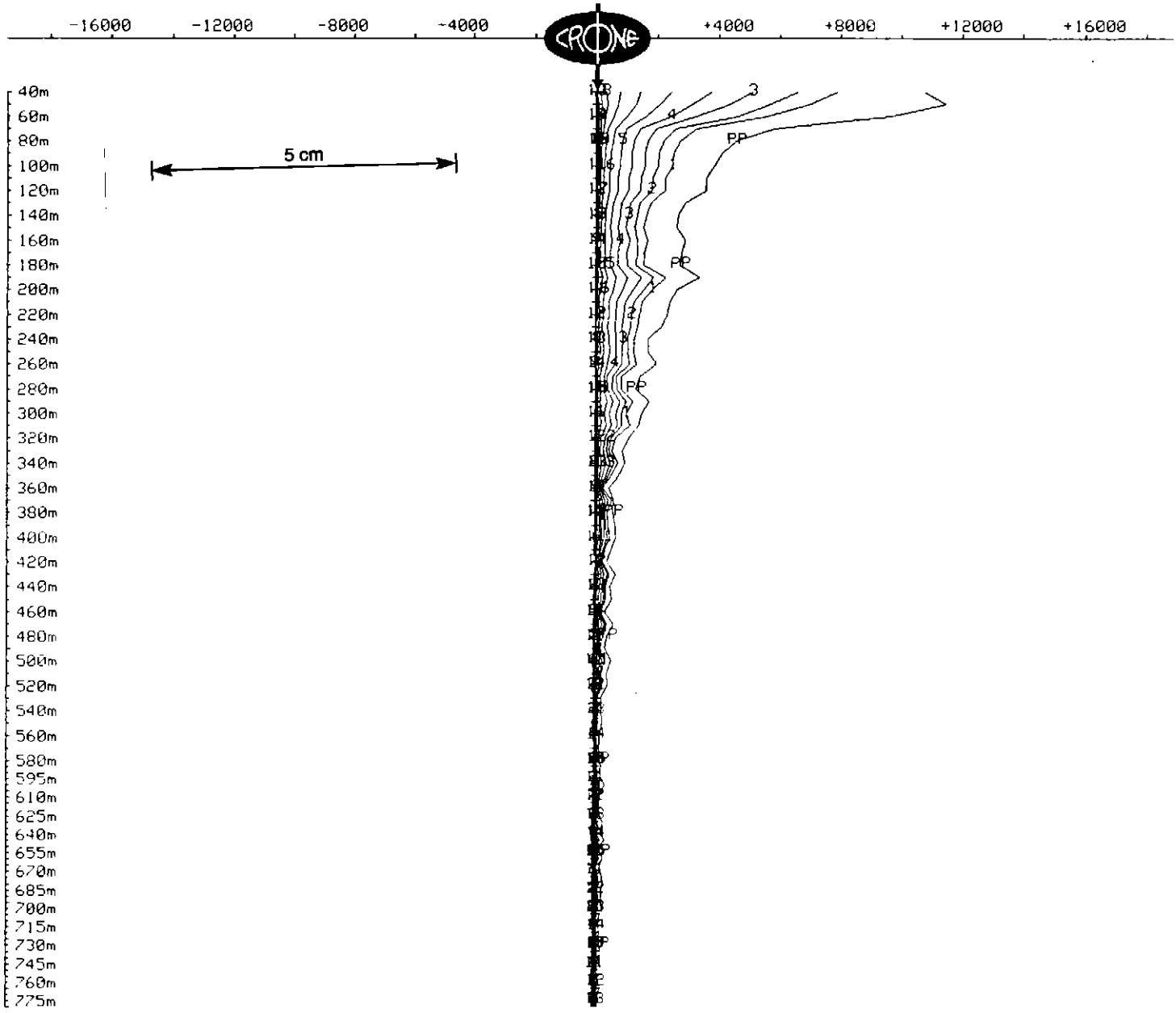
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390953

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/



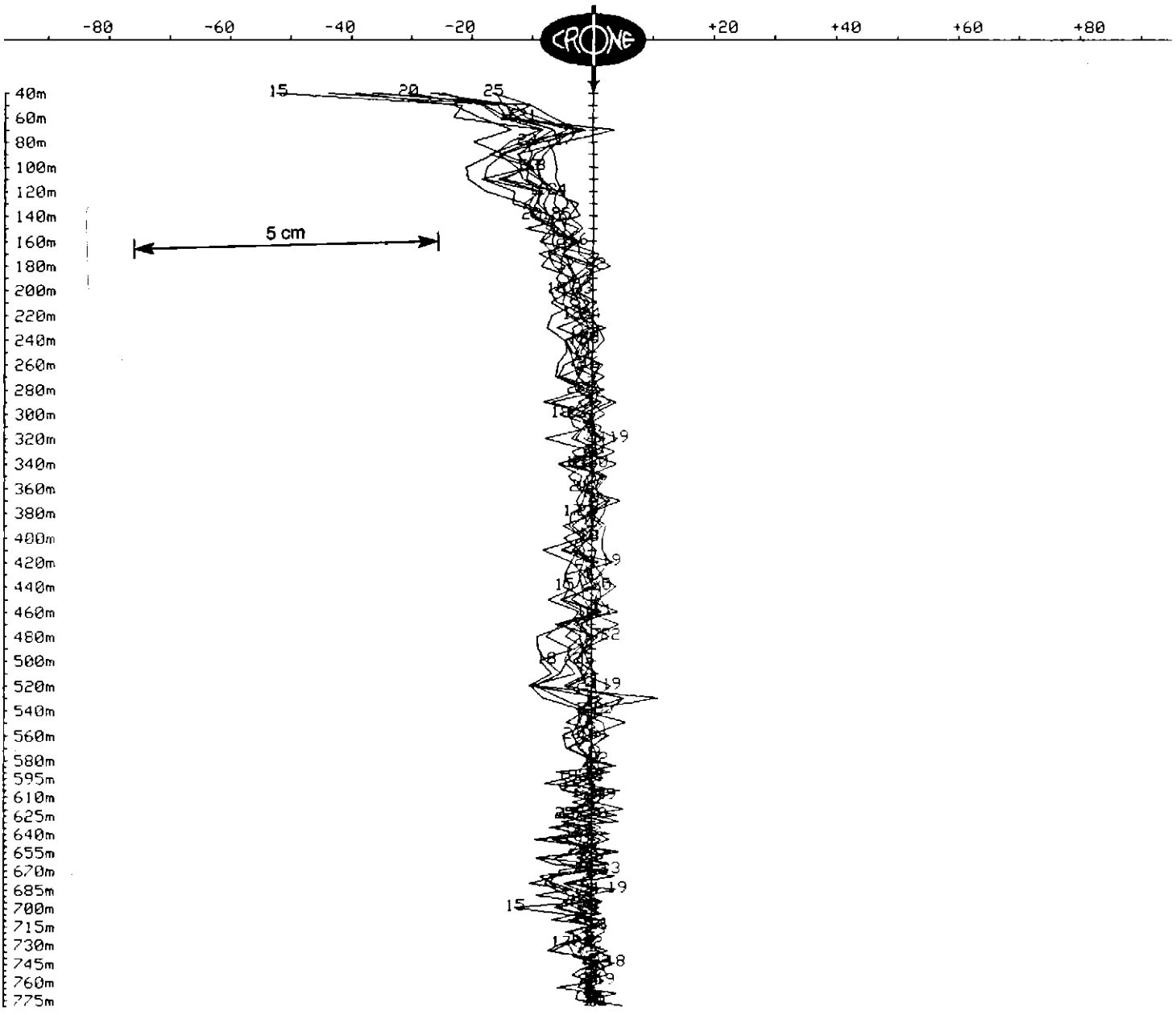
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390954

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



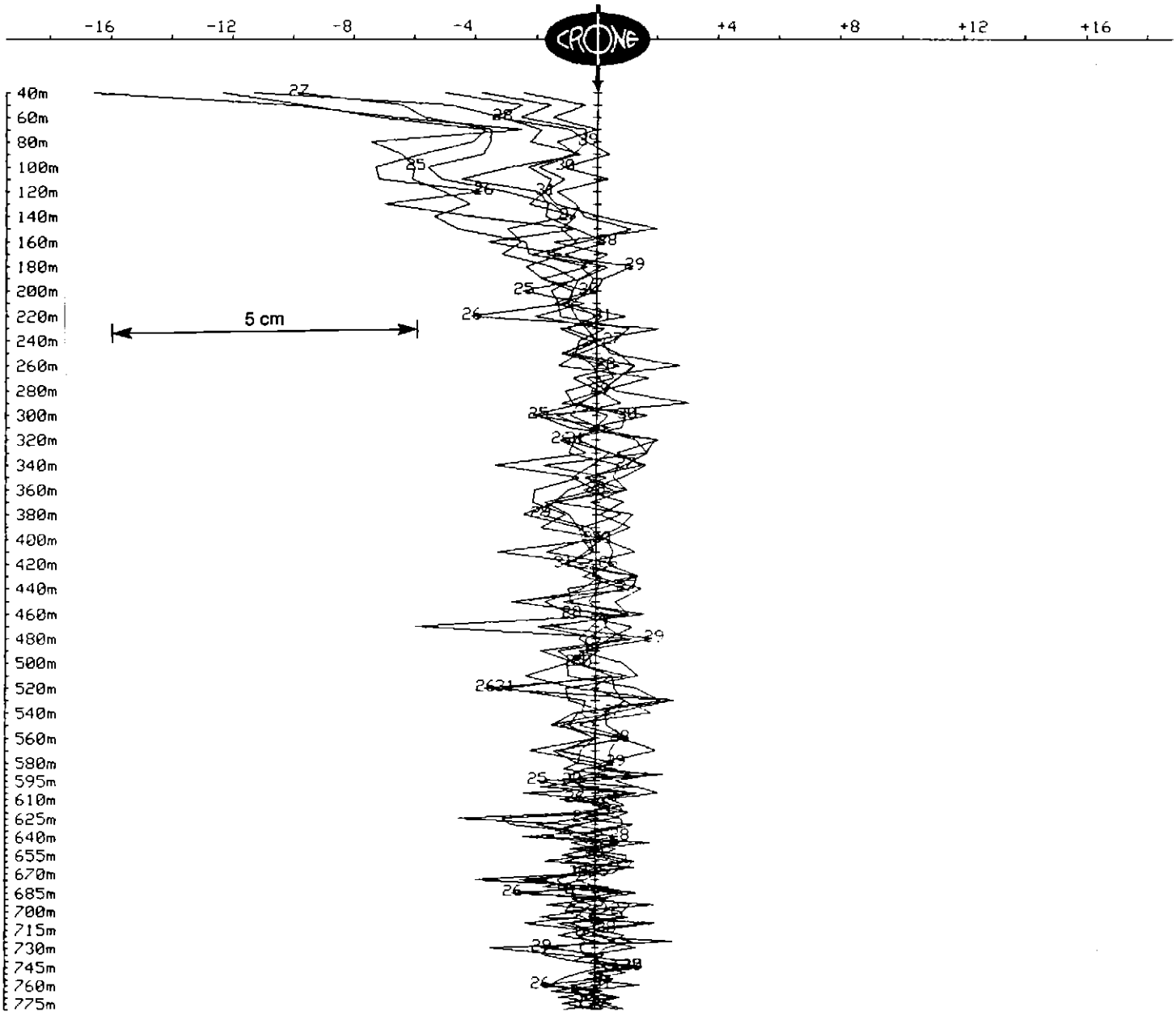
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390955

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: SHD1XYE.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



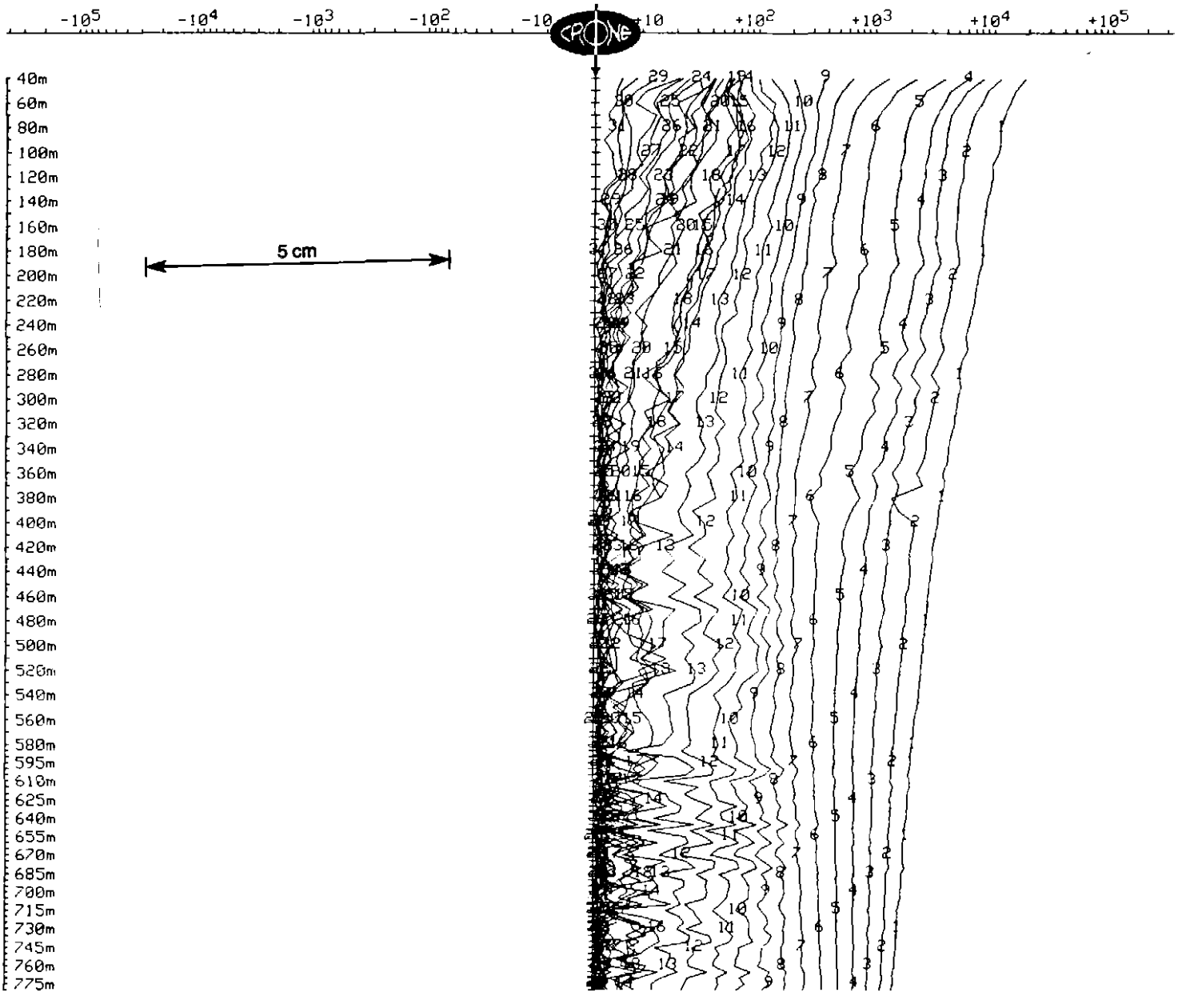
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390956

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: East
Date	: Jan 8, 1997	File name	: 1ETOT.PEM

Data Corrected for Probe Rotation using Cleaned PP
TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390957

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM
Time Base	: 20.00 ms	# Readings	: 98
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 600m X 500m	Receiver	: Digital #106
Current	: 13 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 80000m, 58840m, 0m
2. 80175m, 58740m, 0m
3. 80600m, 58700m, 0m
4. 80600m, 59040m, 0m
5. 80530m, 59190m, 0m
6. 80000m, 59190m, 0m

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

1. 81000m, 58935m, 0m
2. 250deg, 73deg, 9m
3. 250.2deg, 73deg, 23m
4. 251deg, 73deg, 29m
5. 251.5deg, 73deg, 30m
6. 253deg, 72.8deg, 30m
7. 255.2deg, 73.2deg, 30m
8. 254deg, 72.2deg, 30m
9. 252.8deg, 71.2deg, 30m
10. 252.5deg, 70.2deg, 30m
11. 252deg, 69.7deg, 30m
12. 251.5deg, 69.2deg, 30m
13. 252.2deg, 68.7deg, 30m
14. 253.5deg, 64.3deg, 20m
15. 254.7deg, 61.8deg, 10m
16. 257deg, 60.4deg, 12m
17. 257.5deg, 59deg, 12m
18. 253deg, 58.2deg, 12m
19. 253deg, 57.4deg, 12m
20. 253deg, 56.4deg, 14m
21. 252.8deg, 55.2deg, 22m
22. 253deg, 53deg, 30m
23. 253.5deg, 51deg, 30m
24. 254deg, 49deg, 30m
25. 254.5deg, 46.2deg, 30m
26. 254.5deg, 44.7deg, 30m
27. 254.5deg, 44deg, 30m
28. 253.5deg, 43deg, 30m
29. 253.5deg, 41.8deg, 30m
30. 253.5deg, 40.5deg, 33m
31. 254.7deg, 39.6deg, 34m
32. 255deg, 37.3deg, 30m

Channel Times (usec)

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

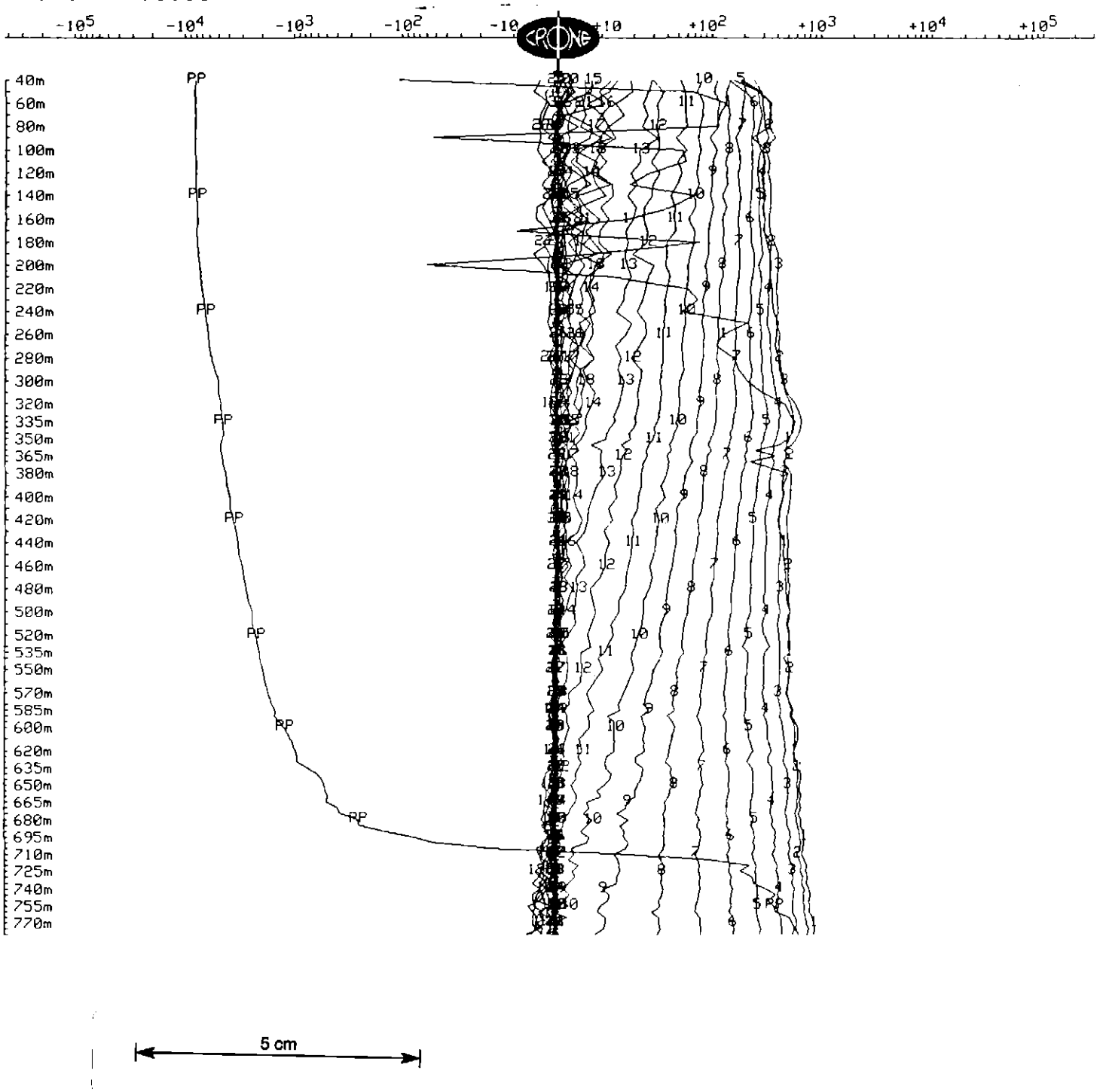
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390958

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



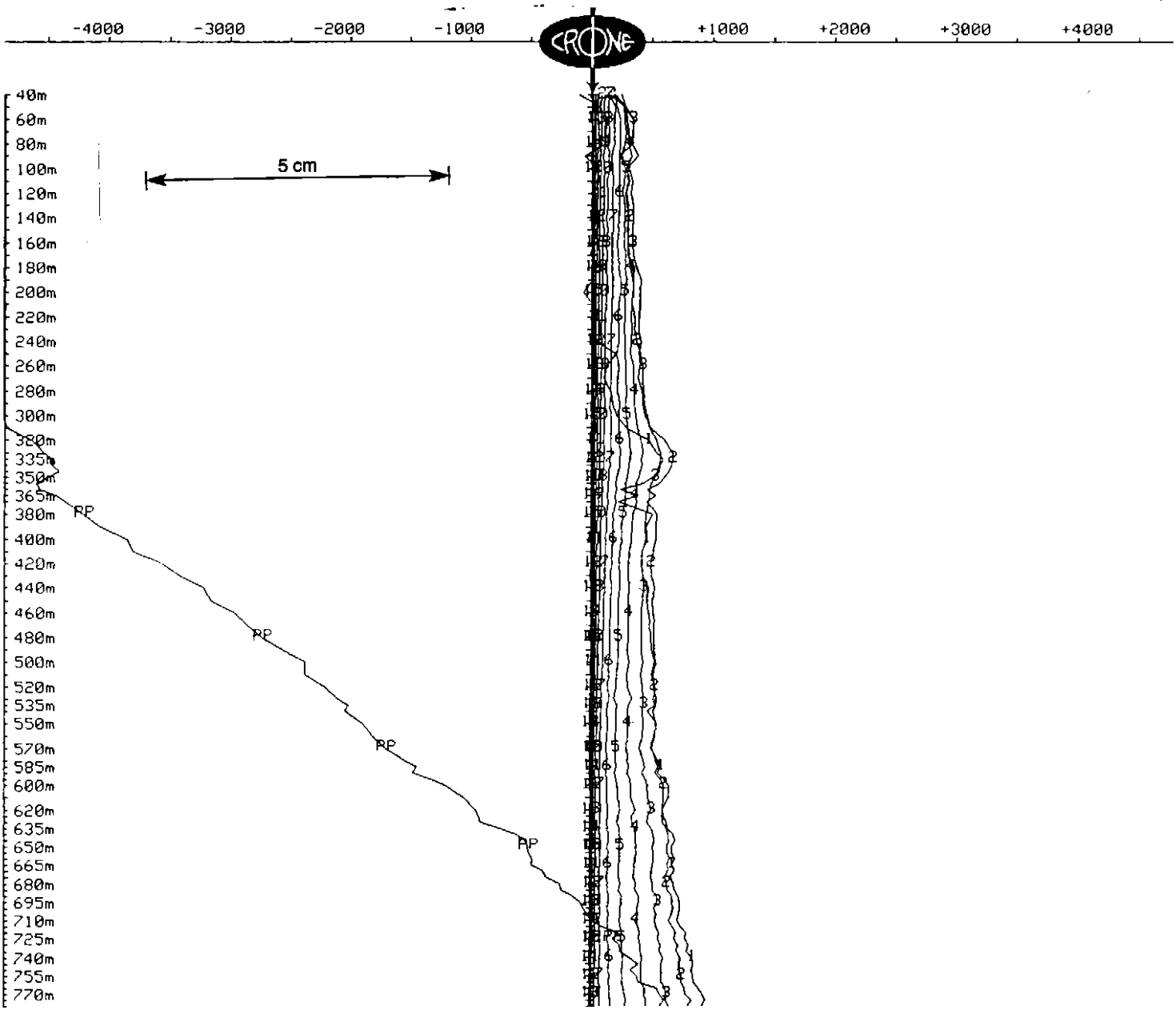
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390959

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/



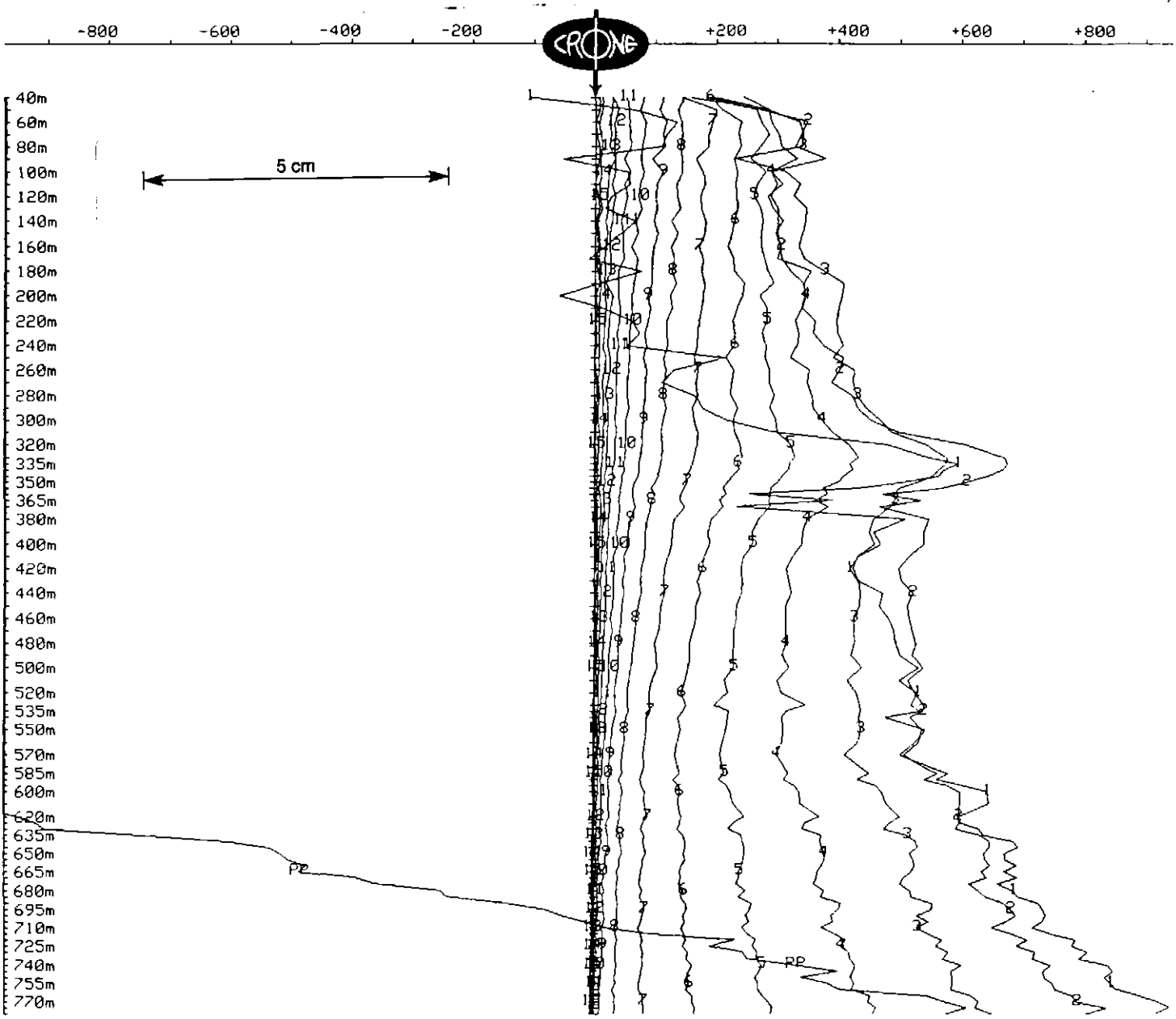
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390960

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 100 nT/



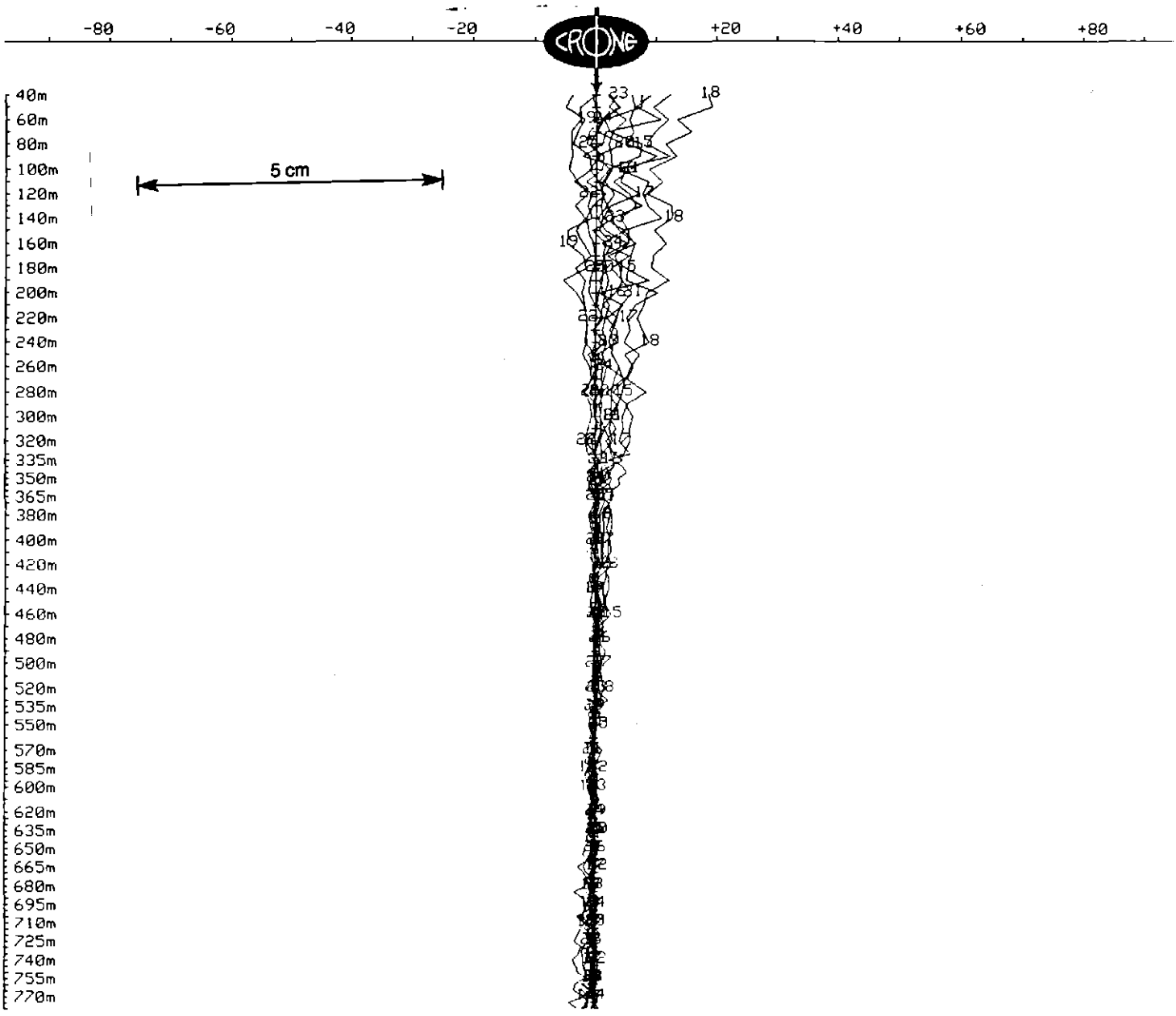
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390961

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



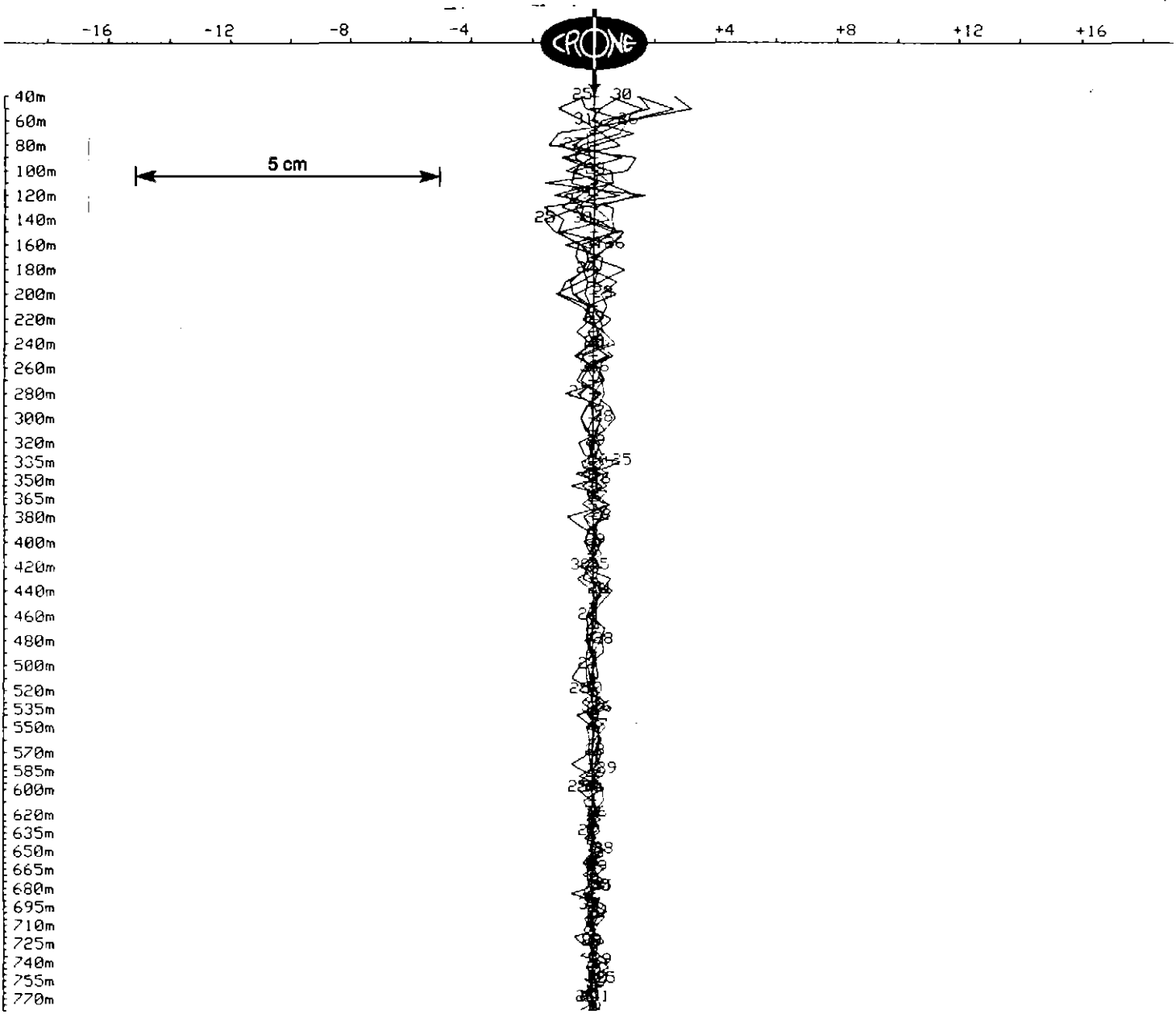
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390962

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



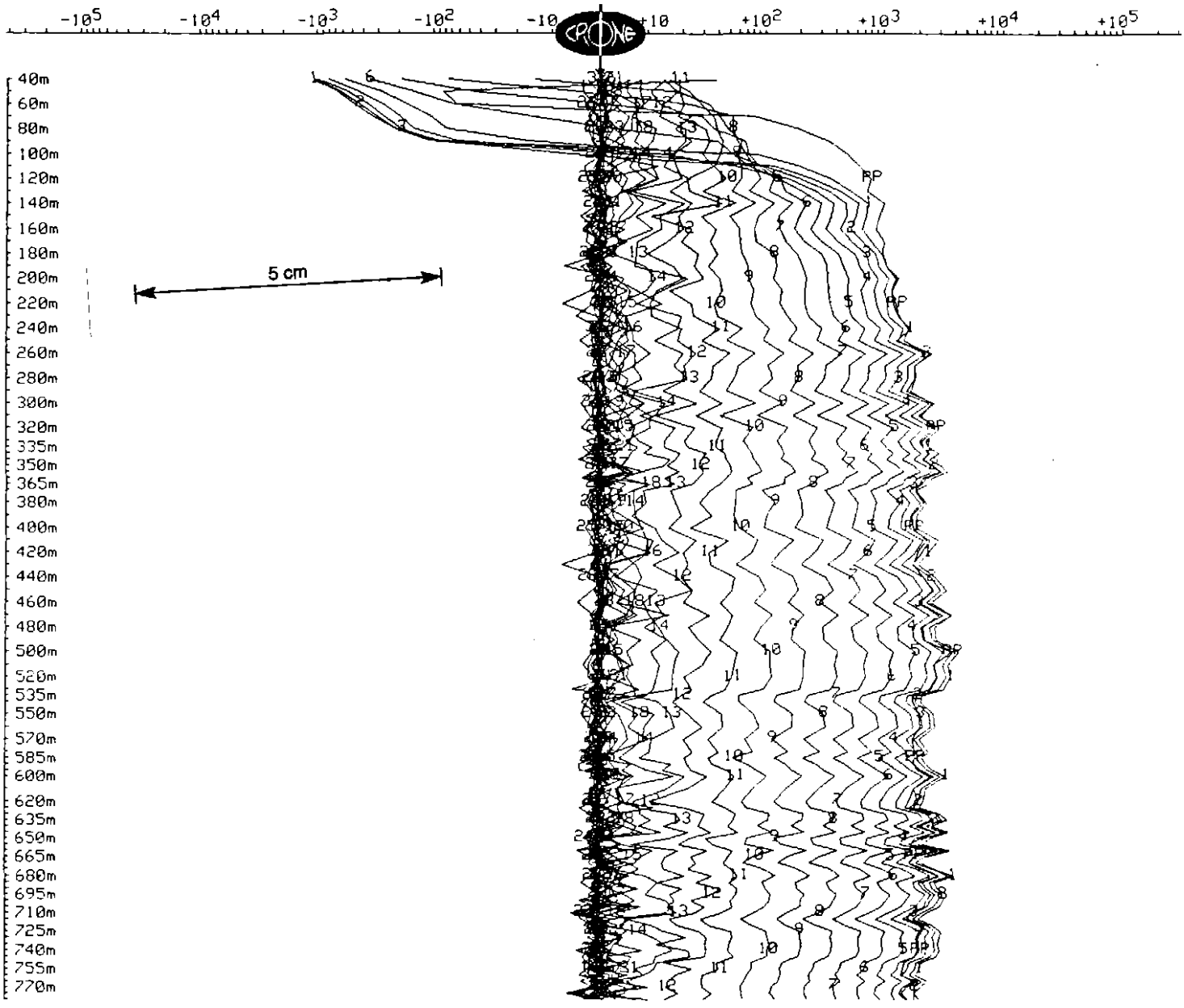
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390963

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



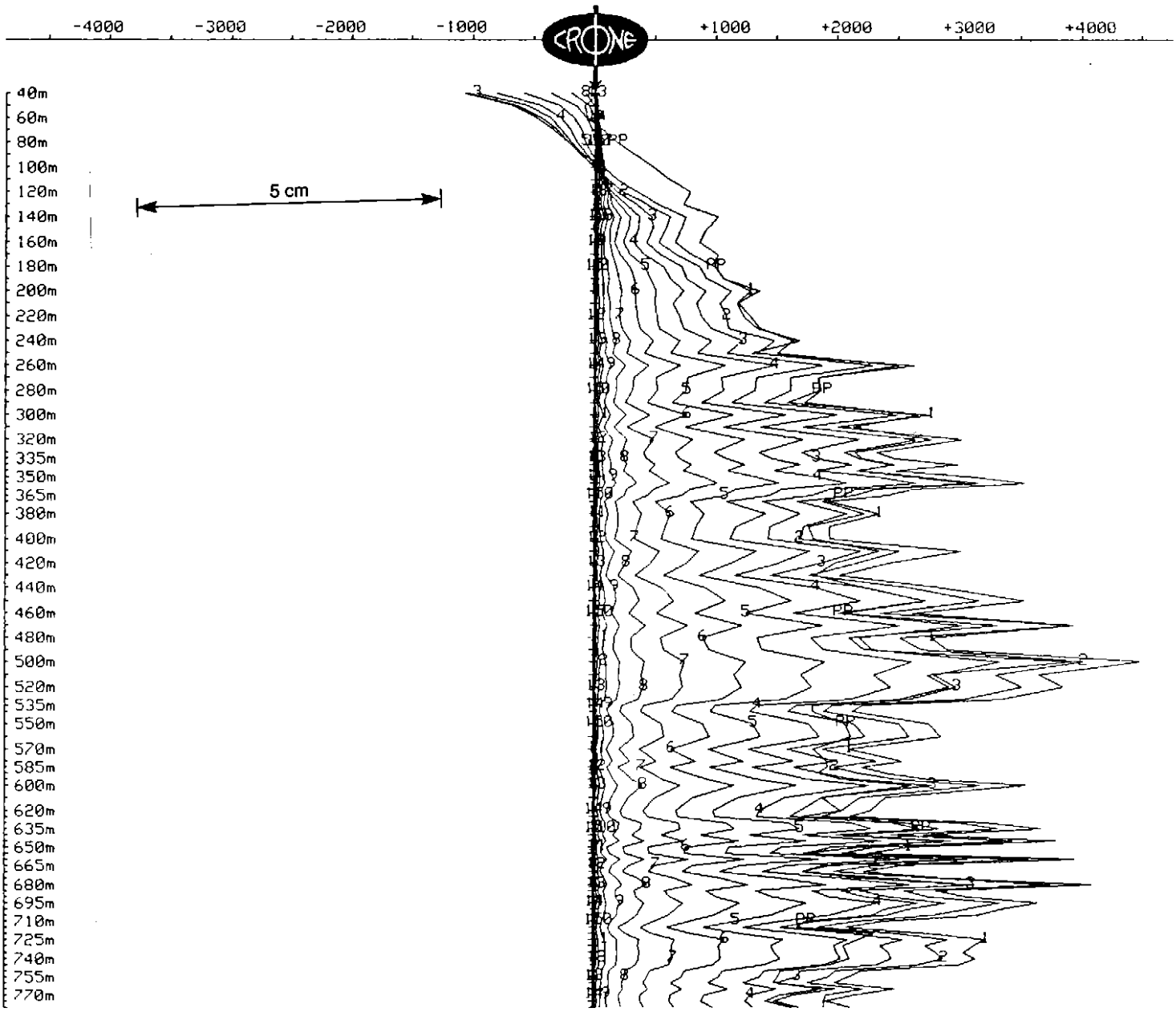
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390964

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/



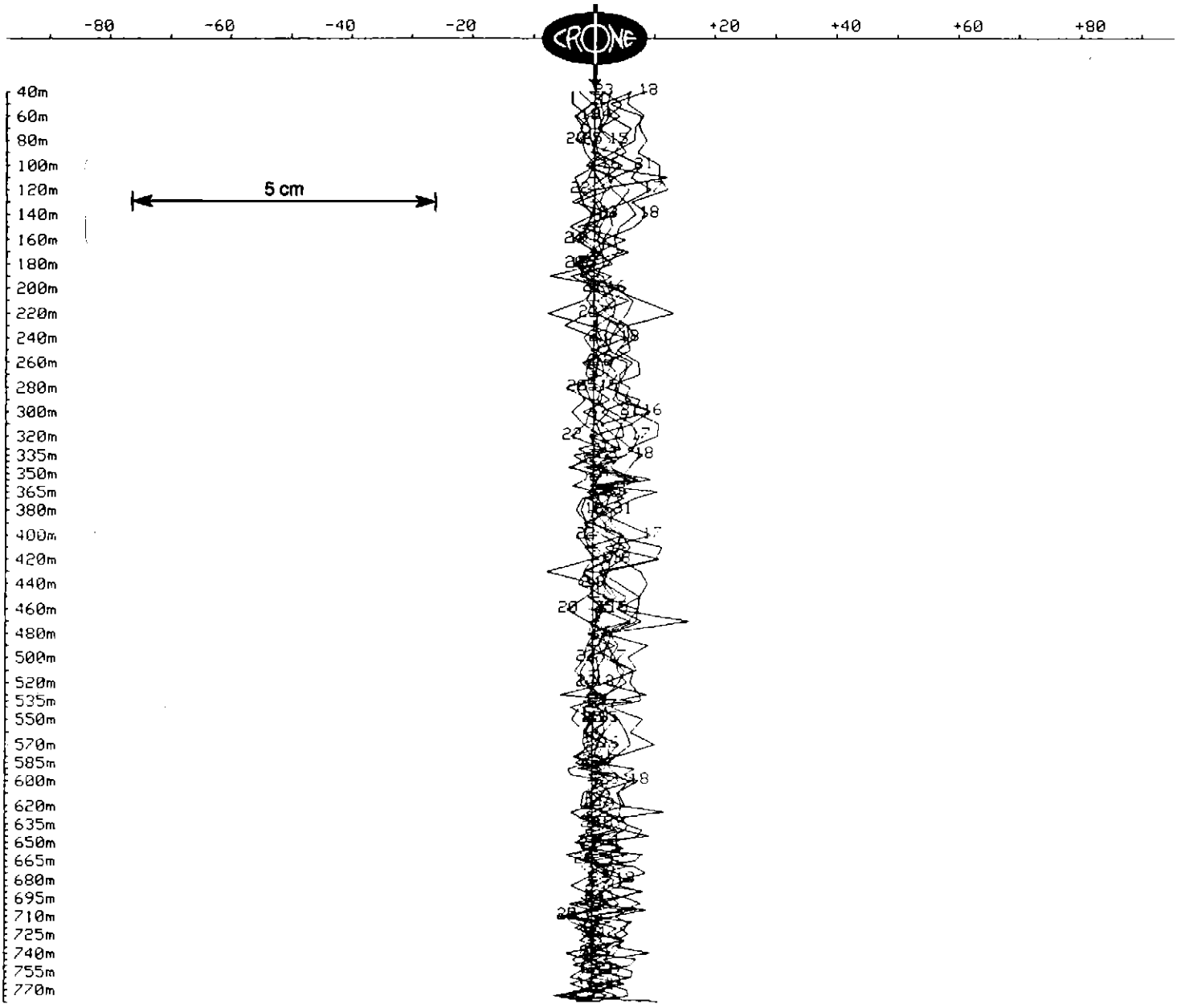
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390965

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



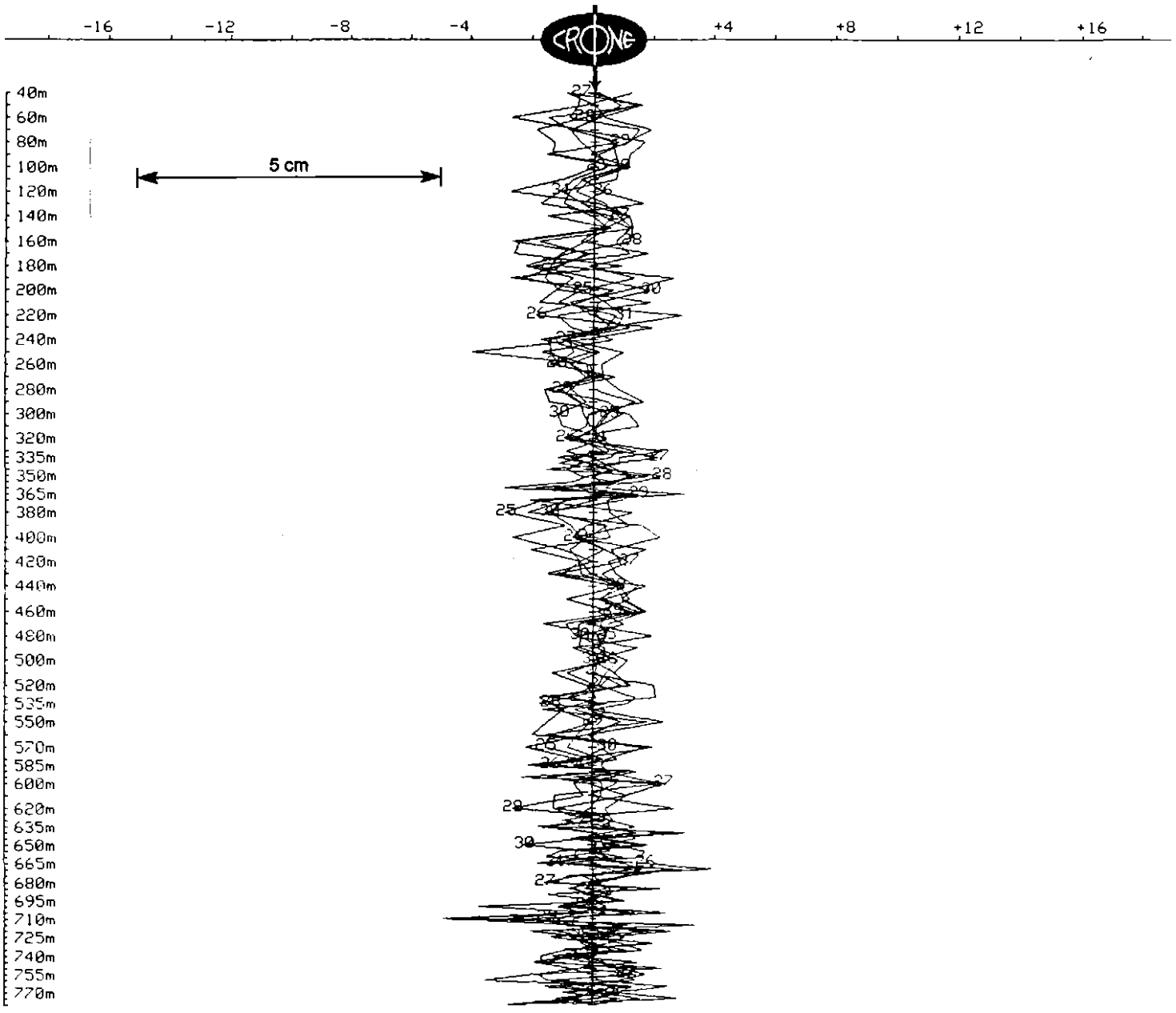
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390960

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



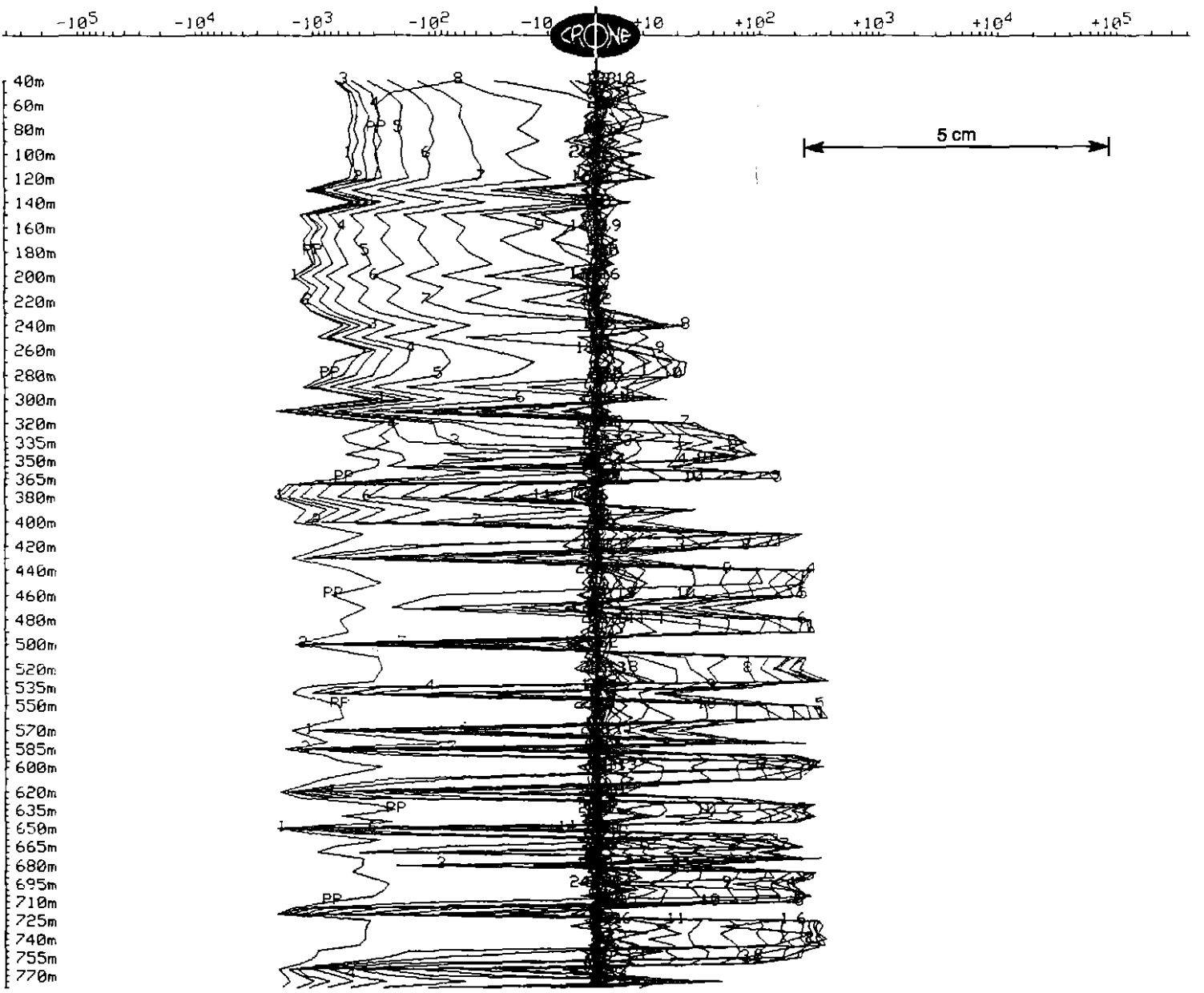
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390967

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



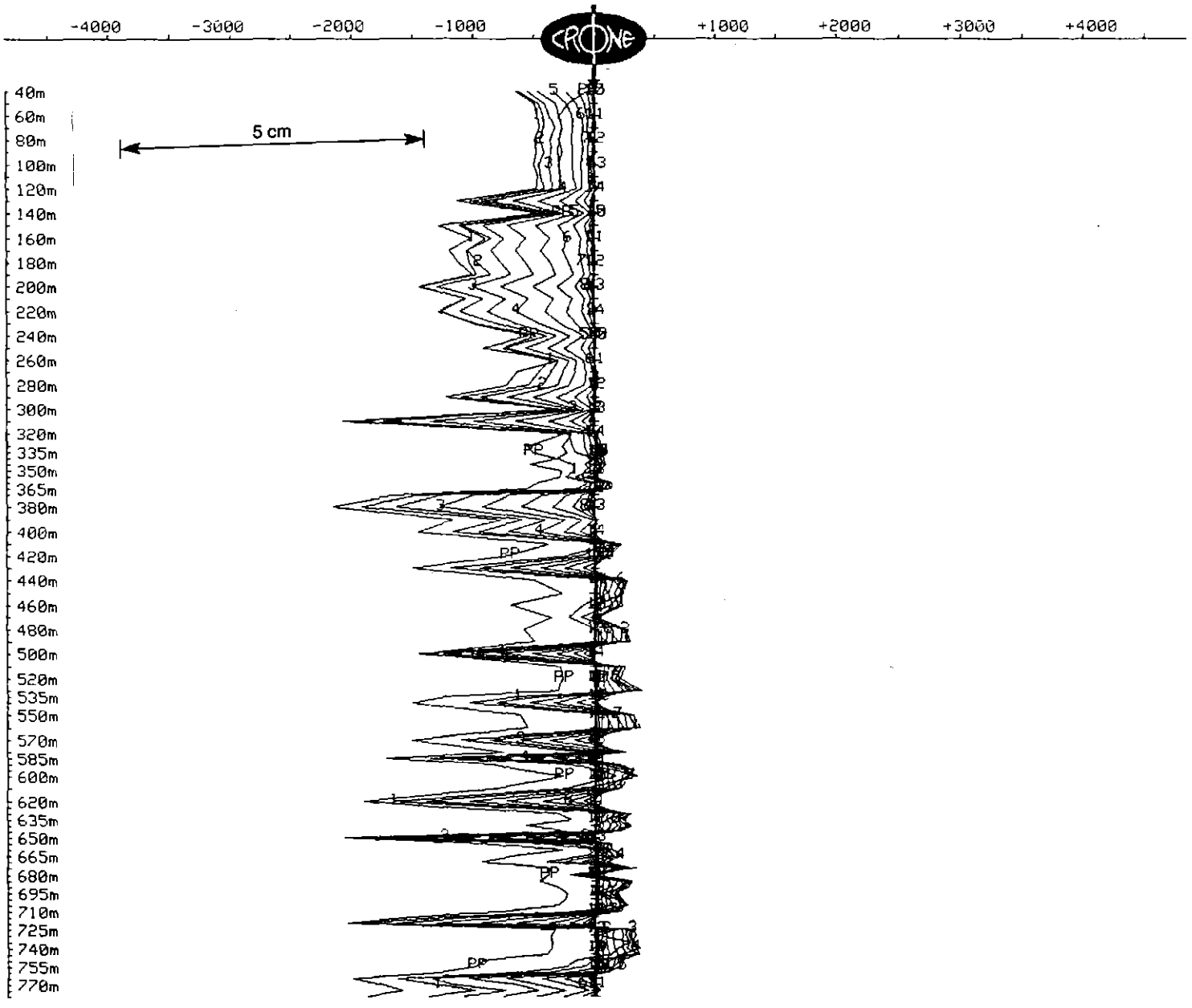
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390968

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



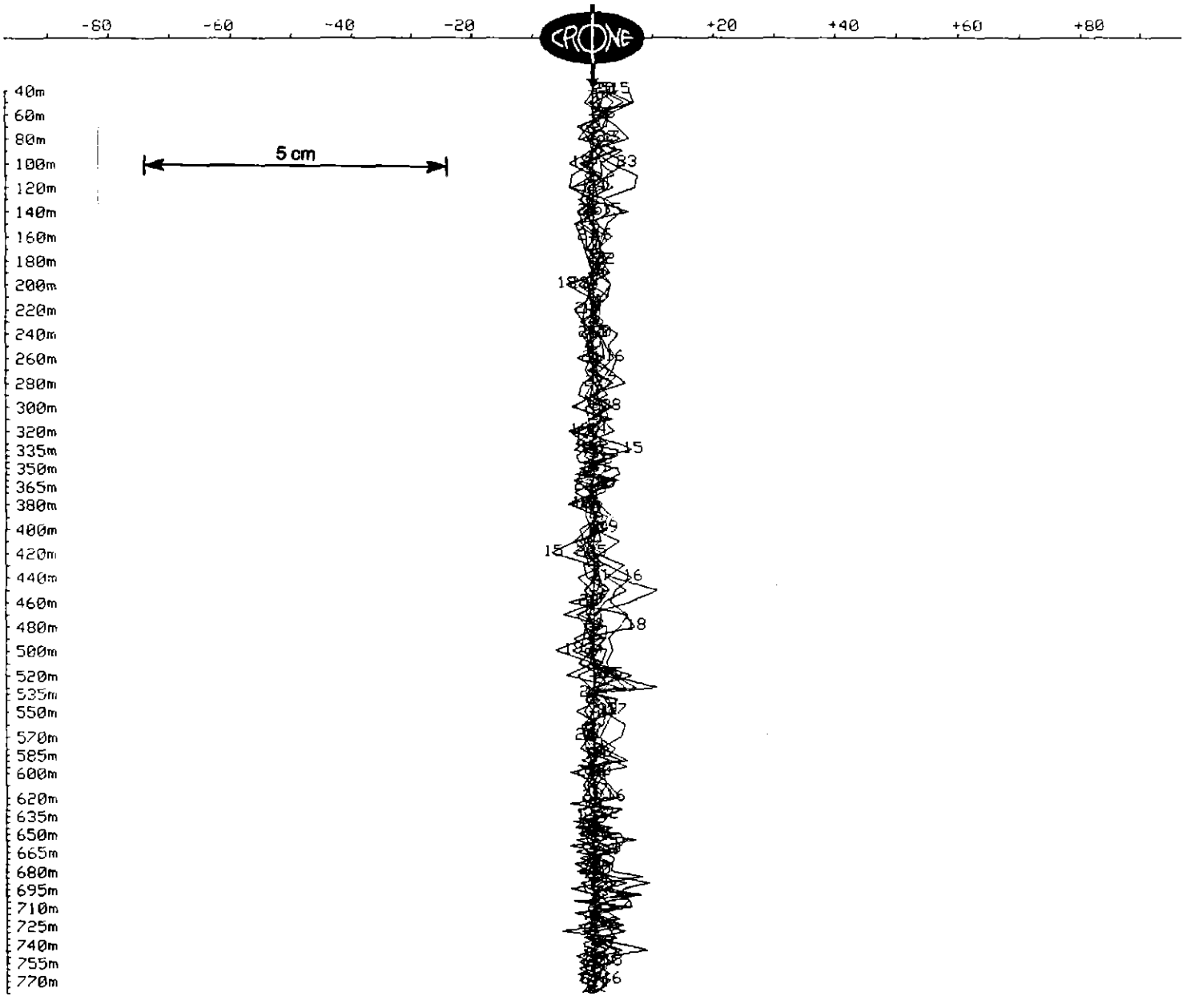
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390969

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



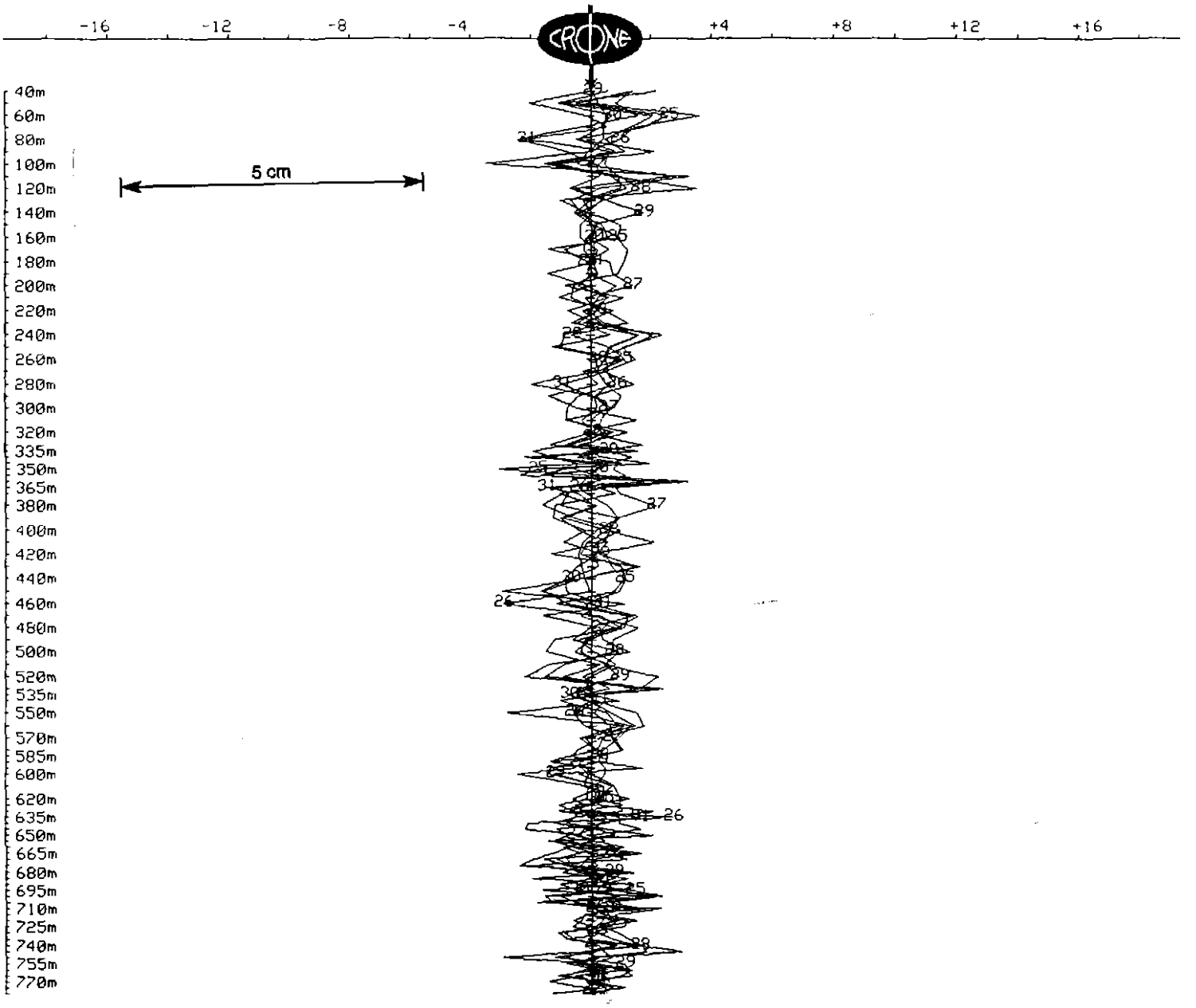
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390970

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: SHD1XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



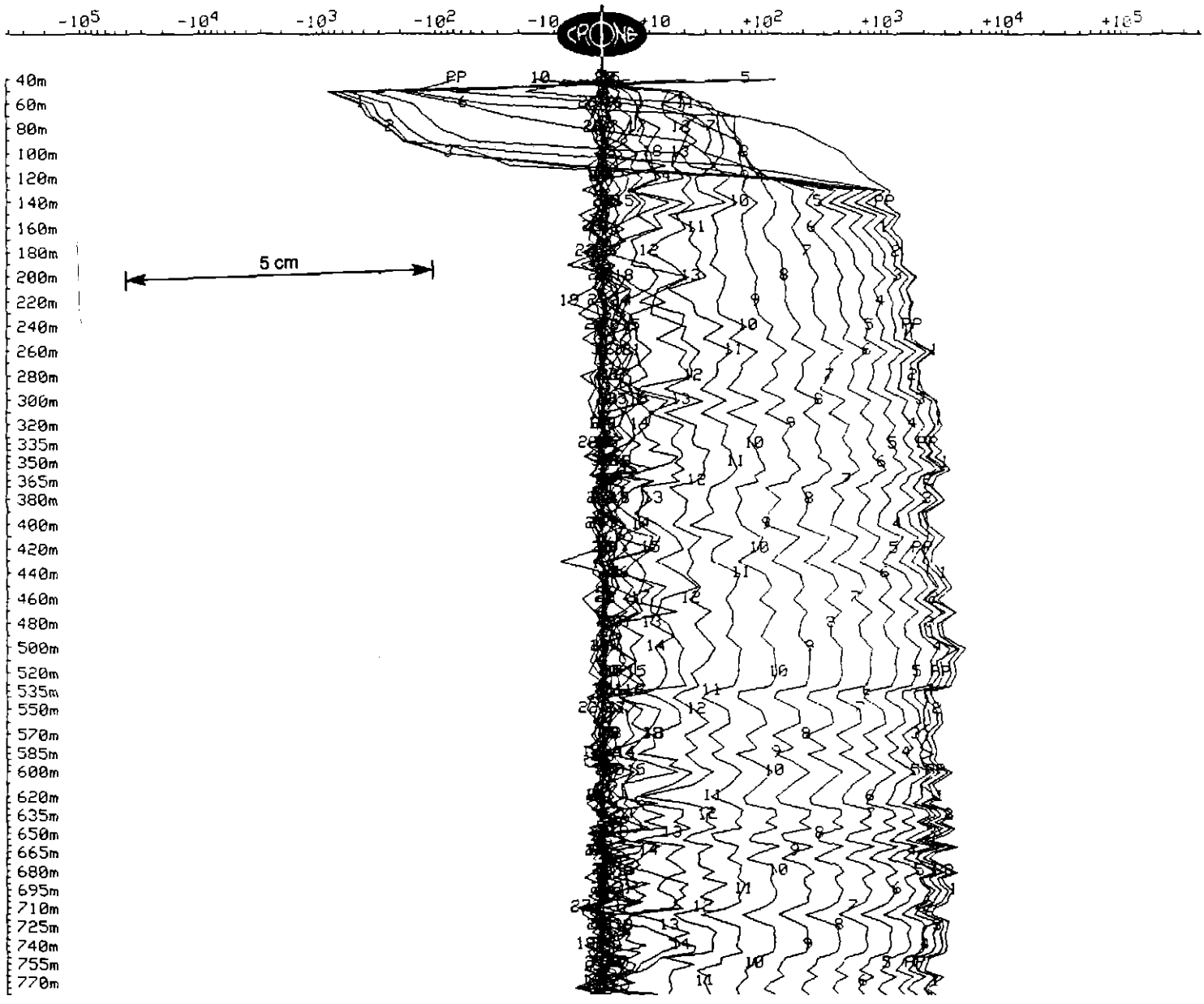
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390971

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



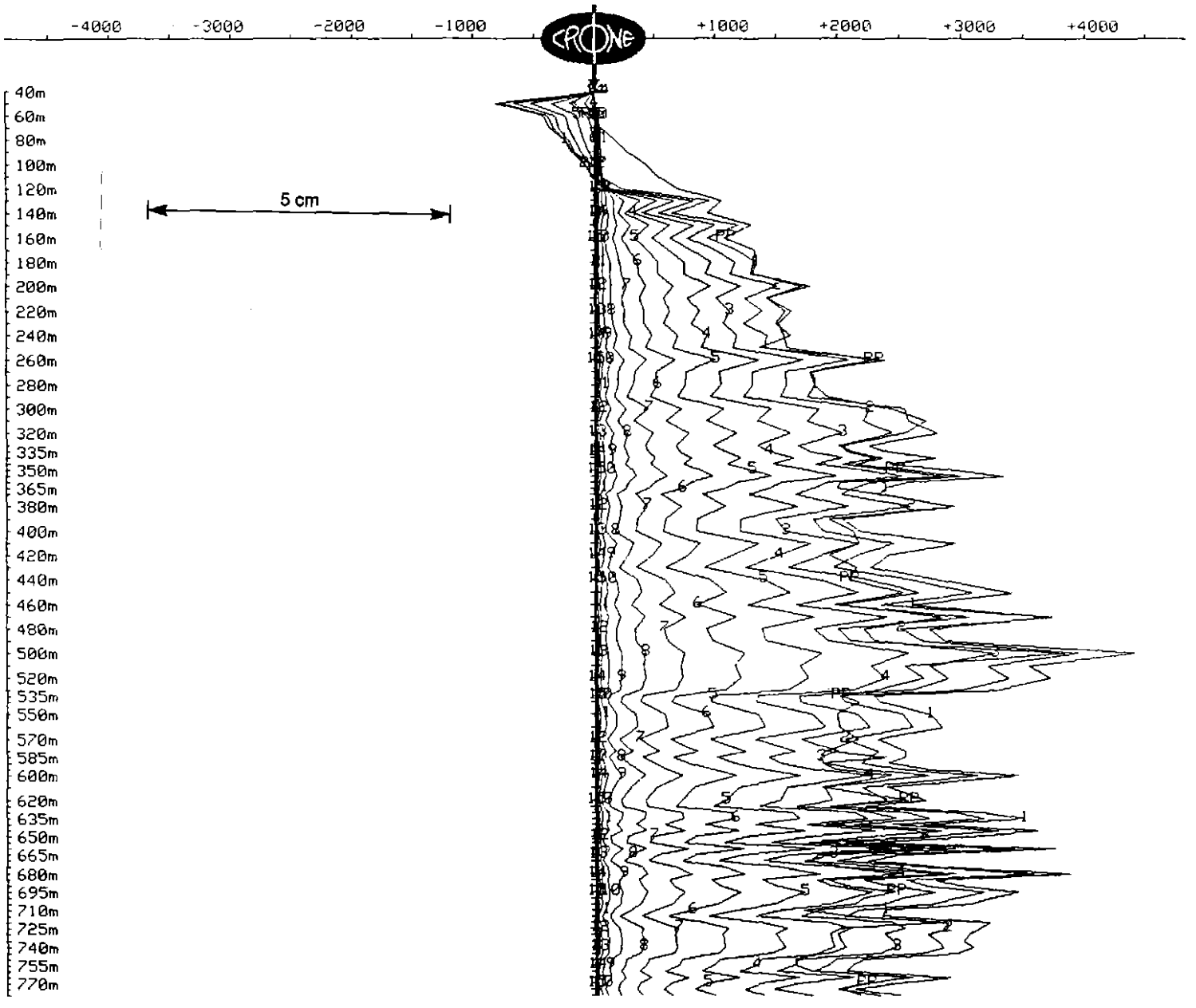
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390972

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



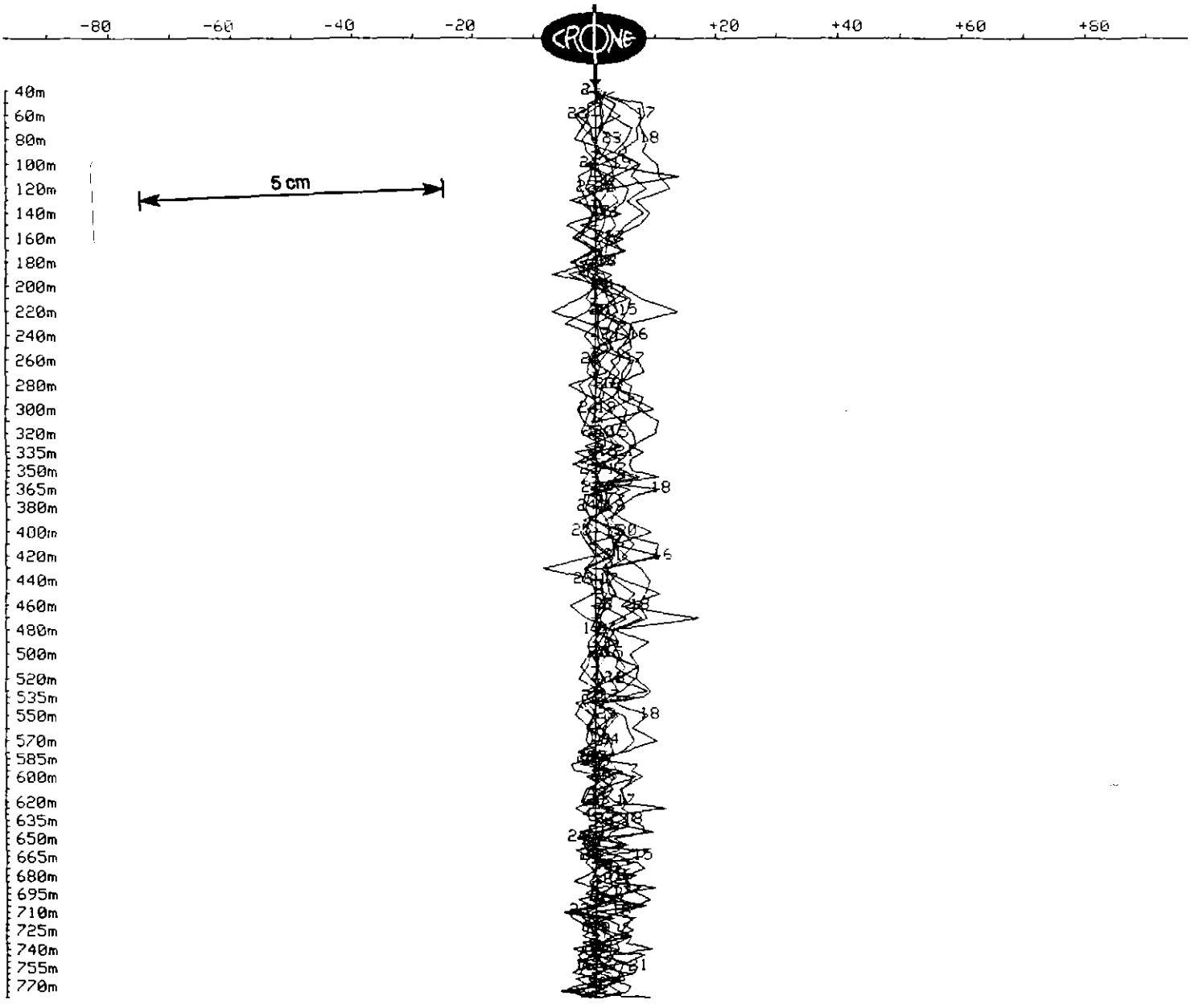
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390973

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



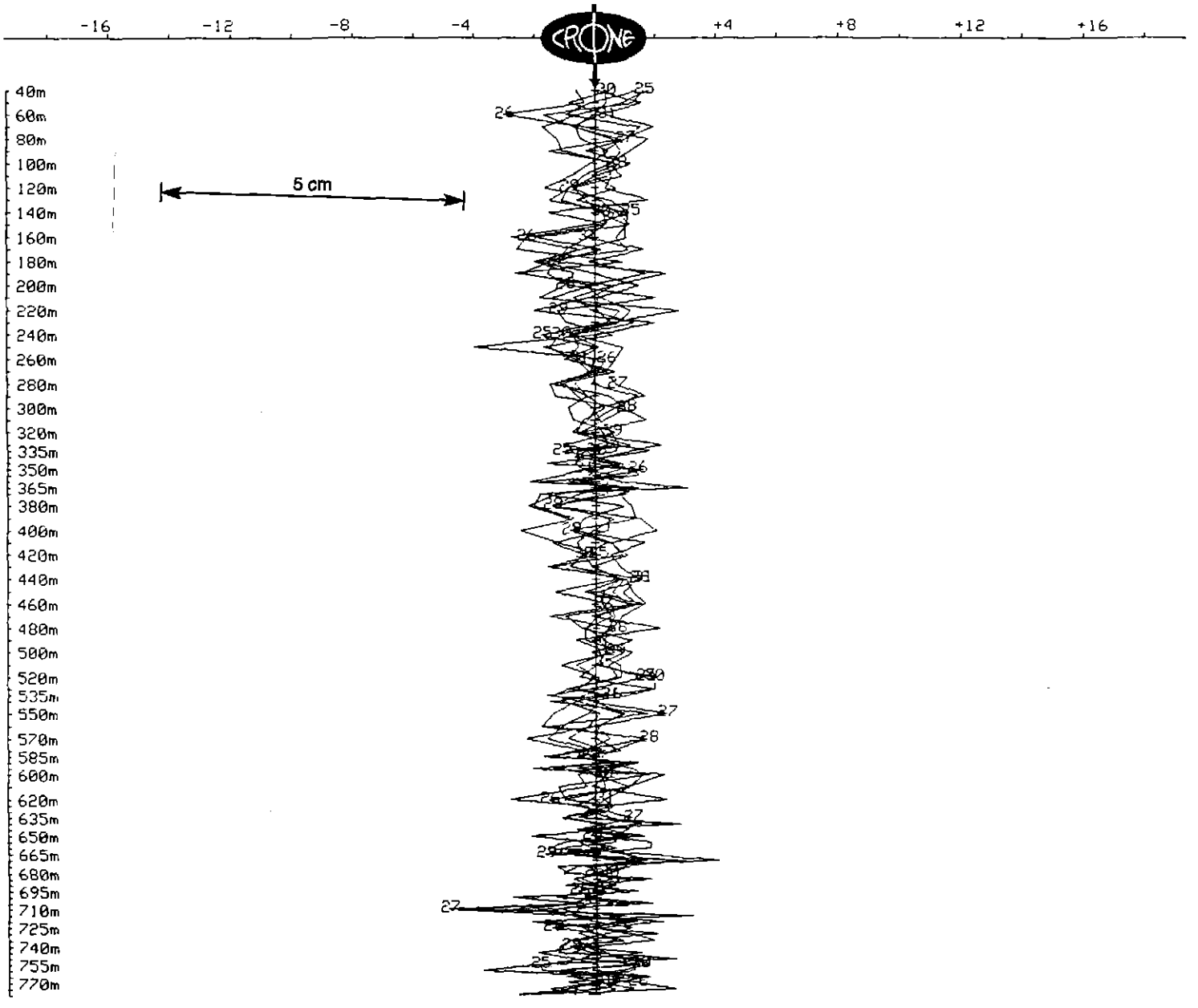
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390974

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



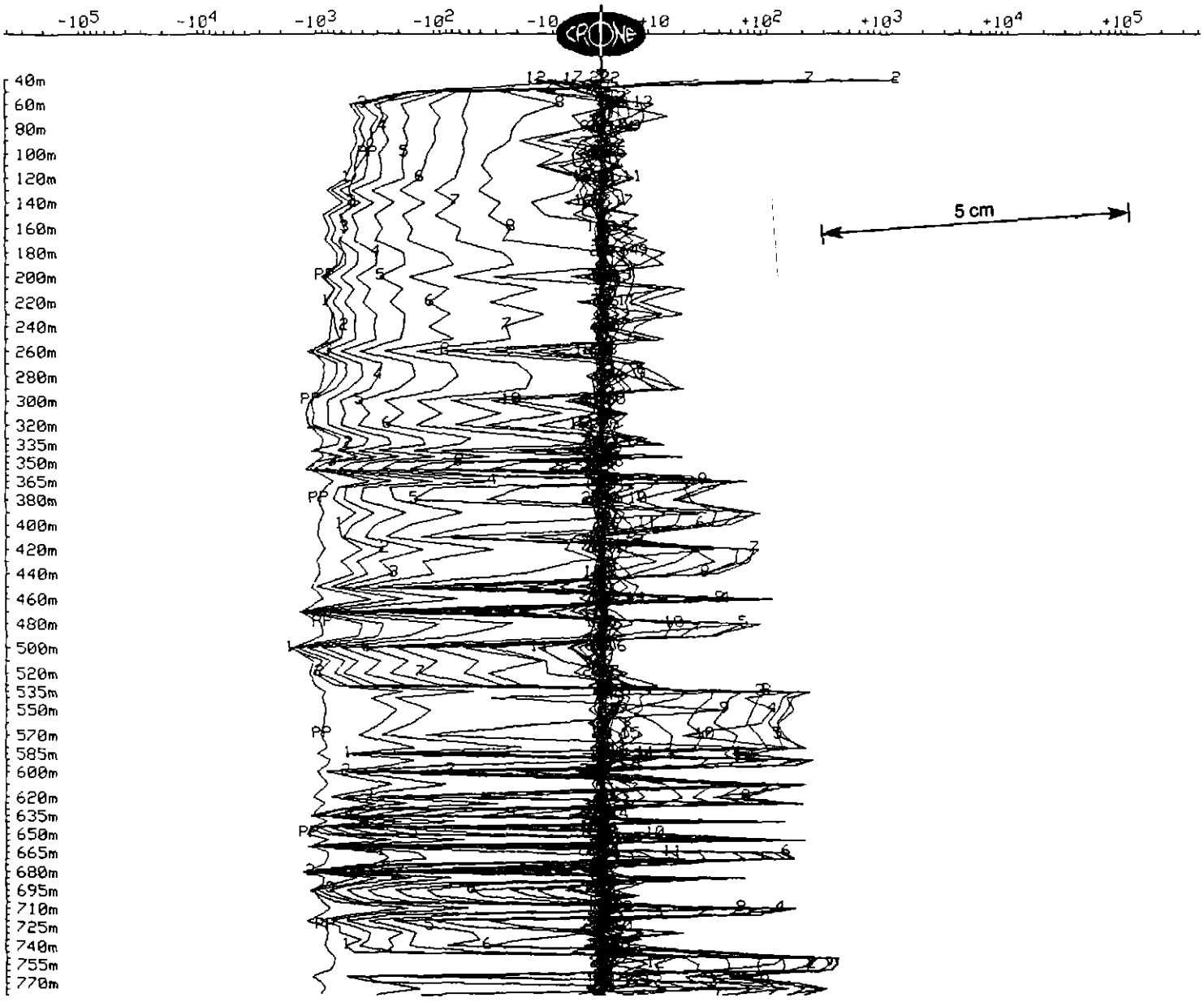
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390975

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



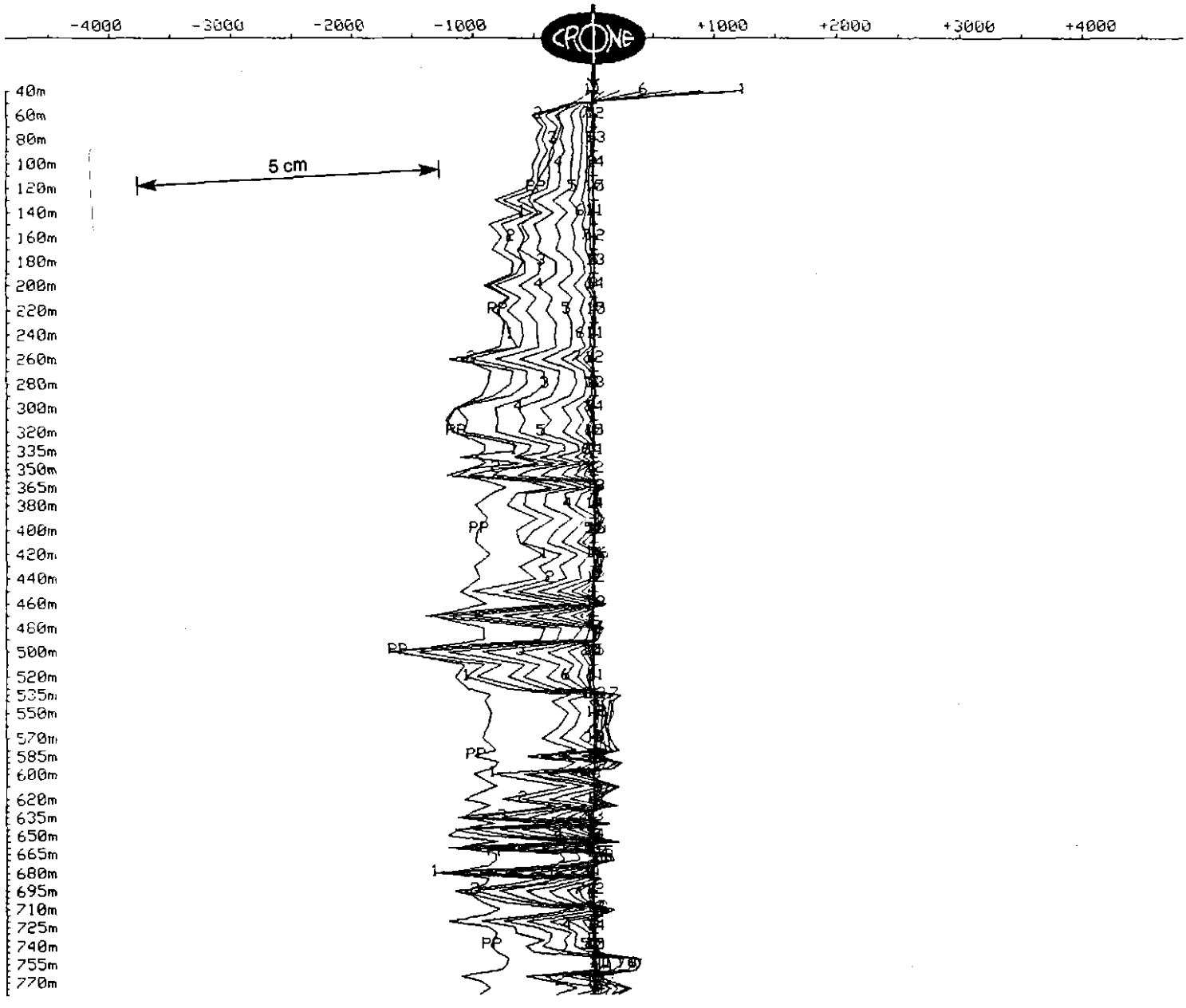
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390976

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



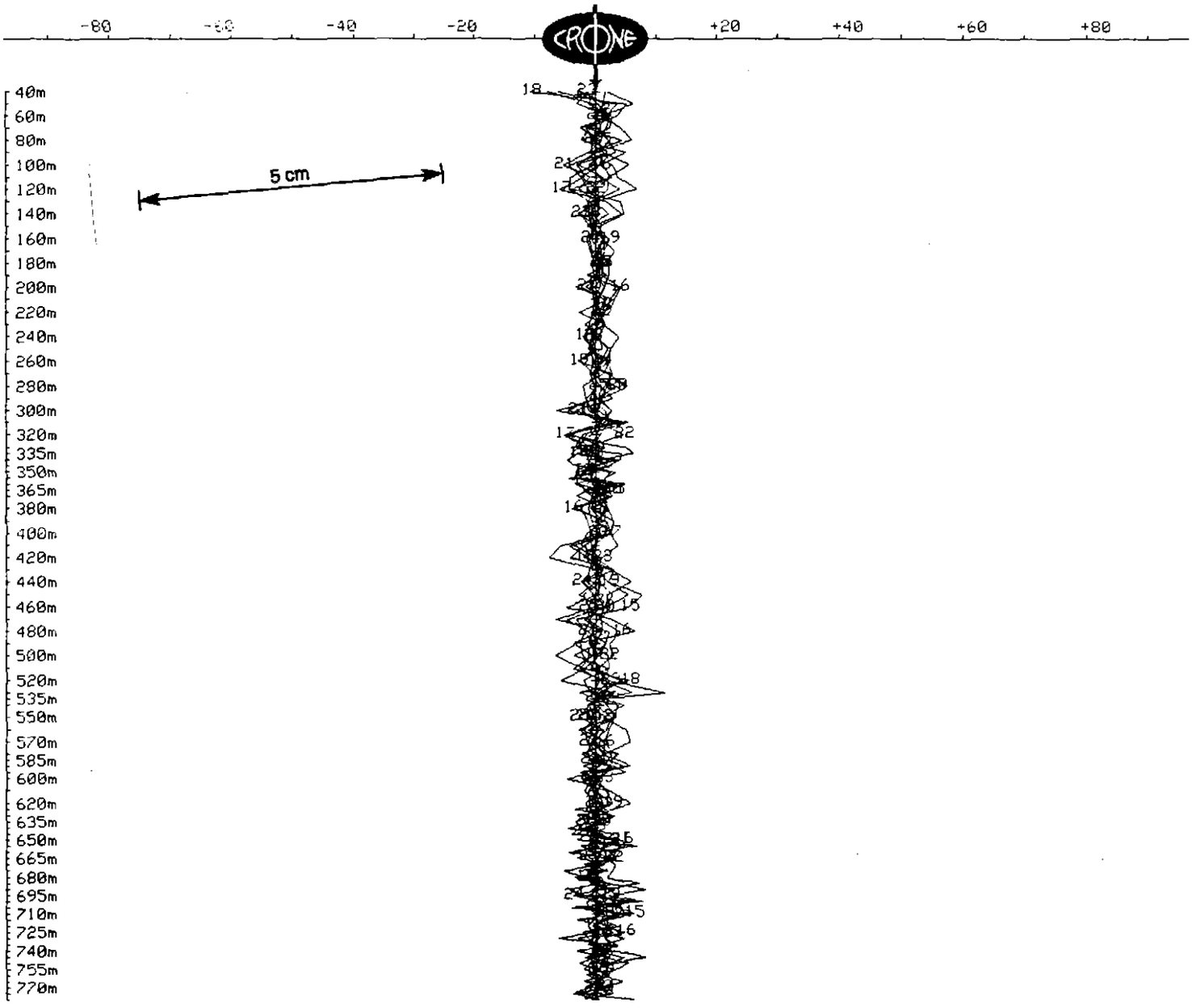
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390977

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



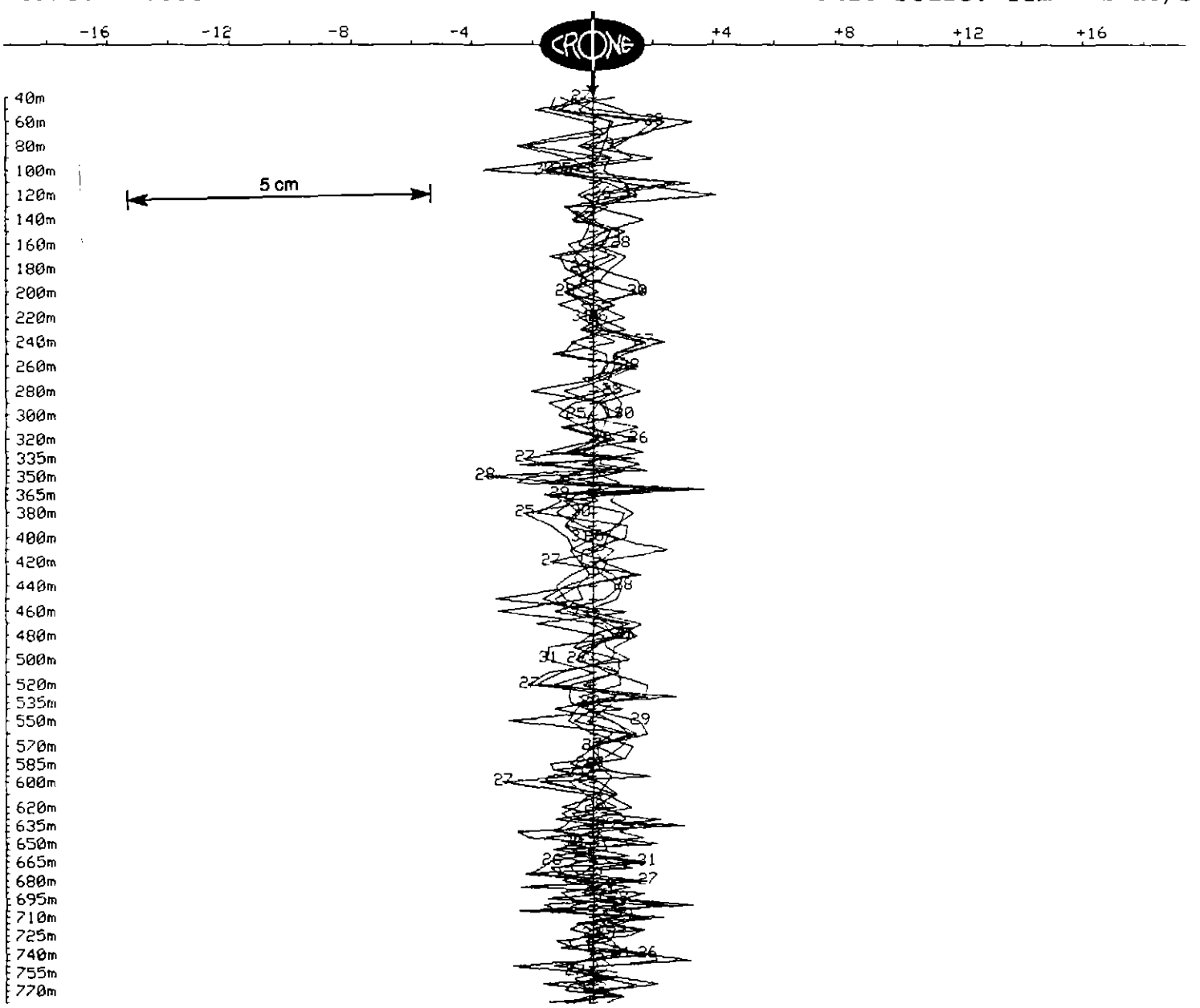
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390978

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1PPW.PEM

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



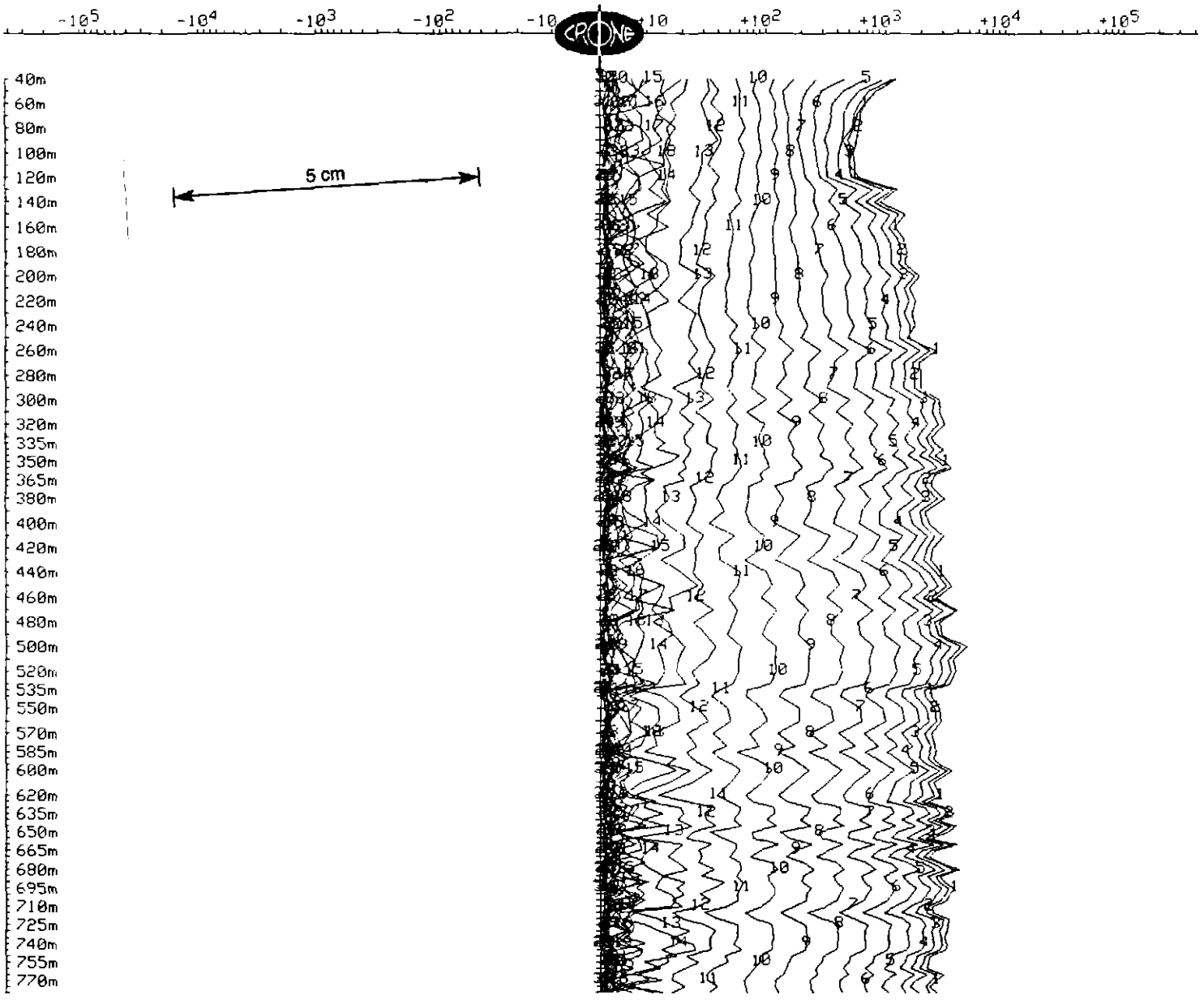
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390979

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Jan 10, 1997	File name	: 1WTOT.PEM

Data Corrected for Probe Rotation using Orientation Tool #8
TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



390980

OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

Geophysical Contracting Services

100% Australian Owned

35 Fleming Street,
(P.O. Box 1754)
AITKENVALE, QLD. 4814

Tel: 077 25 3544
Fax: 077 25 4805
Mob: 018 188 466
Email: oreserv@ozemail.com.au

Volume 2 of 2

Client	:	Resolute Samantha Limited
Prospect	:	South Henty.
Area	:	Zeehan, Tas.
Survey	:	Borehole PEM Survey
Survey Period	:	6th to 31st January 1997.
Operator	:	Kent Honner/Bruce Broardbent.

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390981

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM
Time Base	: 20.00 ms	# Readings	: 188
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 500m X 500m	Receiver	: Digital #106
Current	: 10 Amps	Operator	: Bruce Broadbent

Loop Coordinates (X,Y,Z)

1. 81310m, 58700m, 0m
2. 81400m, 58925m, 0m
3. 81260m, 59155m, 0m
4. 80900m, 59165m, 0m
5. 80900m, 58700m, 0m

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

1. 80335m, 58900m, 0m
2. 236deg, 70deg, 100m
3. 241deg, 65deg, 200m
4. 243deg, 60deg, 160m
5. 245deg, 55deg, 90m
6. 245deg, 50deg, 100m

Channel Times (usec)

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

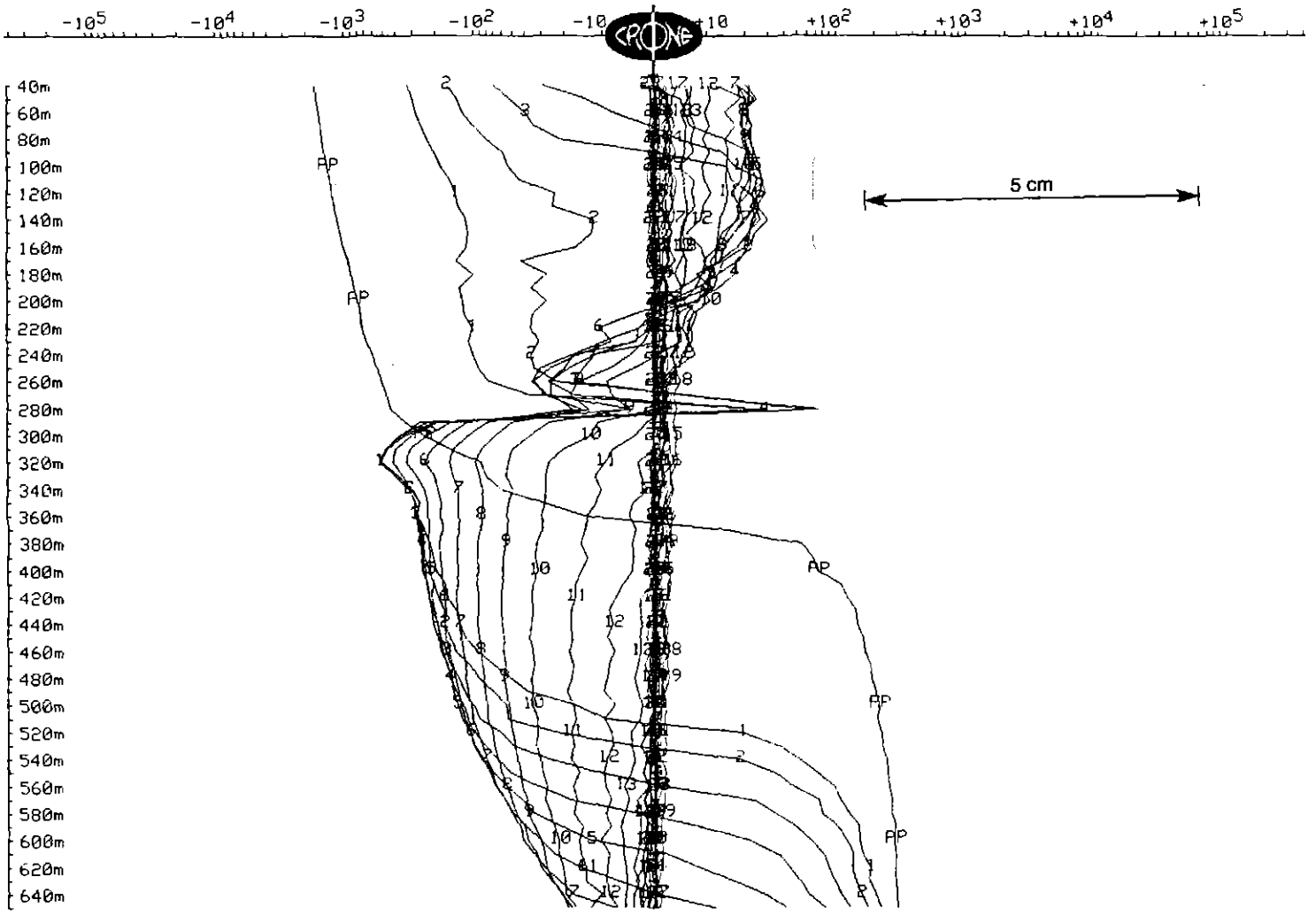
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390982

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



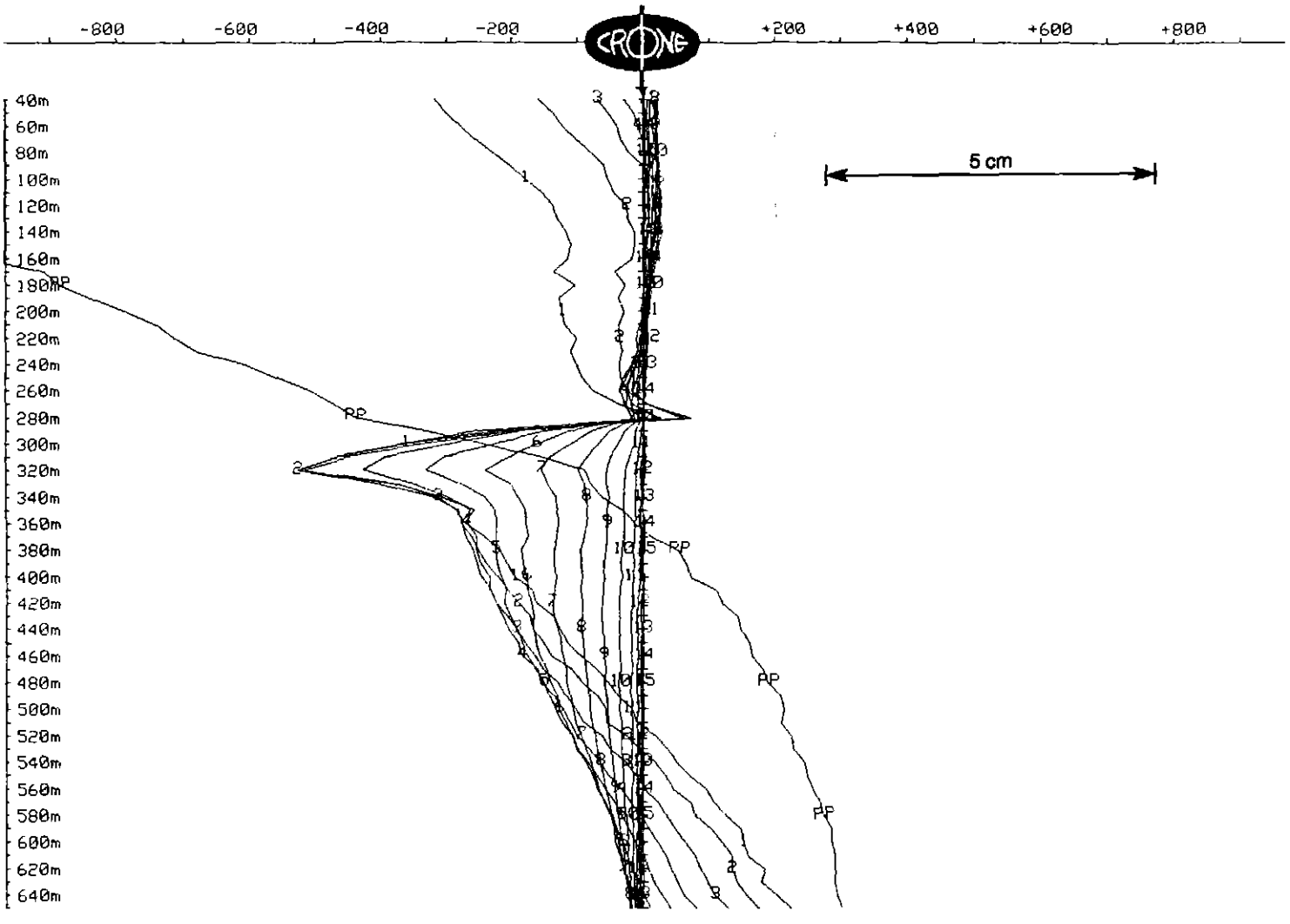
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390983

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 100 nT/s



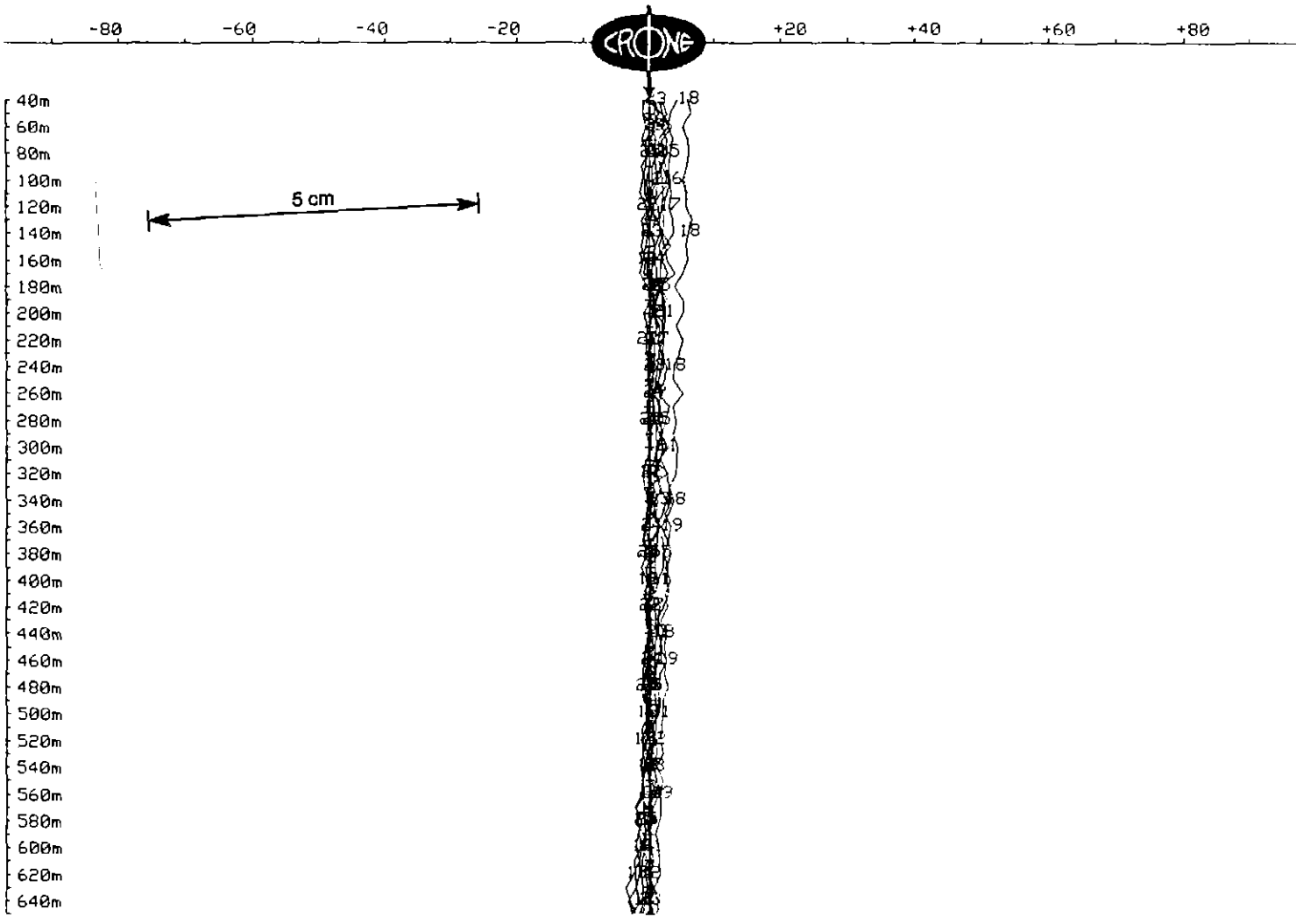
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390984

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



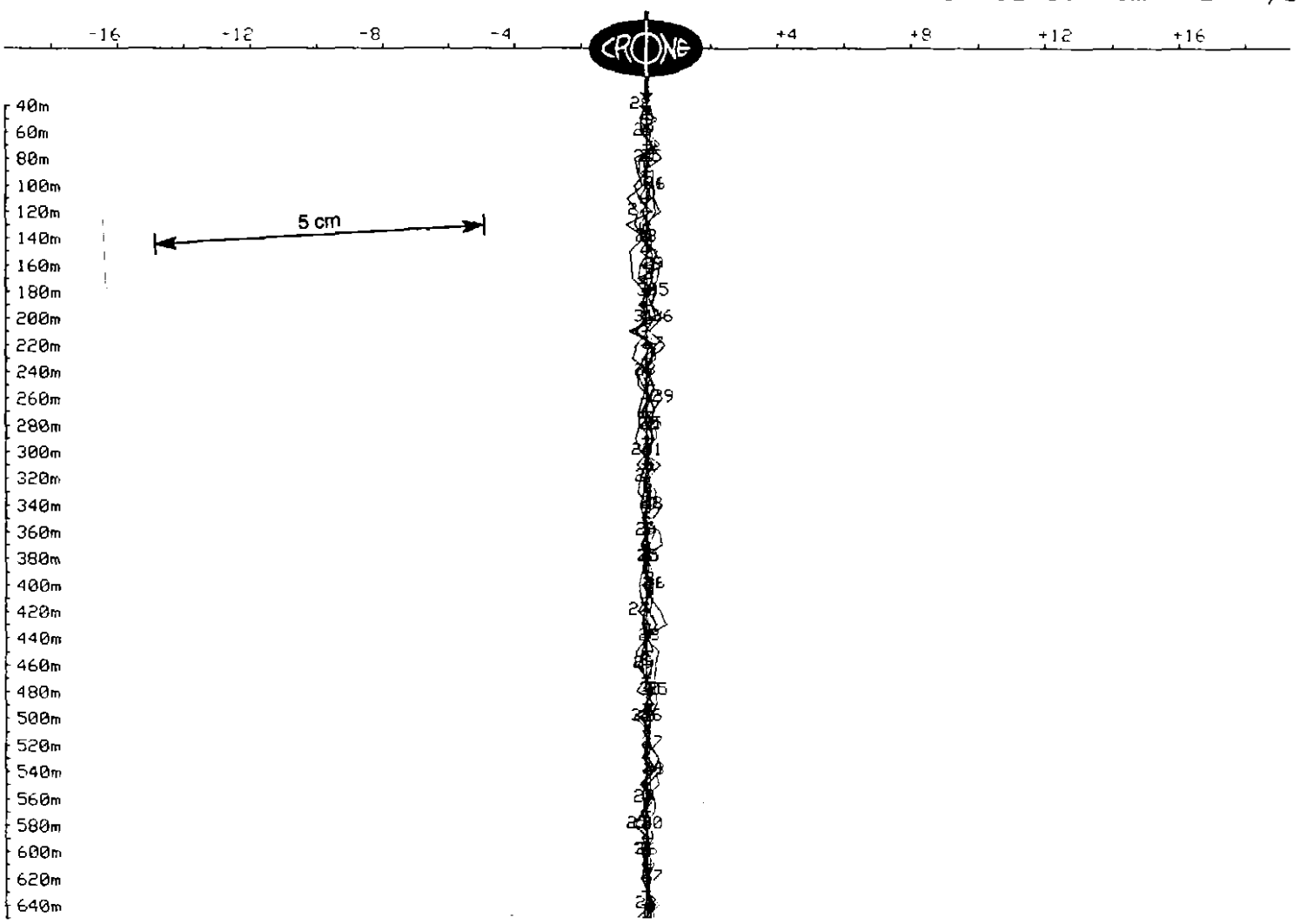
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390985

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



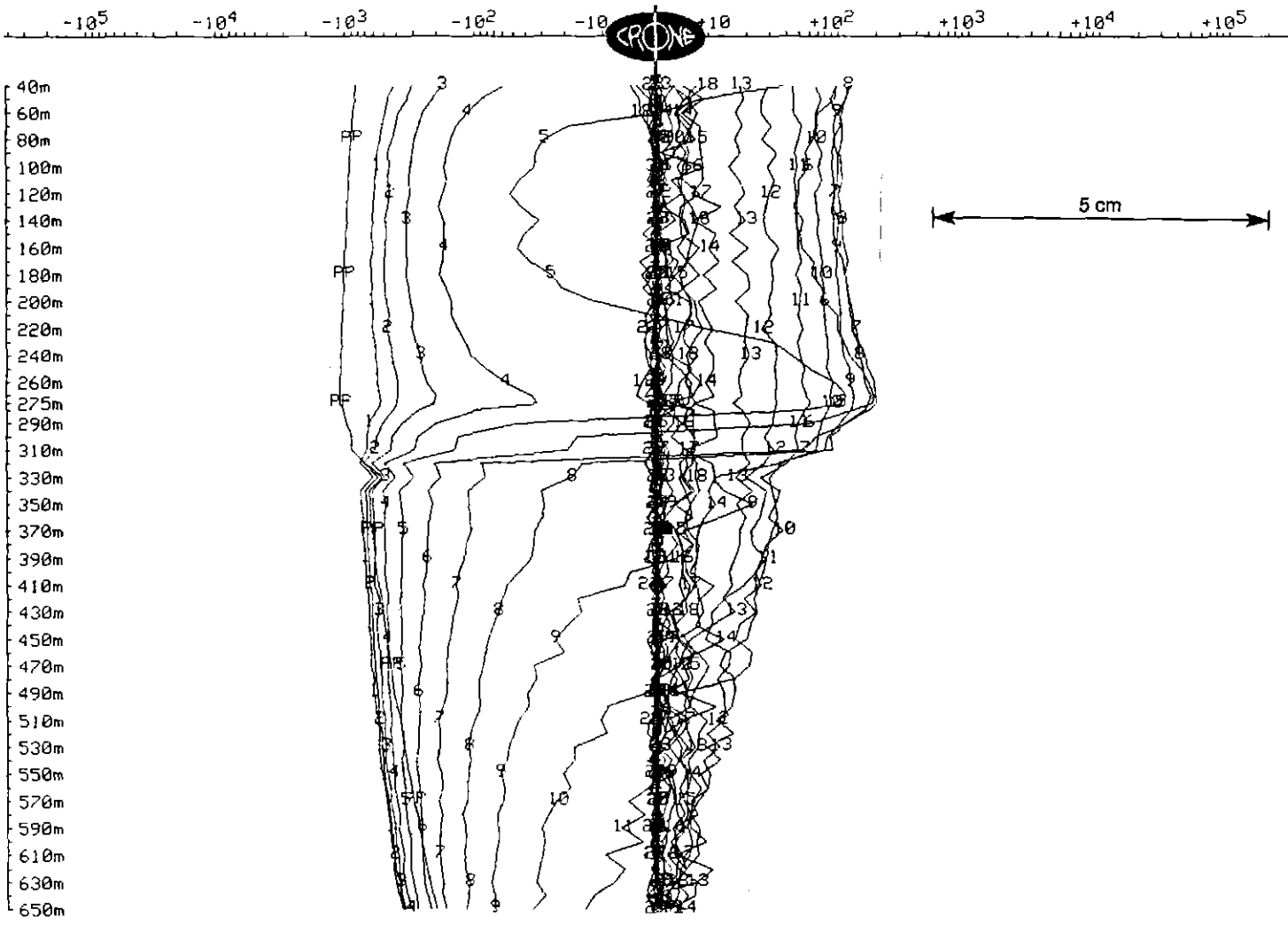
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390986

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



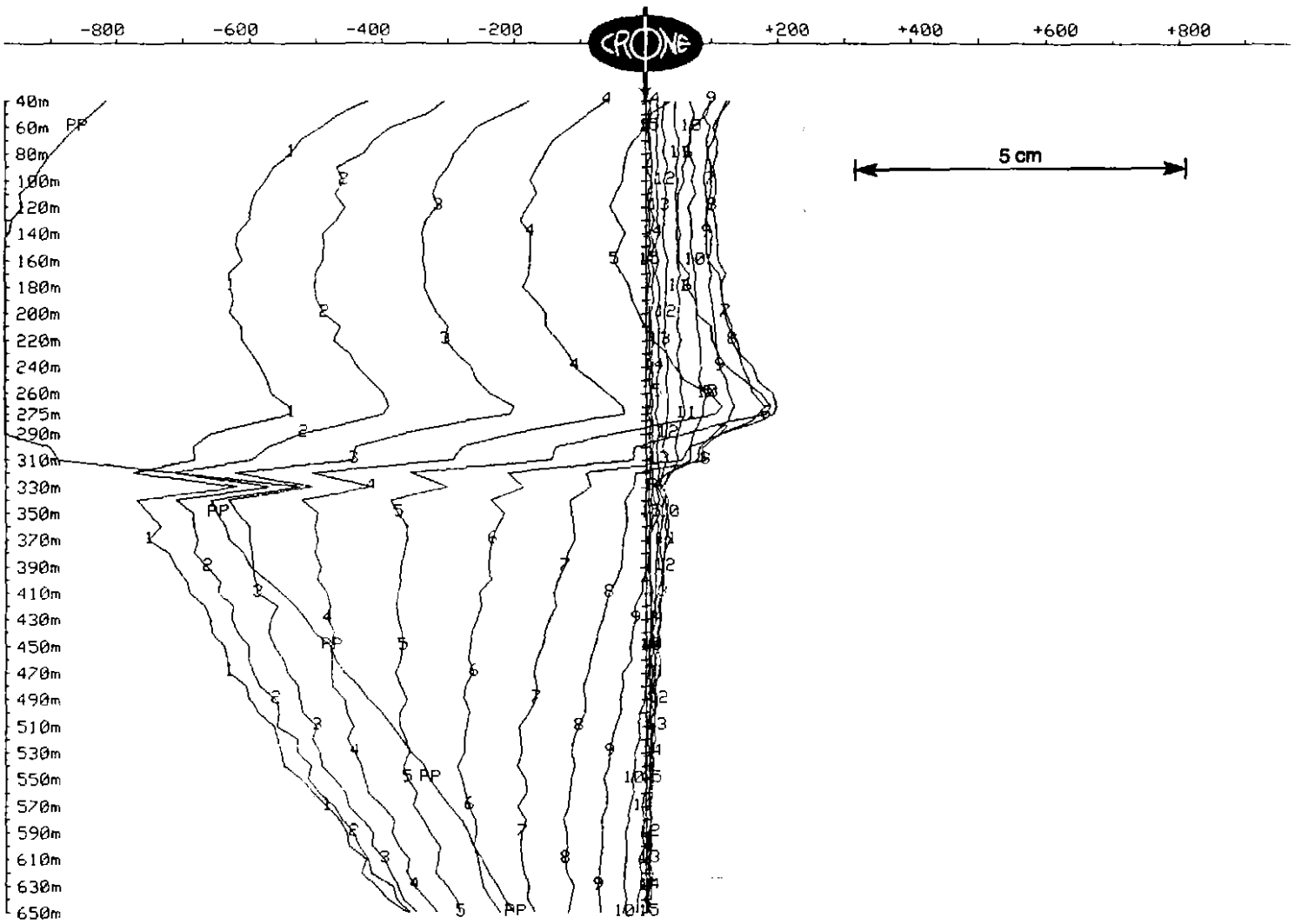
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390987

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 100 nT/s



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390988

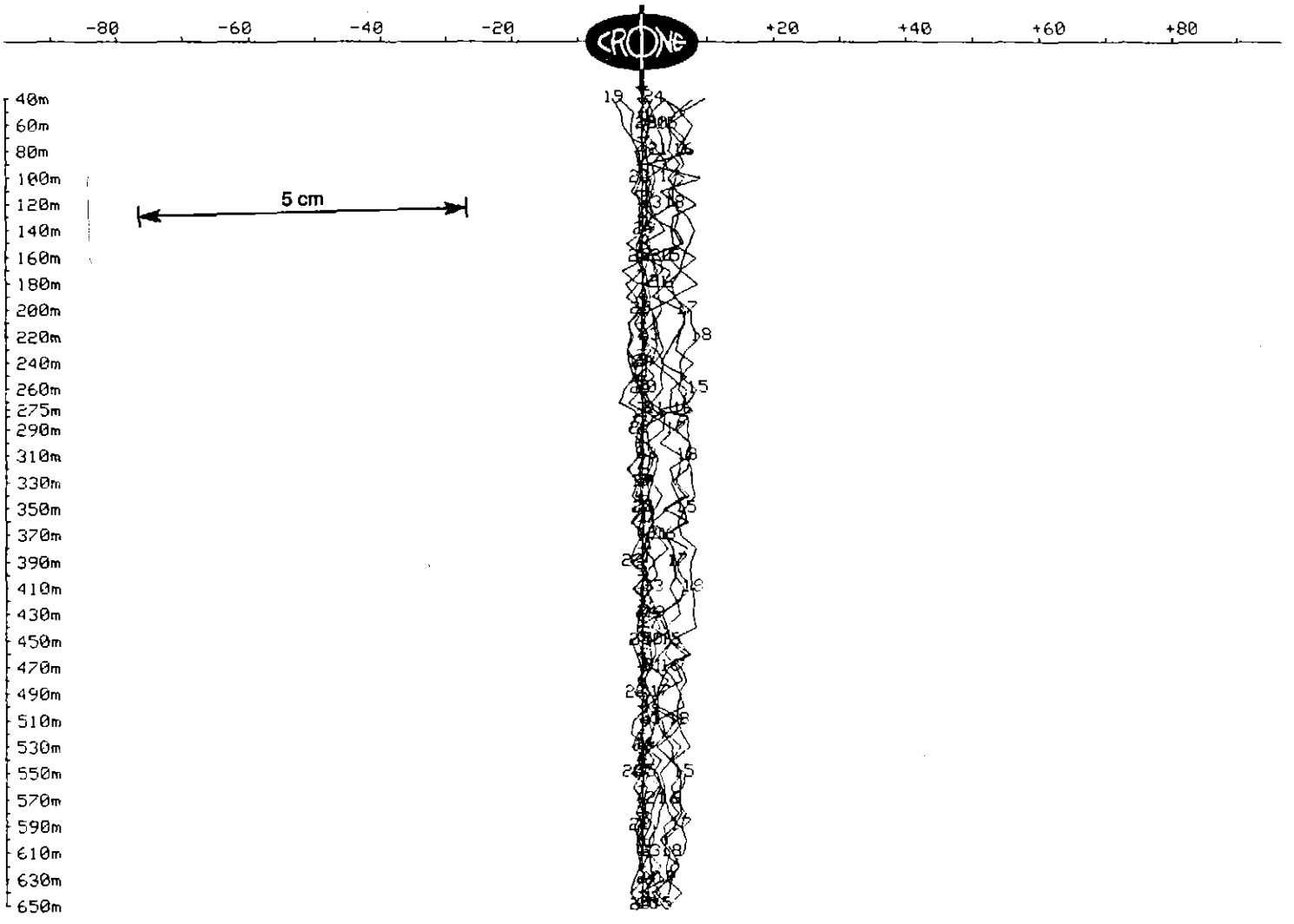
Client : Resolute Ltd
Grid : South Henty
Date : Jan 29, 1997

Hole : SHD-2
Tx Loop : East
File name : SHD2ZE.PEM

X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000

Unit Scale: 1cm = 10 nT/s



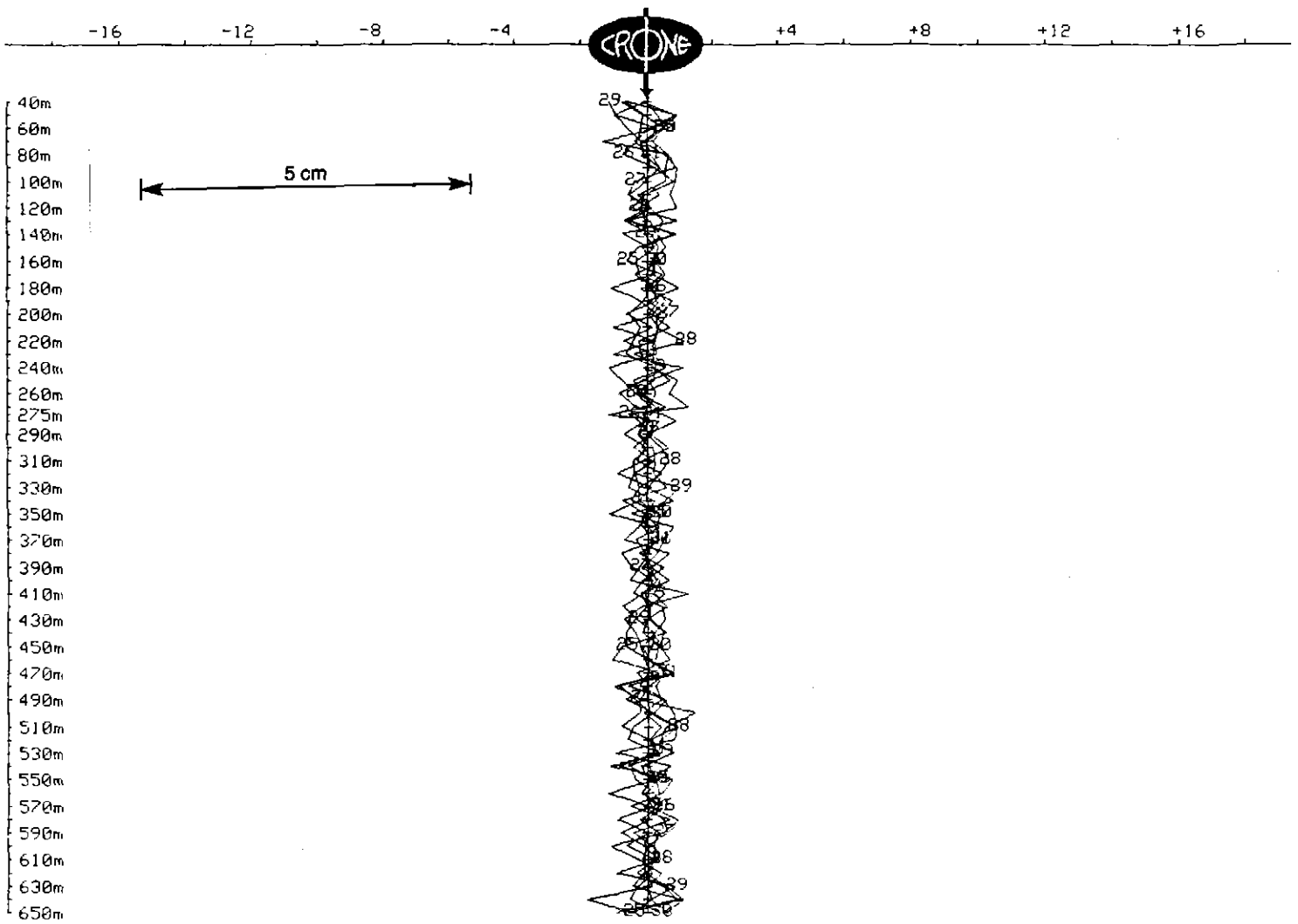
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390989

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



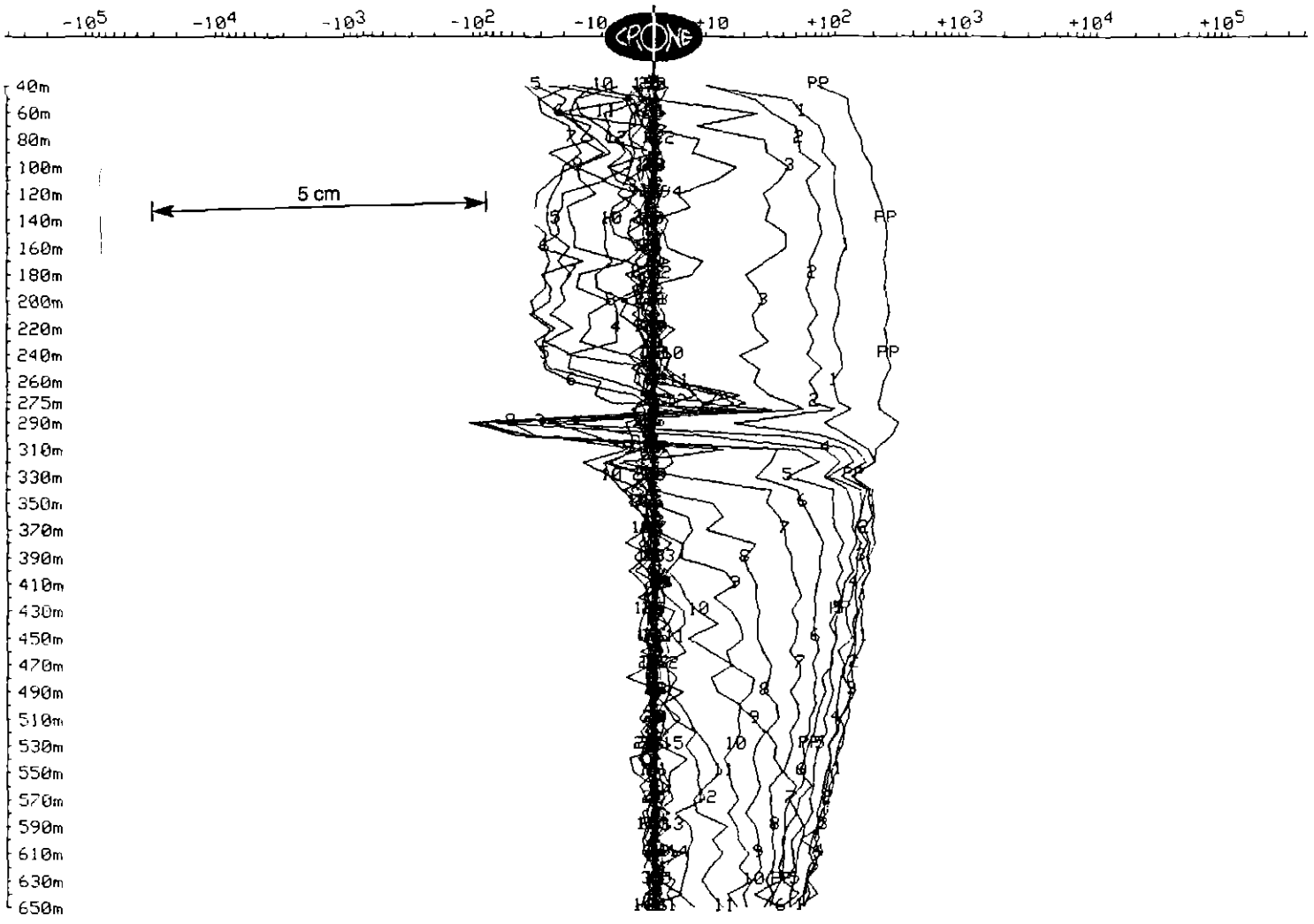
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390990

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



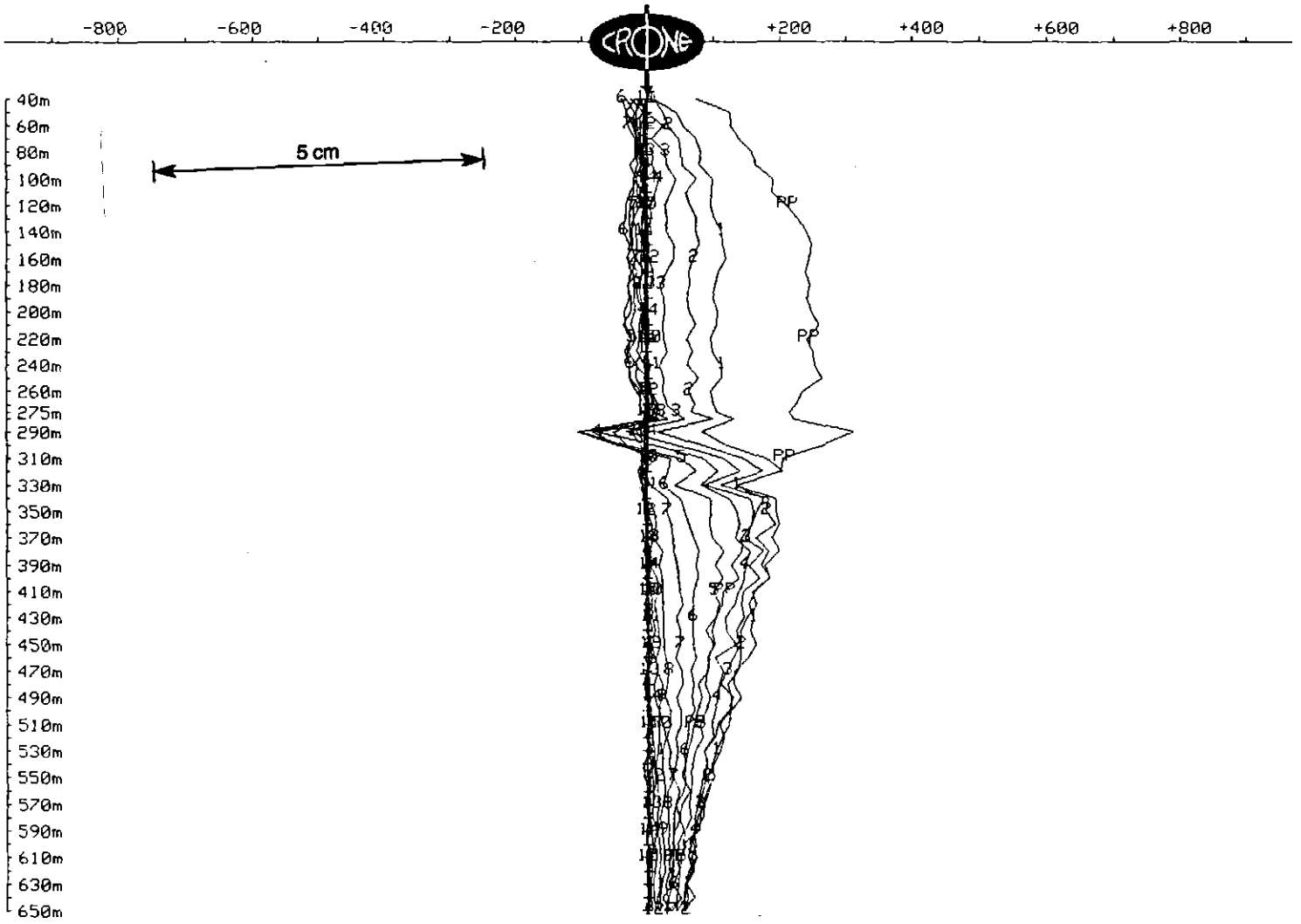
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390991

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 100 nT/s



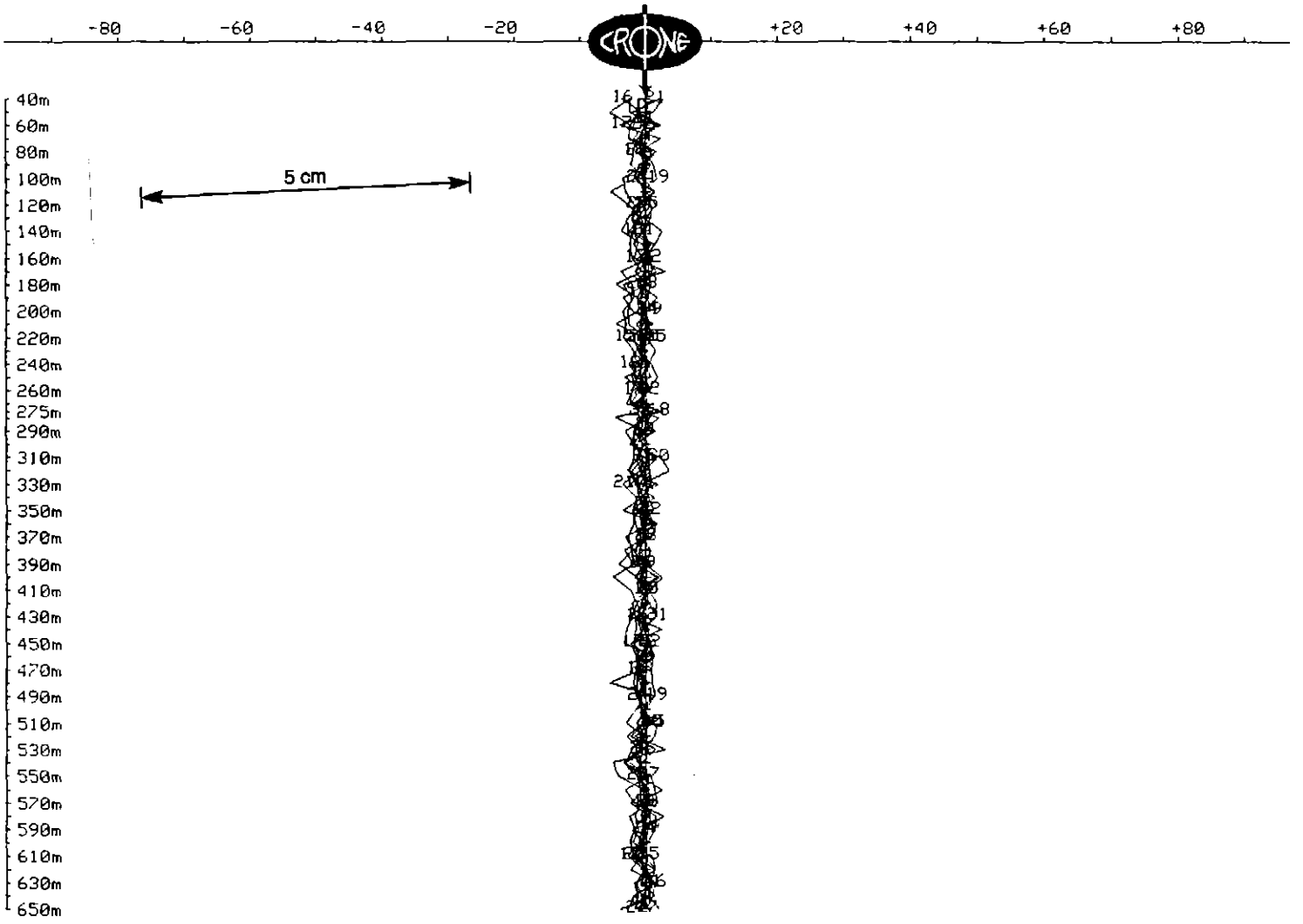
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390995

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



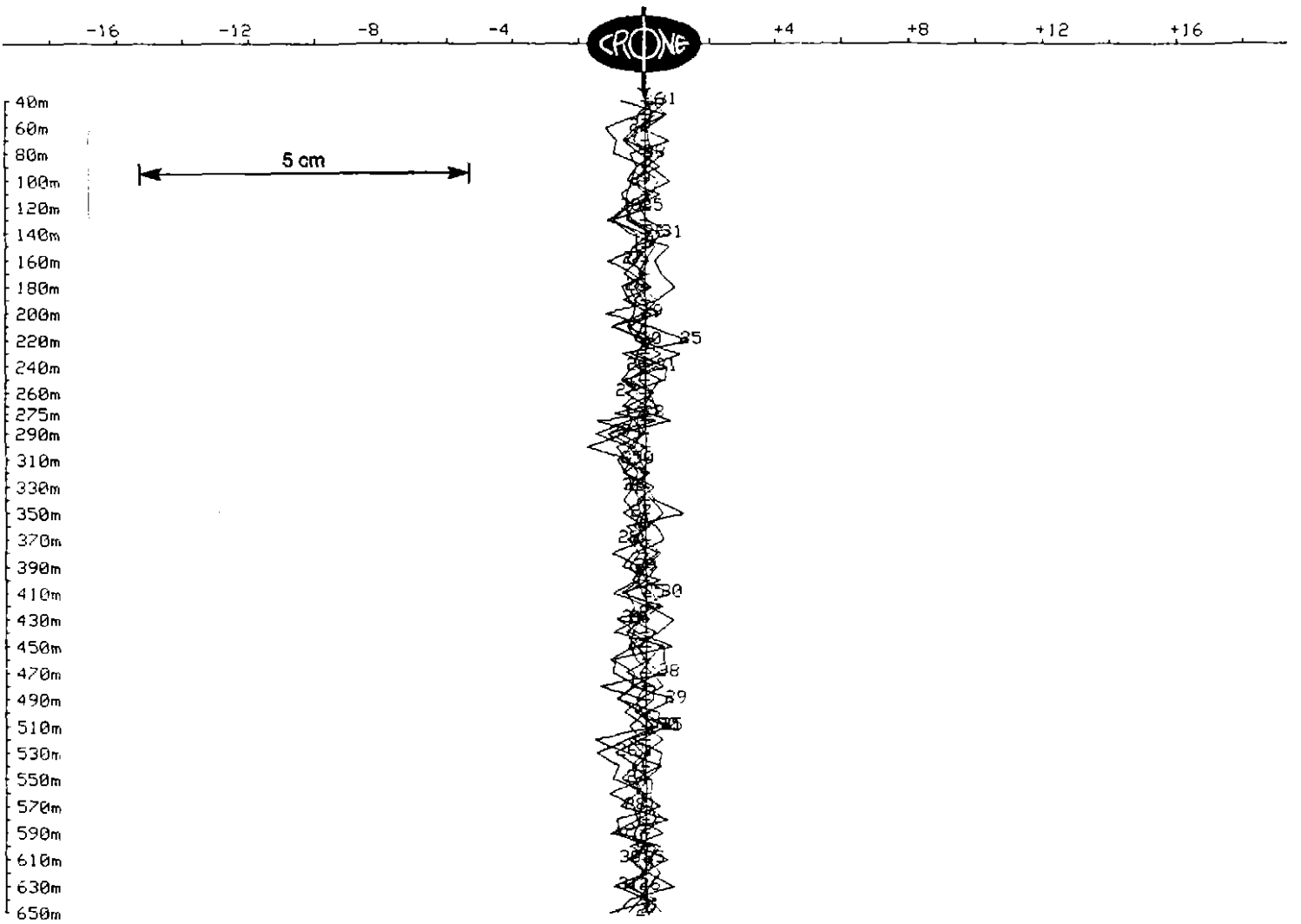
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390993

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2ZE.PEM

Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



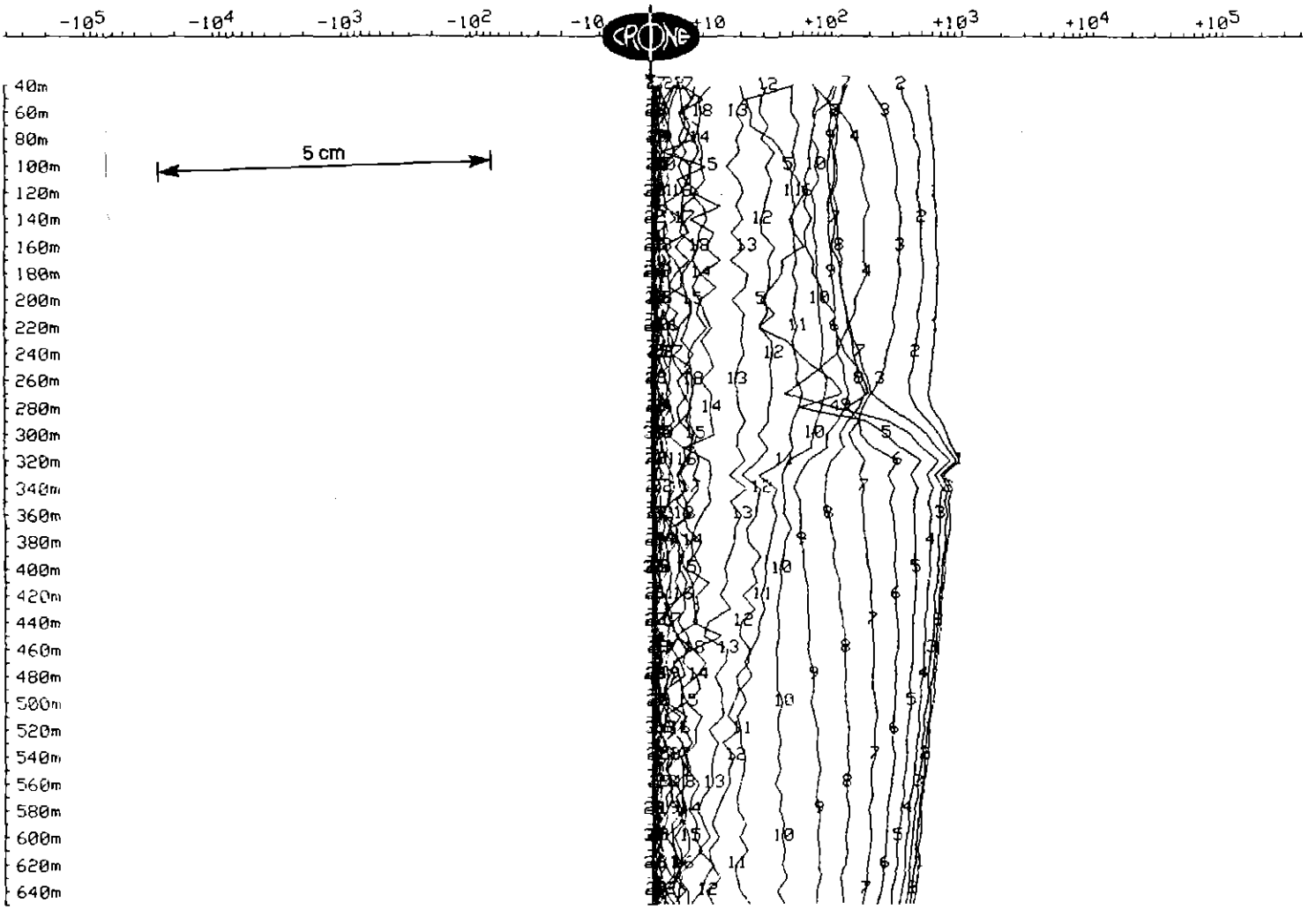
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390994

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: East
Date	: Jan 29, 1997	File name	: SHD2XYZE.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390995

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 27, 1996	File name	: SHD2ZW.PEM
Time Base	: 20.00 ms	# Readings	: 62
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 500m X 500m	Receiver	: Digital #106
Current	: 13 Amps	Operator	: Bruce Broadbent

Loop Coordinates (X,Y,Z)

1. 80600m, 58700m, 0m	2. 80600m, 59040m, 0m
3. 80530m, 59190m, 0m	4. 80000m, 59190m, 0m
5. 80000m, 58840m, 0m	6. 80175m, 58740m, 0m

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

1. 80335m, 58900m, 0m	2. 236deg, 70deg, 100m
3. 241deg, 65deg, 200m	4. 243deg, 60deg, 160m
5. 245deg, 55deg, 90m	6. 245deg, 50deg, 100m

Channel Times (usec)

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

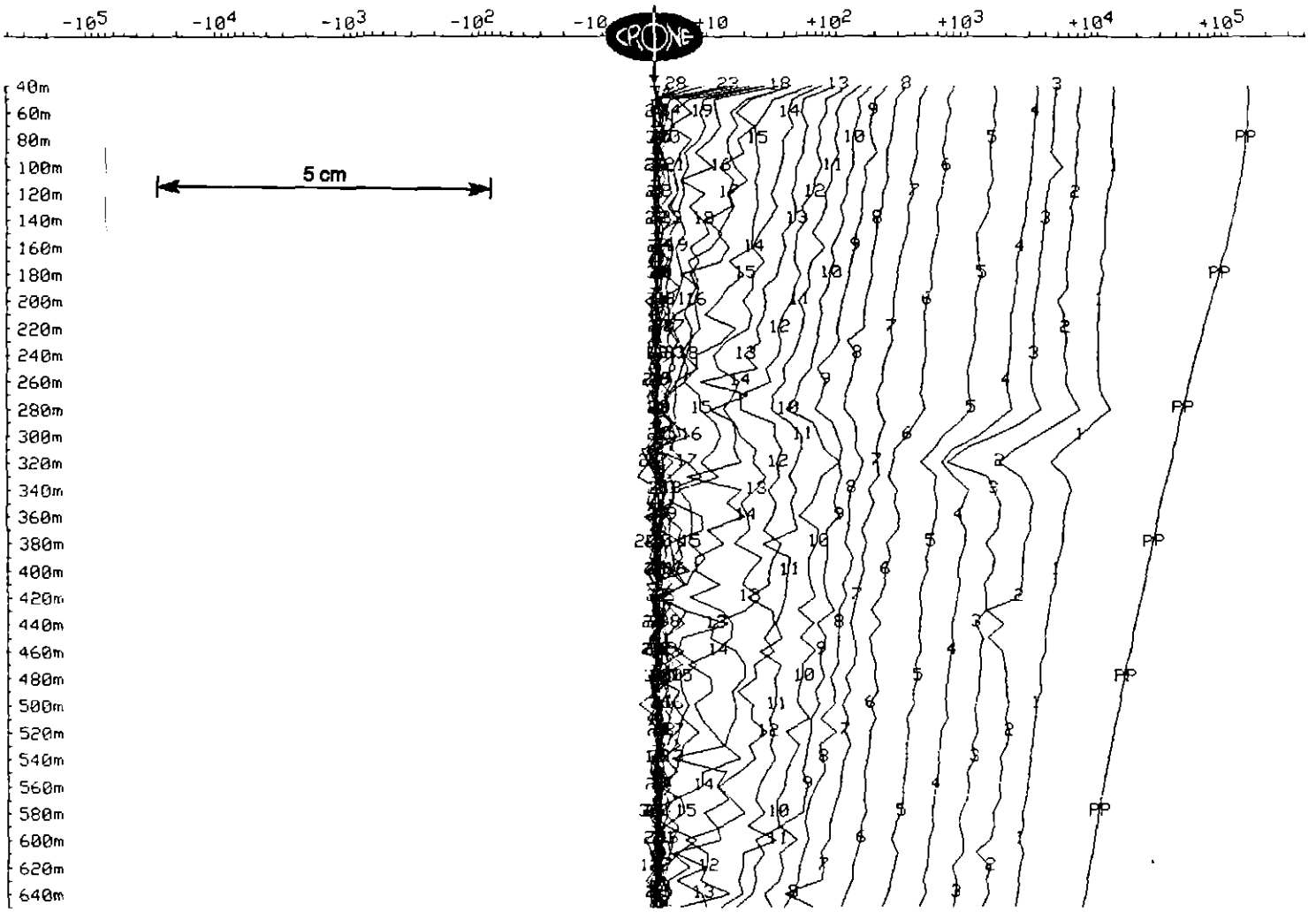
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390996

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 27, 1996	File name	: SHD2ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



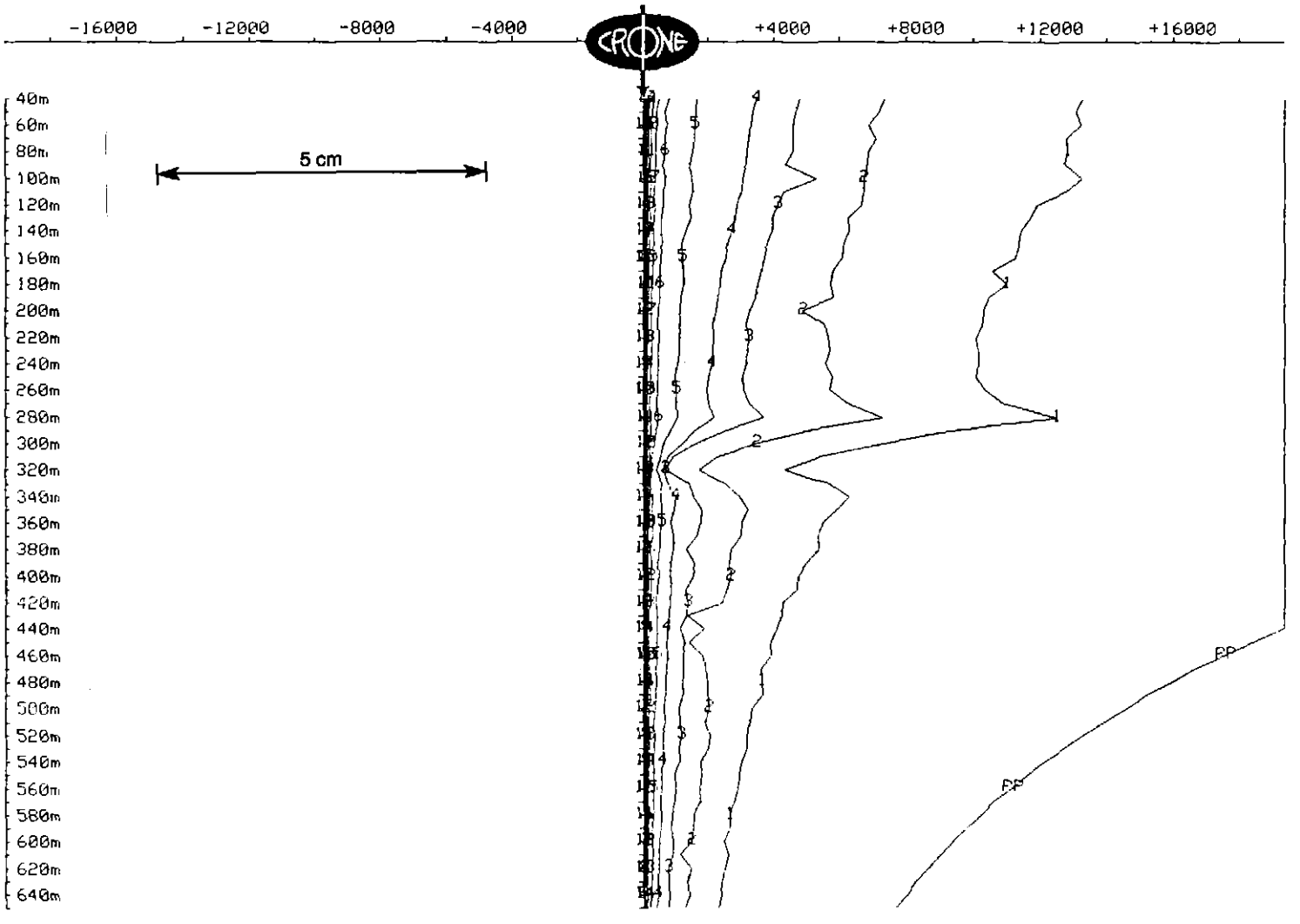
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390997

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 27, 1996	File name	: SHD2ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/s



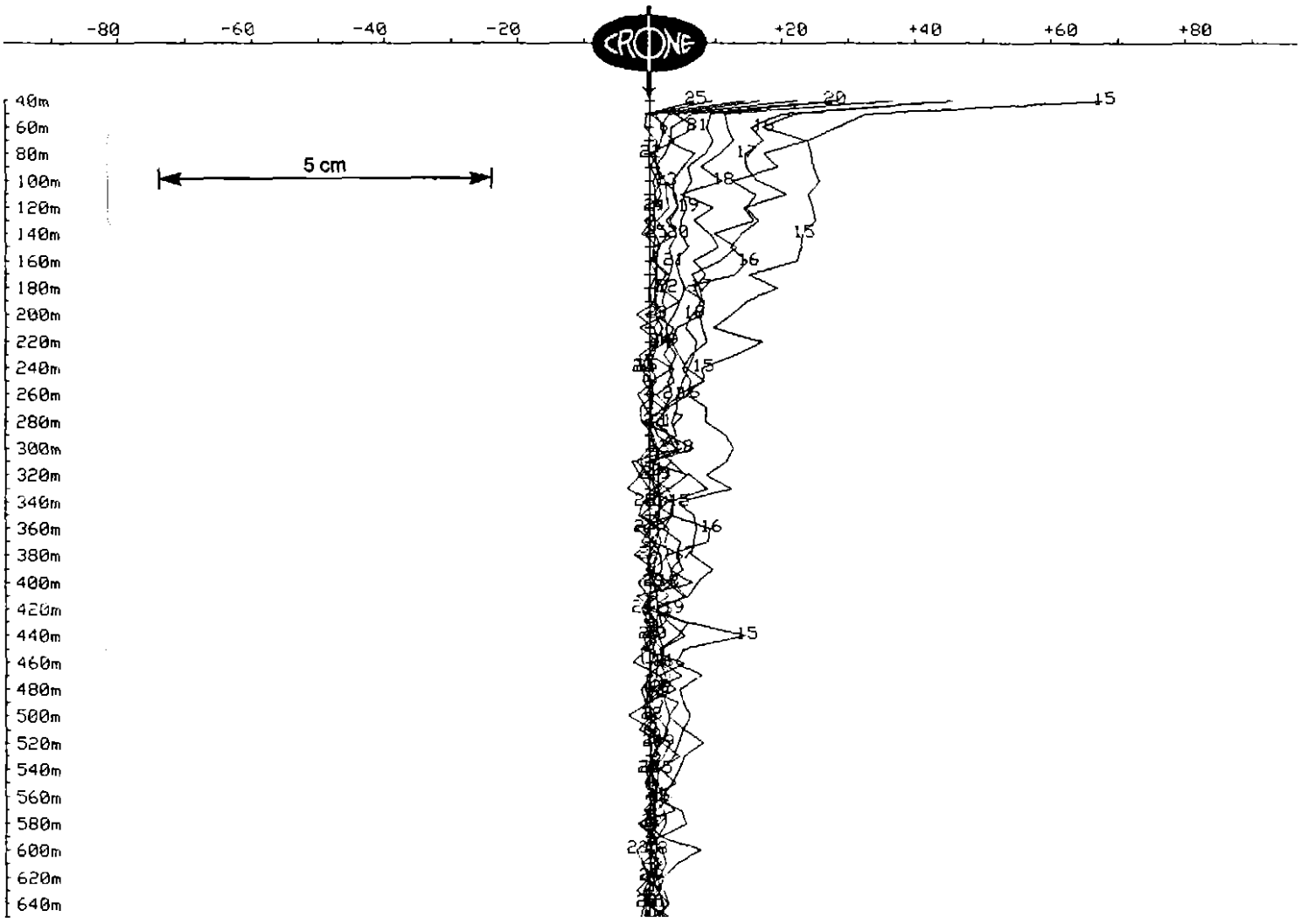
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390998

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 27, 1996	File name	: SHD2ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



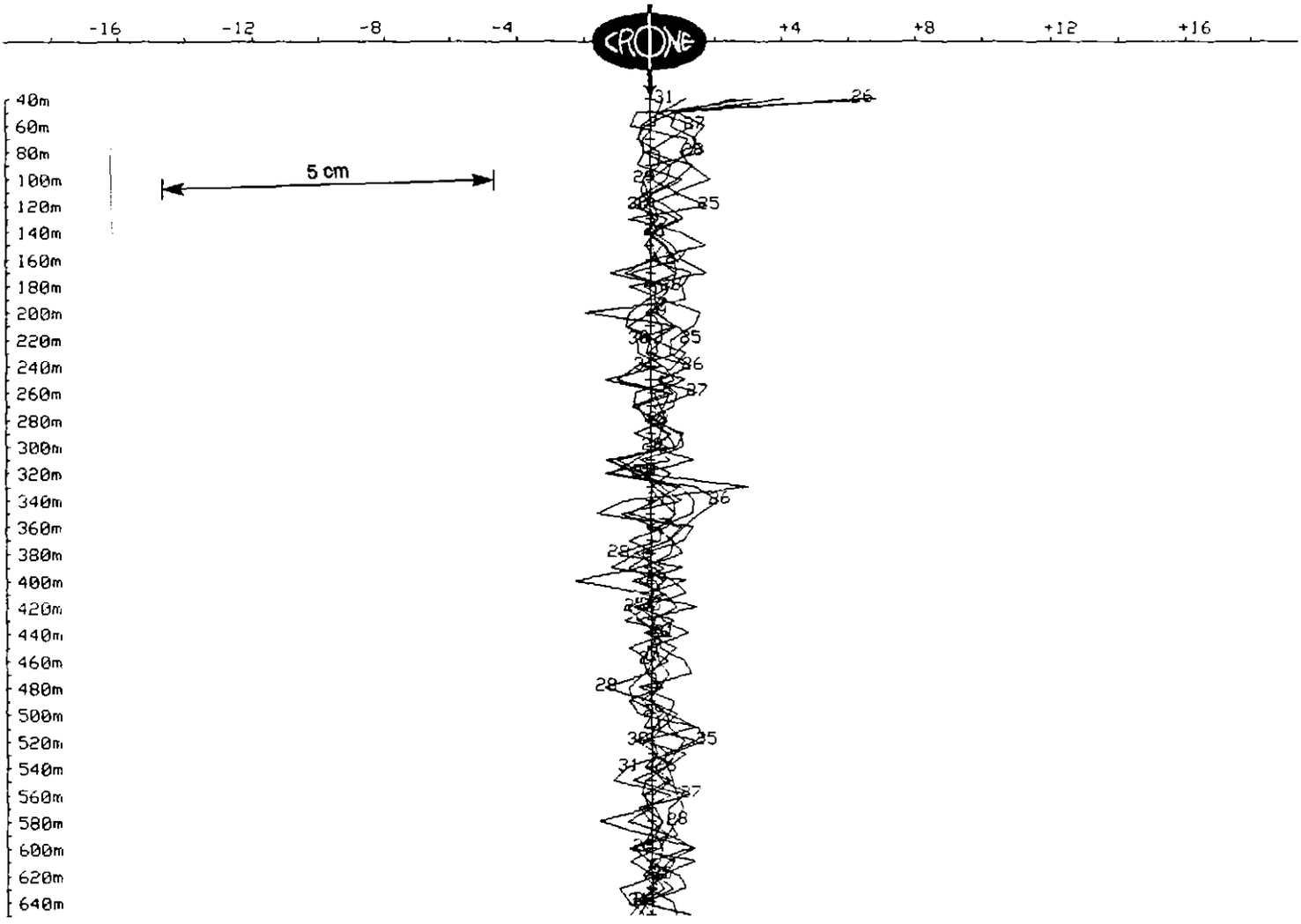
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390999

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 27, 1996	File name	: SHD2ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



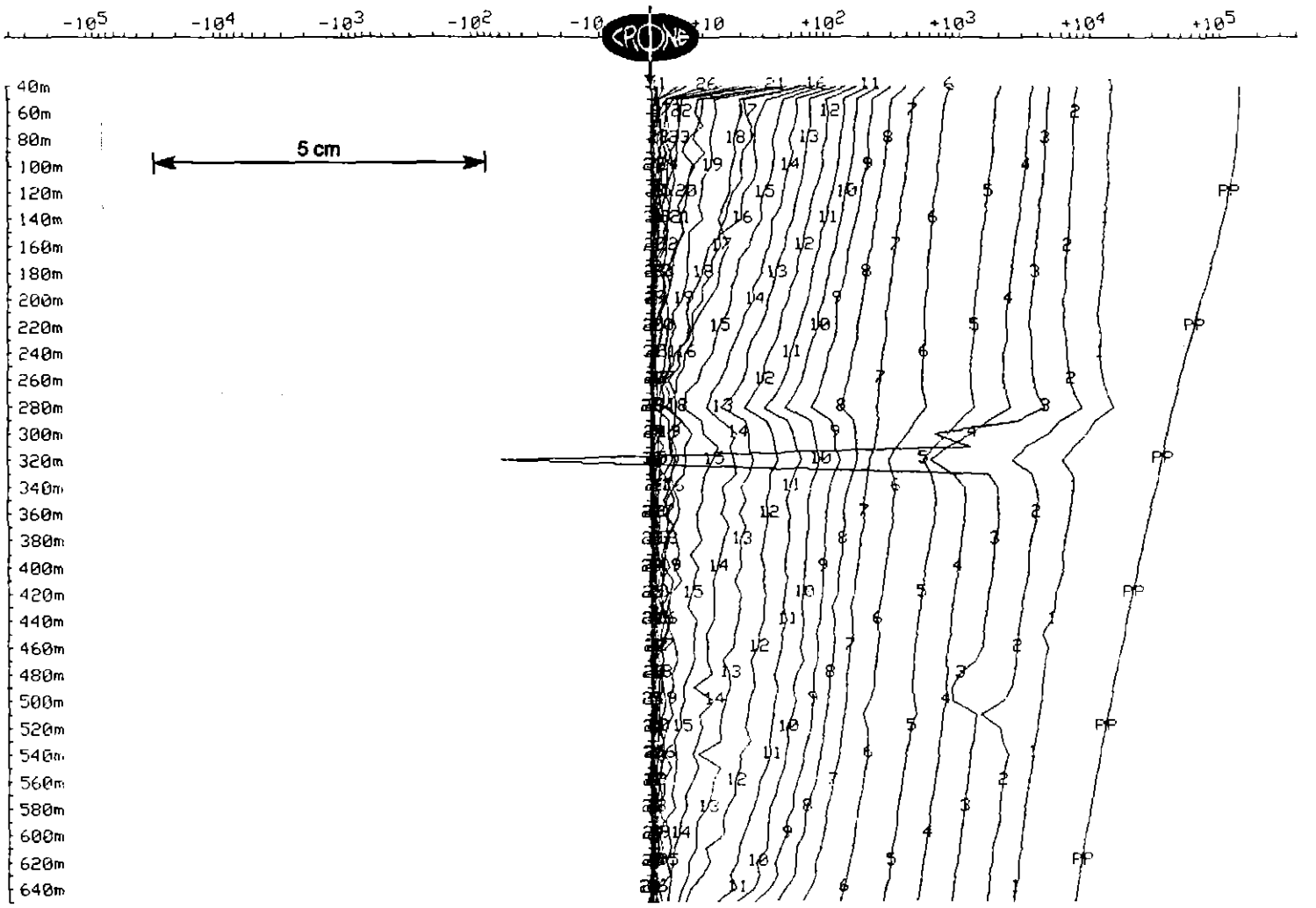
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390000

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



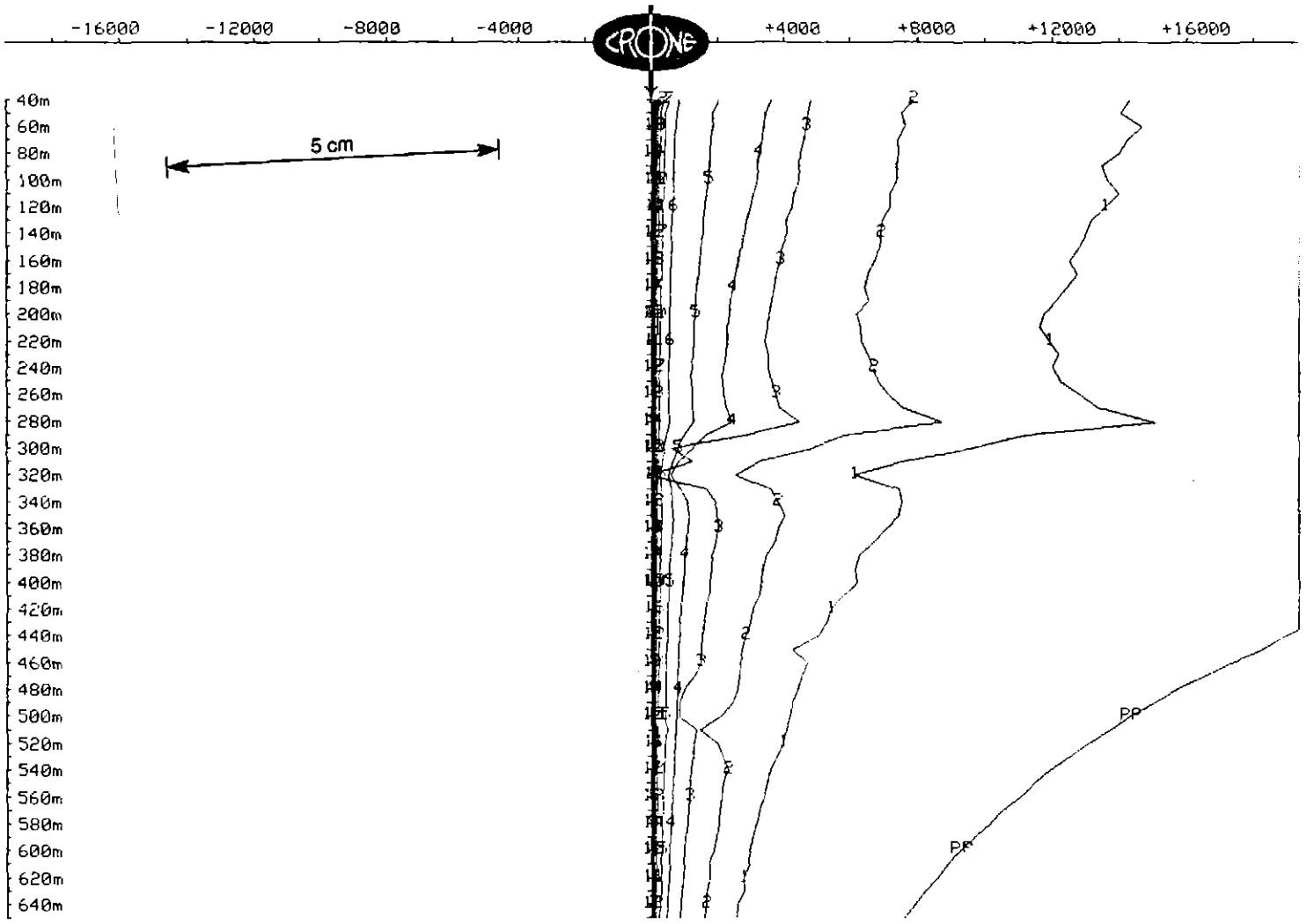
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390001

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/s



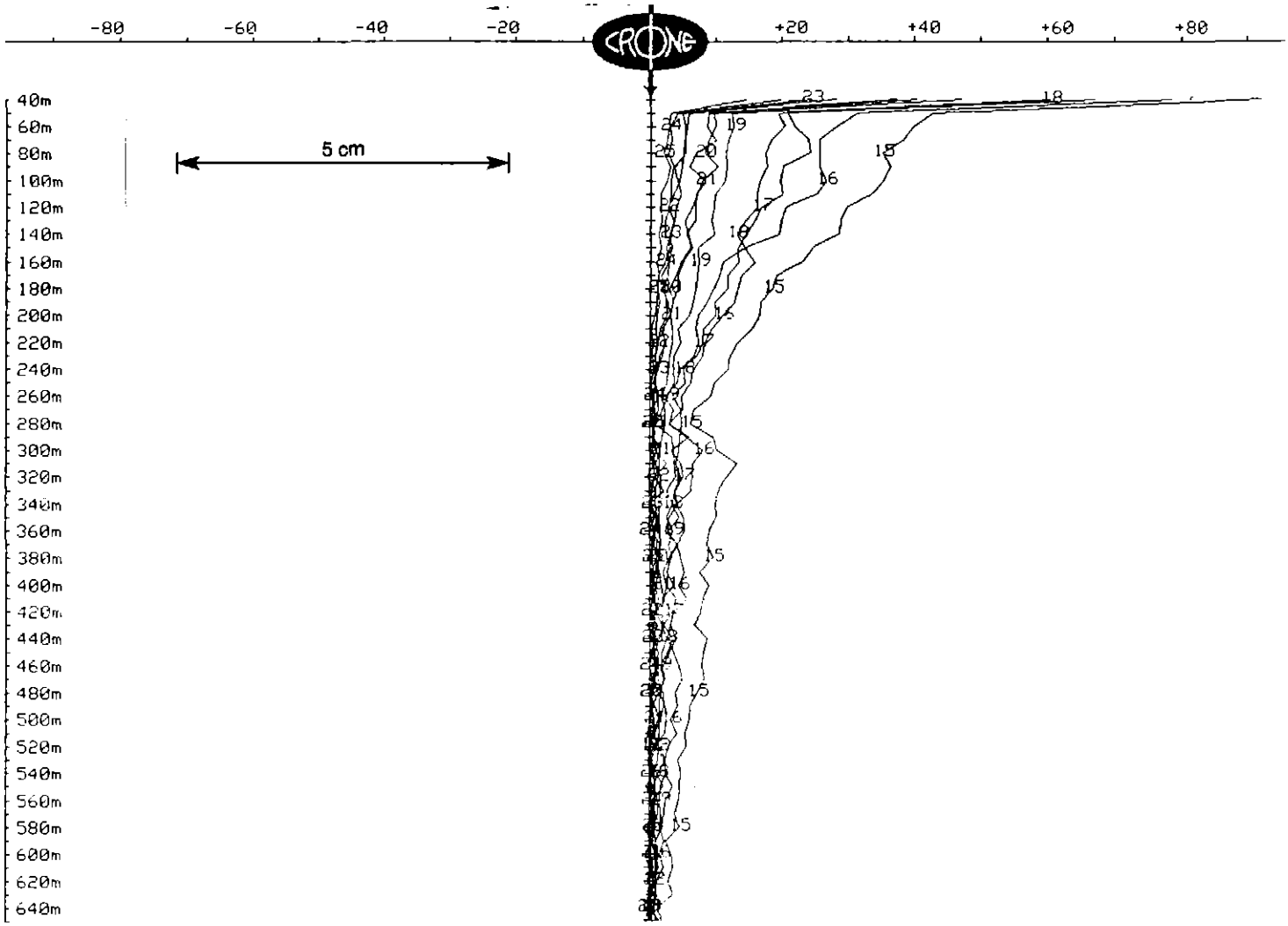
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390002

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



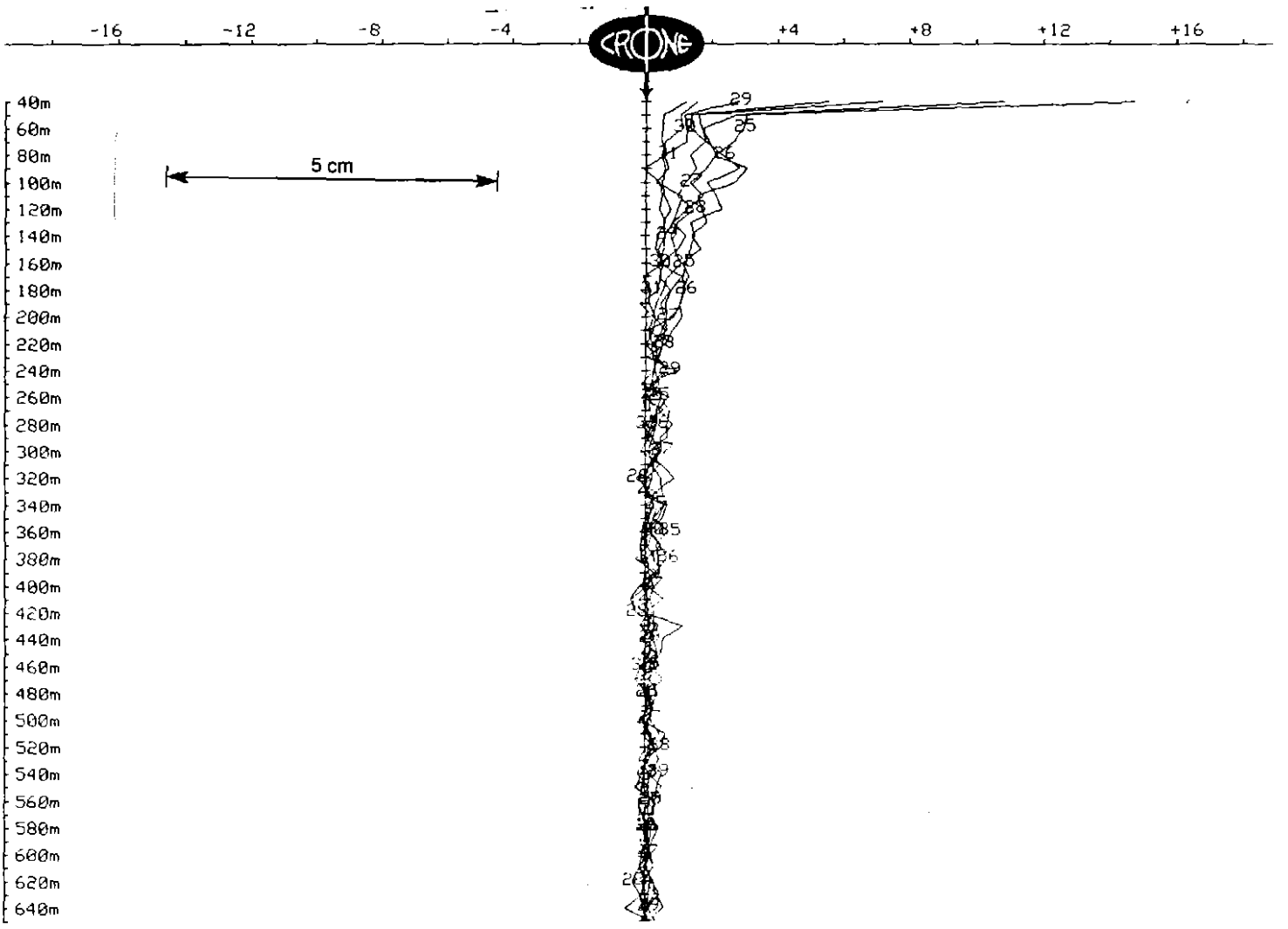
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390003

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



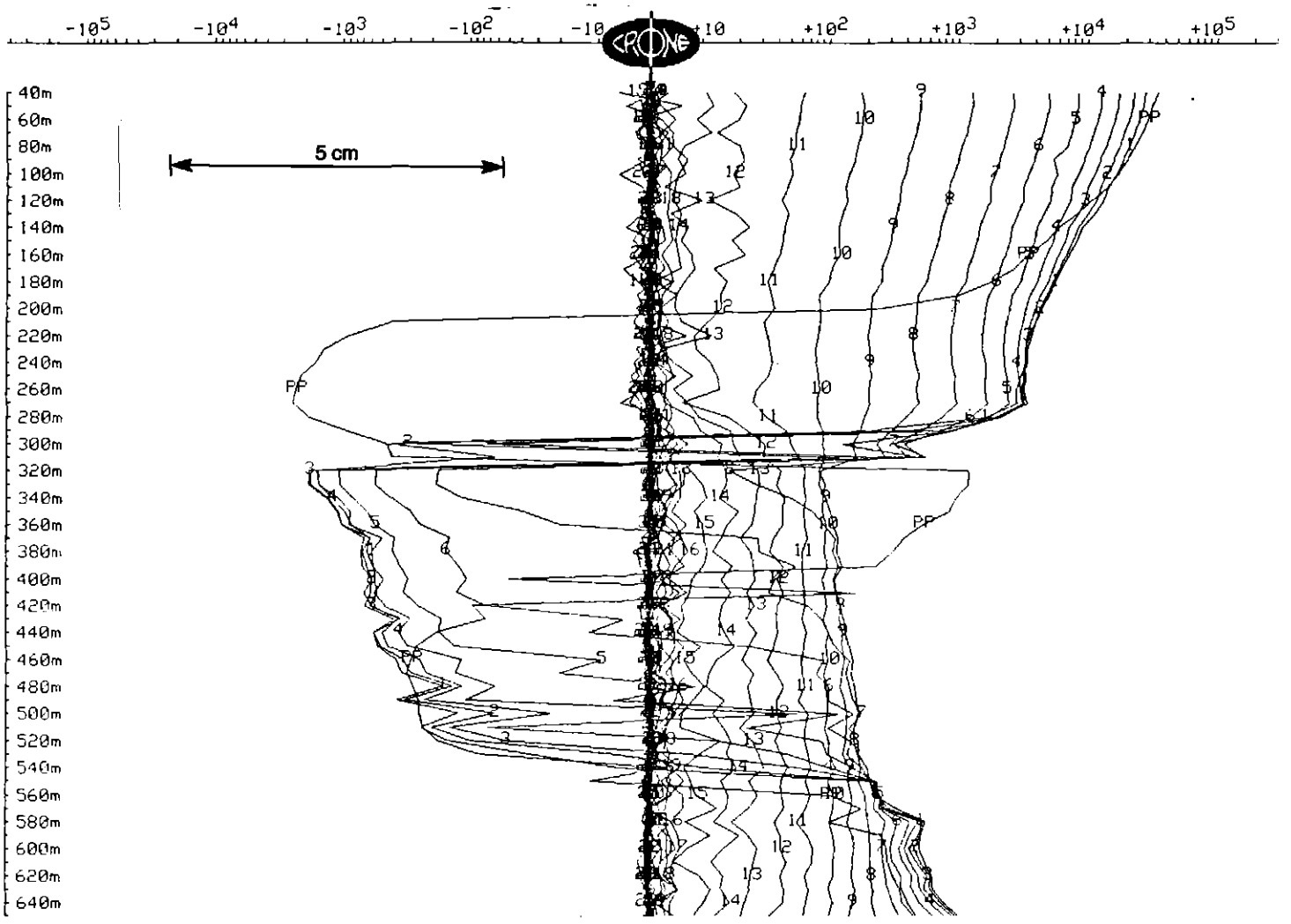
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390004

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



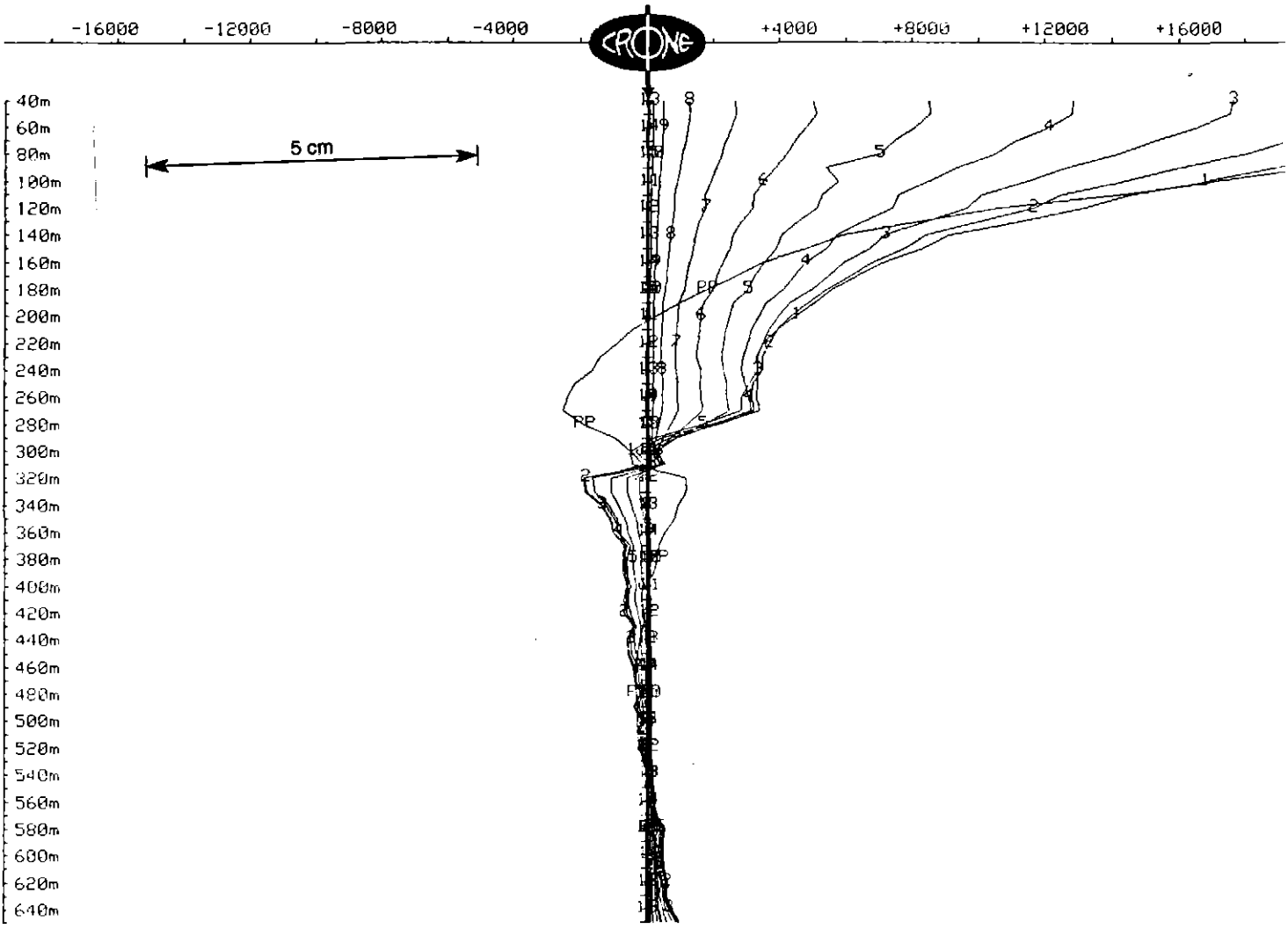
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390005

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/



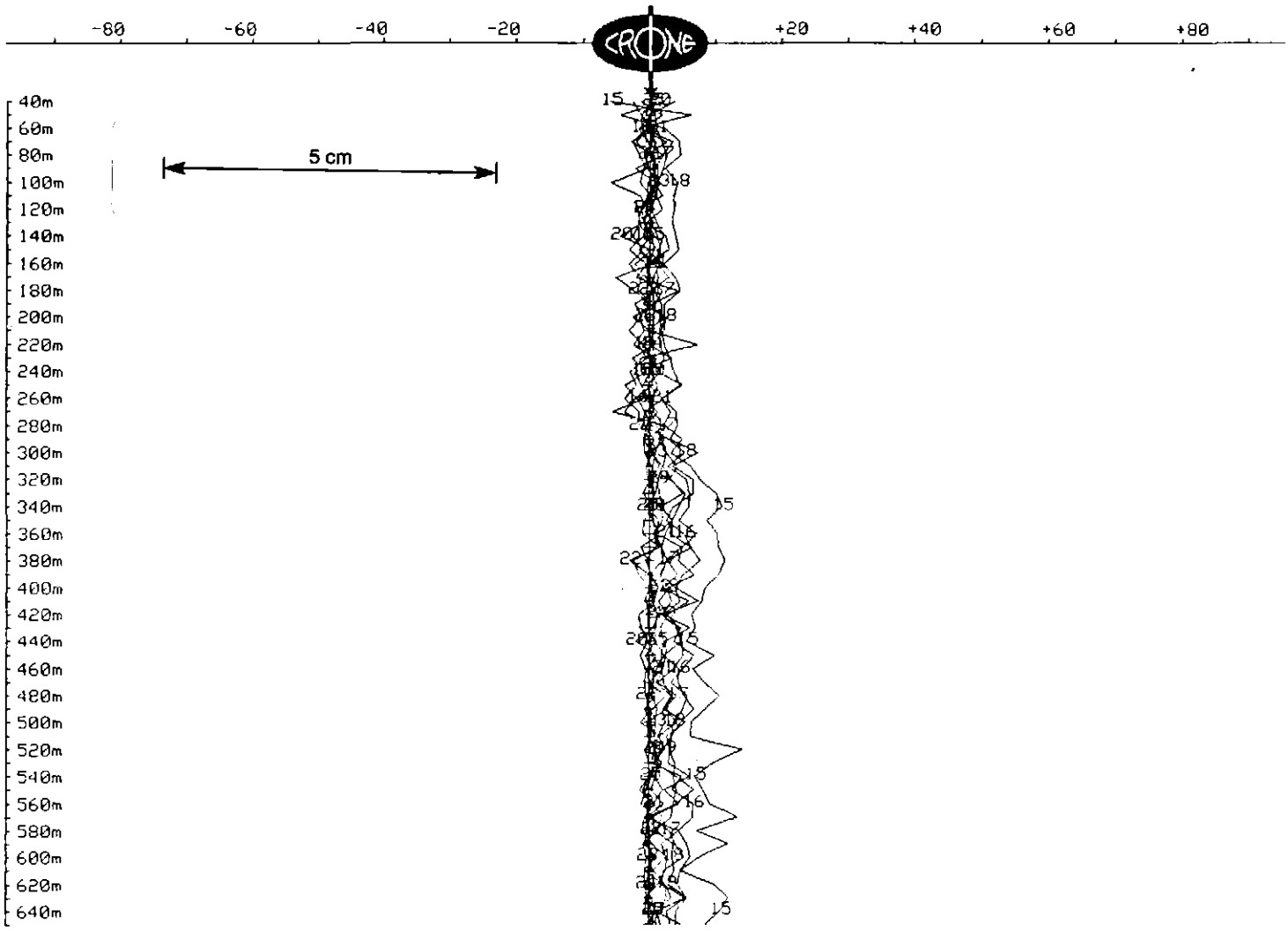
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390006

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



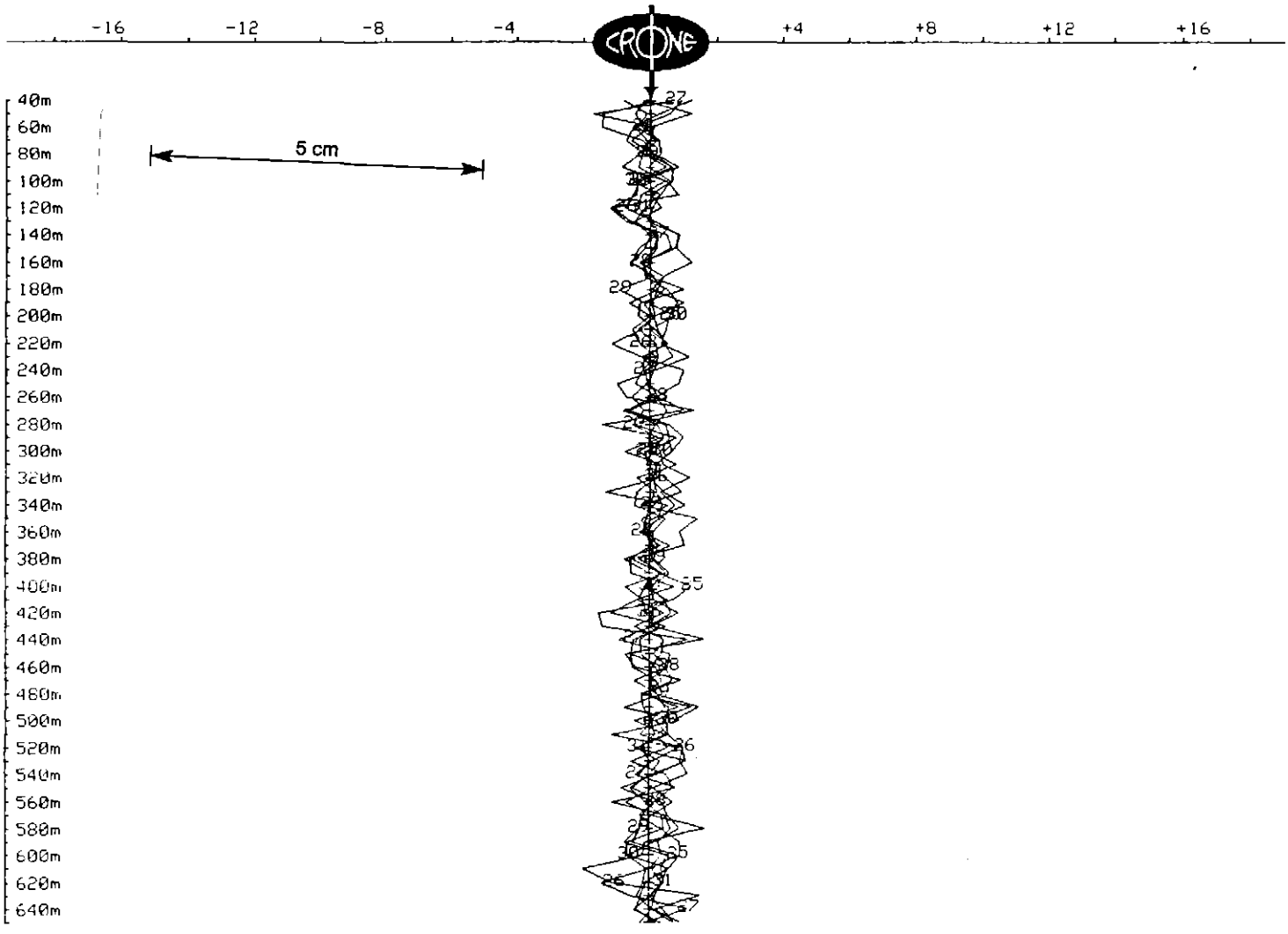
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390007

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



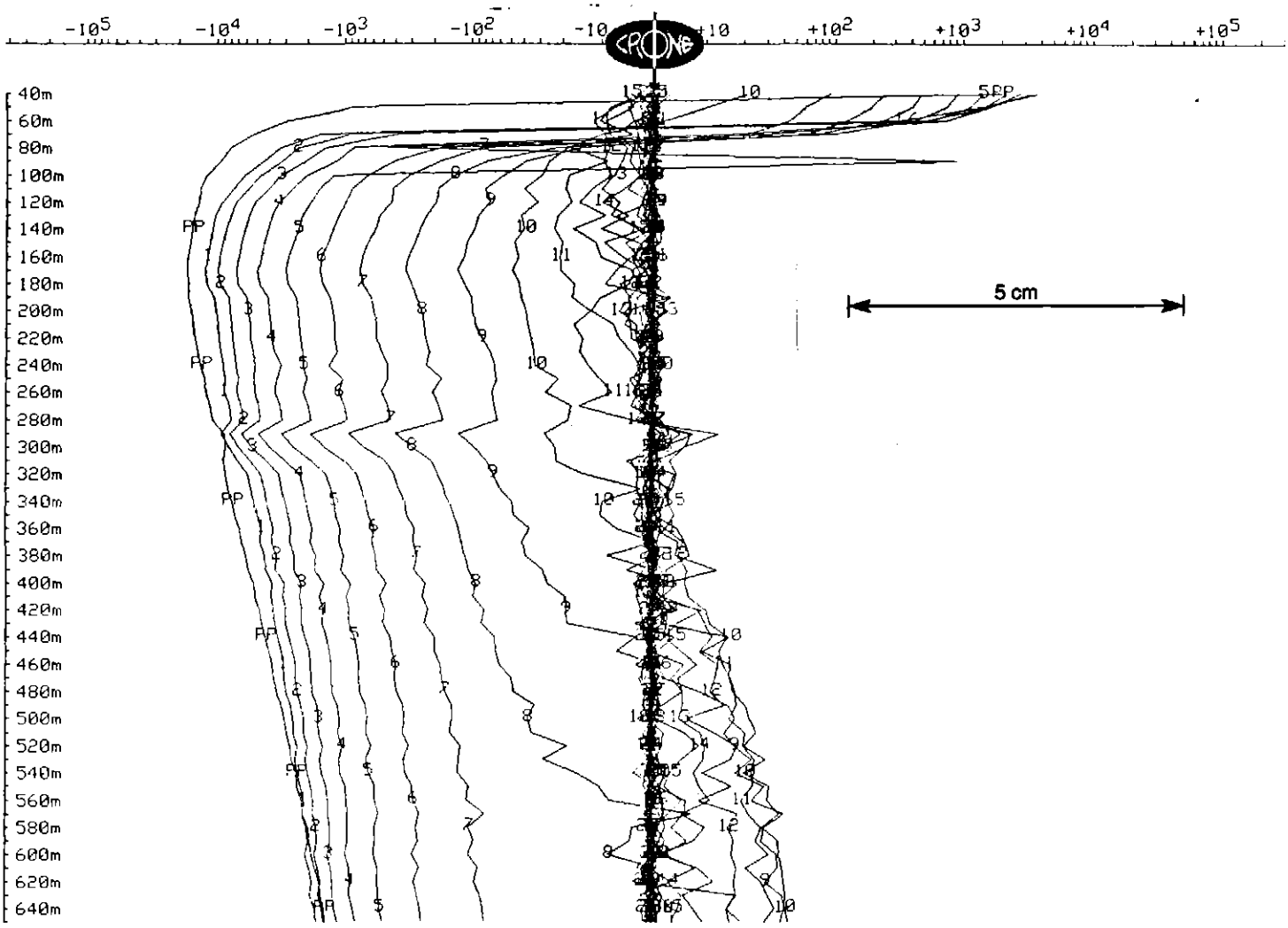
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390008

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2ZWB.PEM

Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



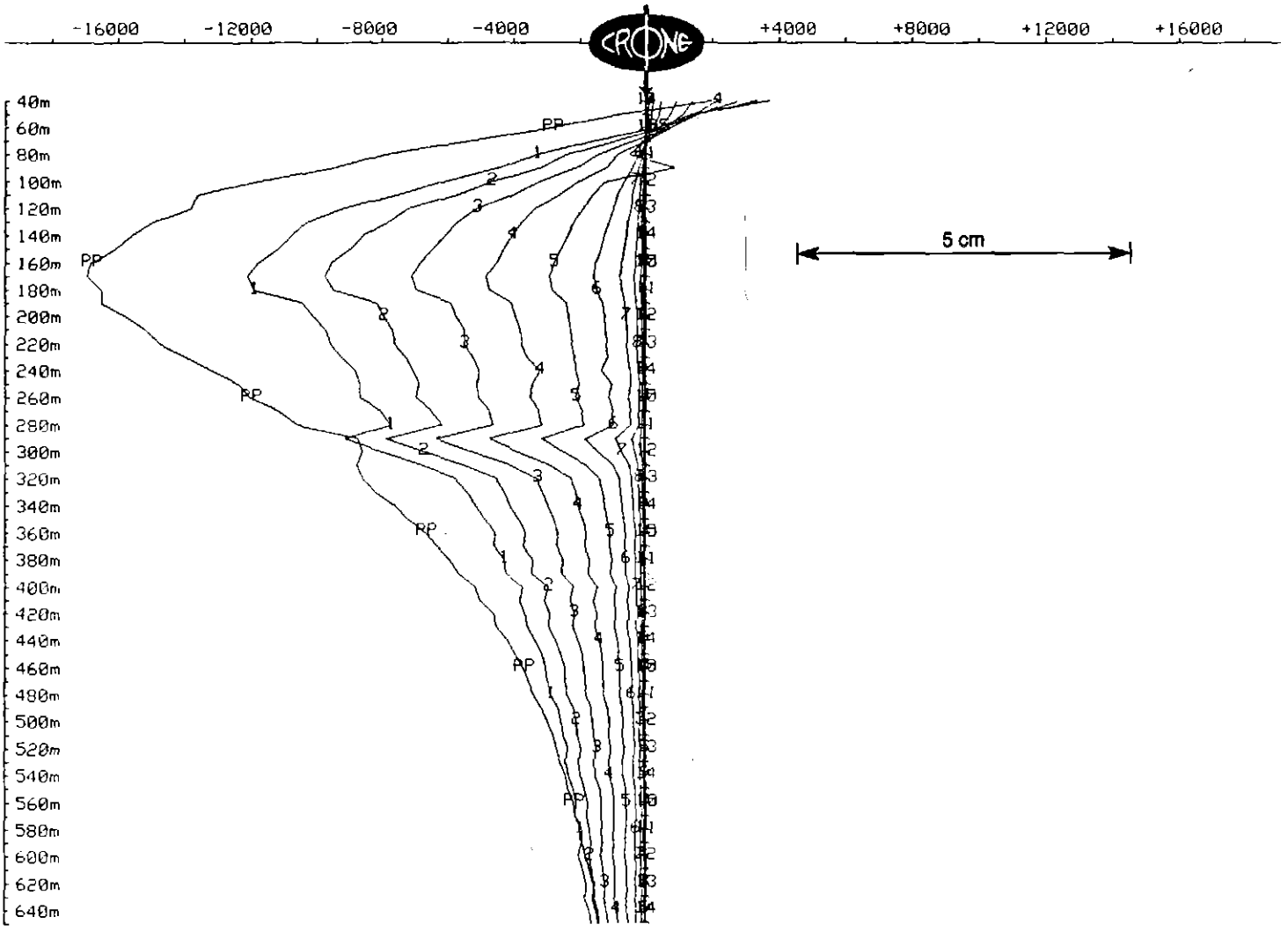
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390009

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 2000 nT/



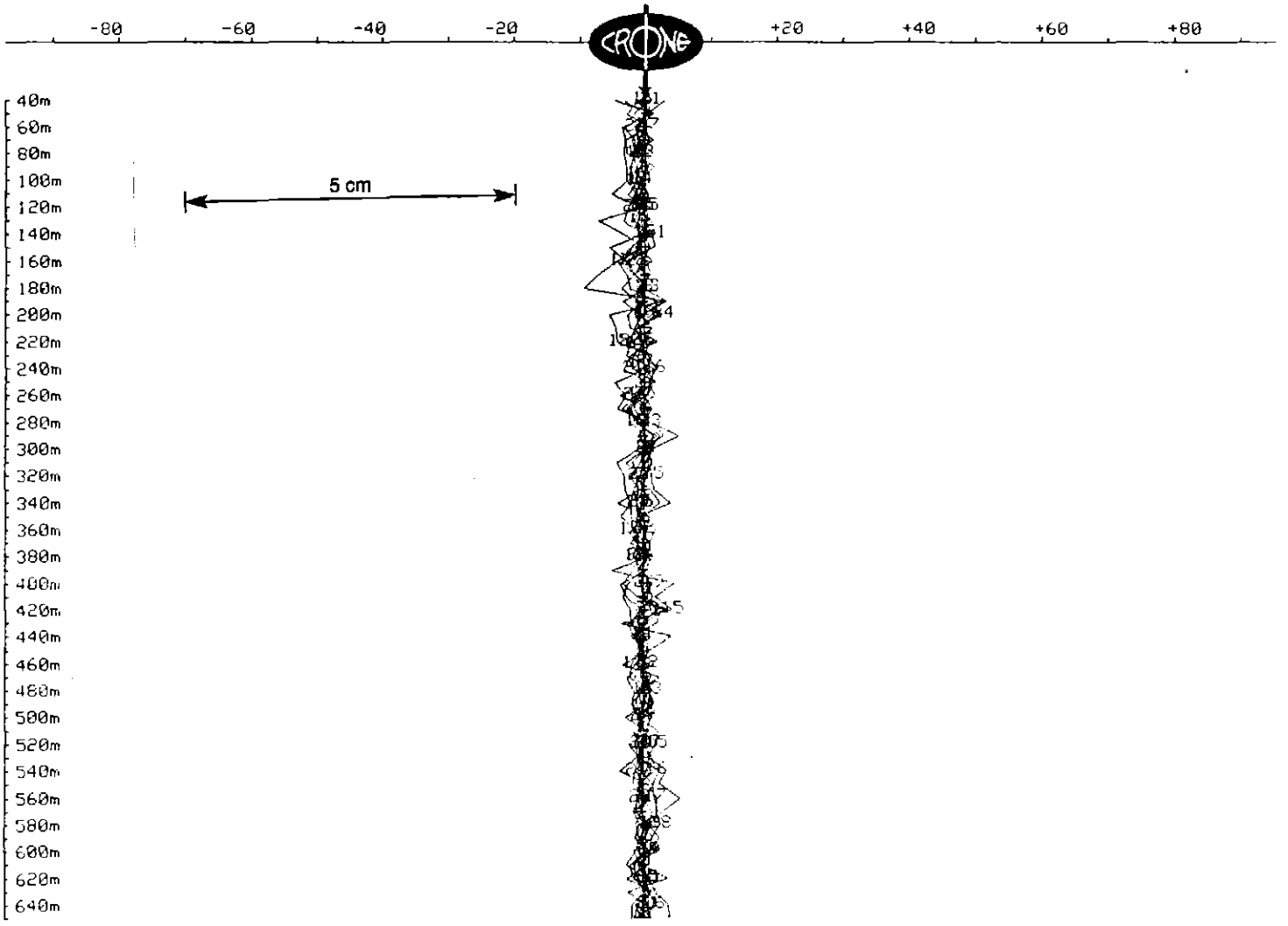
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390010

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



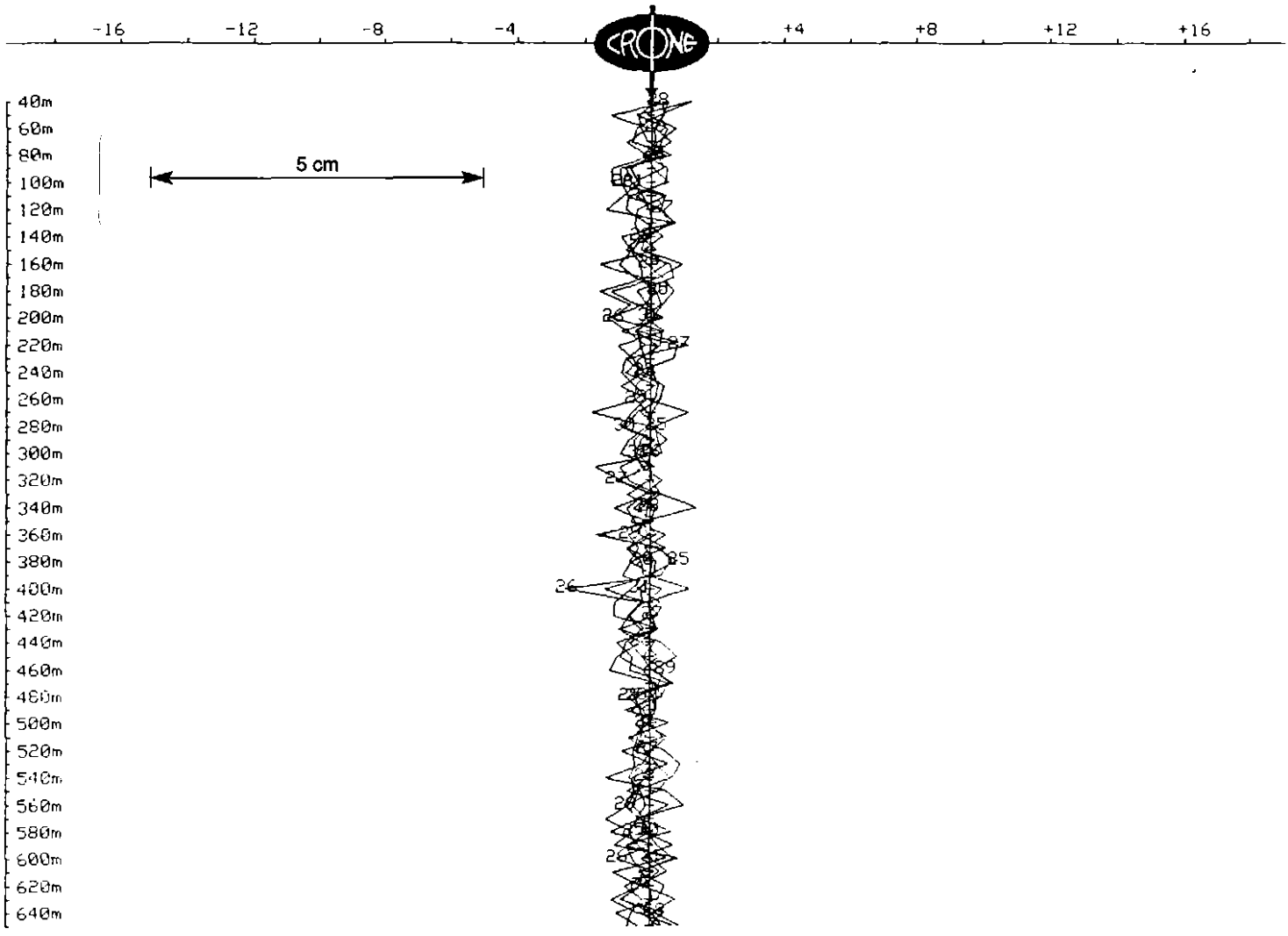
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390011

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 31, 1997	File name	: SHD2XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



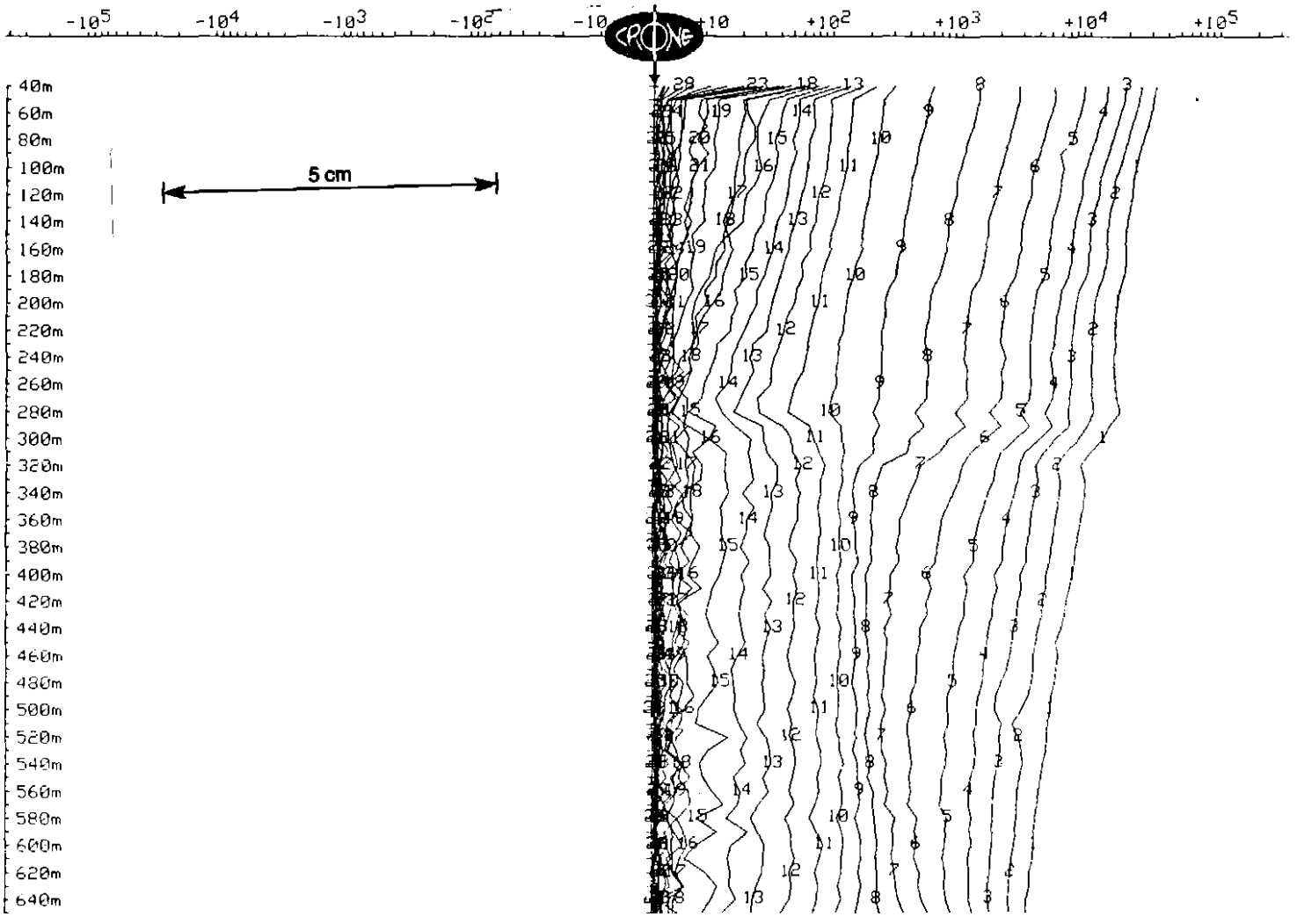
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390012

Client	: Resolute Ltd	Hole	: SHD-2
Grid	: South Henty	Tx Loop	: West
Date	: Jan 28, 1997	File name	: SHD2XYZW.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



390013

OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

Geophysical Contracting Services

100% Australian Owned

35 Fleming Street,
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AITKENVALE, QLD. 4814

Tel: 077 25 3544
Fax: 077 25 4805
Mob: 018 188 466
Email: oreserv@ozemail.com.au

7 March, 1997

Mr Grant McDonald
Resolute Samantha Limited
P.O. Box 63,
ZEEHAN, TAS. 7469

Dear Grant,

I was going through your data again and found that the wrong coil area had been put in the file for the repeat X-Y survey. I know you wont believe me - but it never happens! It doesn't effect the results exempt the amplitude (so we don't have to repeat the survey), so I have made the appropriate correction and enclosed new plots and digital data for your copy of the report.

I have also advised John Bishop and sent him the corrected data.

I apologise for the inconvenience and hope it hasn't caused you too many hassles - I am sure your job was jinxed because this is not the norm for us.

Yours sincerely,

David Lemcke
Manager.

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390014

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM
Time Base	: 20.00 ms	# Readings	: 128
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 600m X 500m	Receiver	: Digital #106
Current	: 10 Amps	Operator	: Kent Honner

Loop Coordinates (X,Y,Z)

1. 80000m, 58840m, 0m
2. 80175m, 58740m, 0m
3. 80600m, 58700m, 0m
4. 80600m, 59040m, 0m
5. 80530m, 59190m, 0m
6. 80000m, 59190m, 0m

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

1. 81000m, 58935m, 0m
2. 250deg, 73deg, 9m
3. 250.2deg, 73deg, 23m
4. 251deg, 73deg, 29m
5. 251.5deg, 73deg, 30m
6. 253deg, 72.8deg, 30m
7. 255.2deg, 73.2deg, 30m
8. 254deg, 72.2deg, 30m
9. 252.8deg, 71.2deg, 30m
10. 252.5deg, 70.2deg, 30m
11. 252deg, 69.7deg, 30m
12. 251.5deg, 69.2deg, 30m
13. 252.2deg, 68.7deg, 30m
14. 253.5deg, 64.3deg, 20m
15. 254.7deg, 61.8deg, 10m
16. 257deg, 60.4deg, 12m
17. 257.5deg, 59deg, 12m
18. 253deg, 58.2deg, 12m
19. 253deg, 57.4deg, 12m
20. 253deg, 56.4deg, 14m
21. 252.8deg, 55.2deg, 22m
22. 253deg, 53deg, 30m
23. 253.5deg, 51deg, 30m
24. 254deg, 49deg, 30m
25. 254.5deg, 46.2deg, 30m
26. 254.5deg, 44.7deg, 30m
27. 254.5deg, 44deg, 30m
28. 253.5deg, 43deg, 30m
29. 253.5deg, 41.8deg, 30m
30. 253.5deg, 40.5deg, 33m
31. 254.7deg, 39.6deg, 34m
32. 255deg, 37.3deg, 30m

Channel Times (usec)

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

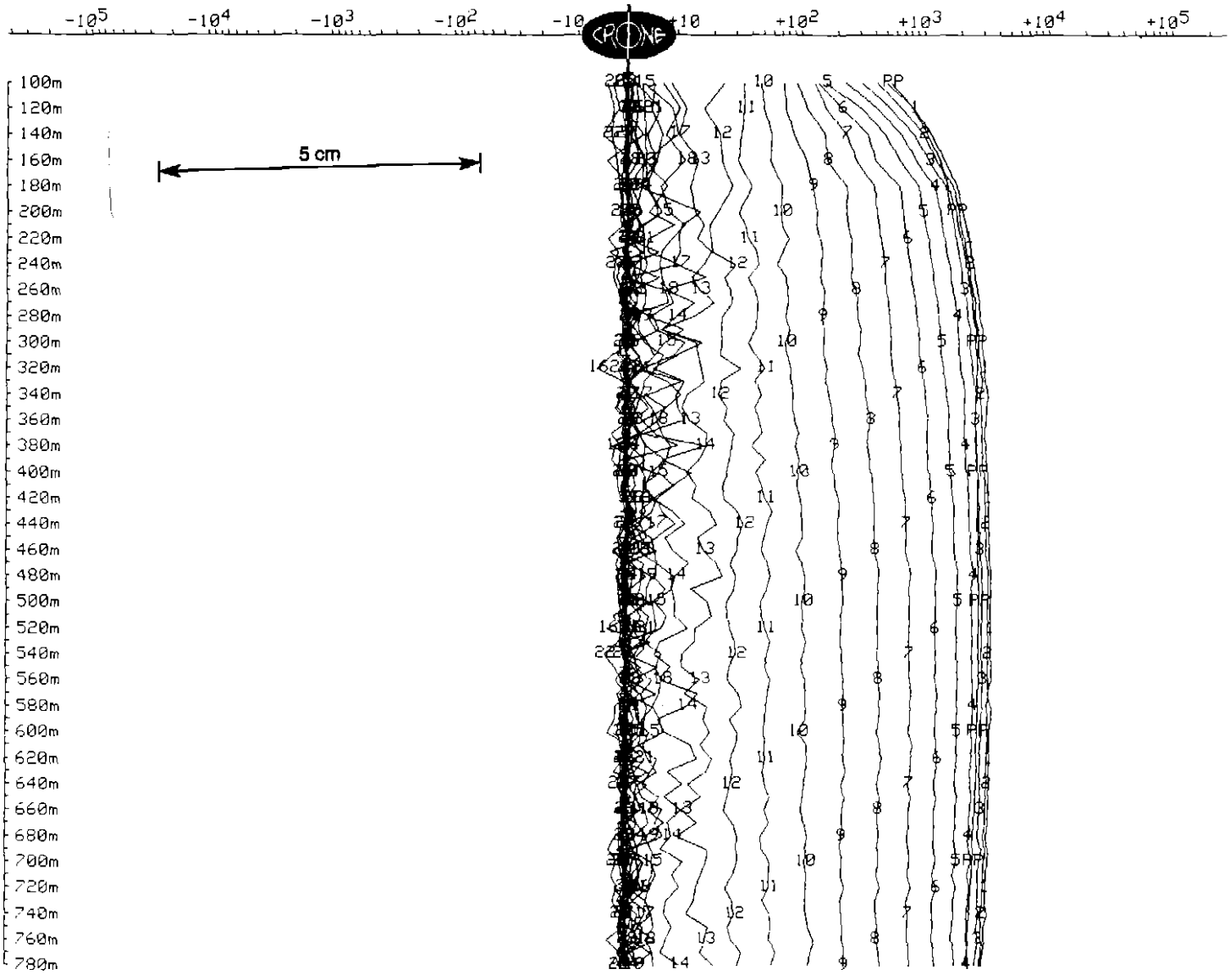
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390015

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nänoTesla/sec - 31 channels and PP

Scale: 1:5000



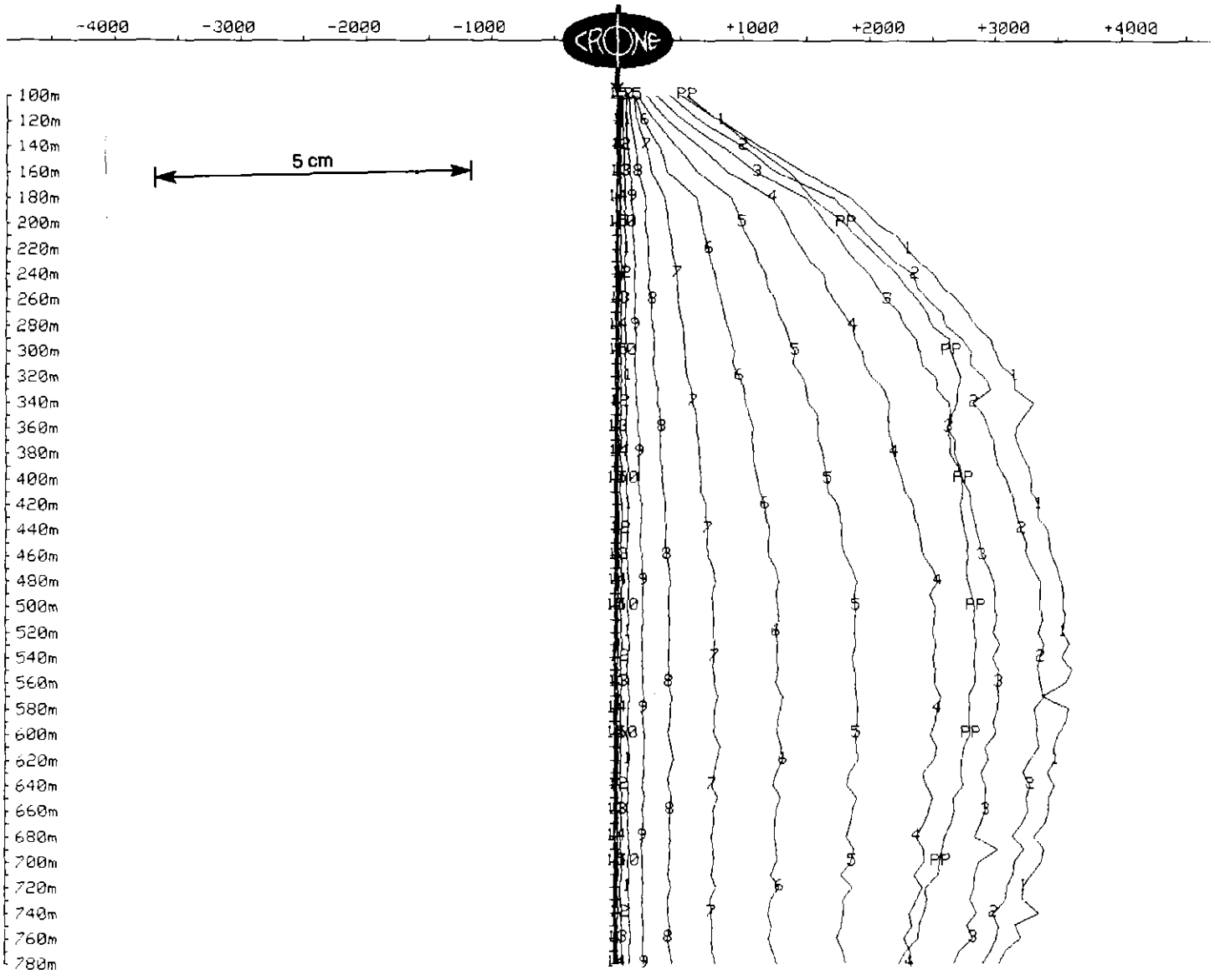
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390016

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT



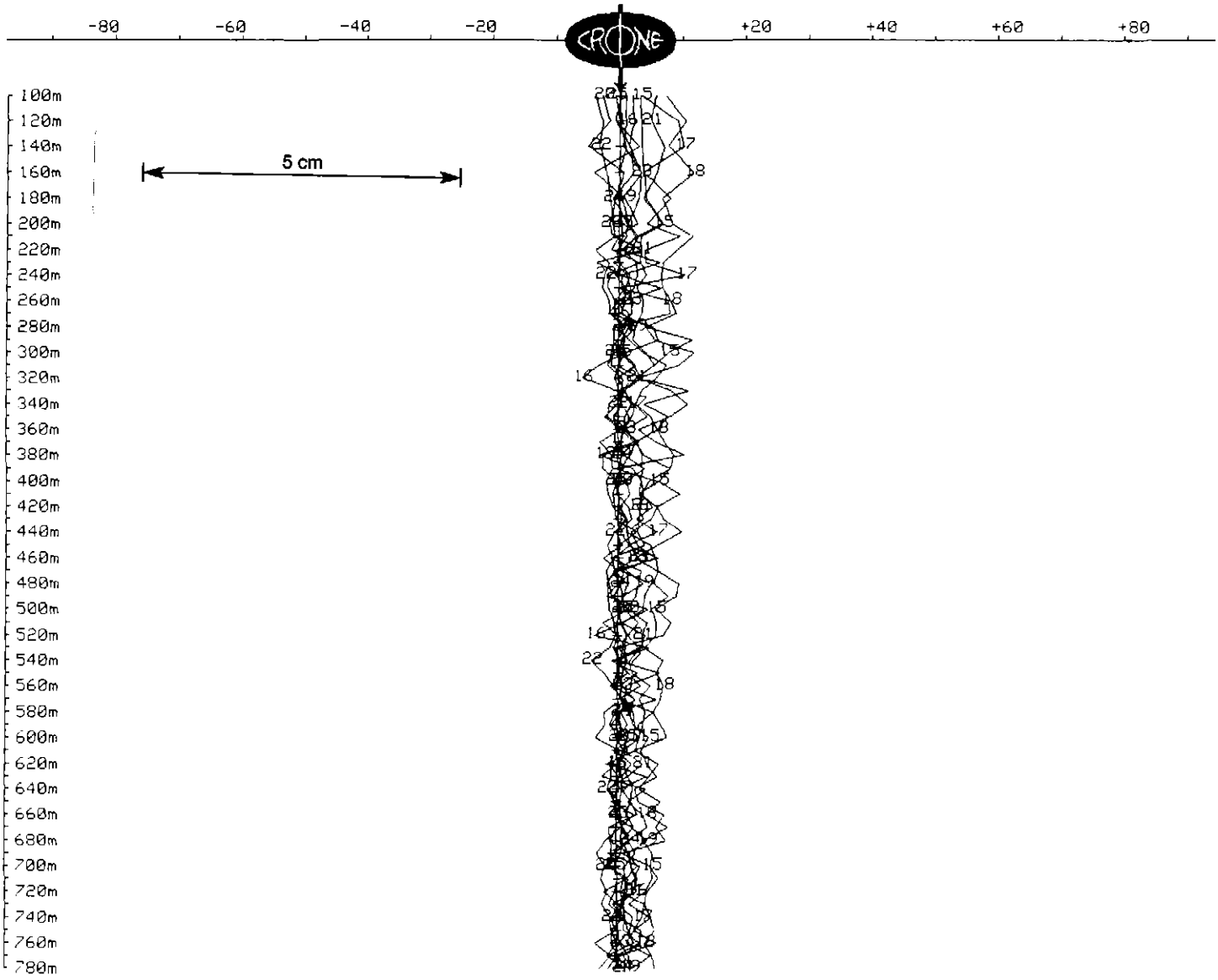
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390017

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



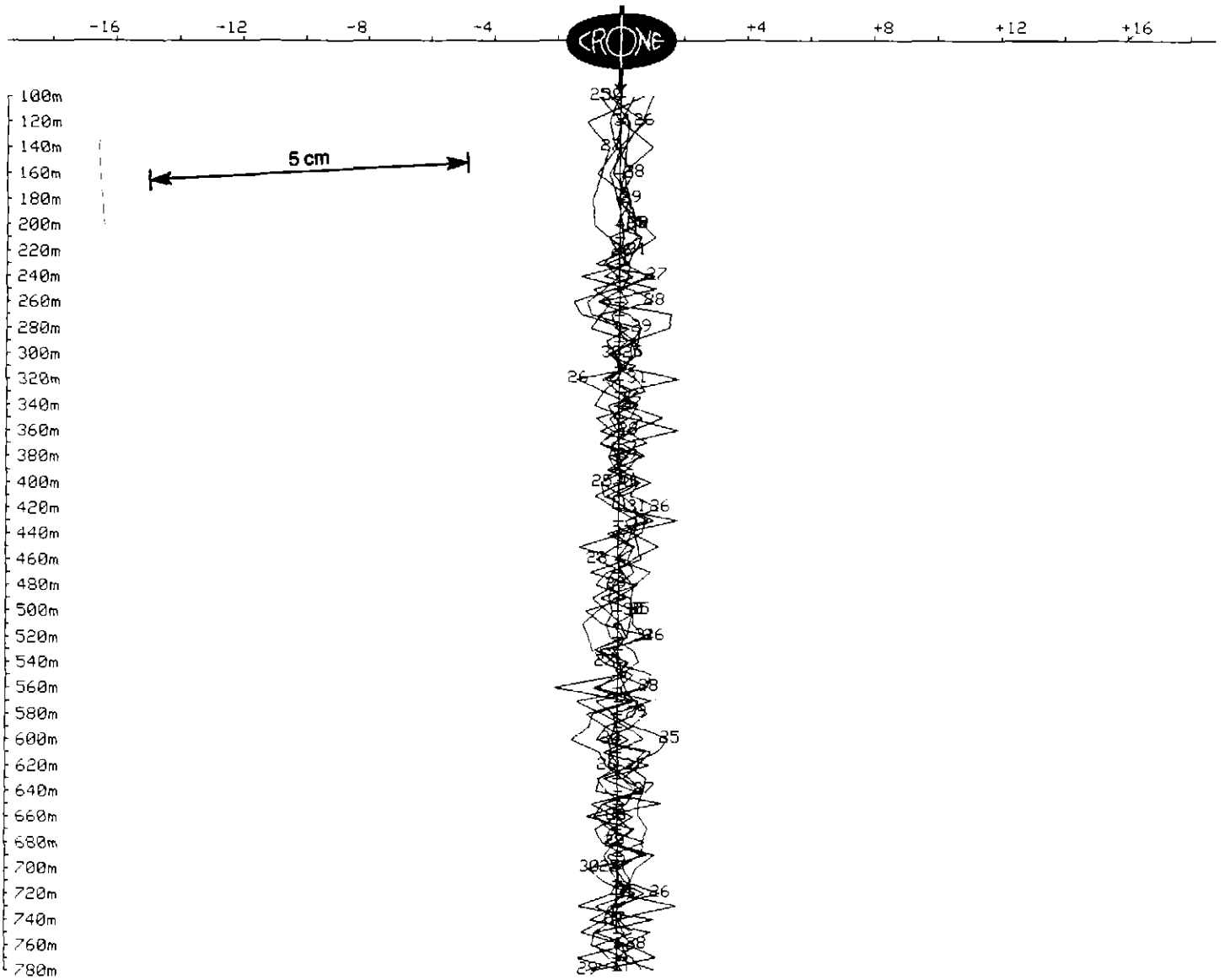
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390018

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT



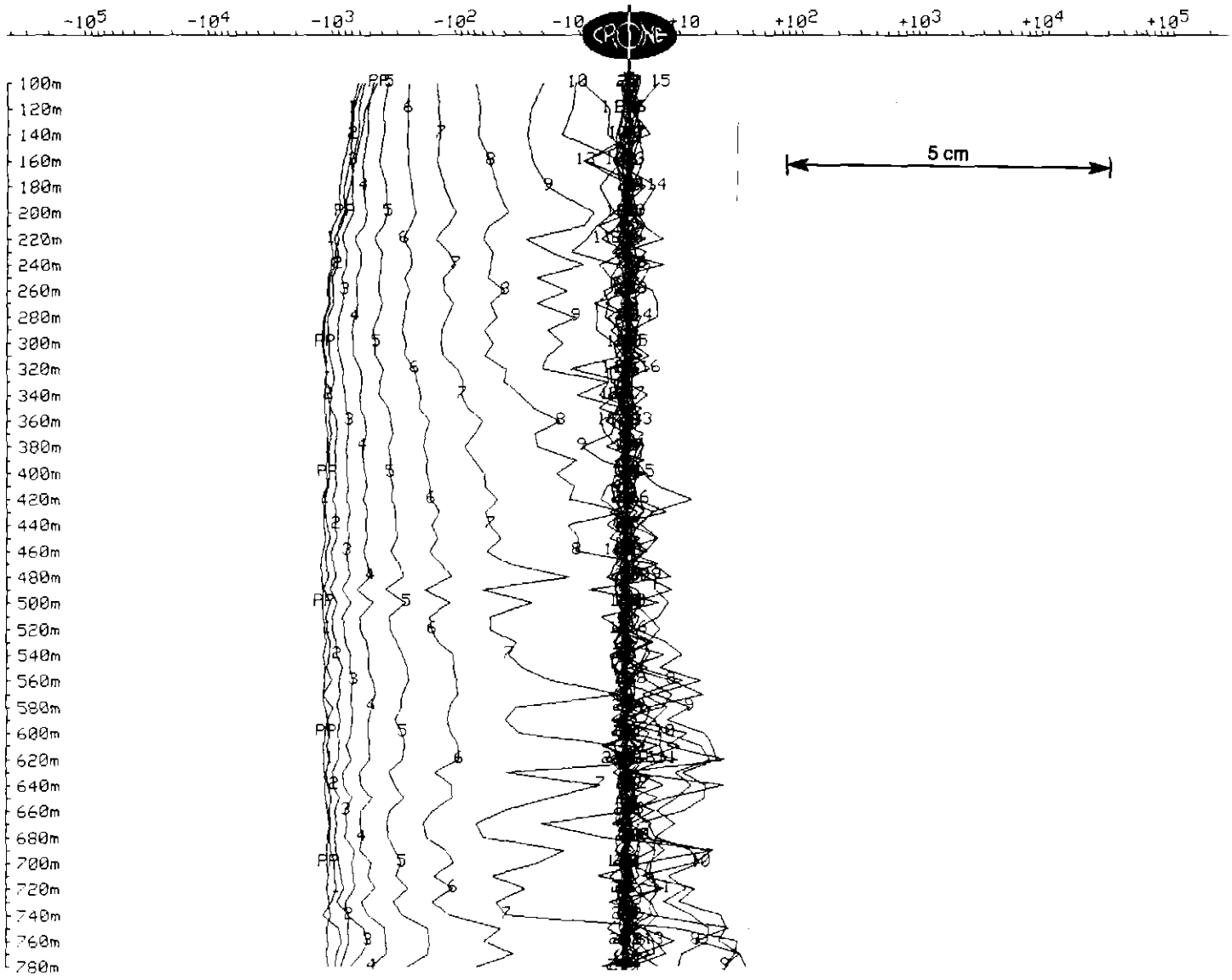
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390019

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nänoTesla/sec - 31 channels and PP

Scale: 1:5000



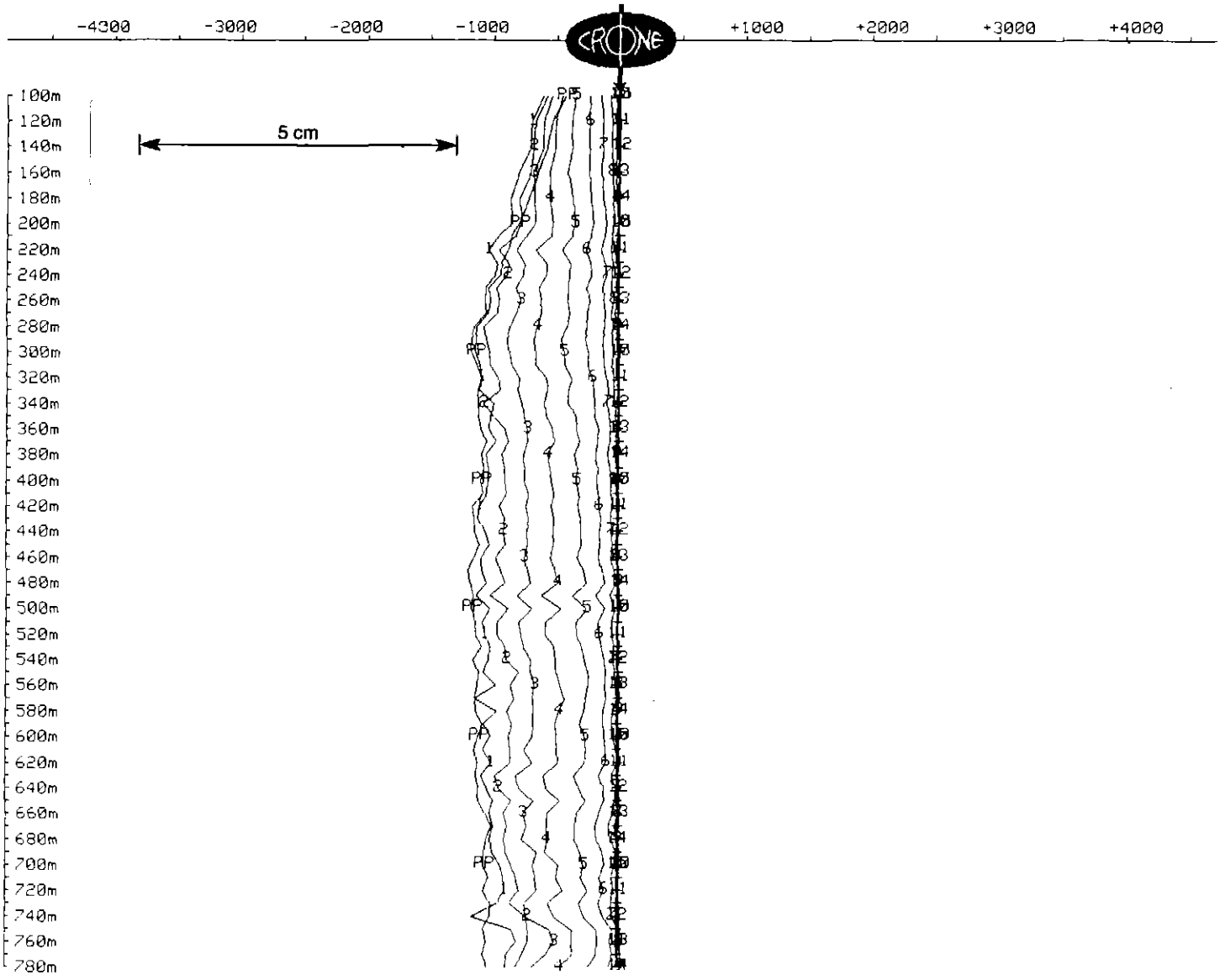
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390020

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT



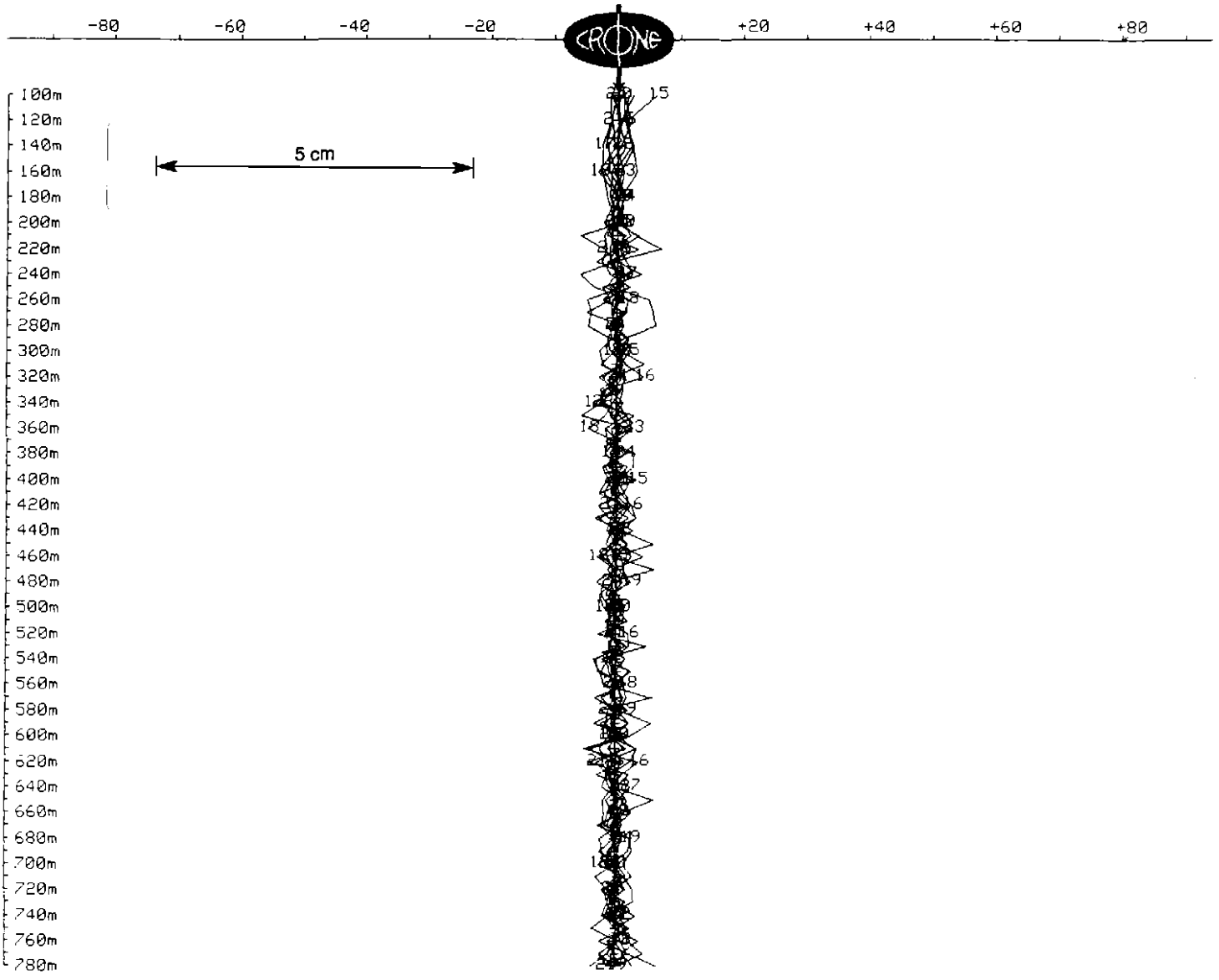
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390021

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



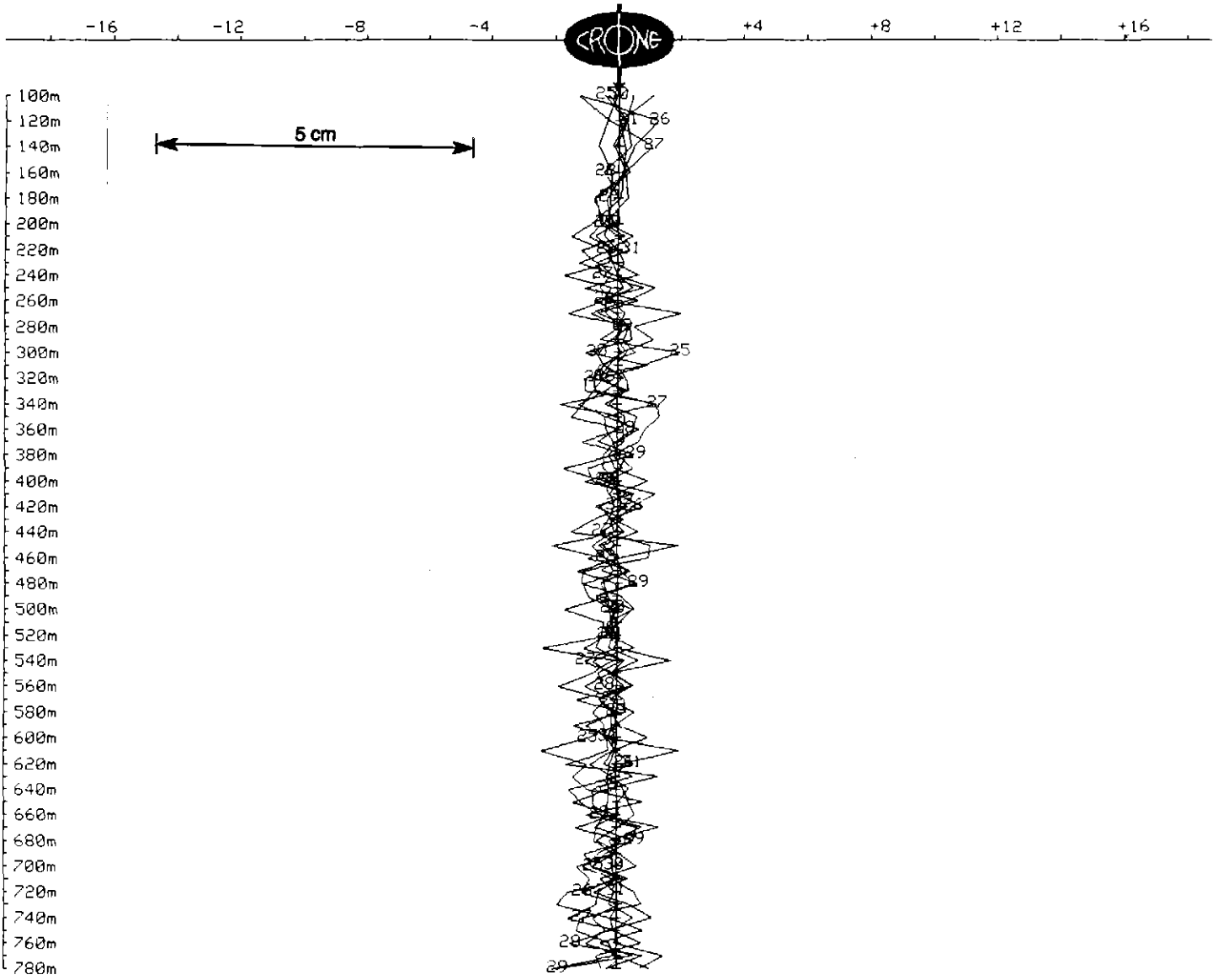
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390022

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWRA.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT



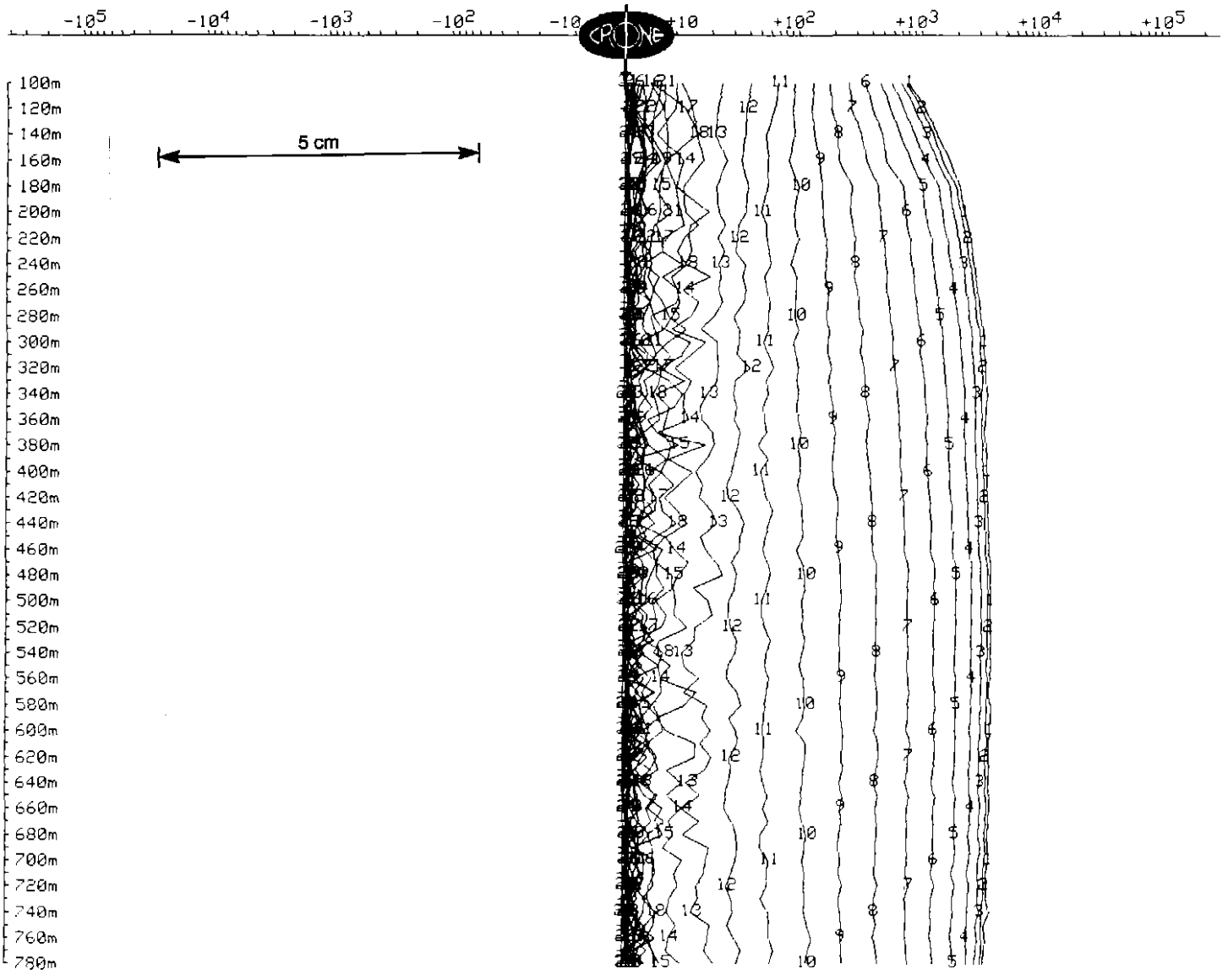
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390023

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYZWR.PEM

Data Scaled by Factor of 2.32
Data Corrected for Probe Rotation using Orientation Tool #4
TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390024

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM
Time Base	: 20.00 ms	# Readings	: 128
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 31	Coil Area	: 2800 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 600m X 500m	Receiver	: Digital #106
Current	: 10 Amps	Operator	: Bruce Broadbent

Loop Coordinates (X,Y,Z)

1. 80000m, 58840m, 0m
2. 80175m, 58740m, 0m
3. 80600m, 58700m, 0m
4. 80600m, 59040m, 0m
5. 80530m, 59190m, 0m
6. 80000m, 59190m, 0m

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

1. 81000m, 58935m, 0m
2. 250deg, 73deg, 9m
3. 250.2deg, 73deg, 23m
4. 251deg, 73deg, 29m
5. 251.5deg, 73deg, 30m
6. 253deg, 72.8deg, 30m
7. 255.2deg, 73.2deg, 30m
8. 254deg, 72.2deg, 30m
9. 252.8deg, 71.2deg, 30m
10. 252.5deg, 70.2deg, 30m
11. 252deg, 69.7deg, 30m
12. 251.5deg, 69.2deg, 30m
13. 252.2deg, 68.7deg, 30m
14. 253.5deg, 64.3deg, 20m
15. 254.7deg, 61.8deg, 10m
16. 257deg, 60.4deg, 12m
17. 257.5deg, 59deg, 12m
18. 253deg, 58.2deg, 12m
19. 253deg, 57.4deg, 12m
20. 253deg, 56.4deg, 14m
21. 252.8deg, 55.2deg, 22m
22. 253deg, 53deg, 30m
23. 253.5deg, 51deg, 30m
24. 254deg, 49deg, 30m
25. 254.5deg, 46.2deg, 30m
26. 254.5deg, 44.7deg, 30m
27. 254.5deg, 44deg, 30m
28. 253.5deg, 43deg, 30m
29. 253.5deg, 41.8deg, 30m
30. 253.5deg, 40.5deg, 33m
31. 254.7deg, 39.6deg, 34m
32. 255deg, 37.3deg, 30m

Channel Times (usec)

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

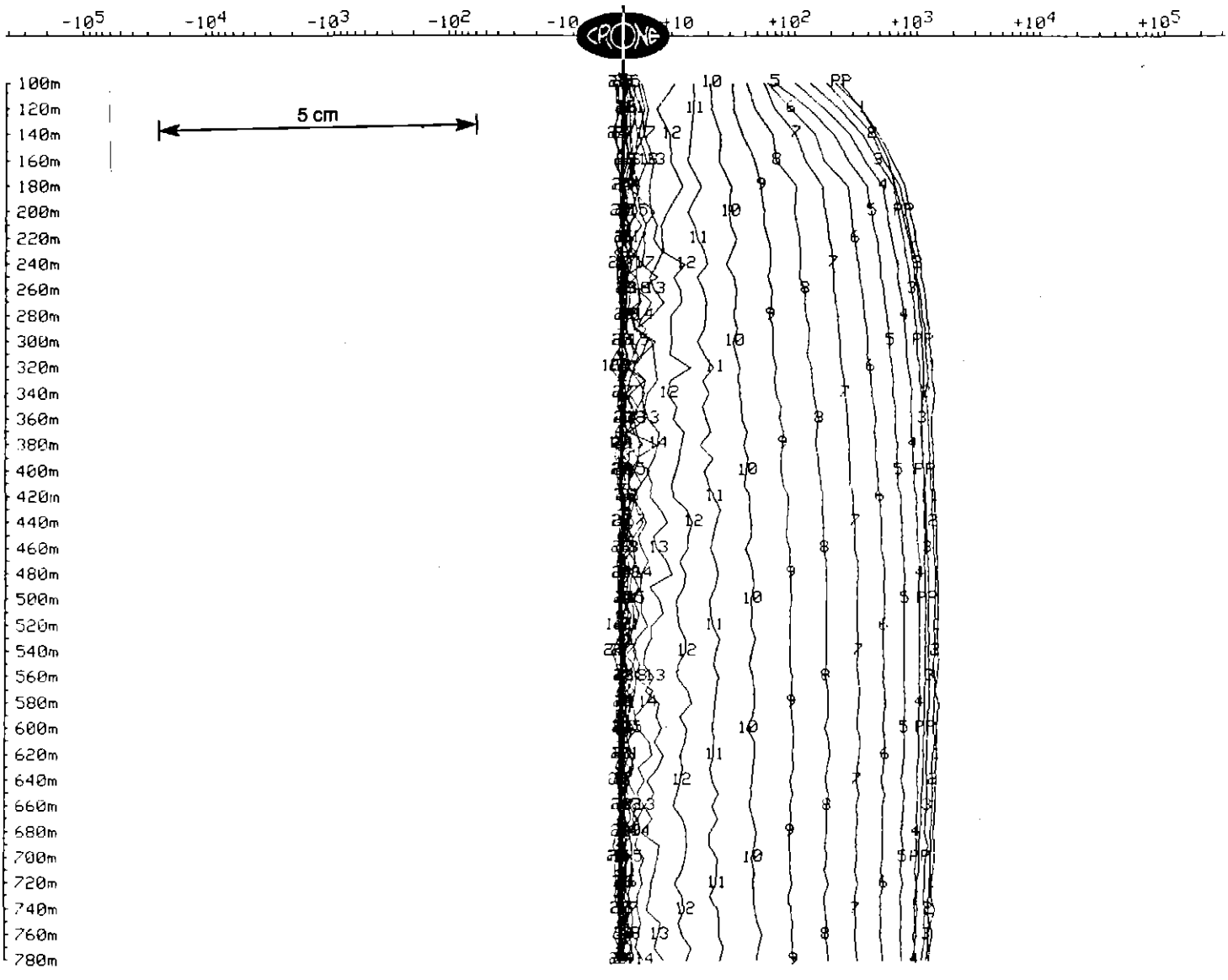
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390025

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SDIXYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



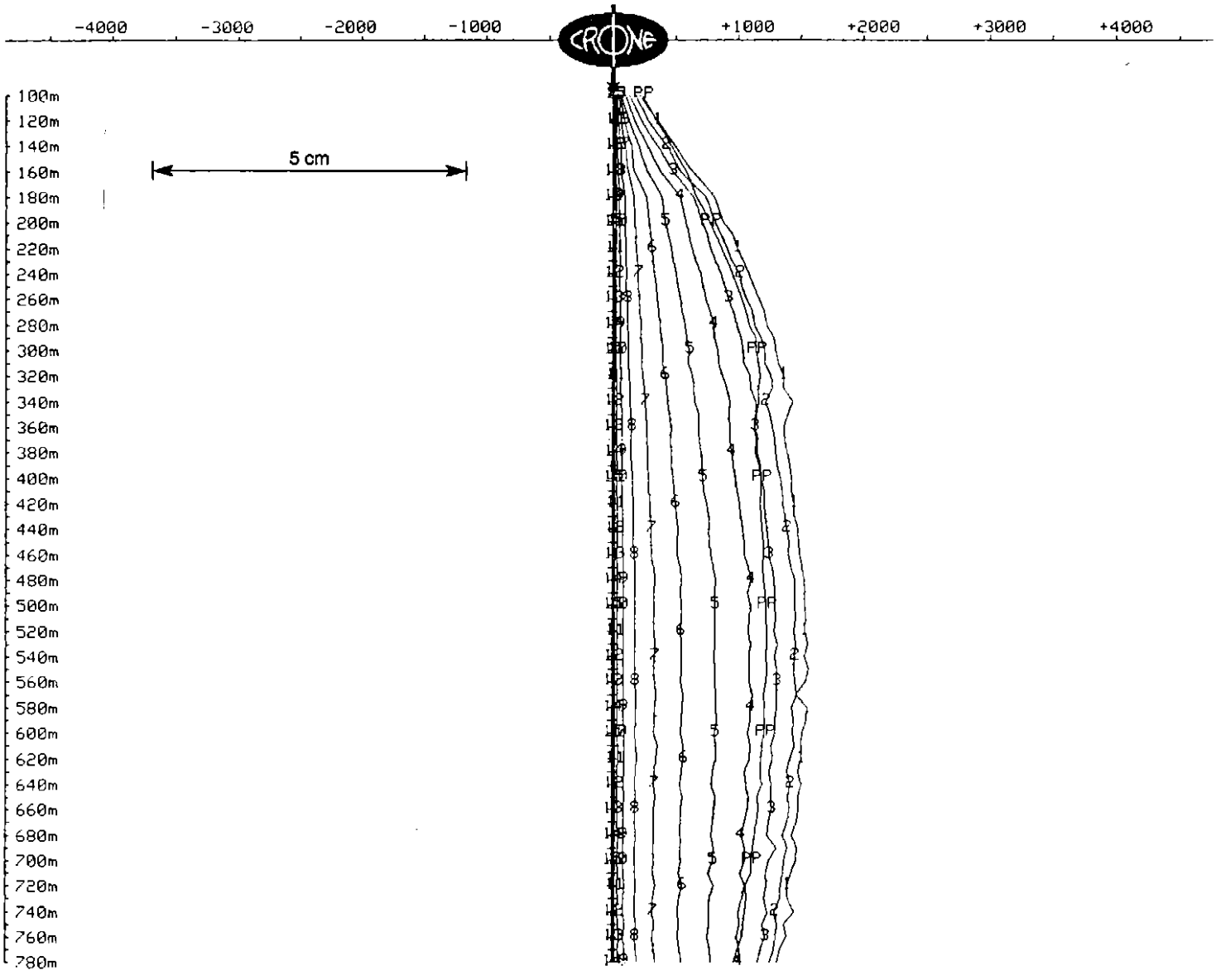
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390026

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/



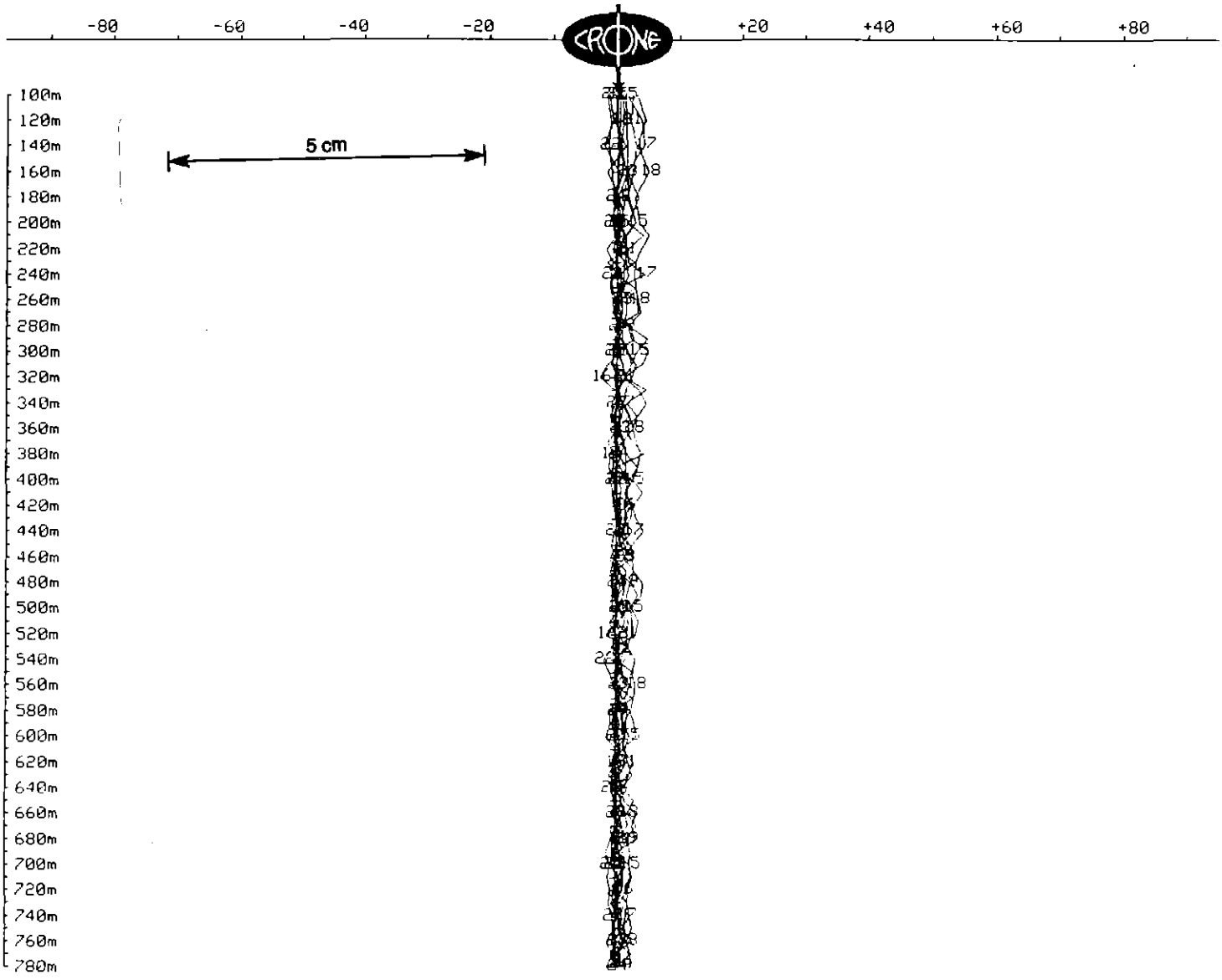
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390027

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



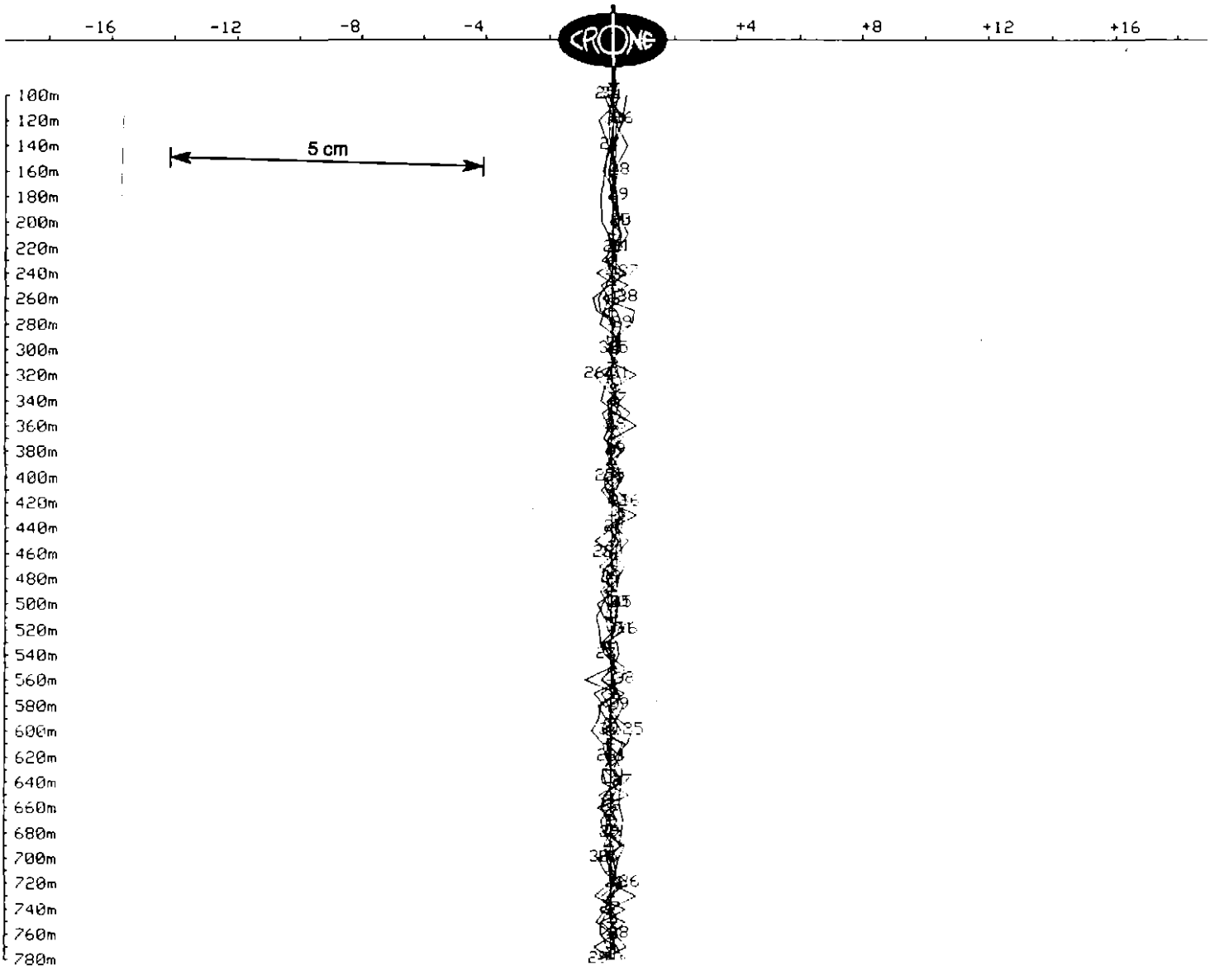
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390028

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
X COMPONENT dBx/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



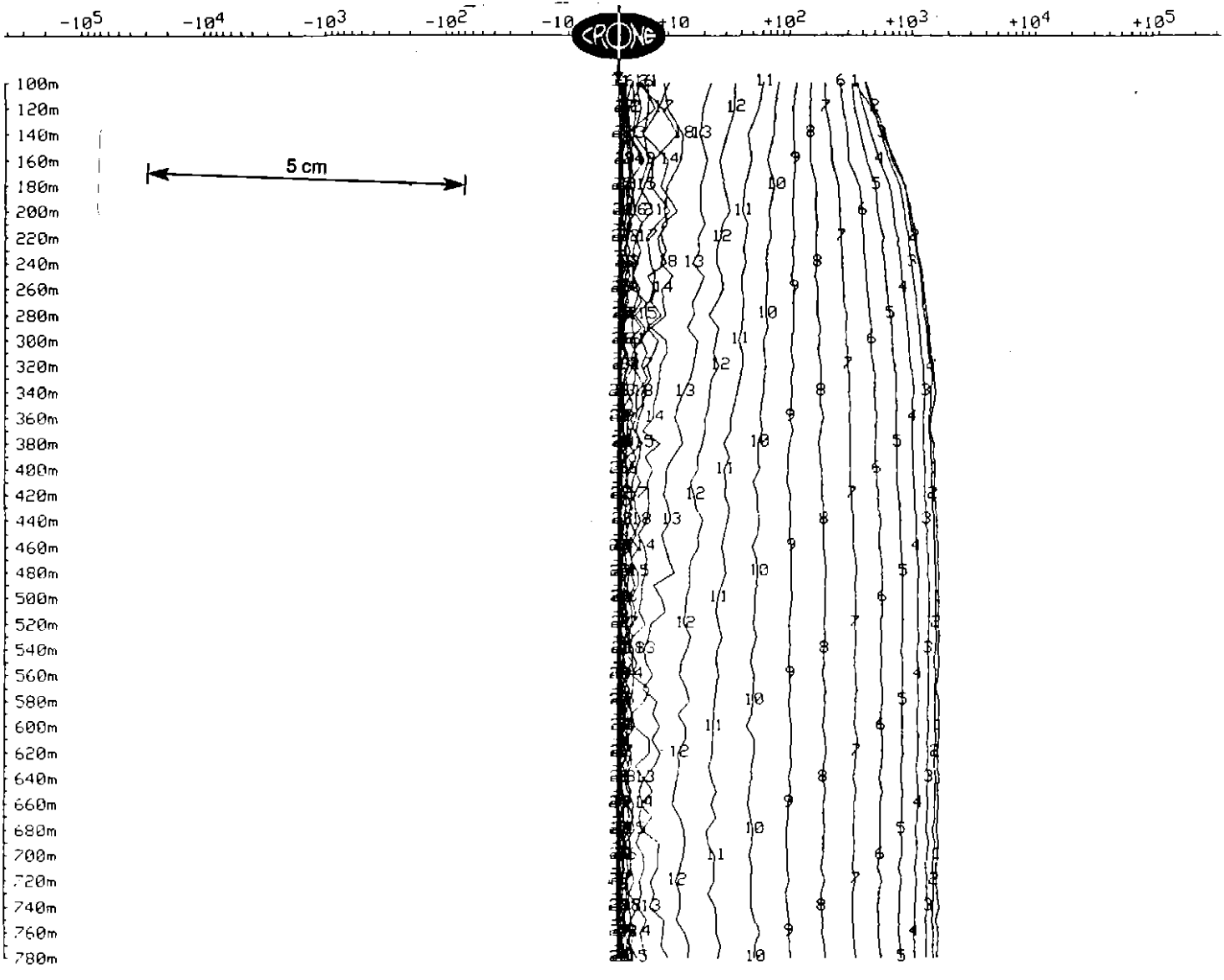
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390029

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYZWR.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 31 channels

Scale: 1:5000



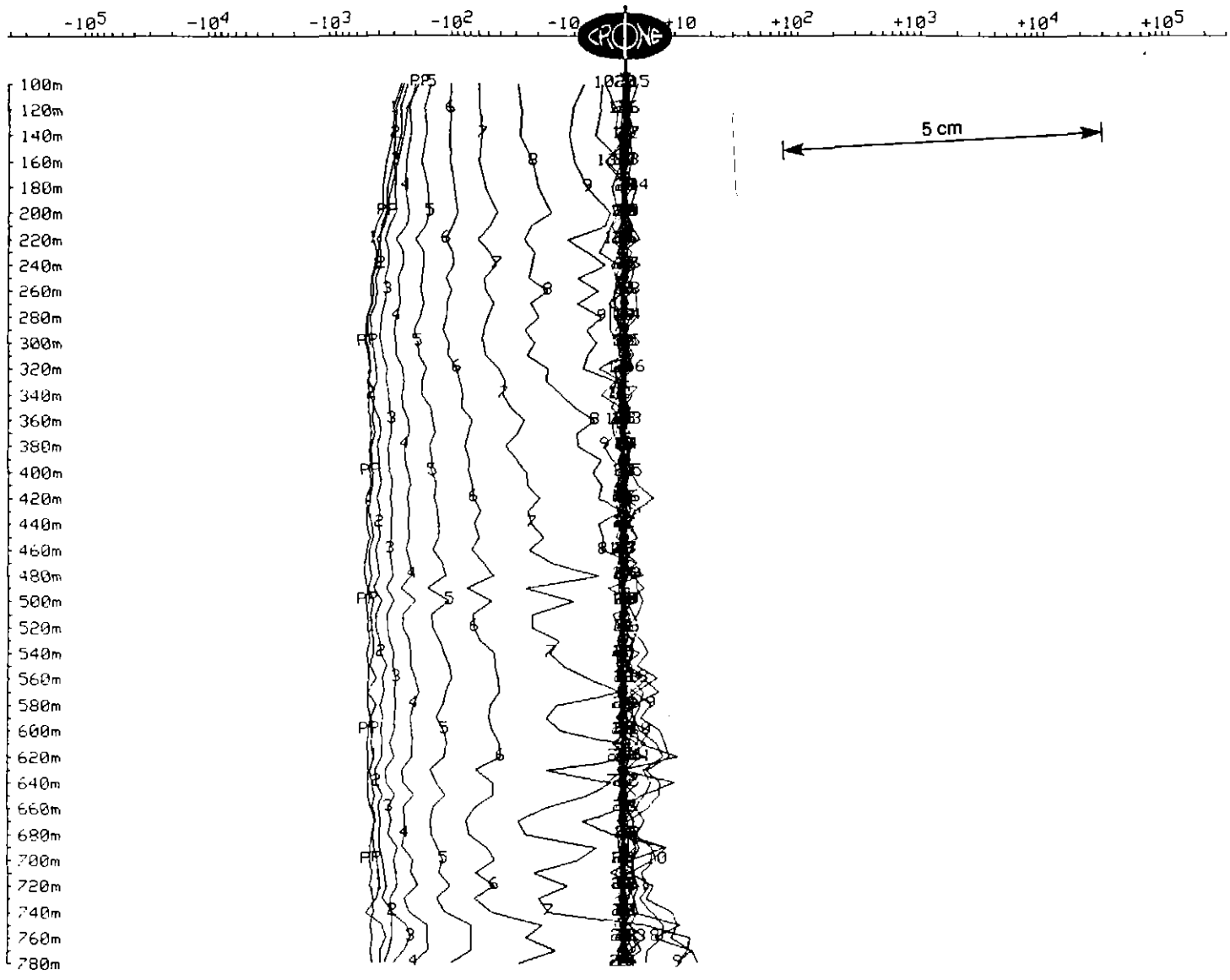
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390030

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000



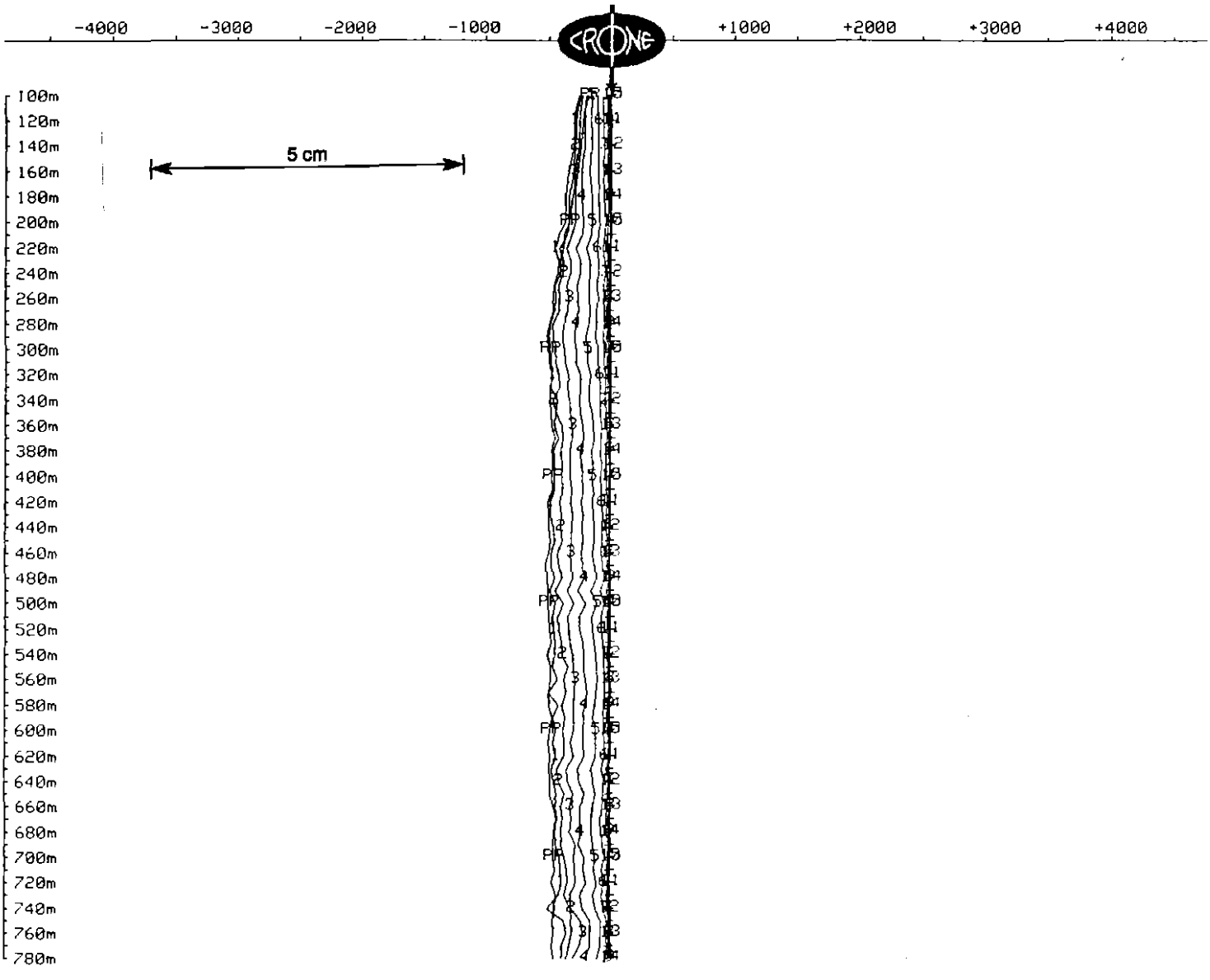
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390031

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 500 nT/



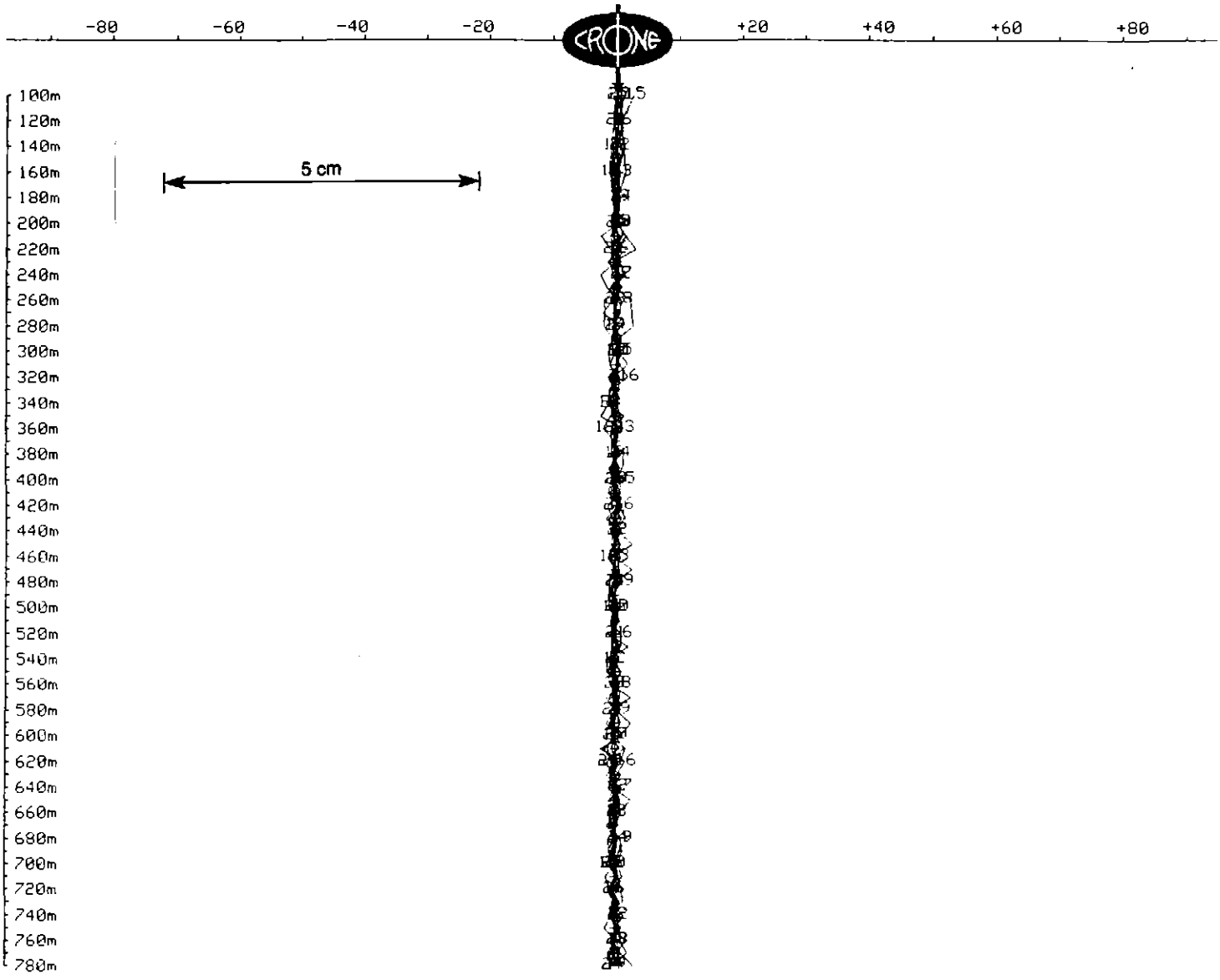
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390032

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/



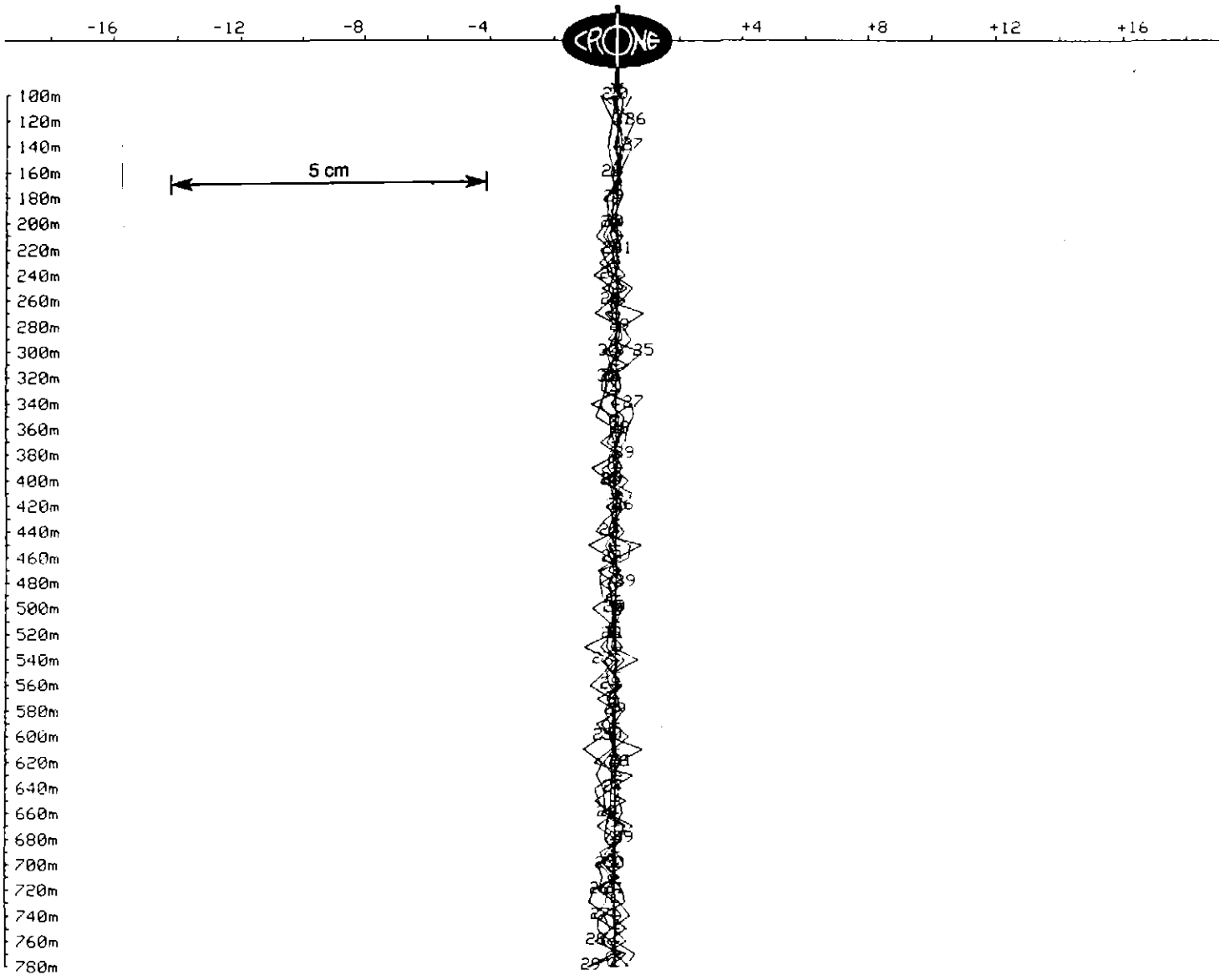
OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

390033

Client	: Resolute Ltd	Hole	: SHD-1
Grid	: South Henty	Tx Loop	: West
Date	: Feb 15, 1997	File name	: SD1XYWR.PEM

Data Corrected for Probe Rotation using Orientation Tool #4
Y COMPONENT dBy/dt nanoTesla/sec - 31 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/



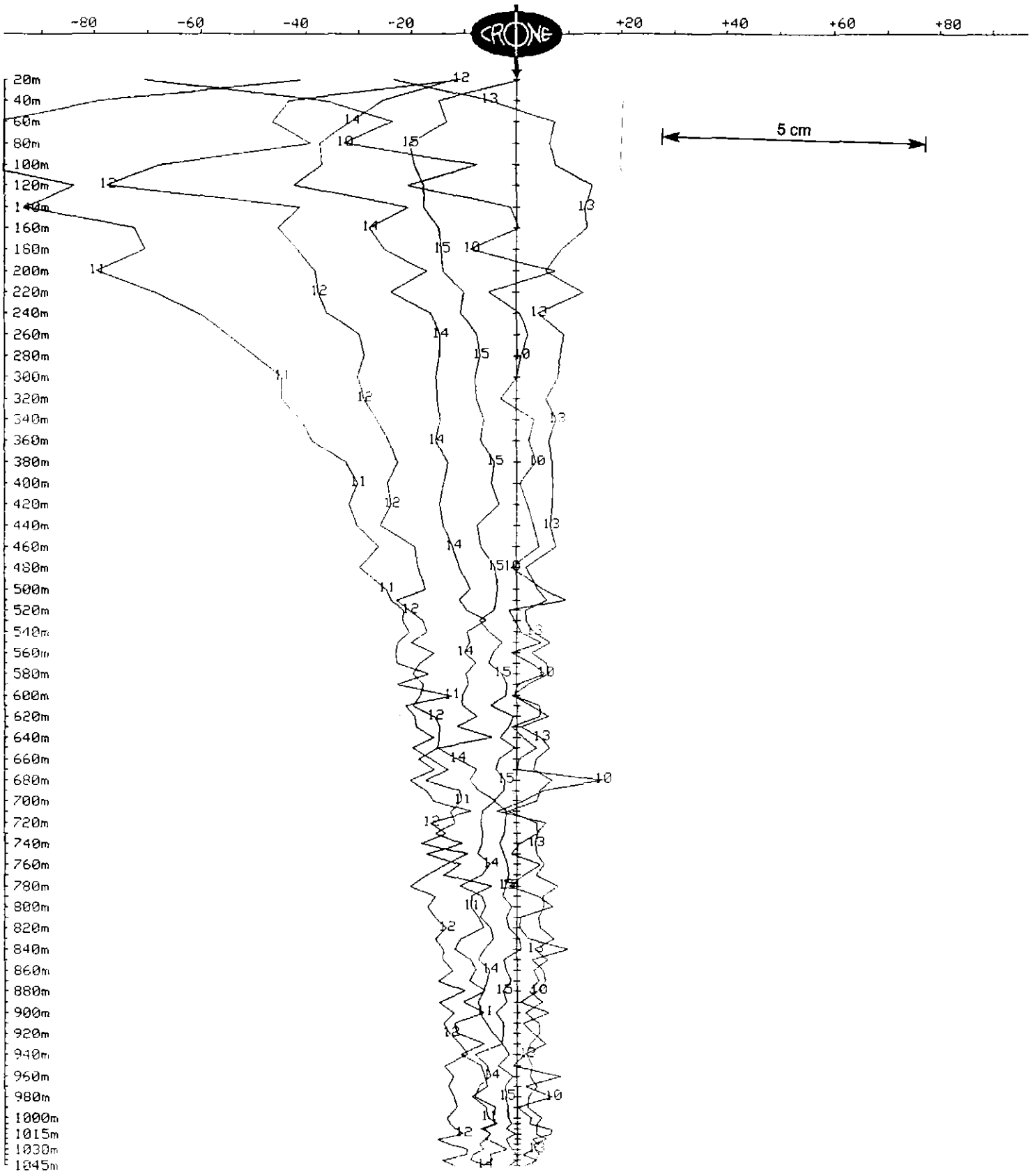
390034

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



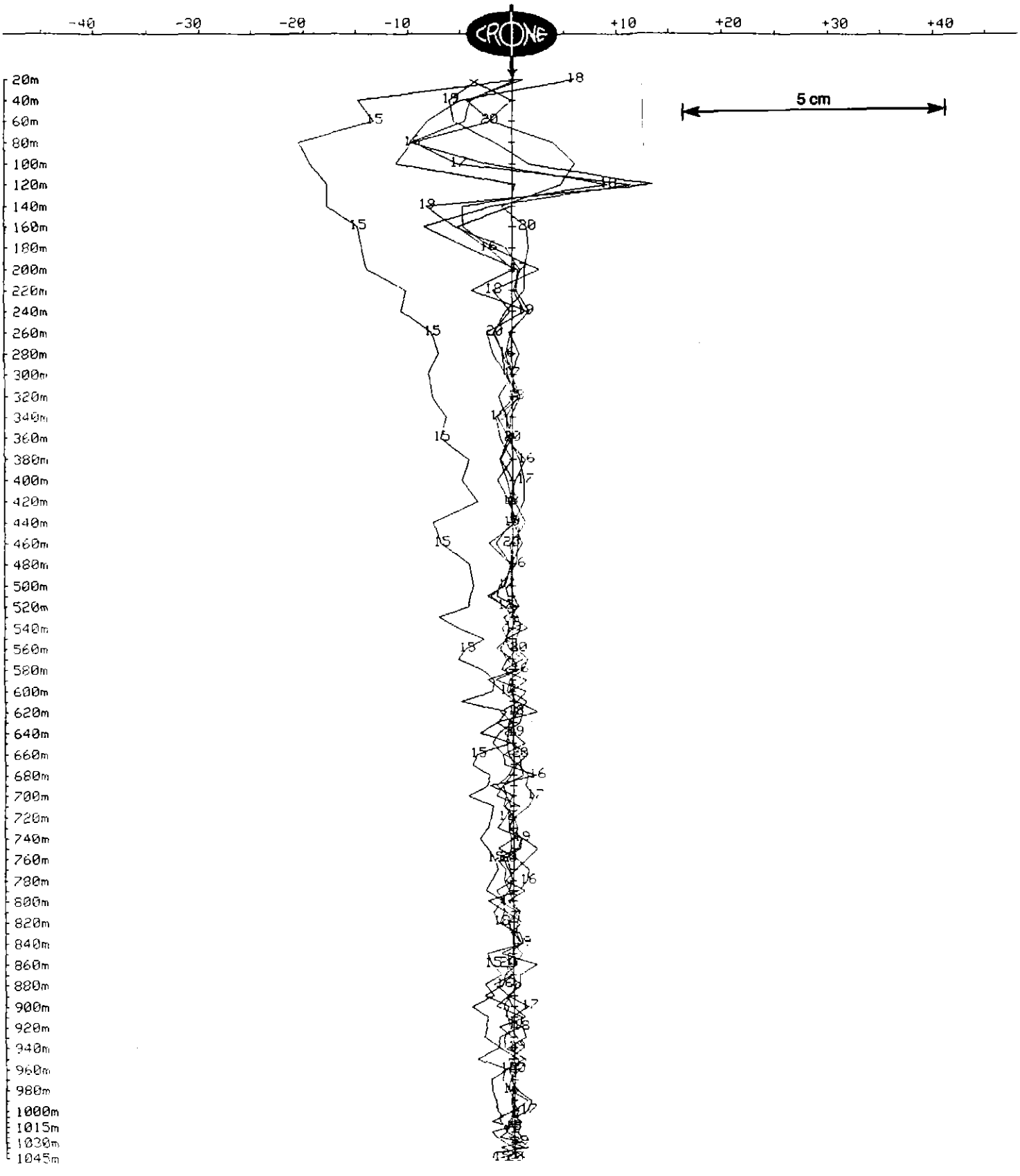
390035

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



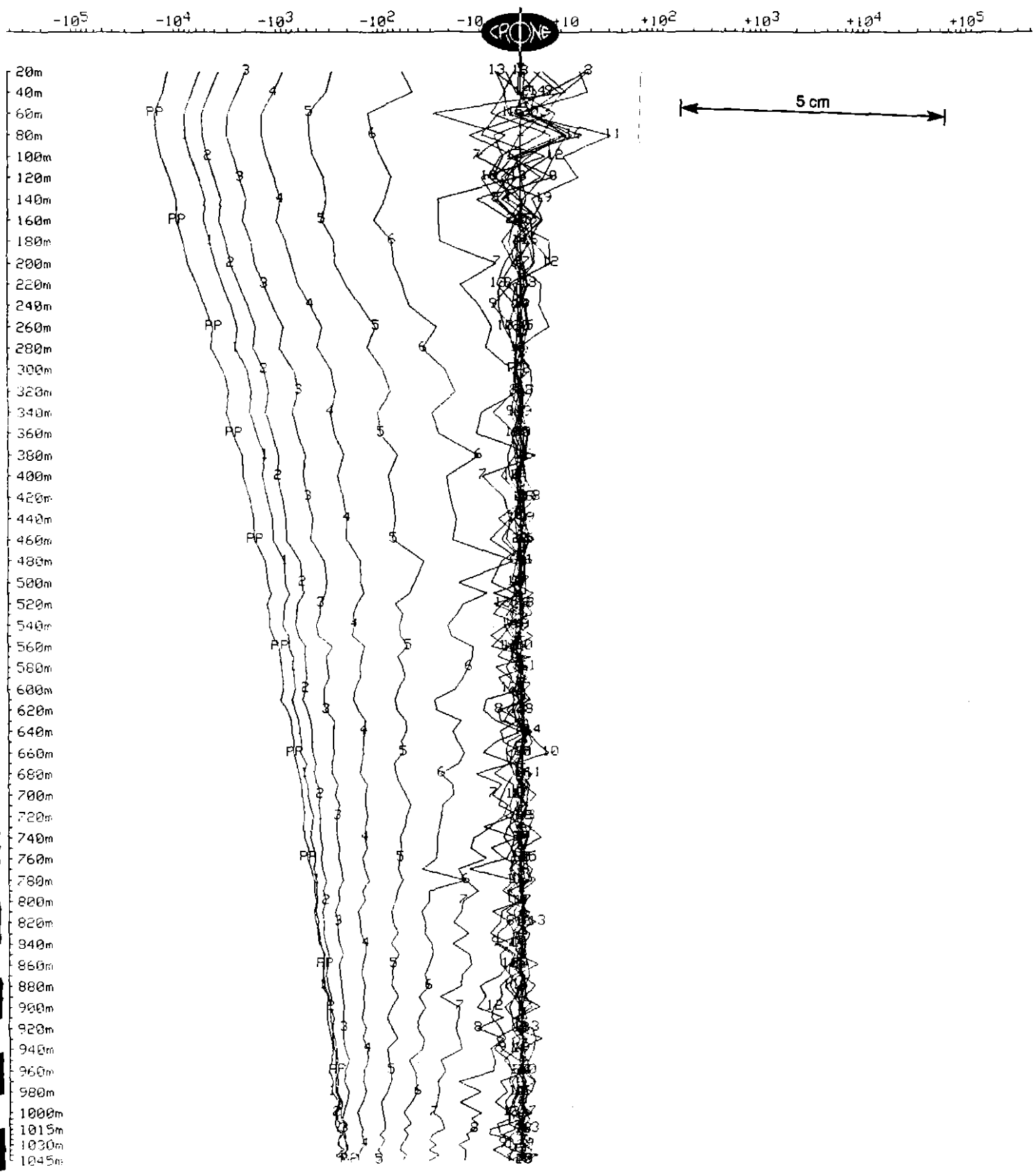
390036

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000

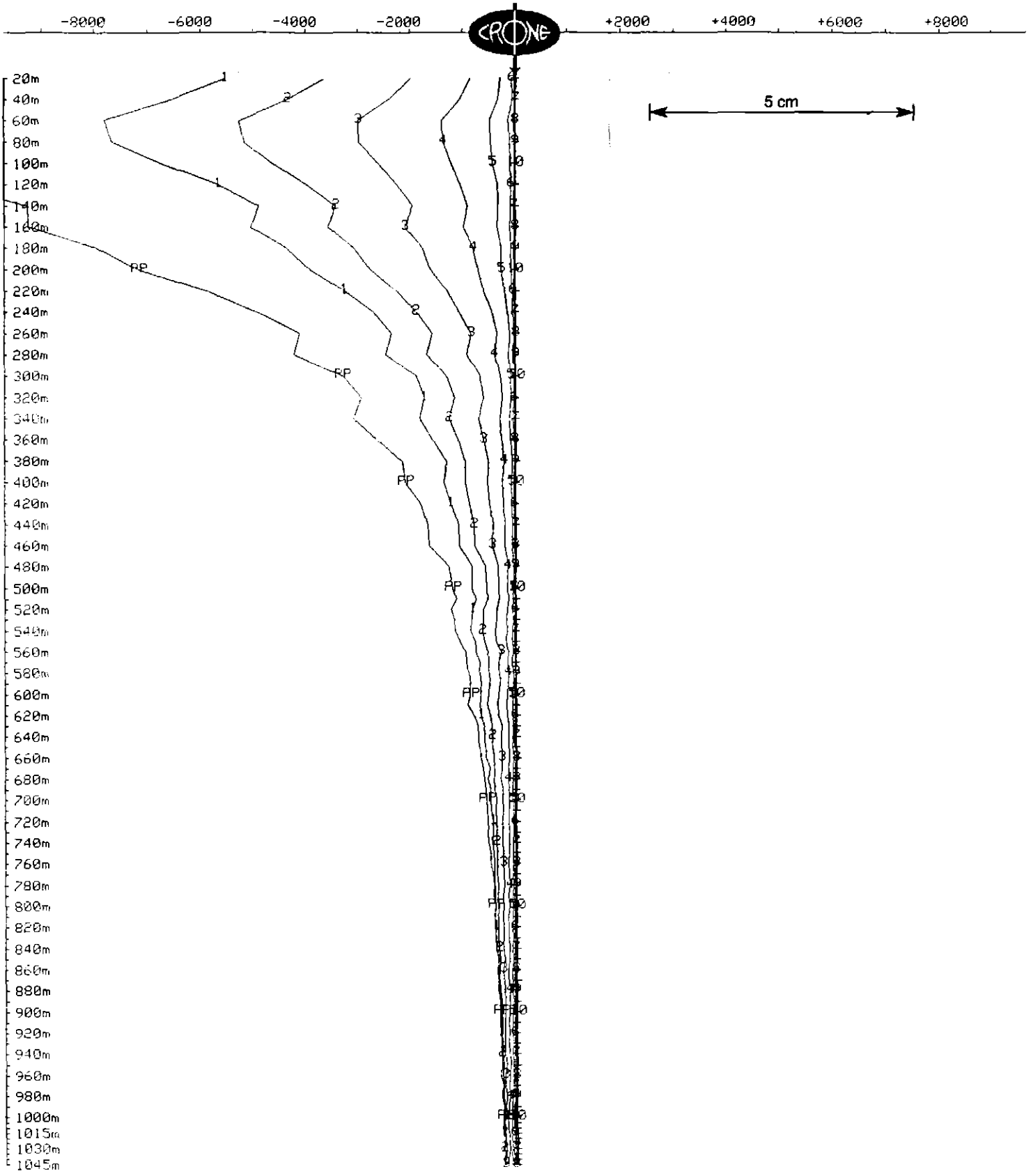


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



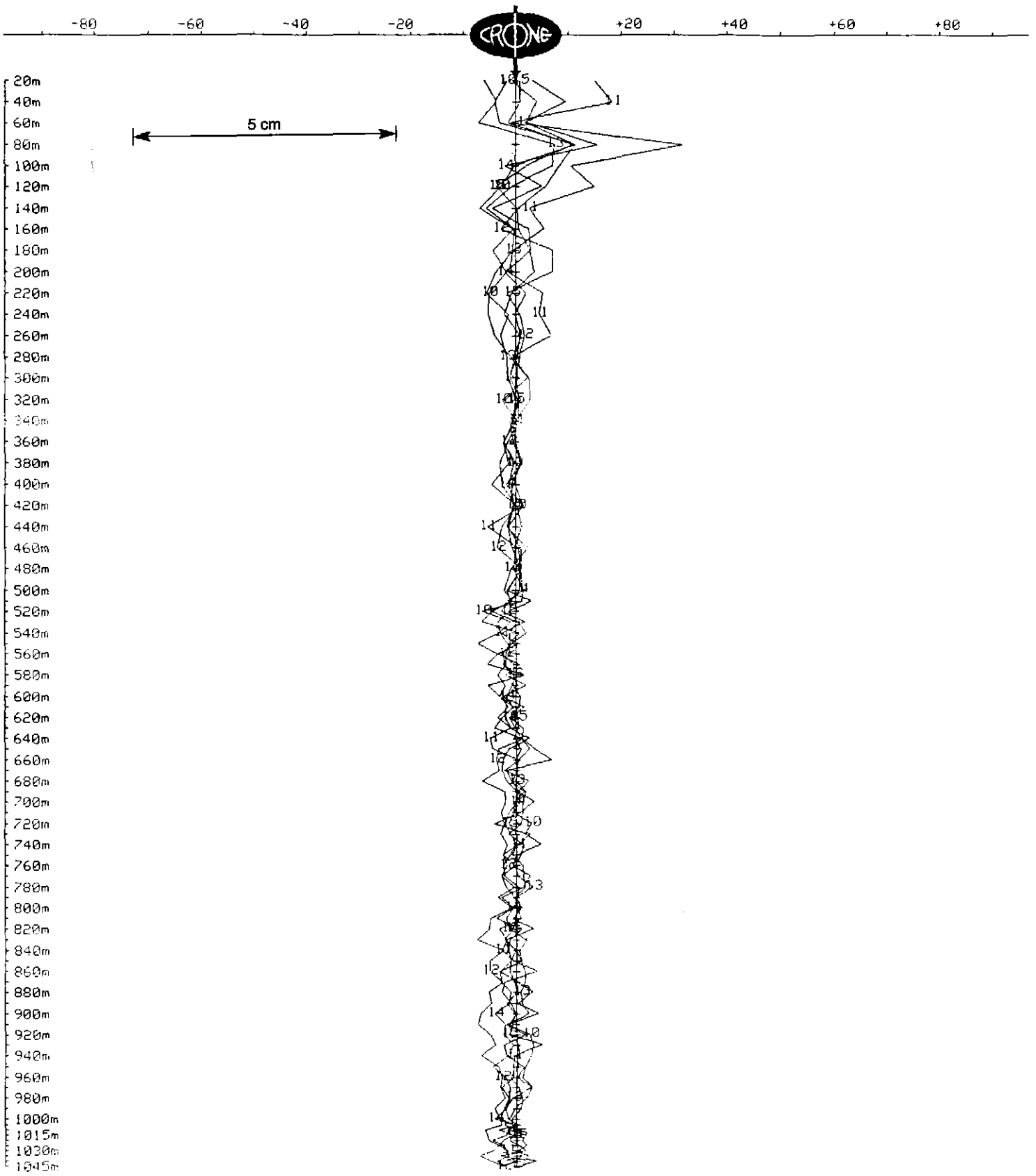
390038

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



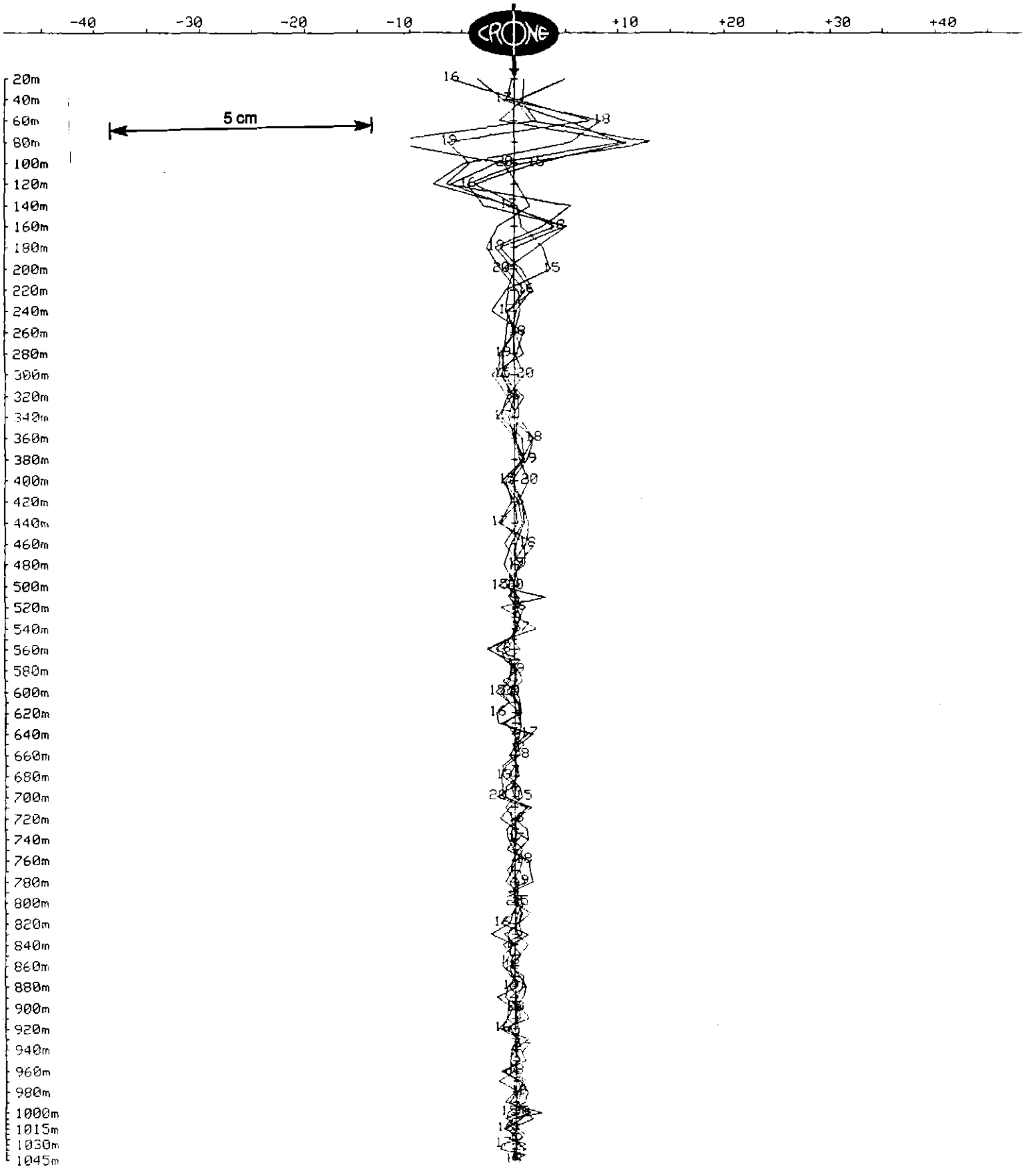
390039

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



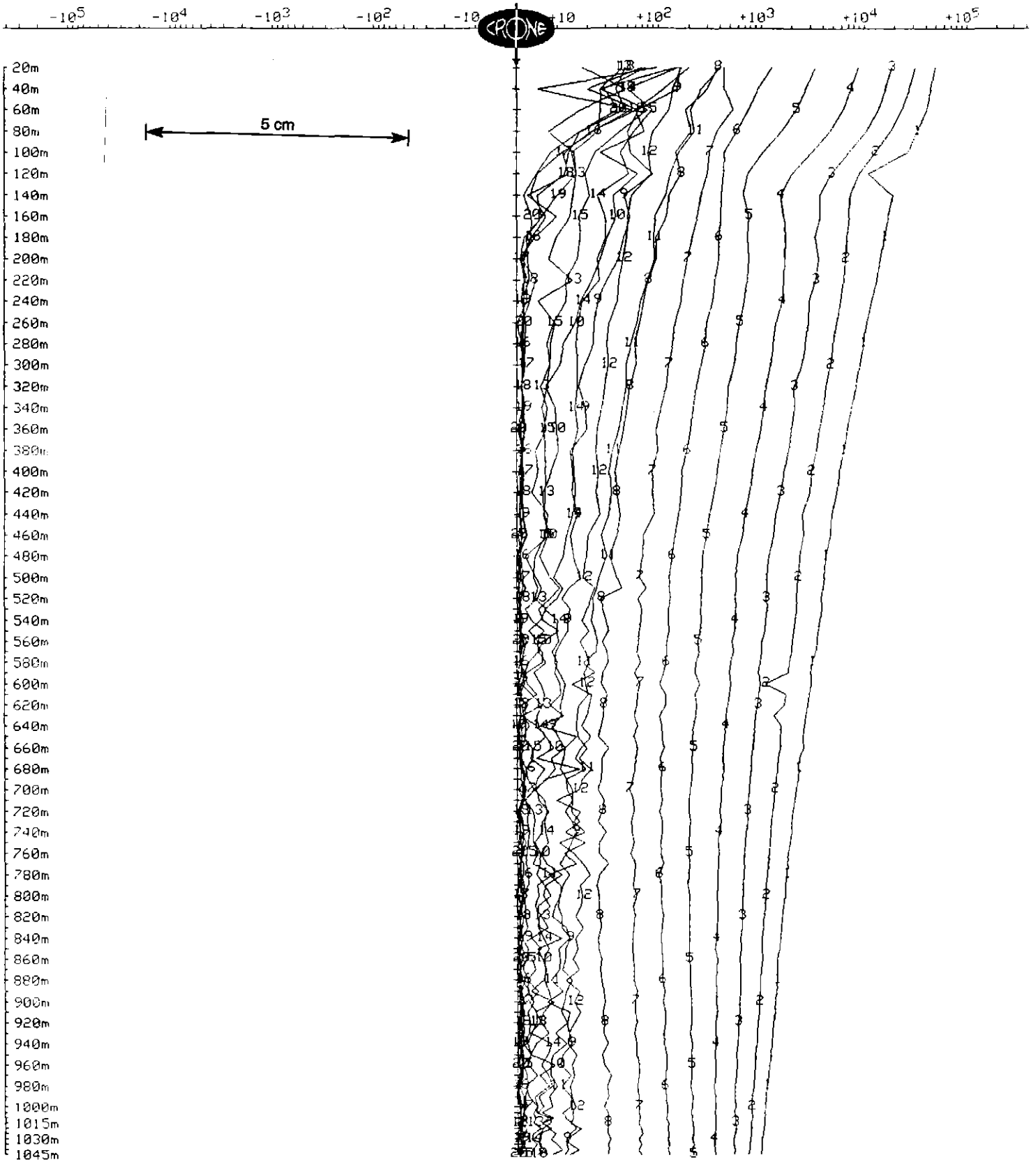
390040

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SD13XYZE.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:5000



OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6, 1997	File name	: SHD13ZW.PEM
Time Base	: 20.00 ms	# Readings	: 79
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 20	Coil Area	: 6500 sq m
Sync Type	: Crystal-MASTER	Polarity	: -
Loop Size	: 400m X 400m	Receiver	: Digital #109
Current	: 25 Amps	Operator	: Paul Nielsen

Loop Coordinates (X,Y,Z)

1. 380350m, 59200m, 0m
2. 380480m, 58800m, 0m
3. 380900m, 58800m, 0m
4. 380900m, 59200m, 0m

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

1. 381300m, 58935m, 0m
2. 250deg, 64deg, 12m
3. 252deg, 63deg, 36m
4. 257deg, 61deg, 241m
5. 260deg, 59deg, 60m
6. 262deg, 59deg, 33m
7. 265deg, 58deg, 122m
8. 263deg, 56deg, 63m
9. 267deg, 53deg, 150m
10. 271deg, 47deg, 159m
11. 277deg, 42deg, 96m
12. 279deg, 38deg, 78m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	63	56	2	63	86	74
3	86	112	99	4	112	153	133	5	153	203	178
6	203	270	236	7	270	360	315	8	360	482	421
9	482	639	560	10	639	850	745	11	850	1129	990
12	1129	1498	1314	13	1498	1993	1746	14	1993	2646	2320
15	2646	3514	3080	16	3514	4666	4090	17	4666	6192	5429
18	6192	8221	7206	19	8221	10910	9566	20	10910	14490	12700

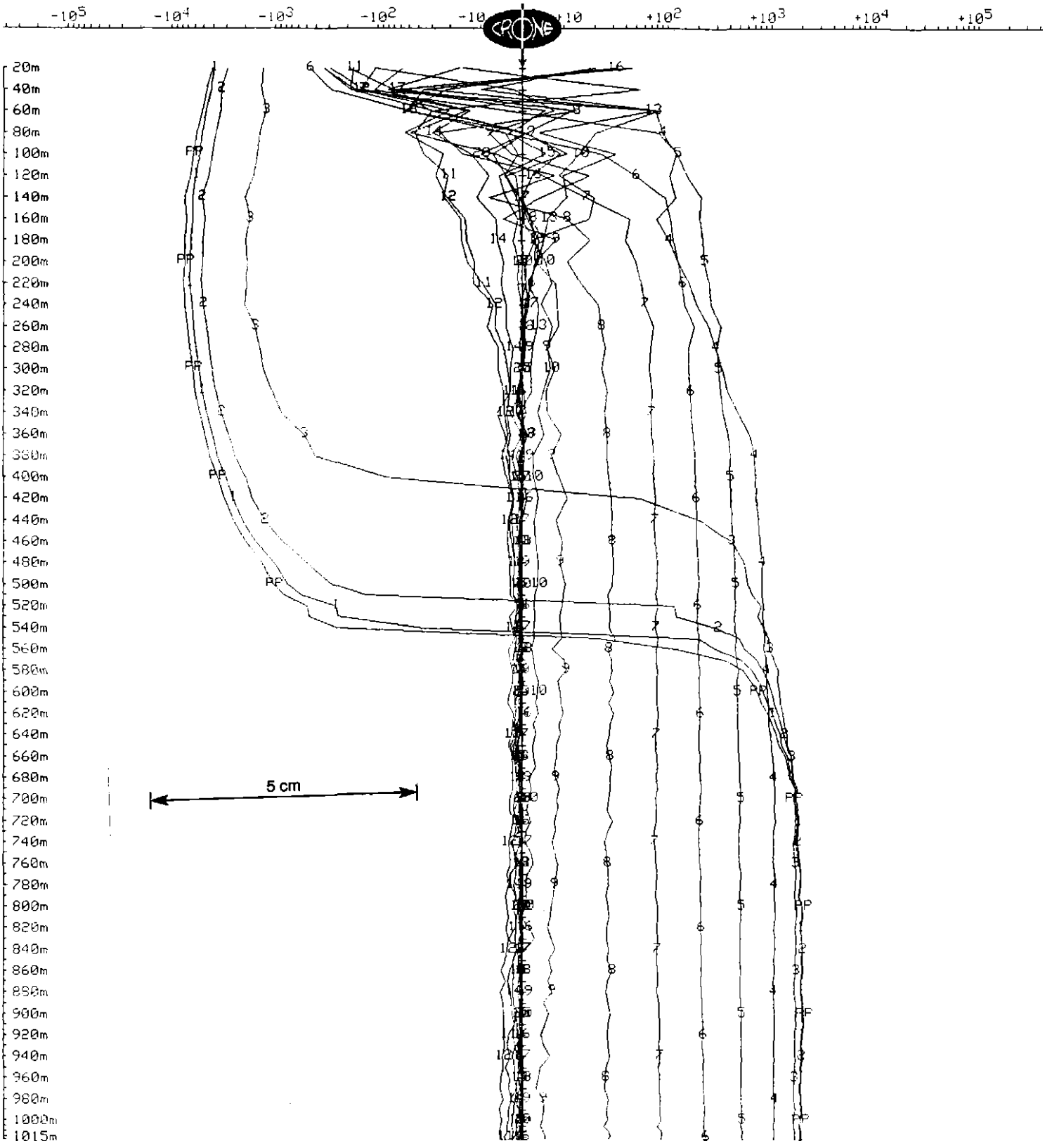
390042

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6, 1997	File name	: SHD13ZW.PEM

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

Scale: 1:5000



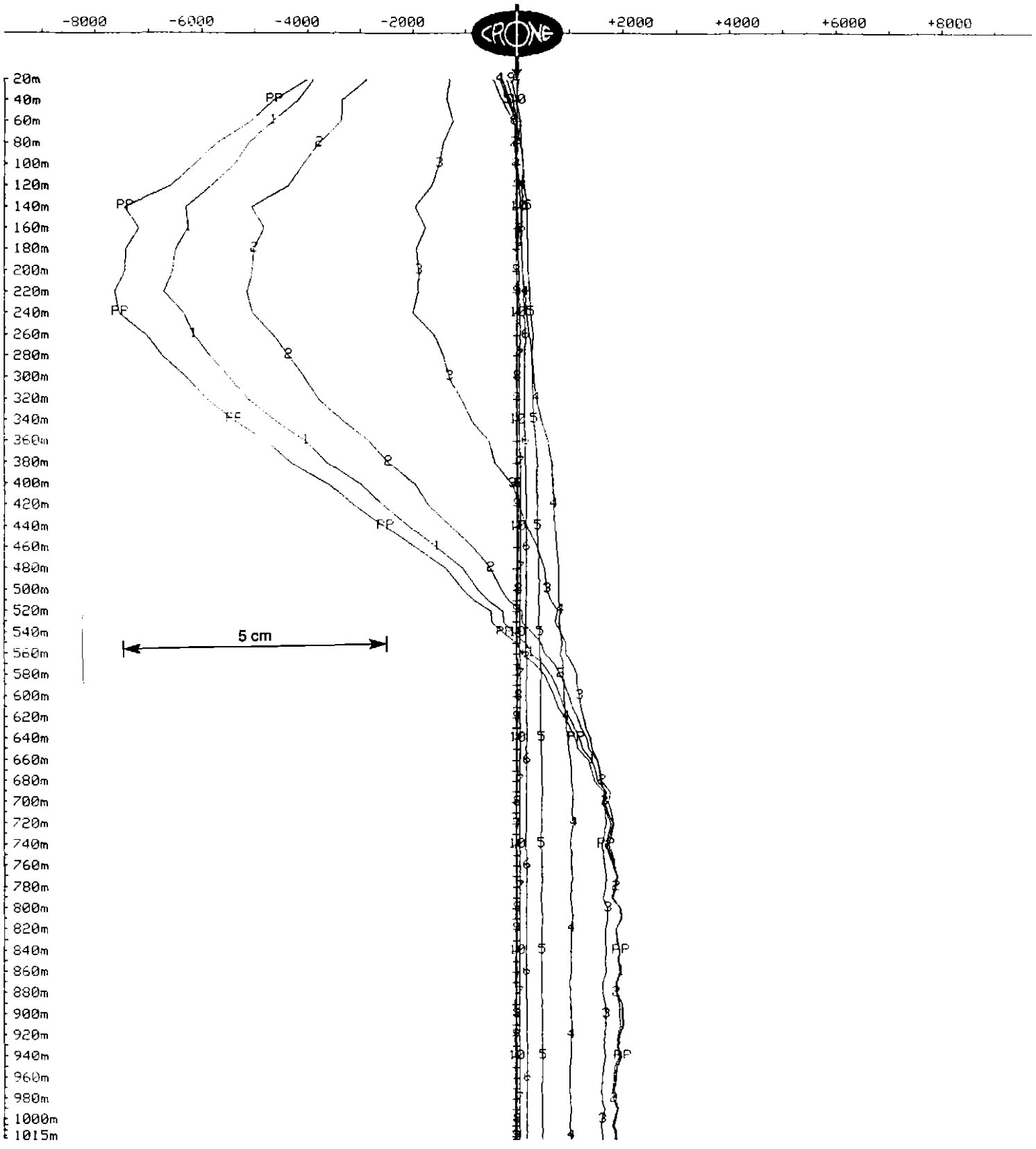
390043

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6, 1997	File name	: SHD13ZW.PEM

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

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



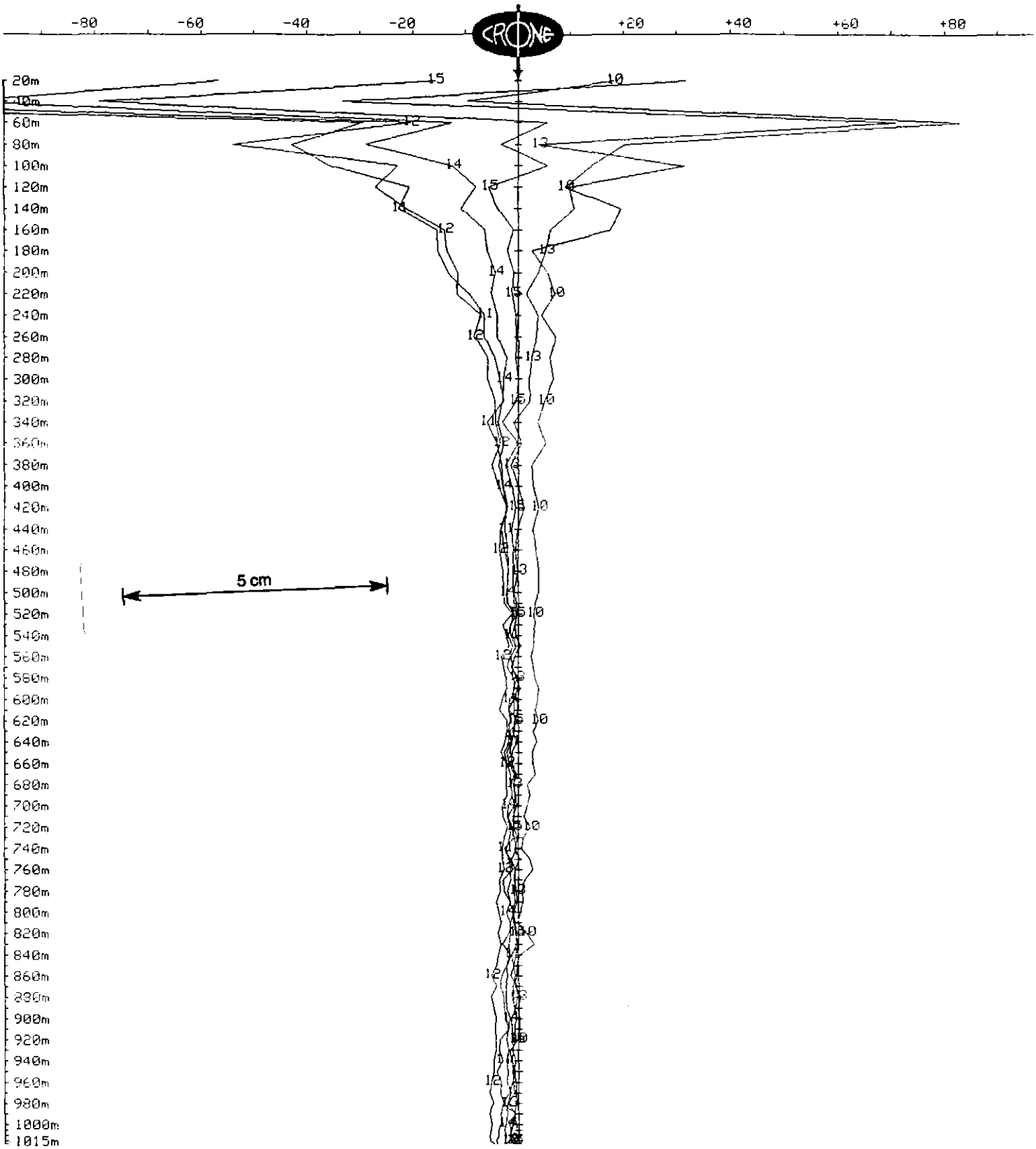
390044

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6, 1997	File name	: SHD13ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



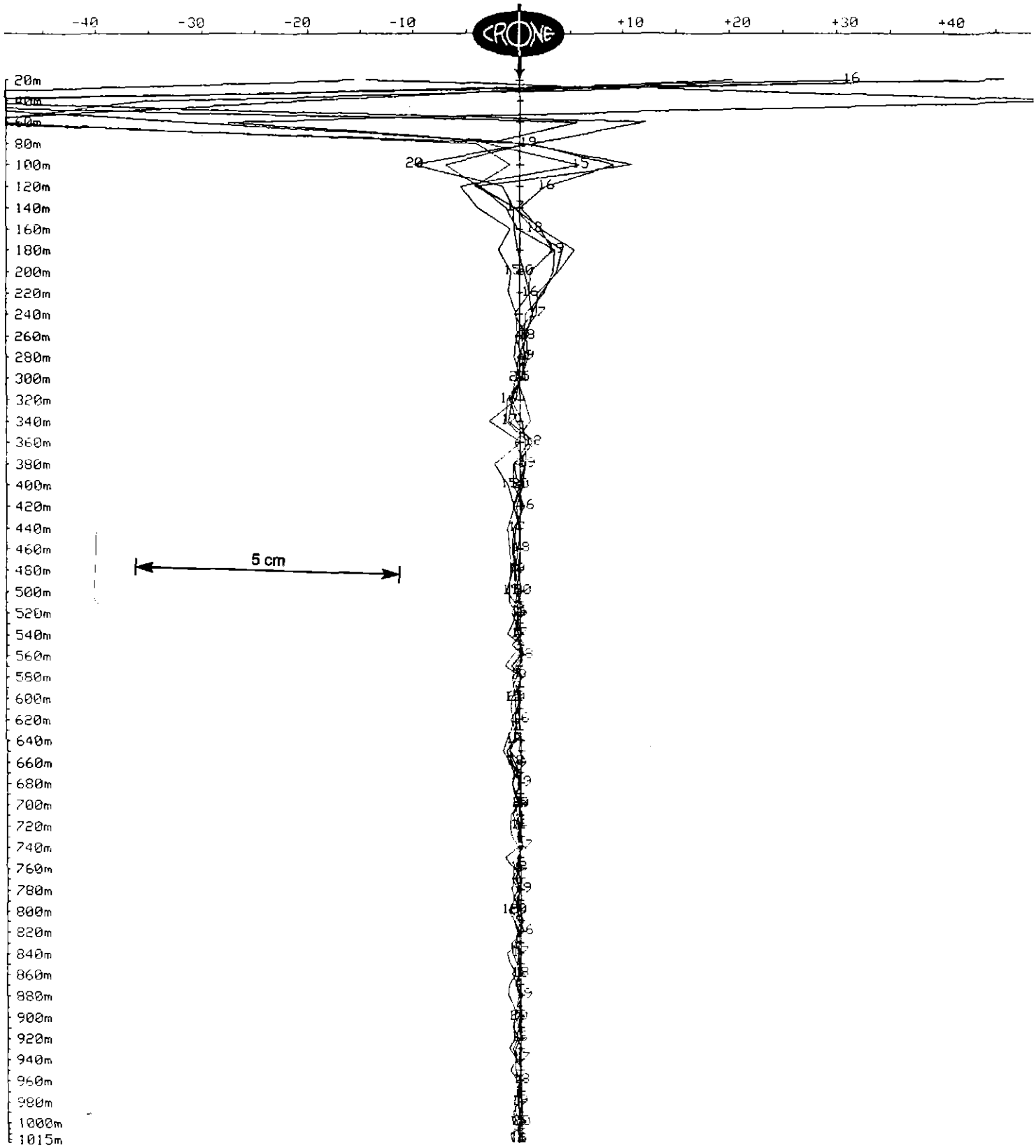
390045

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6, 1997	File name	: SHD13ZW.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



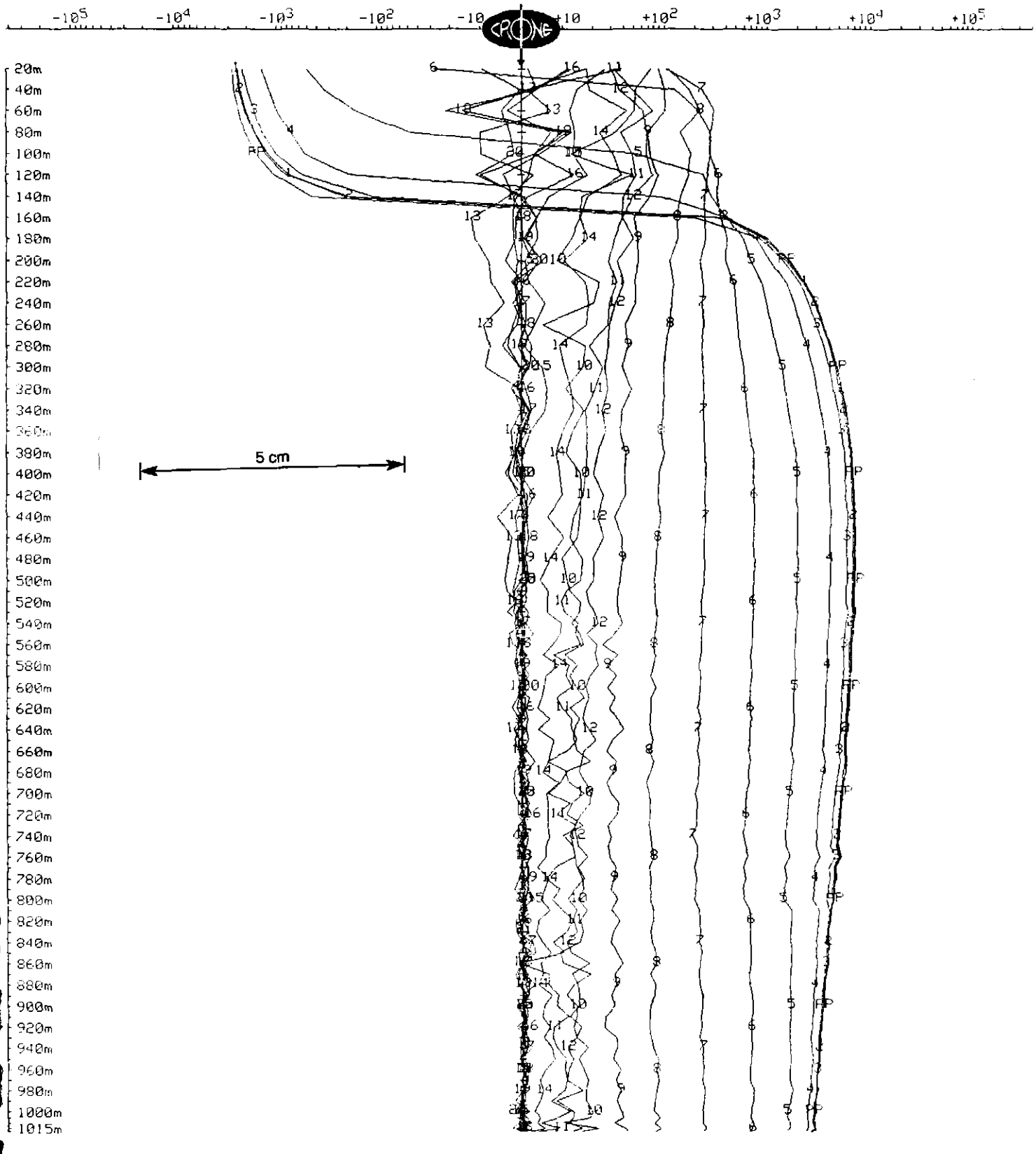
390046

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



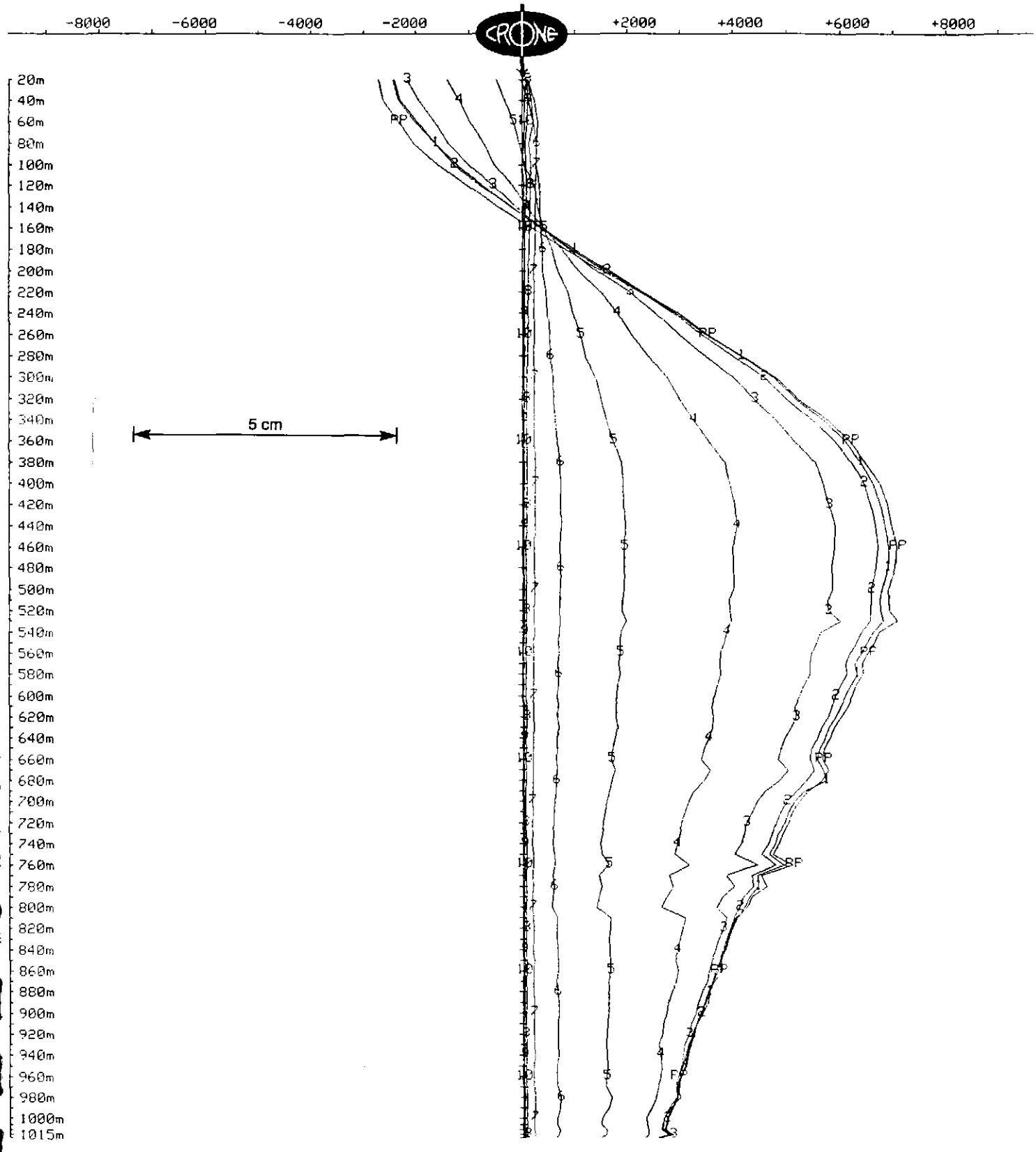
390047

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



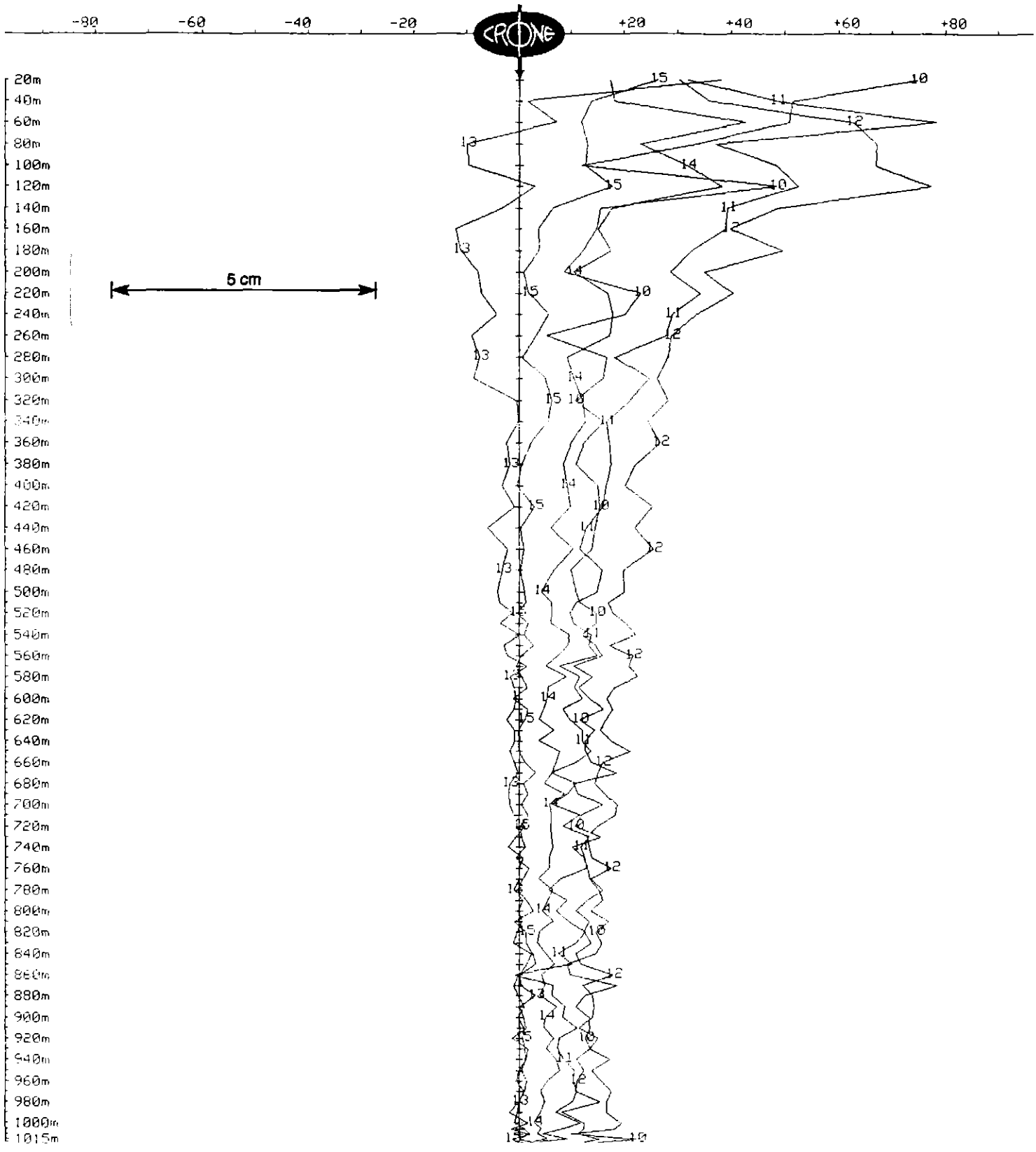
390048

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



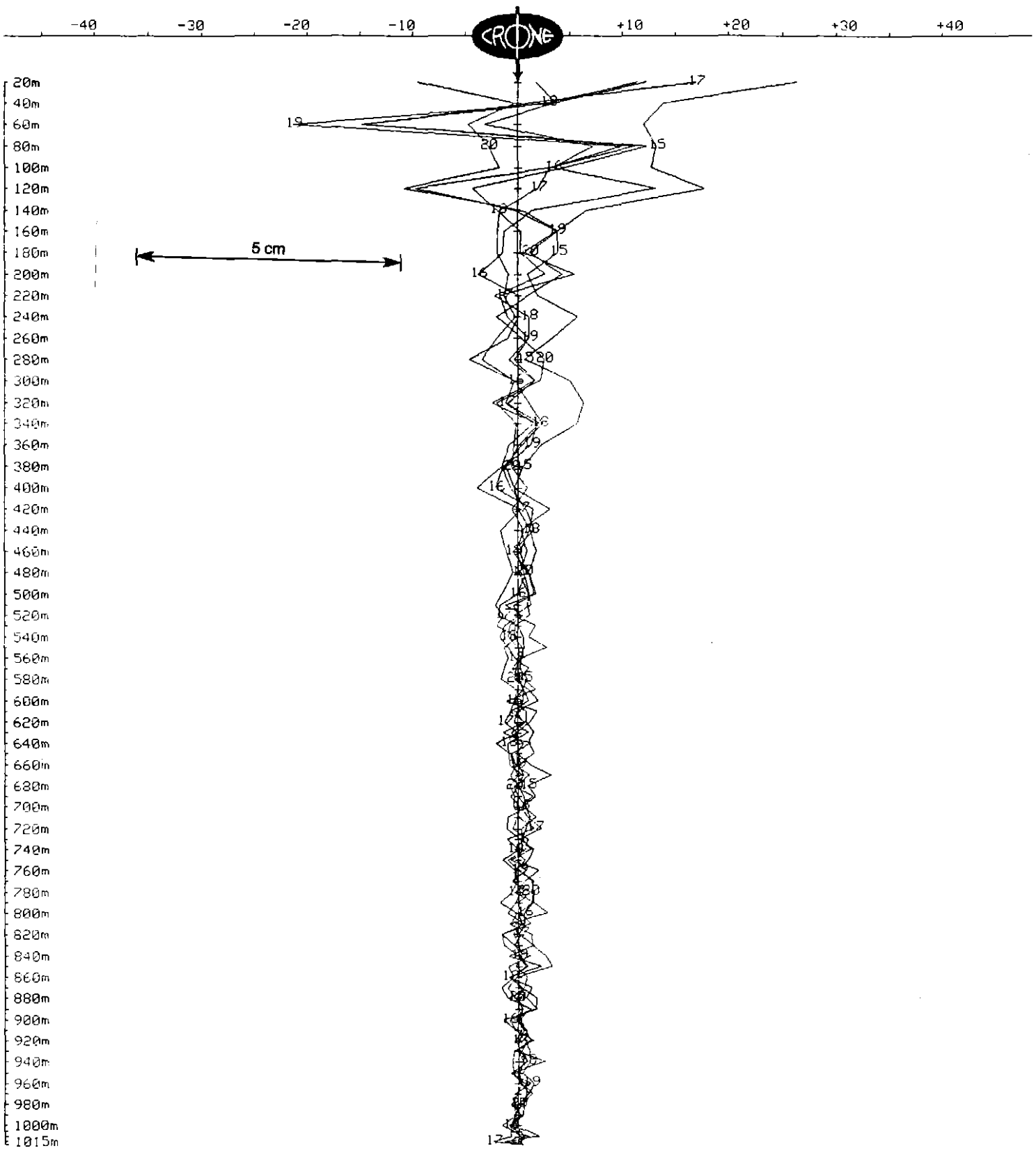
390049

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



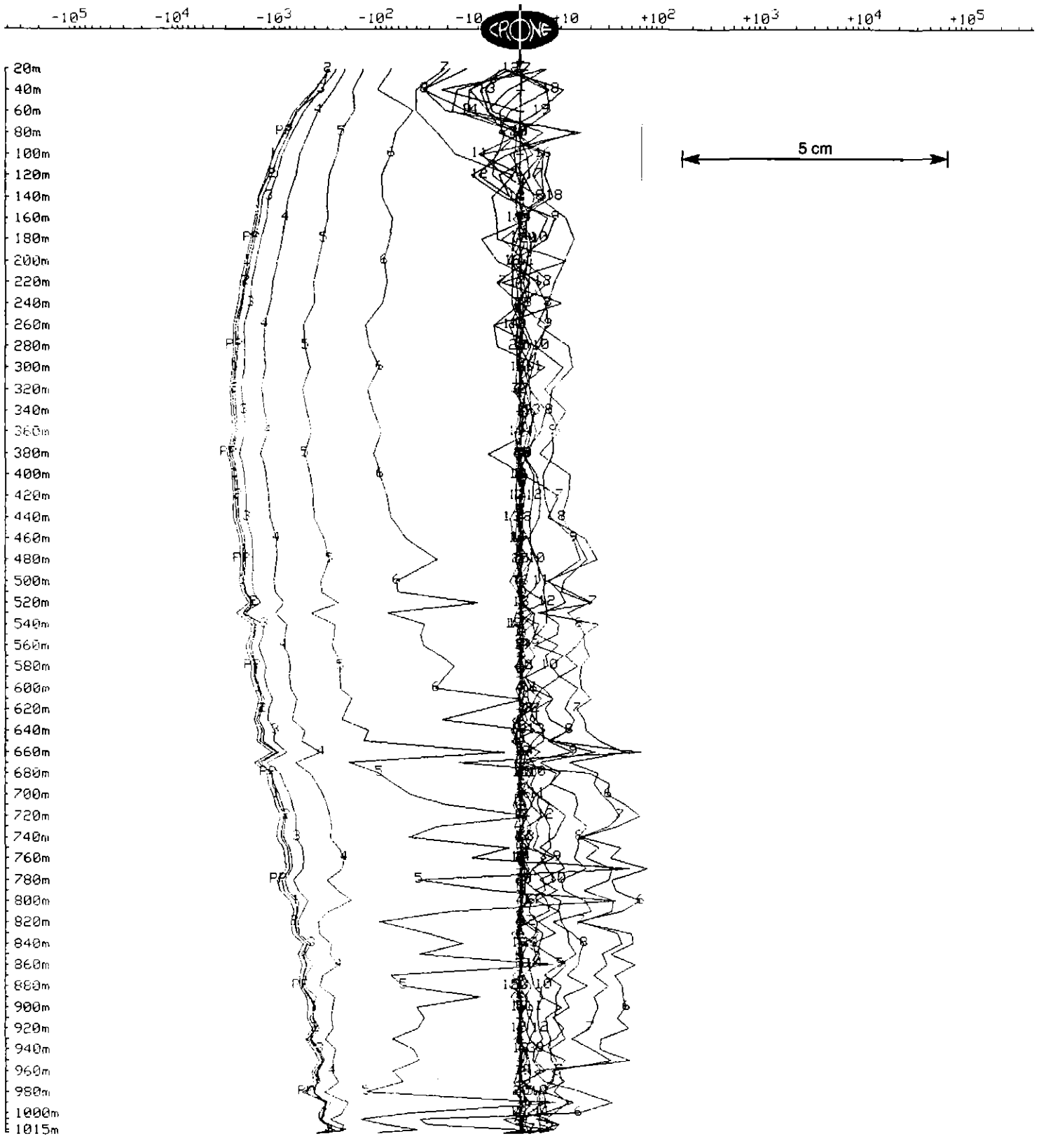
390050

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



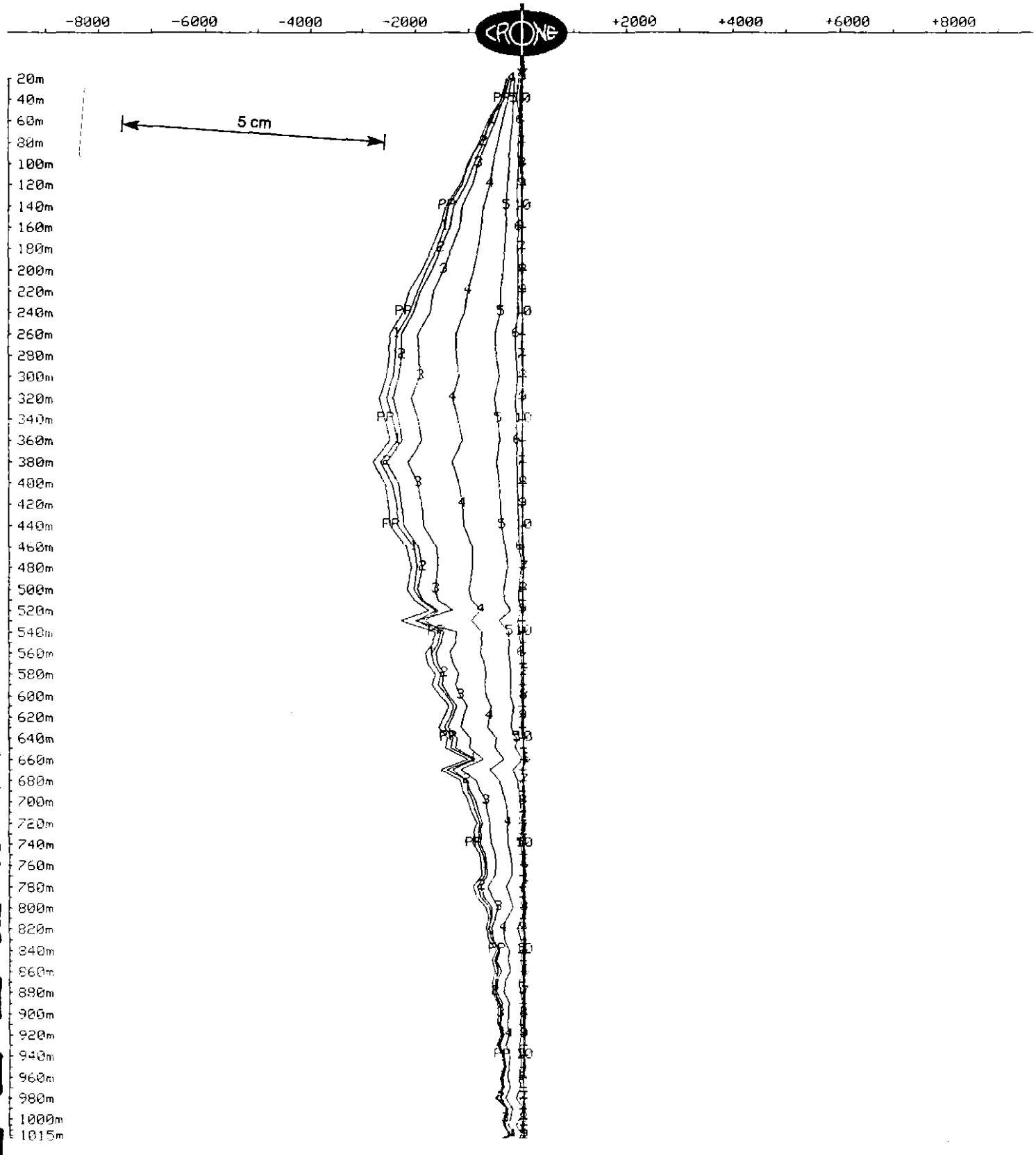
390051

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



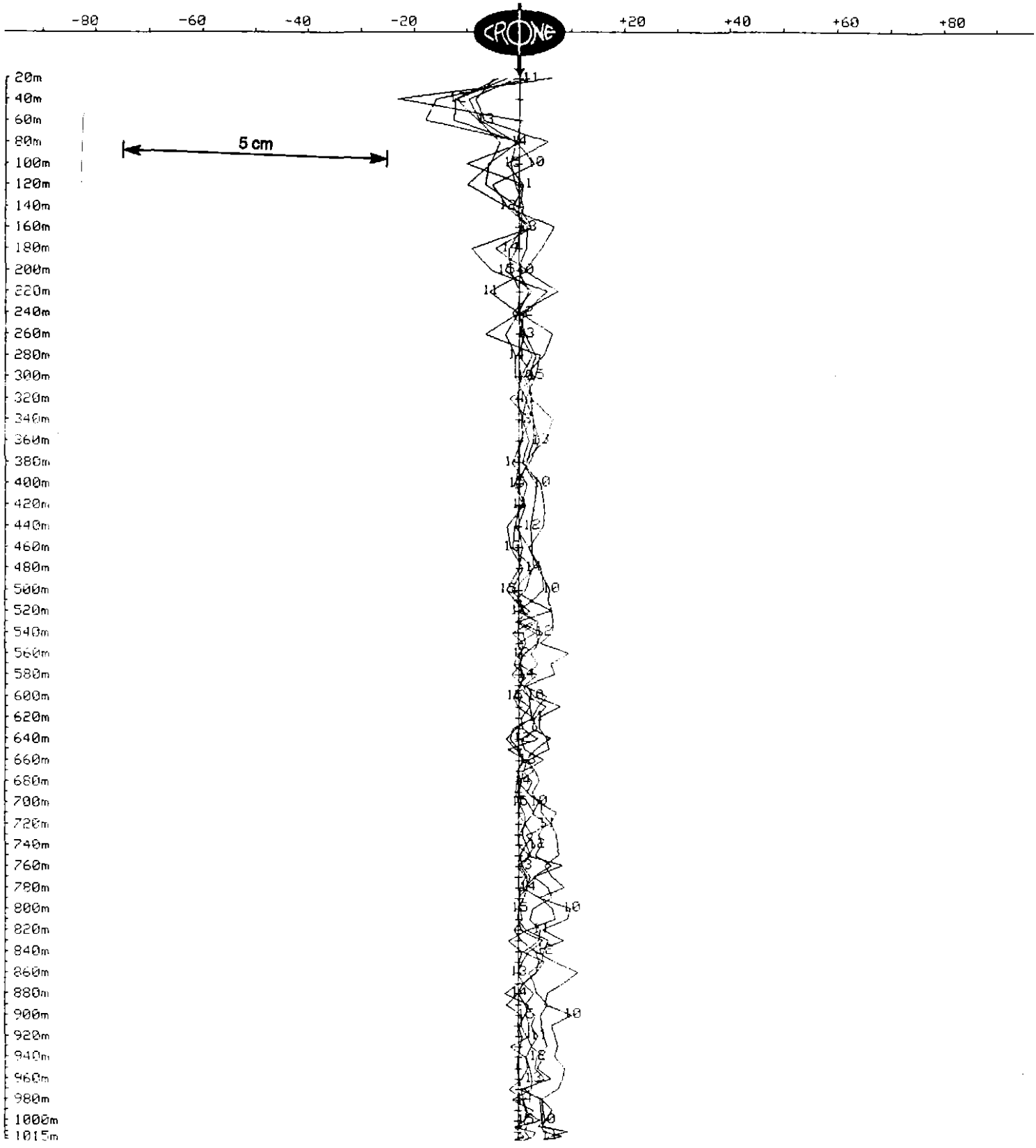
390052

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



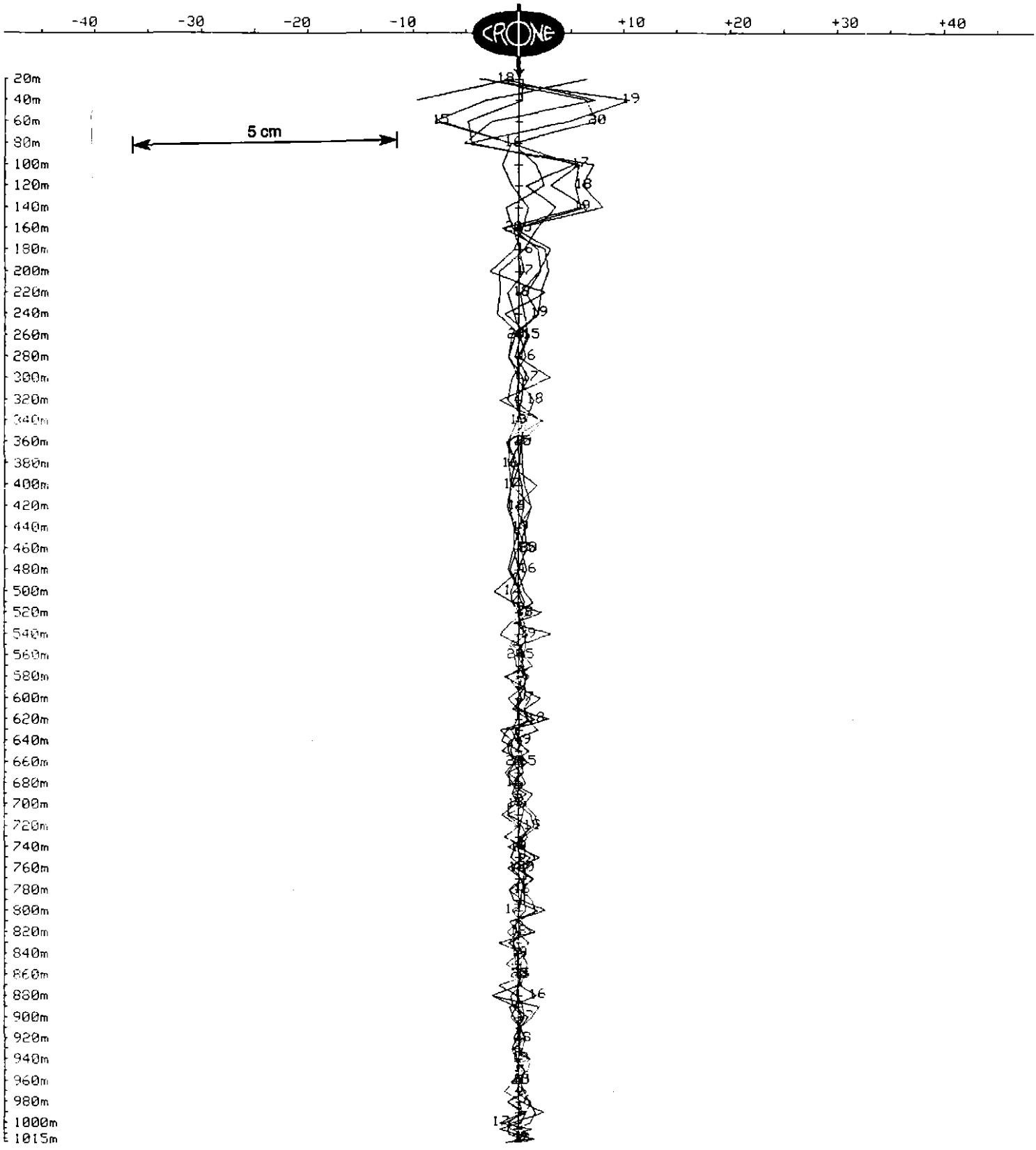
390053

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SHD13XYW.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



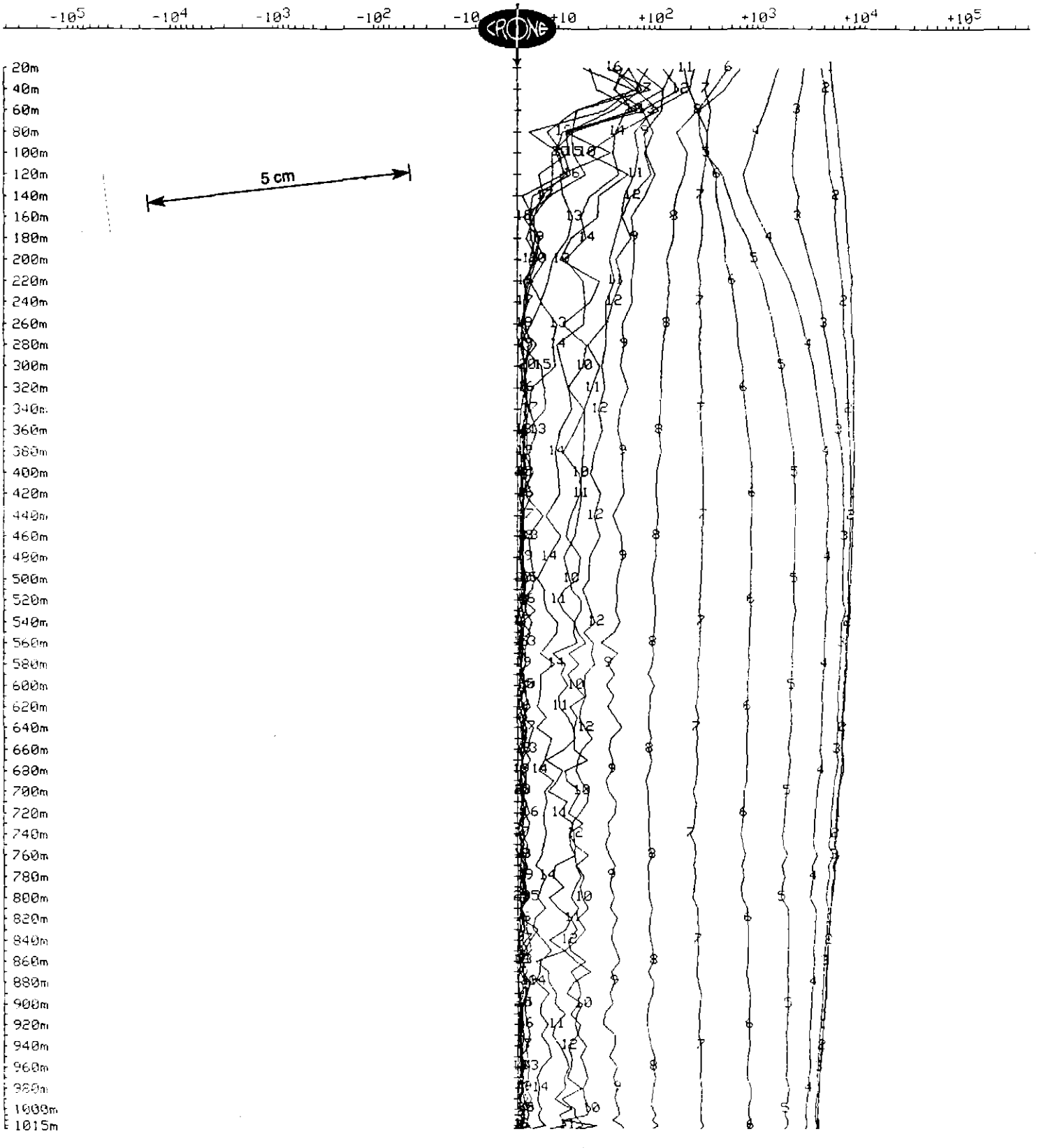
390054

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13W
Date	: Aug 6/7, 1997	File name	: SD13XYZW.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 20 channels

Scale: 1:5000



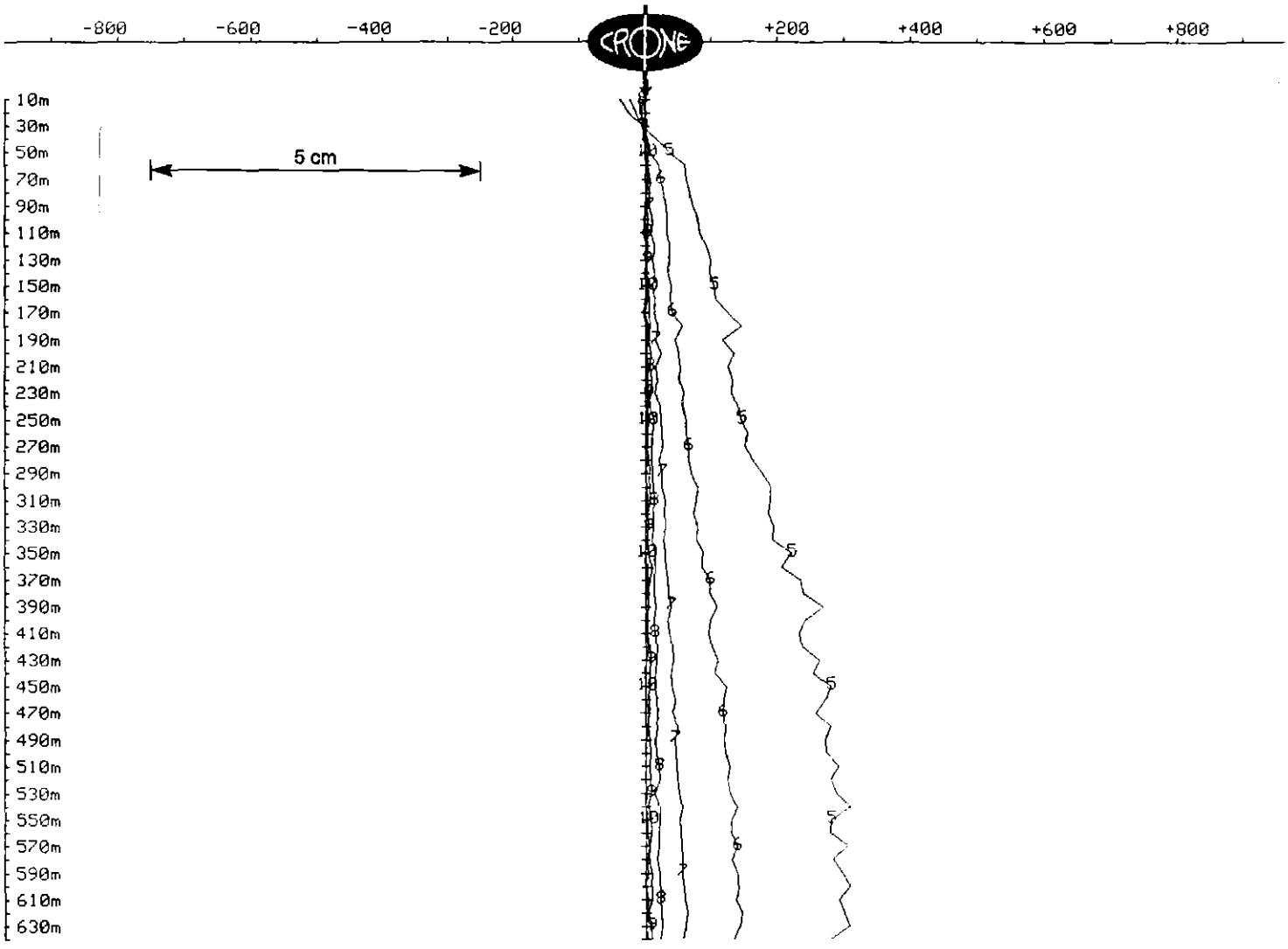
390055

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 100 nT/s



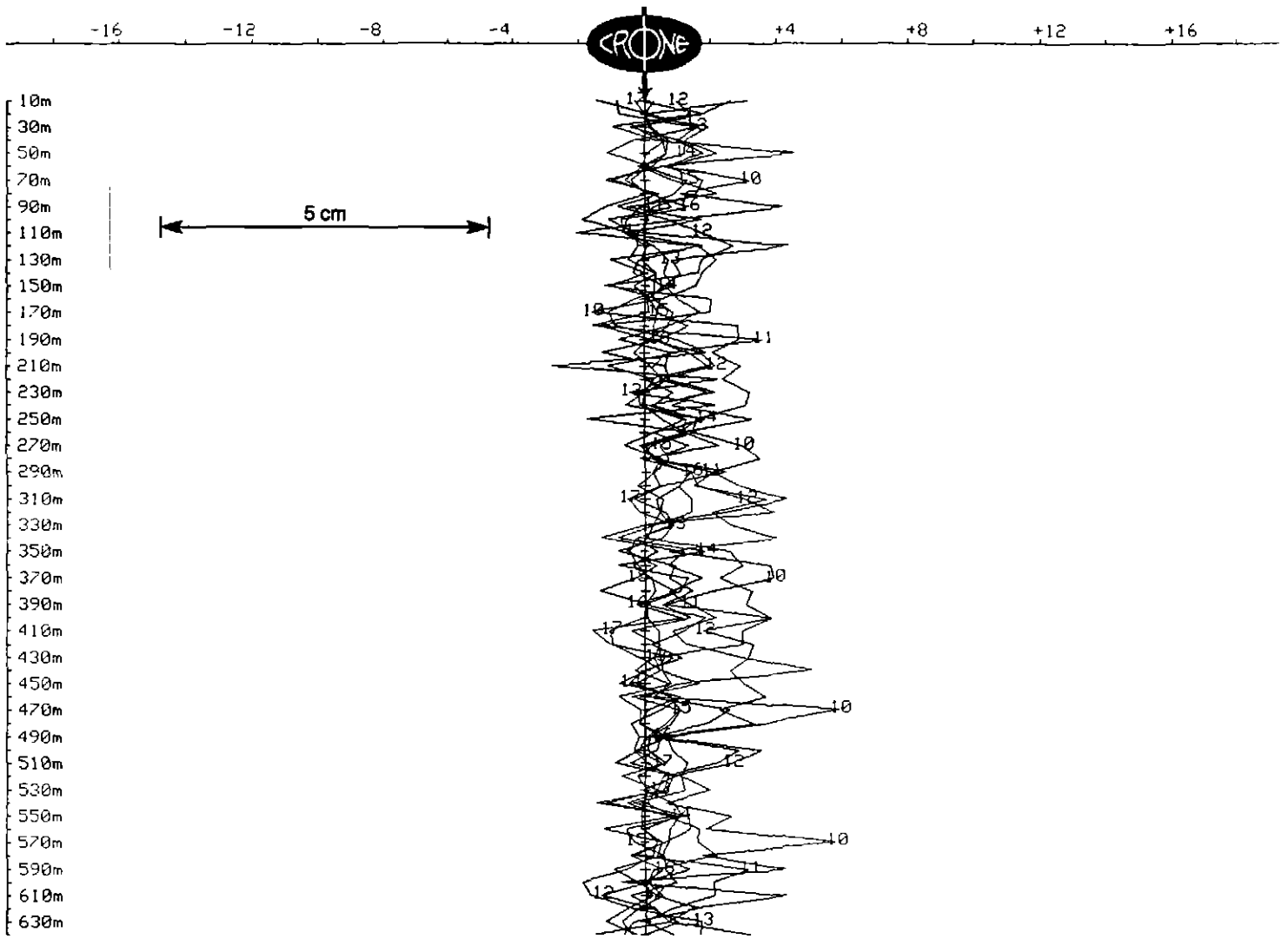
390056

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



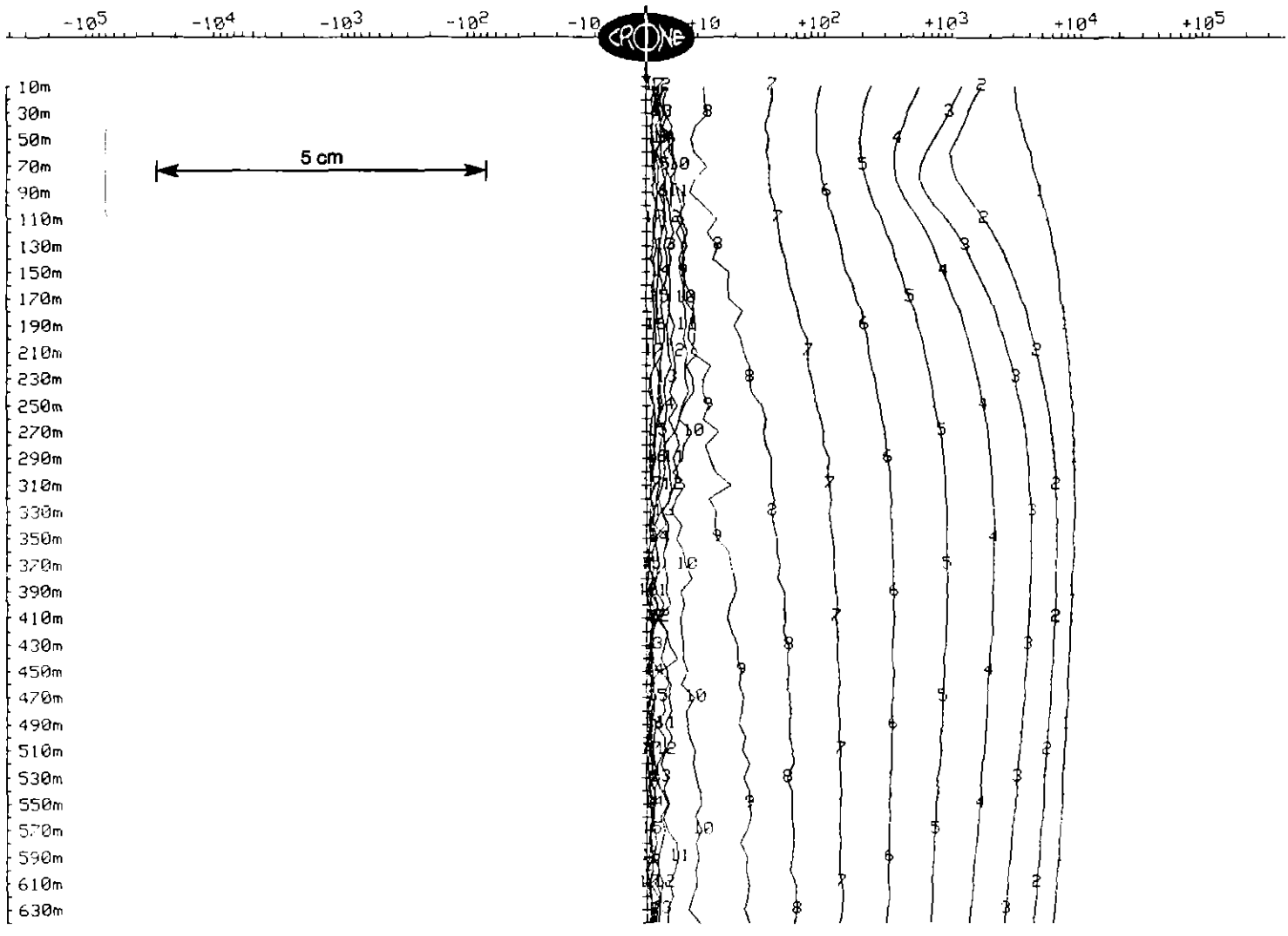
390057

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SD12XYZ2.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 17 channels

Scale: 1:5000



390058

OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

Geophysical Contracting Services

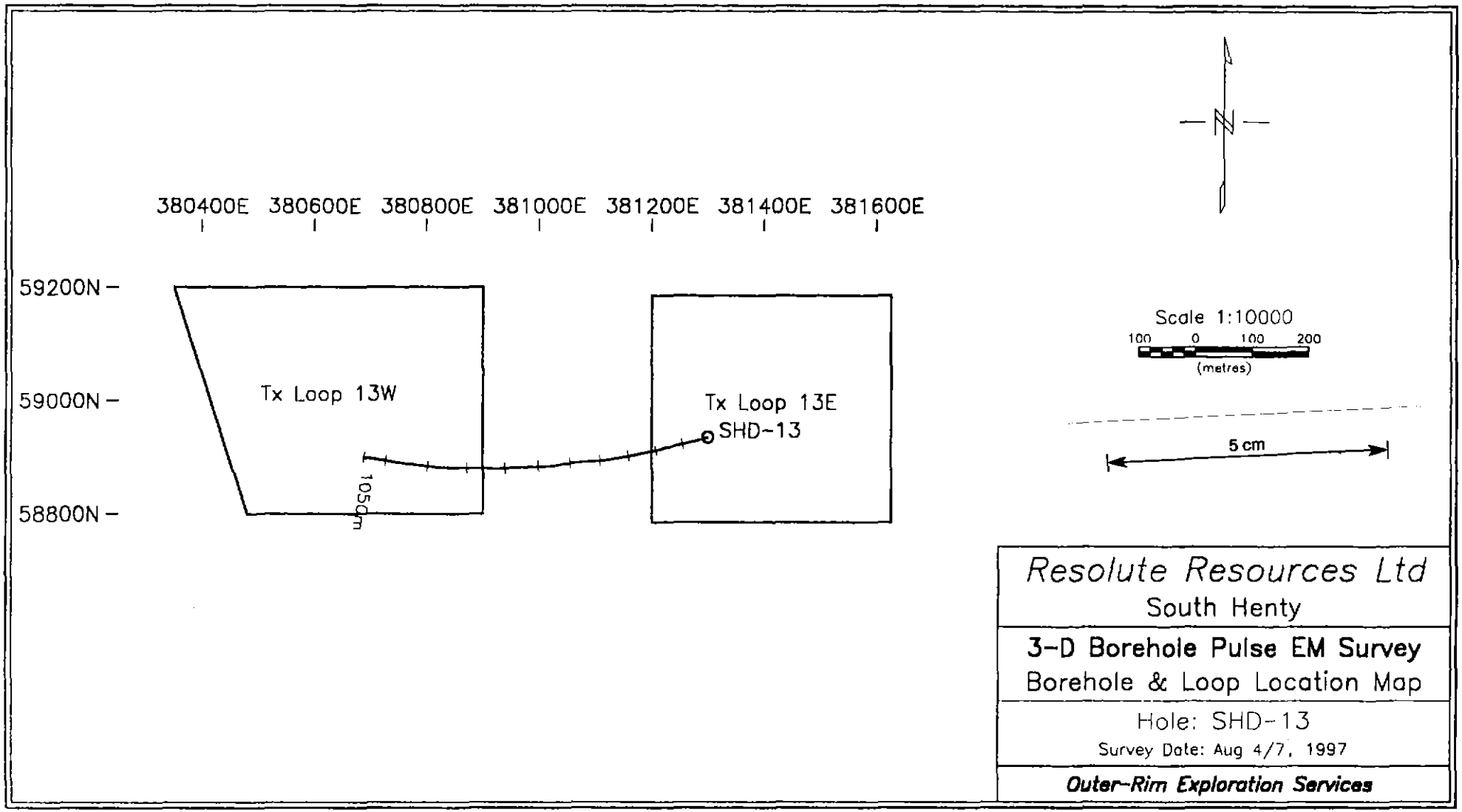
100% Australian Owned

35 Fleming Street,
(P.O. Box 1754)
AITKENVALE, QLD. 4814

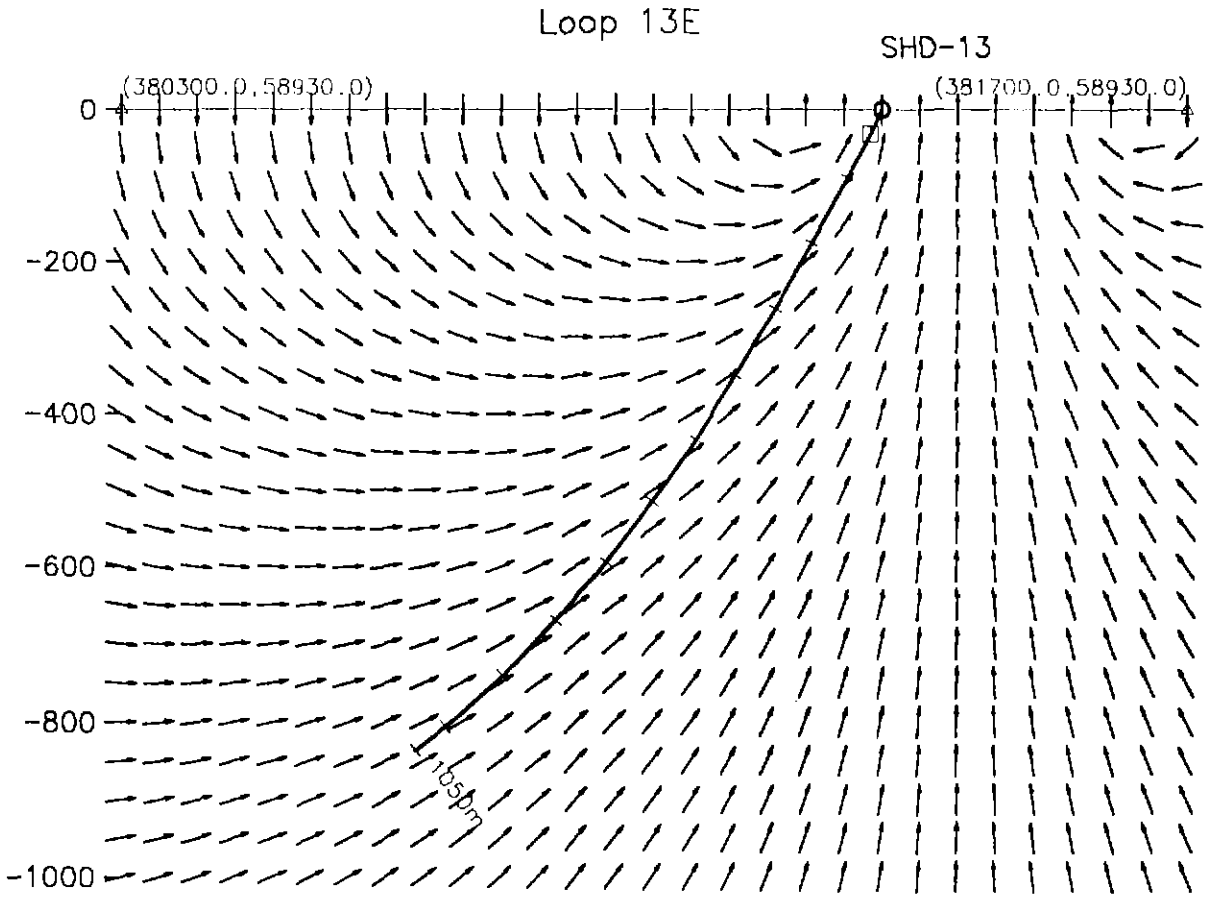
Tel: 077 25 3544
Fax: 077 25 4805
Mob: 018 188 466
Email: oreserv@ozemail.com.au

Volume 2 of 2

Client	:	Resolute Resources Ltd.
Prospect	:	South Henty.
Area	:	Zeehan, Tas.
Survey	:	Borehole PEM Survey
Survey Period	:	20th June to 7th August 1997.
Operator	:	Adrian Page.


380400E
380600E
380800E
381000E
381200E
381400E
381600E
59200N
59000N
58800N
Tx Loop 13W
Tx Loop 13E
SHD-13
1050m
Scale 1:10000
100 0 100 200
(metres)
5 cm
Resolute Resources Ltd
South Henty
3-D Borehole Pulse EM Survey
Borehole & Loop Location Map
Hole: SHD-13
Survey Date: Aug 4/7, 1997
Outer-Rim Exploration Services

390039



Scale 1:10000

100 0 100 200

(metres)

5 cm

Resolute Resources Ltd

South Henty

3-D Borehole Pulse EM Survey

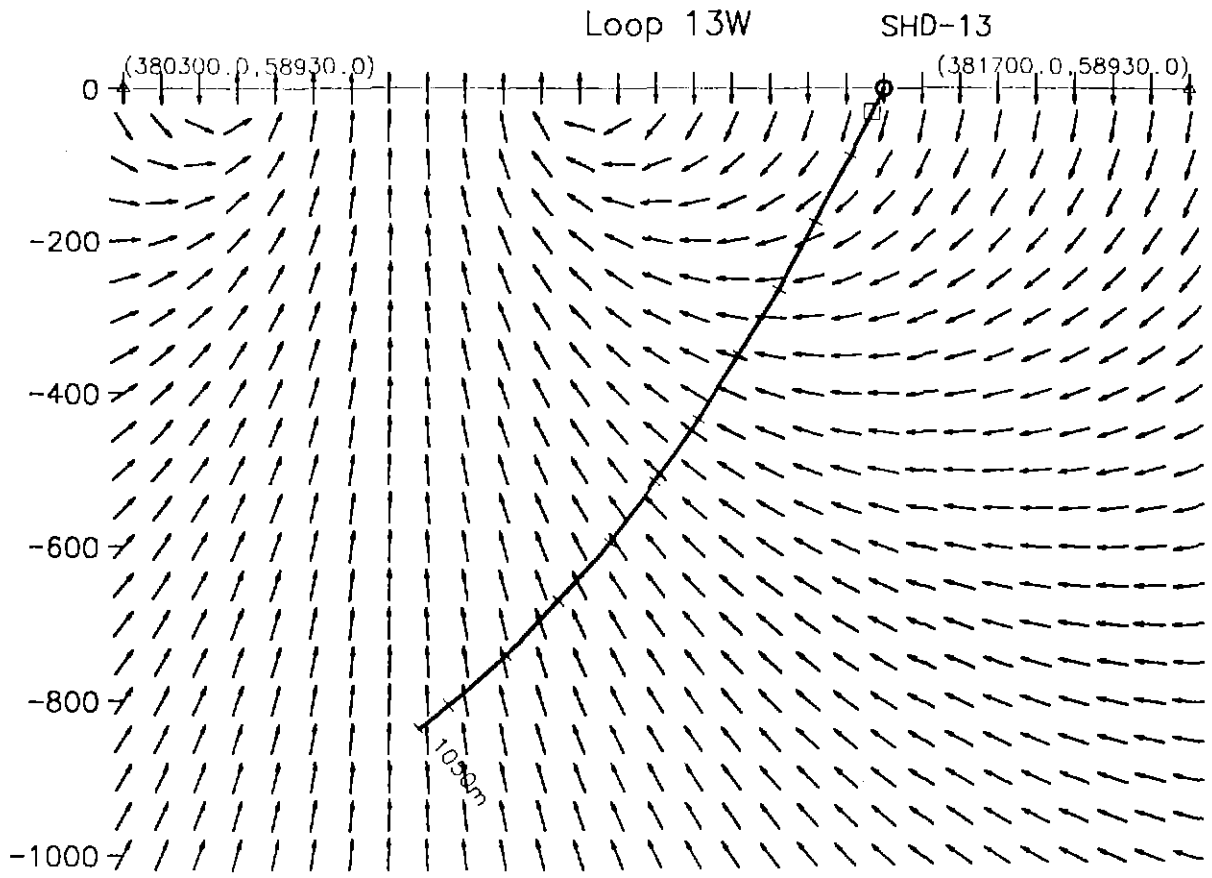
Hole Section with Primary Field

Hole: SHD-13

Survey Date: Aug 5, 1997

Outer-Rim Exploration Services

390060



Scale 1:10000

100 0 100 200

(metres)

5 cm

Resolute Resources Ltd

South Henty

3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: SHD-13

Survey Date: Aug 6, 1997

Outer-Rim Exploration Services

390061

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM
Time Base	: 20.00 ms	# Readings	: 84
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 20	Coil Area	: 6500 sq m
Sync Type	: Cable	Polarity	: +
Loop Size	: 400m X 400m	Receiver	: Digital #109
Current	: 25 Amps	Operator	: Paul Nielsen

Loop Coordinates (X,Y,Z)

1. 381200m, 59185m, 0m
2. 381200m, 58785m, 0m
3. 381625m, 58785m, 0m
4. 381625m, 59185m, 0m

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

1. 381300m, 58935m, 0m
2. 250deg, 64deg, 12m
3. 252deg, 63deg, 36m
4. 257deg, 61deg, 241m
5. 260deg, 59deg, 60m
6. 262deg, 59deg, 33m
7. 265deg, 58deg, 122m
8. 263deg, 56deg, 63m
9. 267deg, 53deg, 150m
10. 271deg, 47deg, 159m
11. 277deg, 42deg, 96m
12. 279deg, 38deg, 78m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	63	56	2	63	86	74
3	86	112	99	4	112	153	133	5	153	203	178
6	203	270	236	7	270	360	315	8	360	482	421
9	482	639	560	10	639	850	745	11	850	1129	990
12	1129	1498	1314	13	1498	1993	1746	14	1993	2646	2320
15	2646	3514	3080	16	3514	4666	4090	17	4666	6192	5429
18	6192	8221	7206	19	8221	10910	9566	20	10910	14490	12700

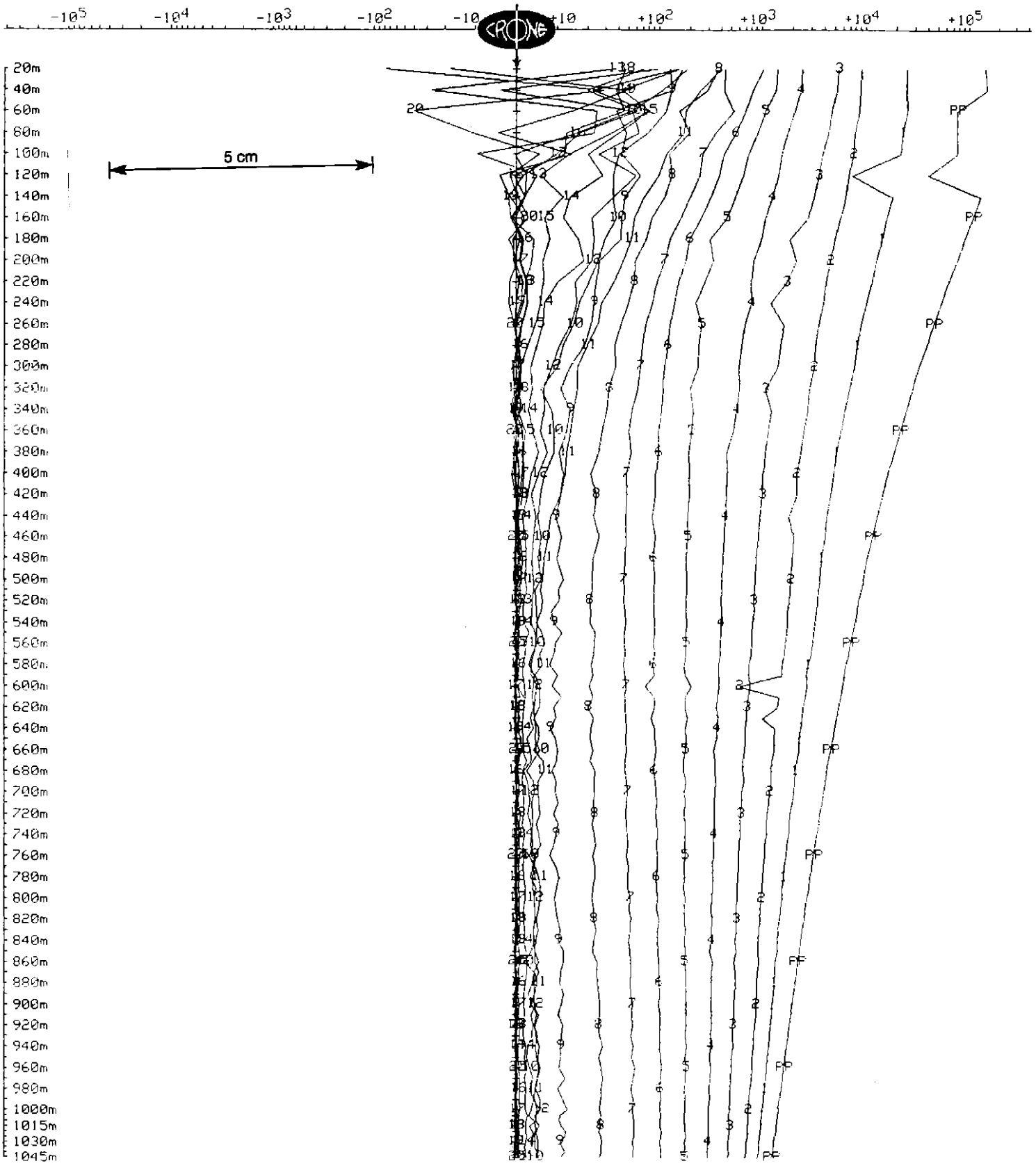
390063

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM

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

Scale: 1:5000



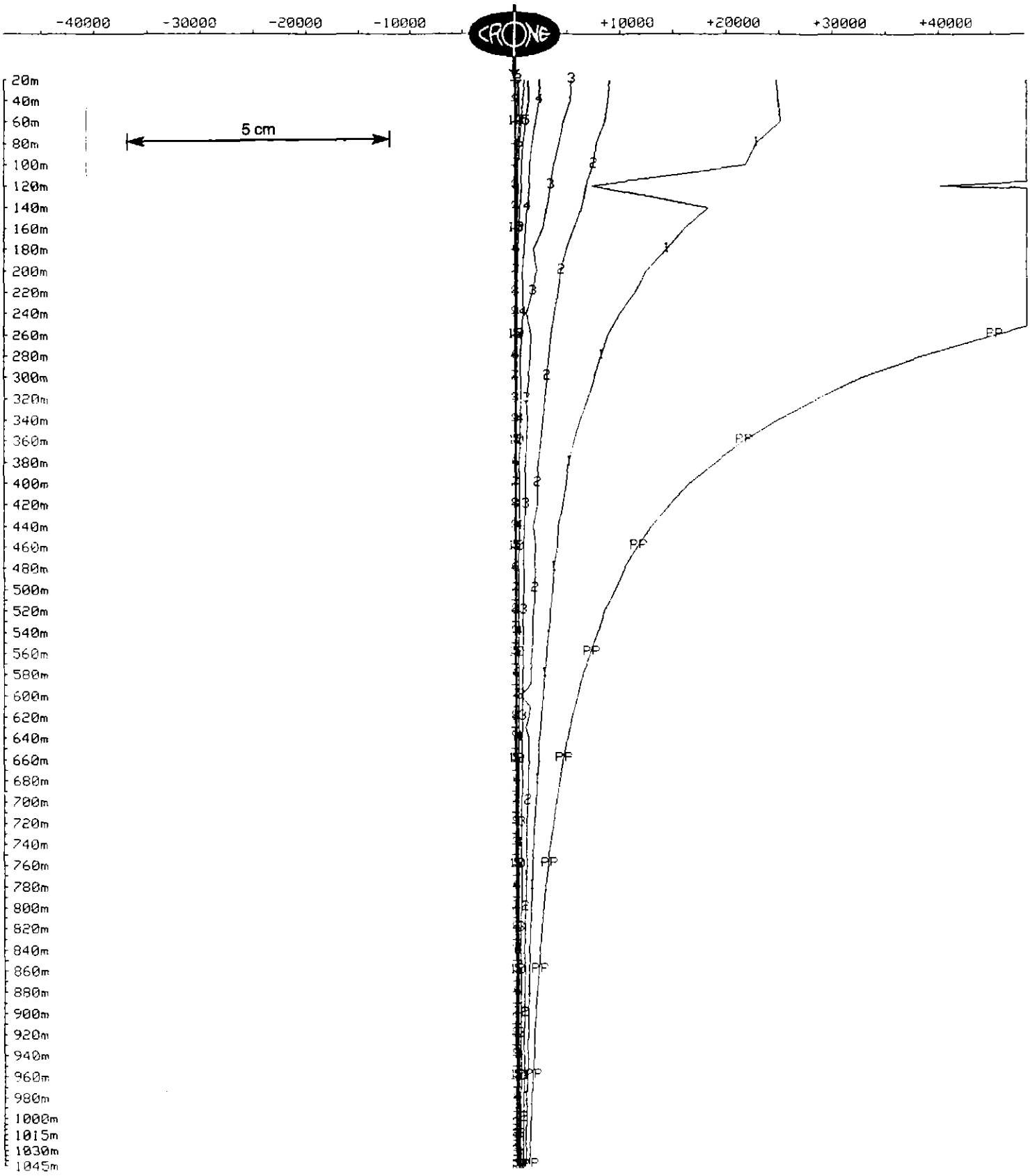
390064

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM

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

Scale: 1:5000 Unit Scale: 1cm = 5000 nT/s



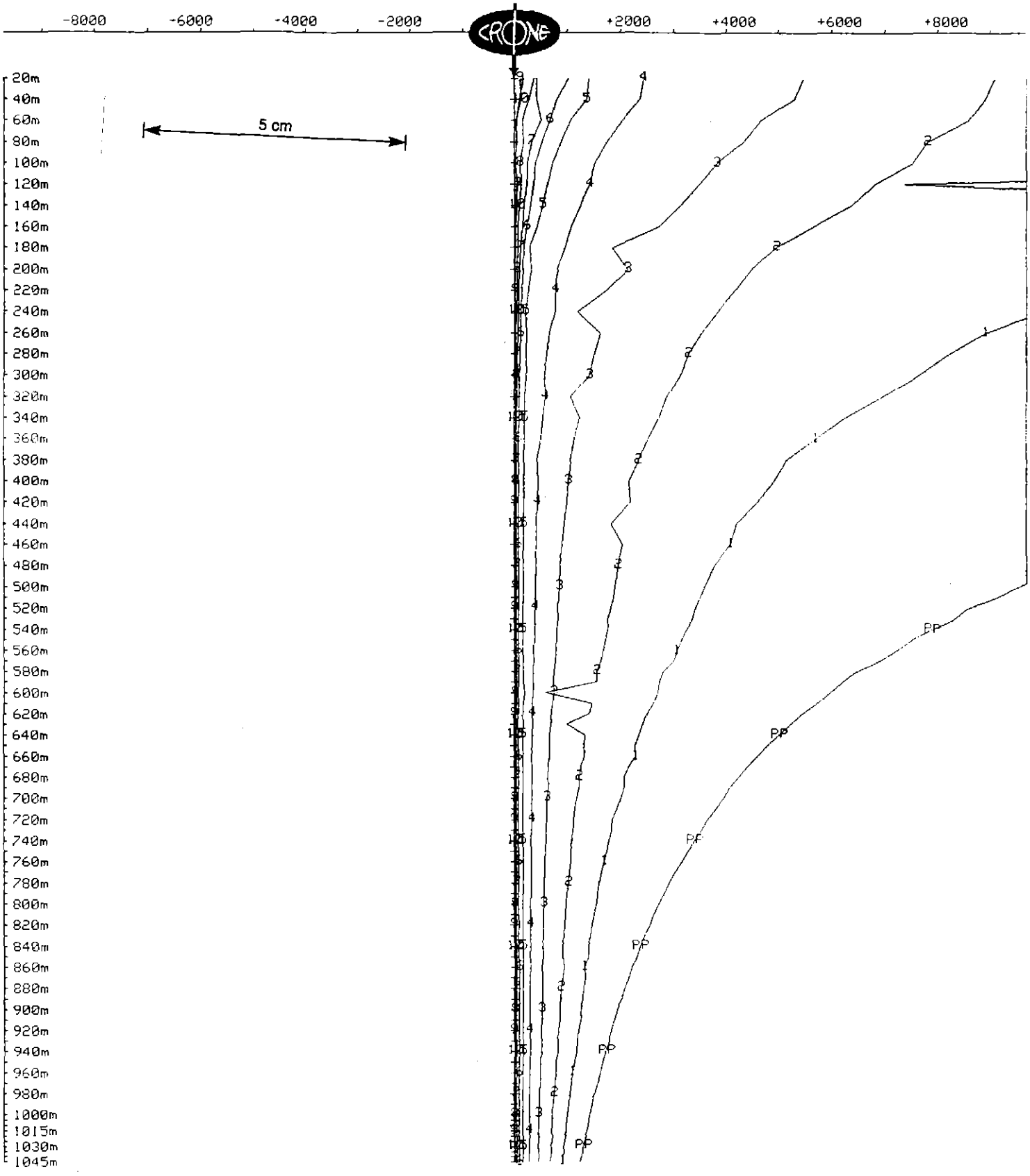
390065

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM

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

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



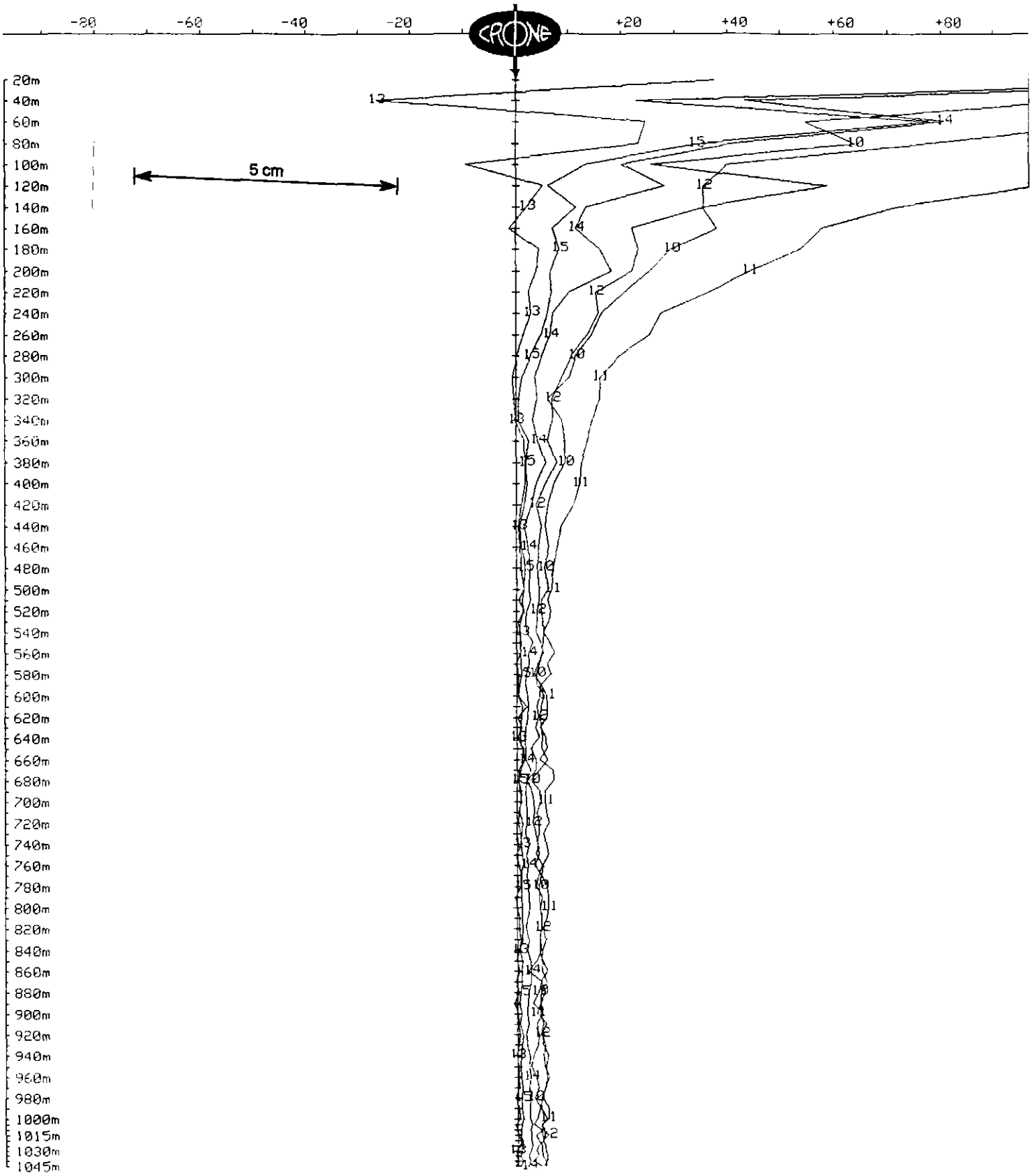
390066

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



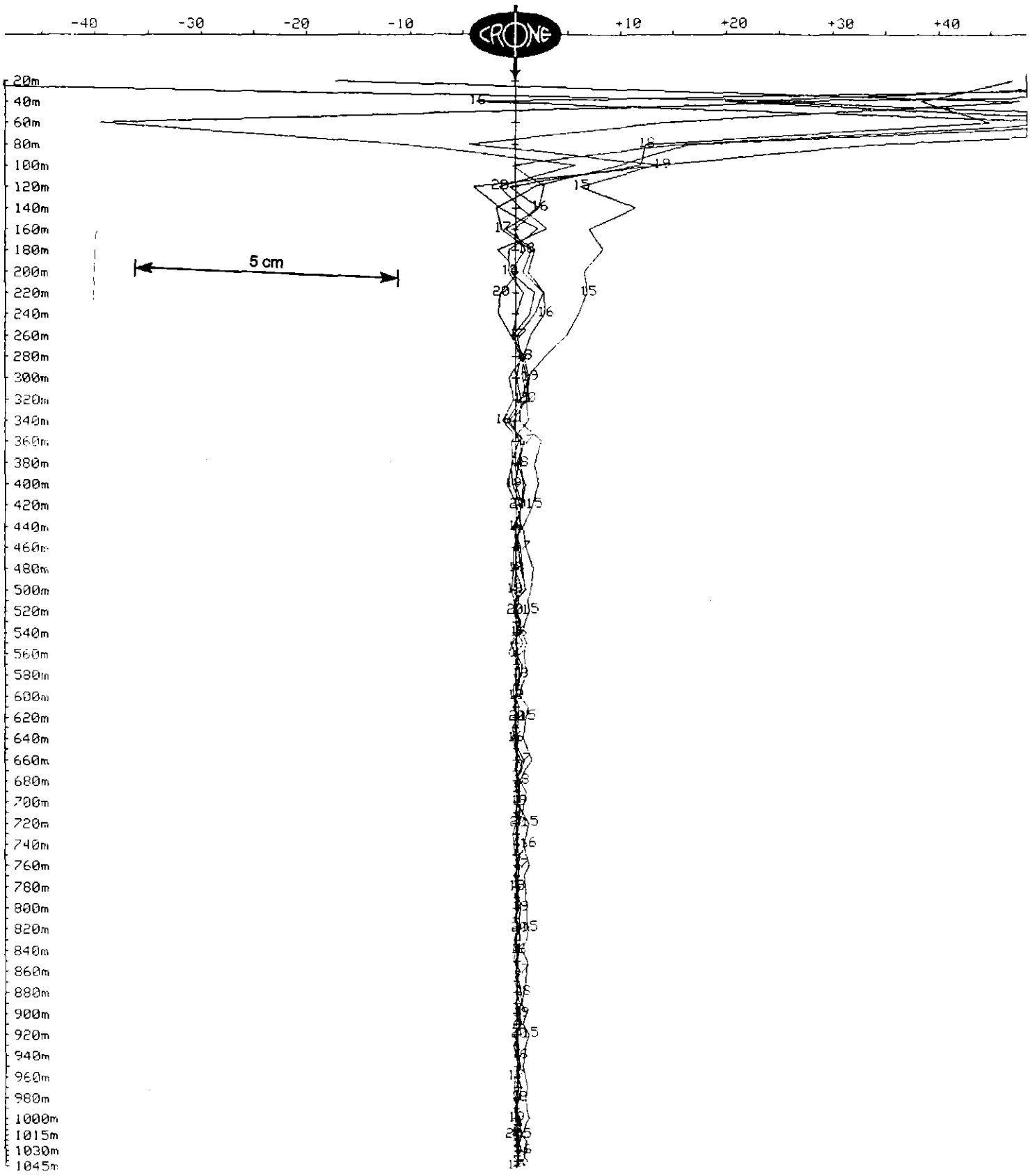
390067

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 5, 1997	File name	: SHD13ZE.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 20 channels

Scale: 1:5000 Unit Scale: 1cm = 5 nT/s



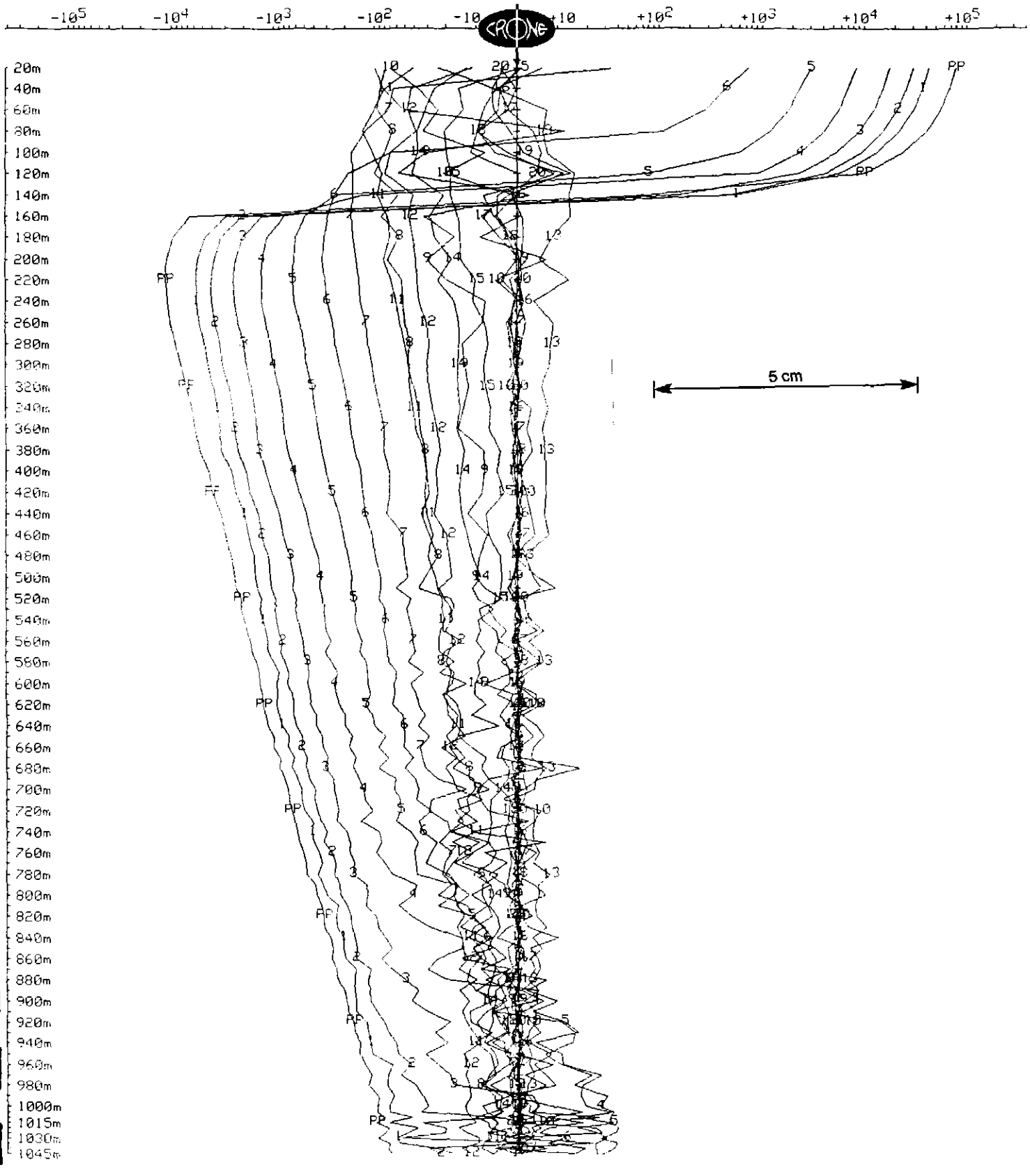
390068

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000



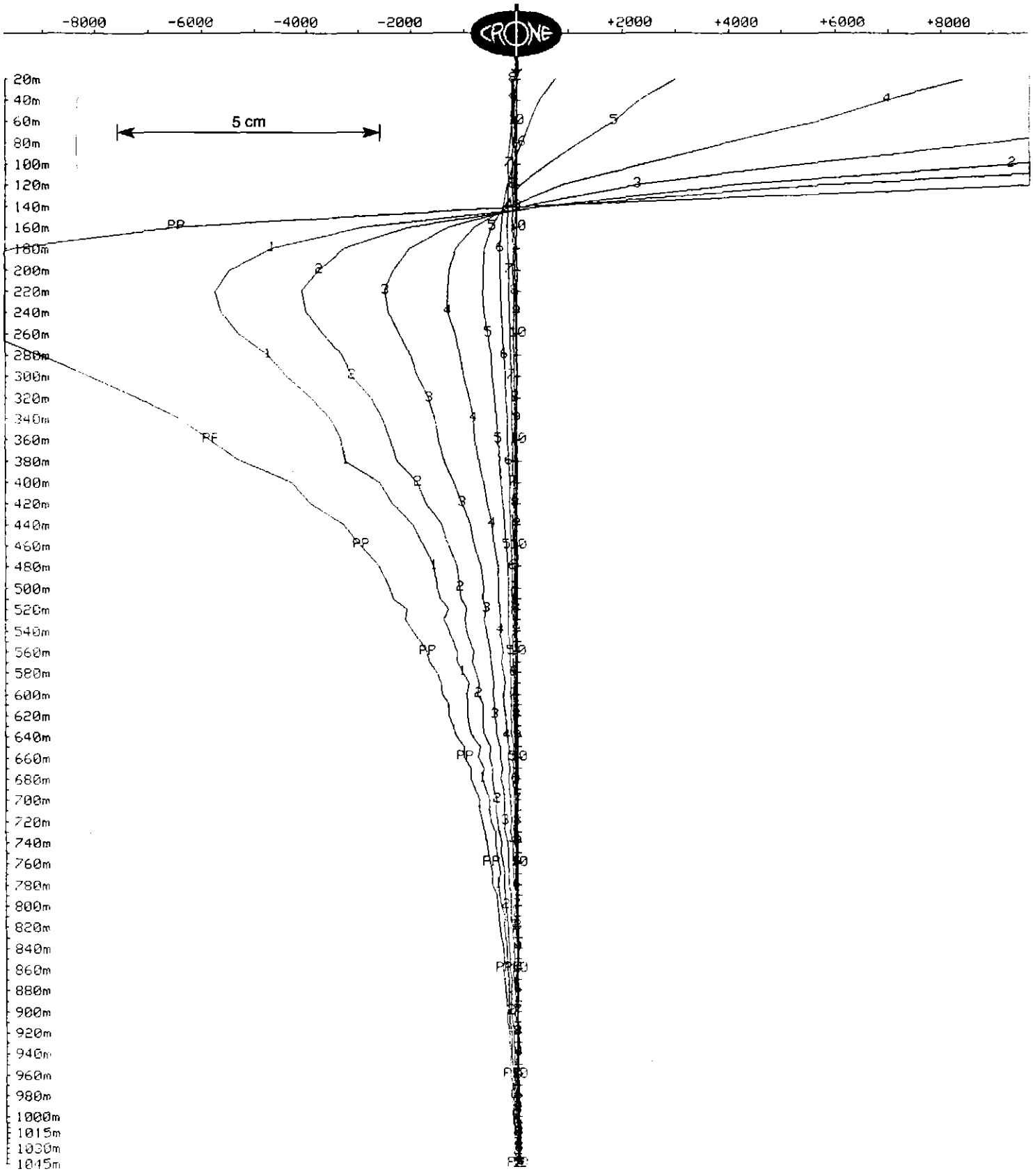
390069

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-13
Grid	: South Henty	Tx Loop	: 13E
Date	: Aug 4/5, 1997	File name	: SHD13XYE.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 20 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



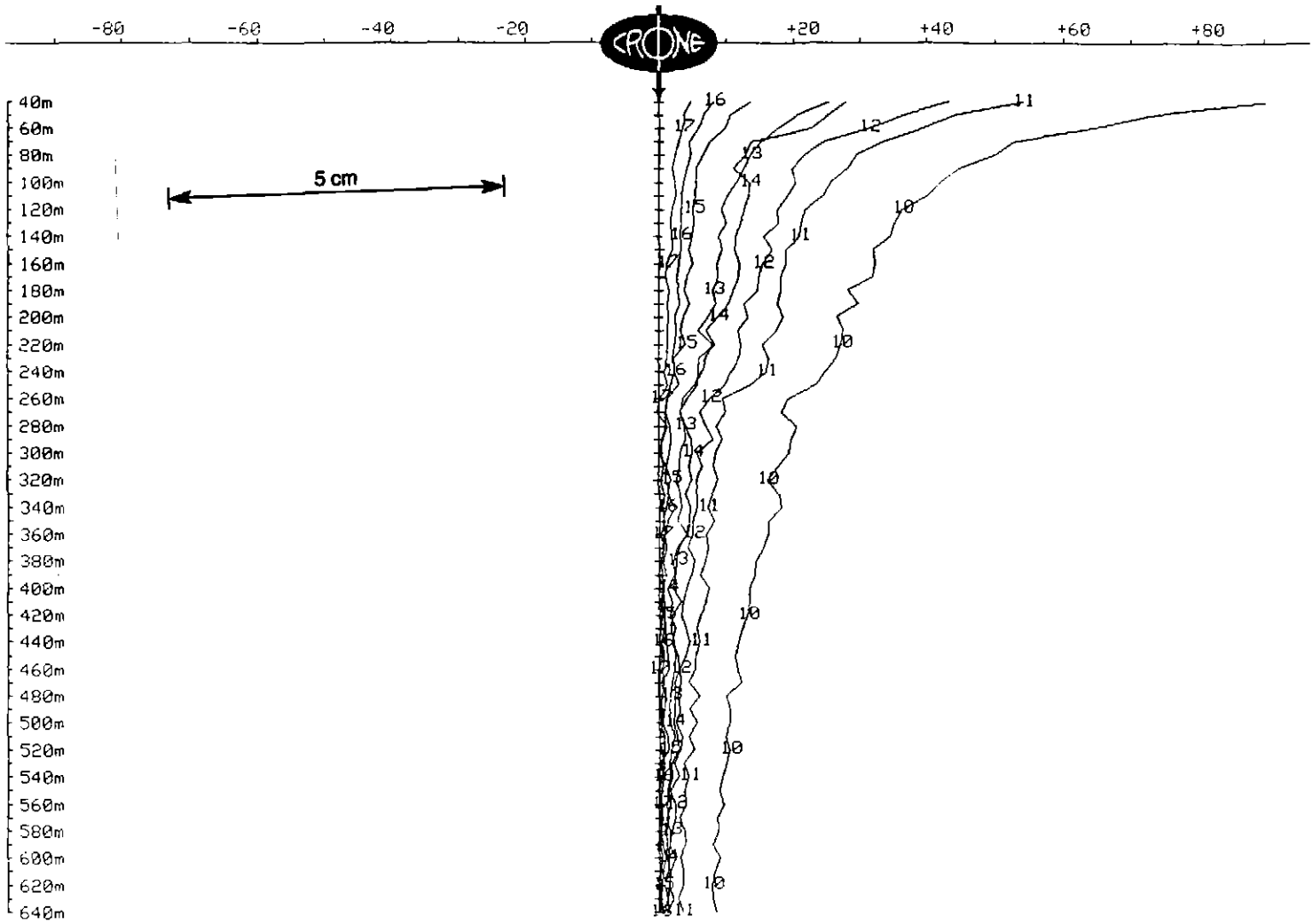
390070

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 21/24, 1997	File name	: SHD12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



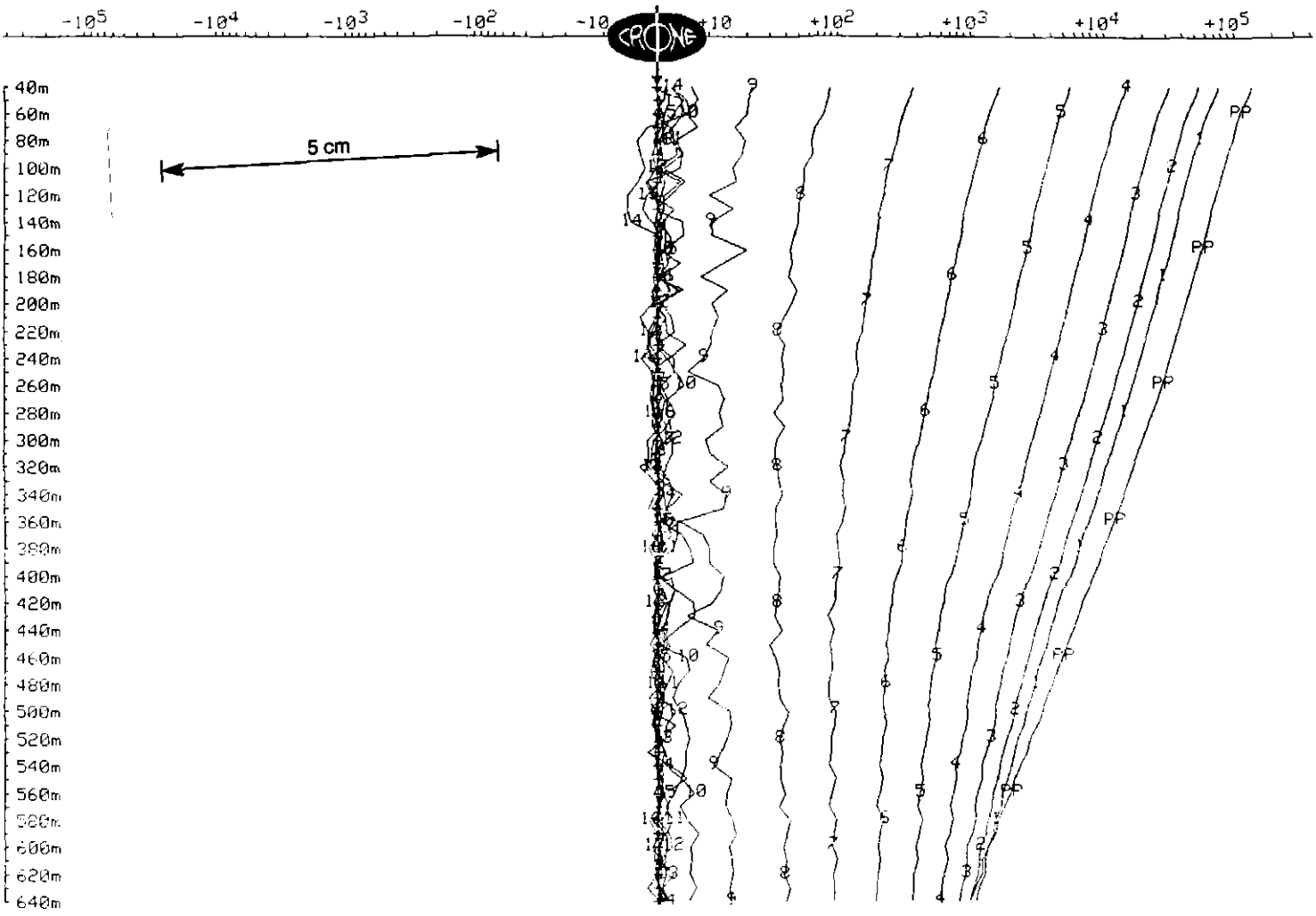
390071

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



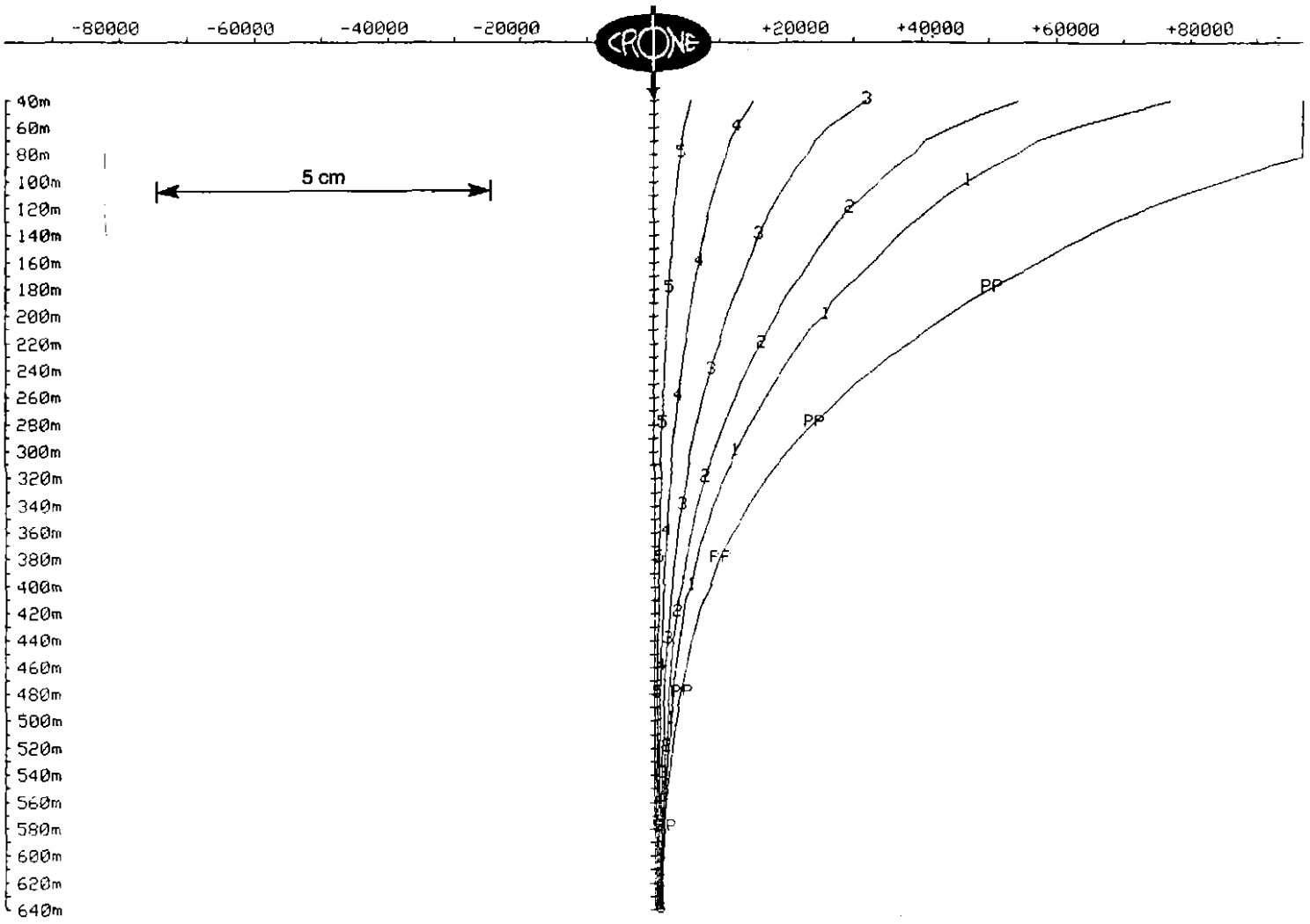
390072

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 10000 nT/s



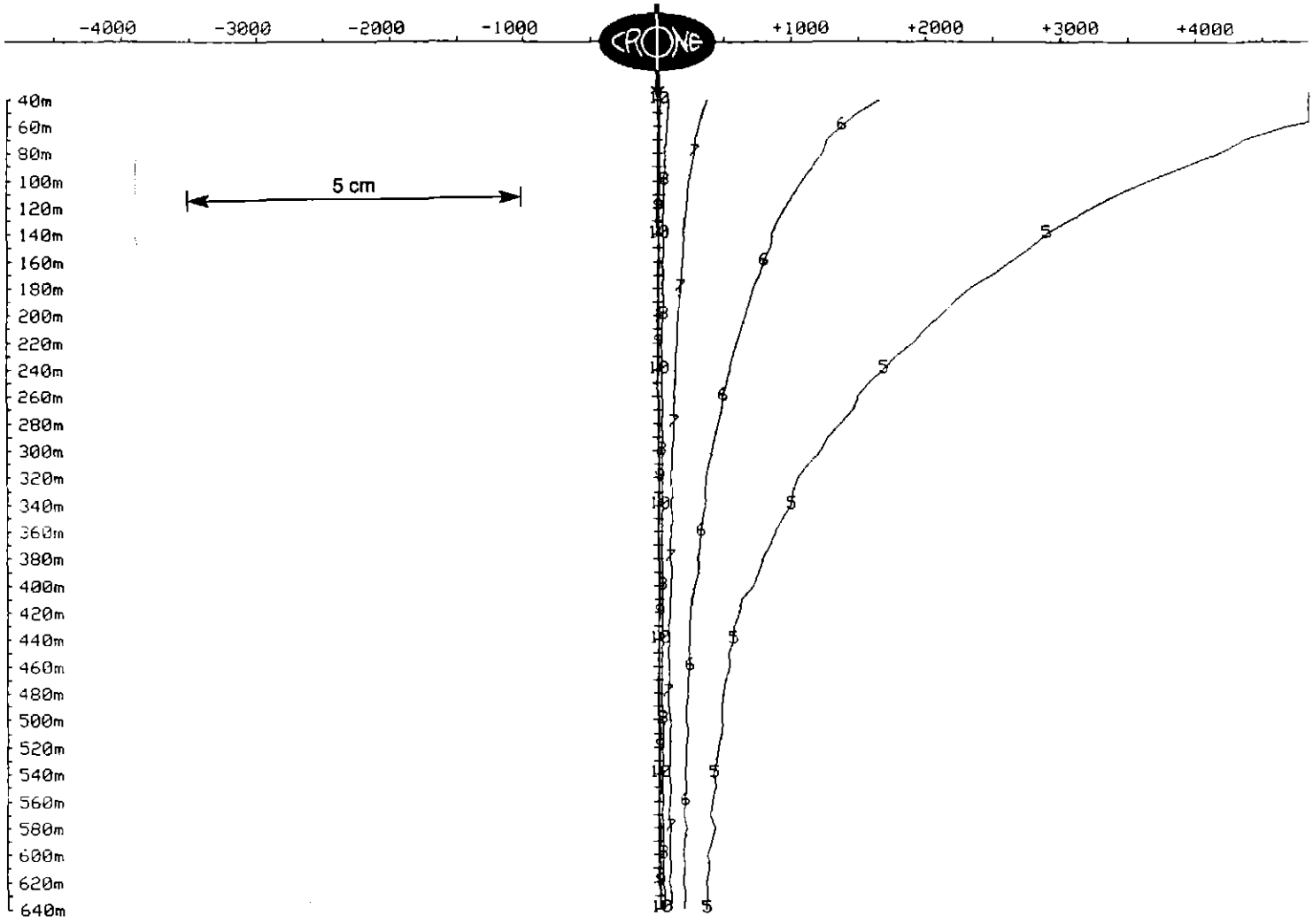
390073

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



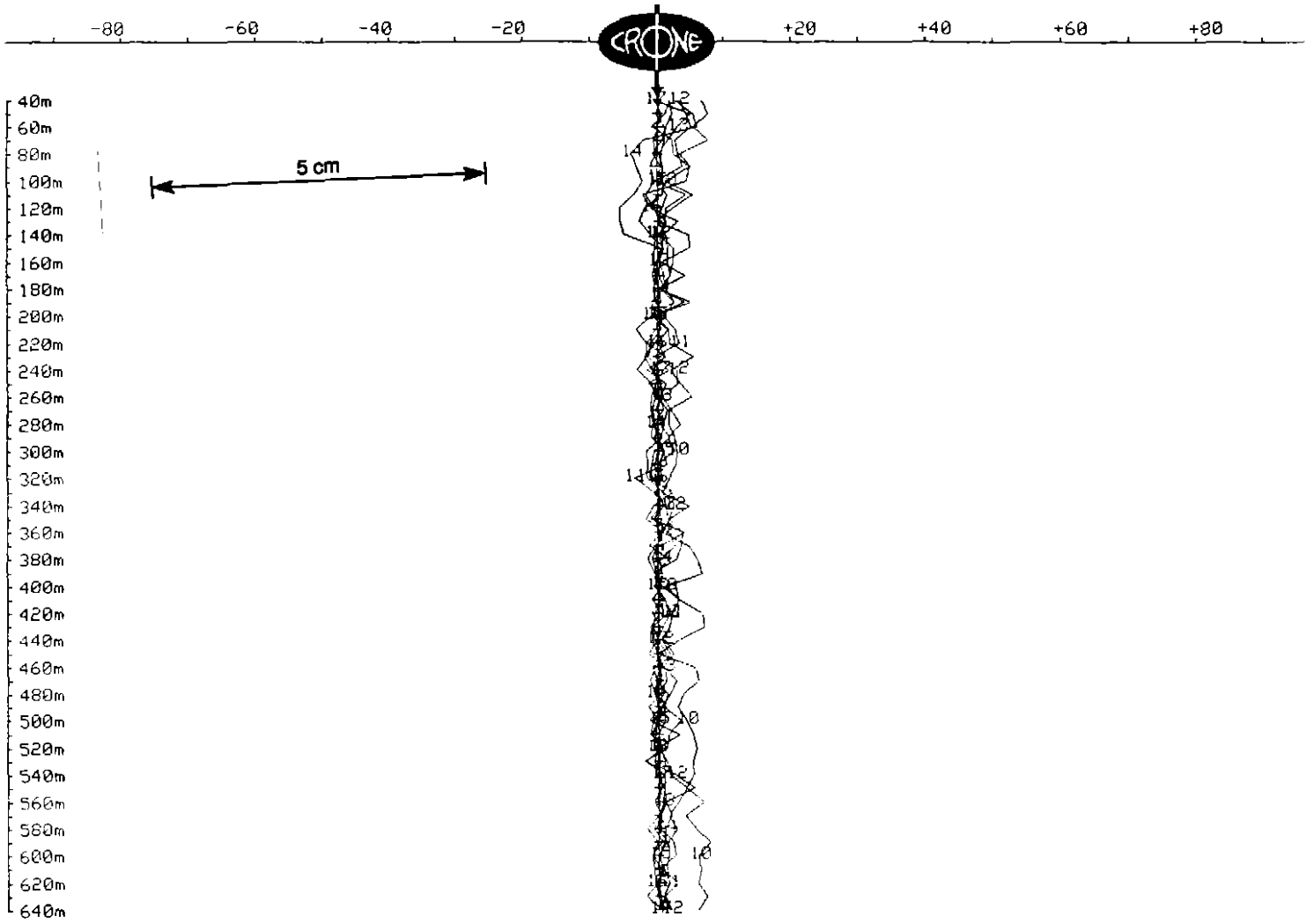
390074

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



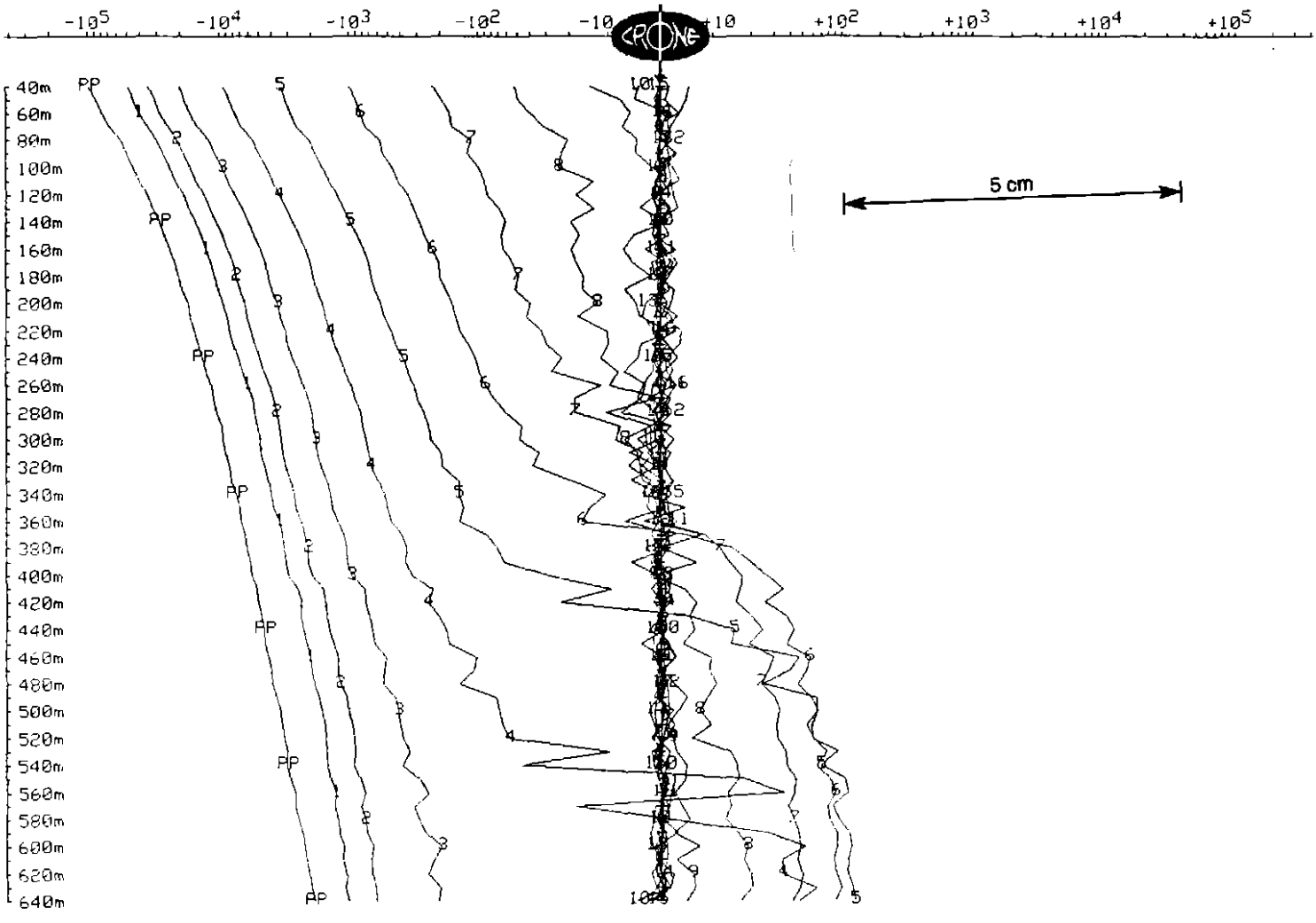
390075

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



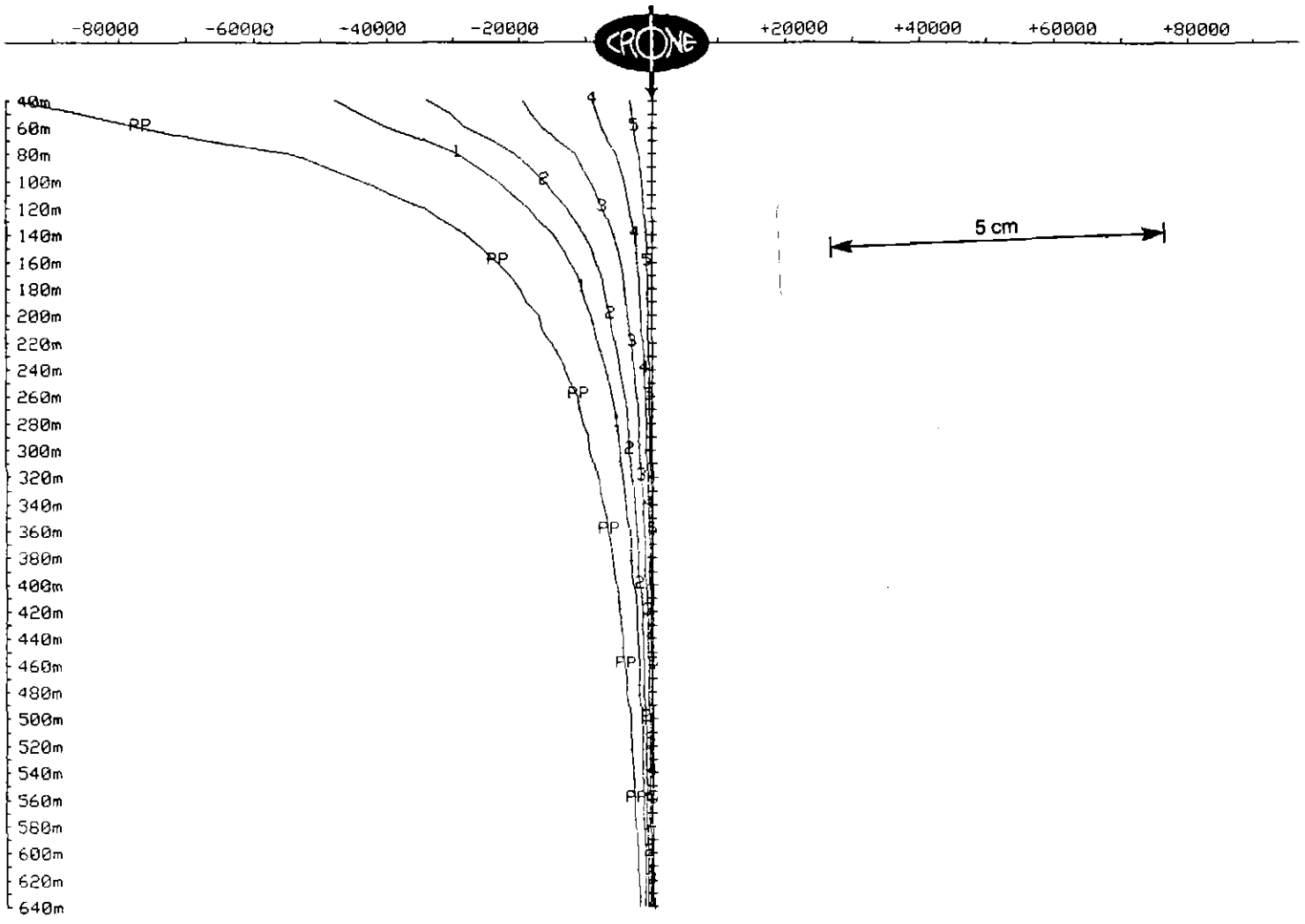
390076

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 10000 nT/s



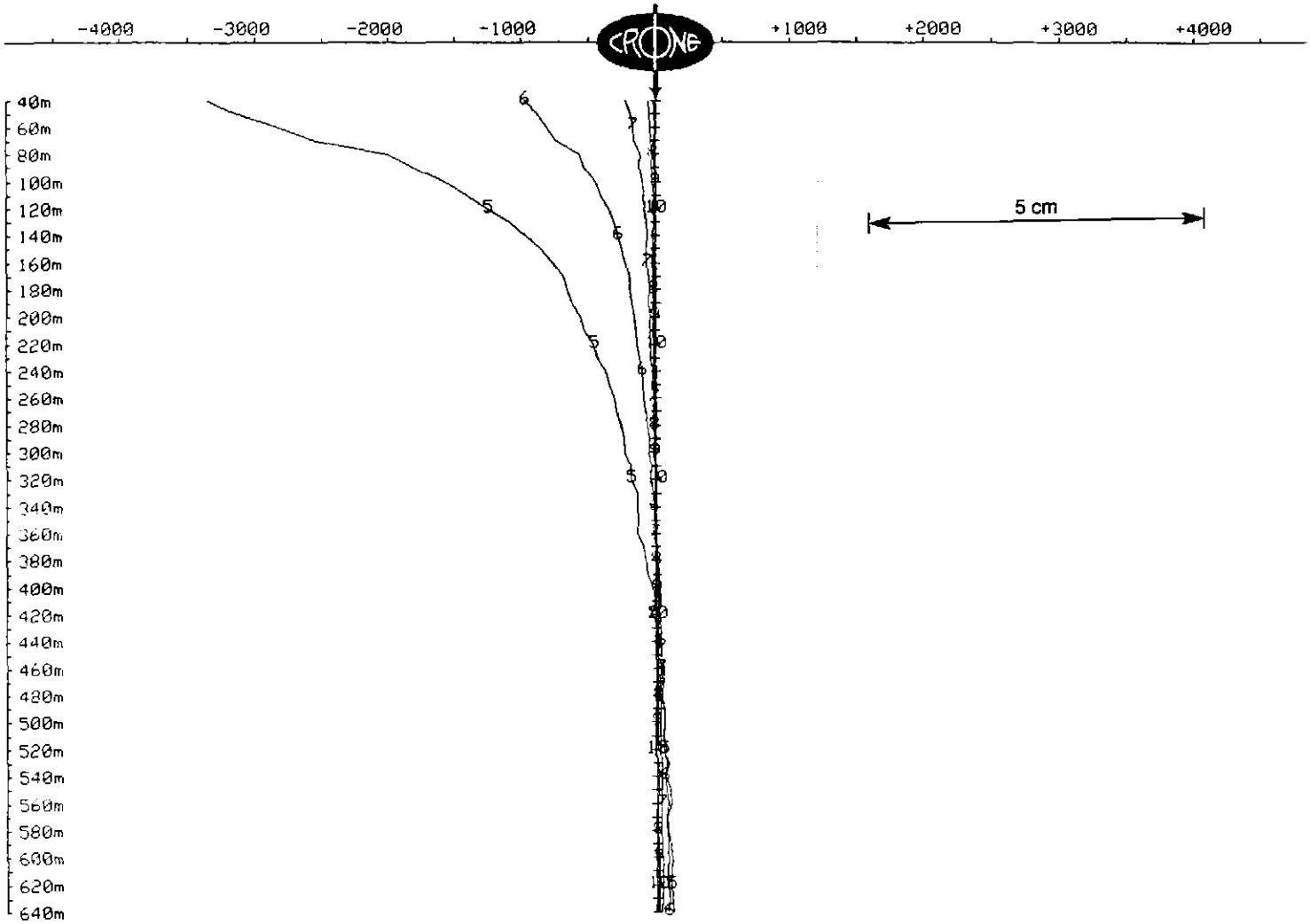
390077

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



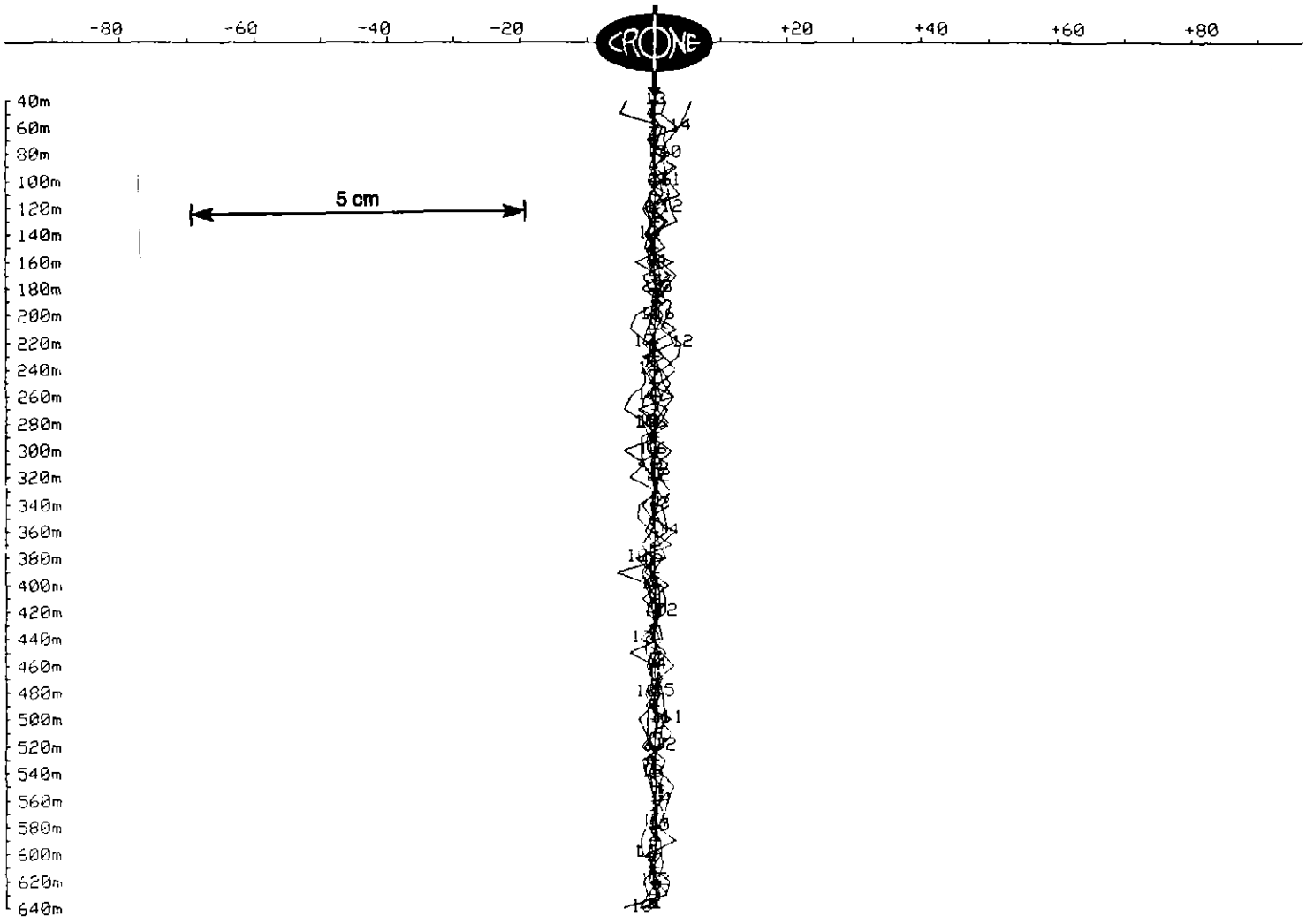
390078

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SHD12XY1.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 10 nT/s



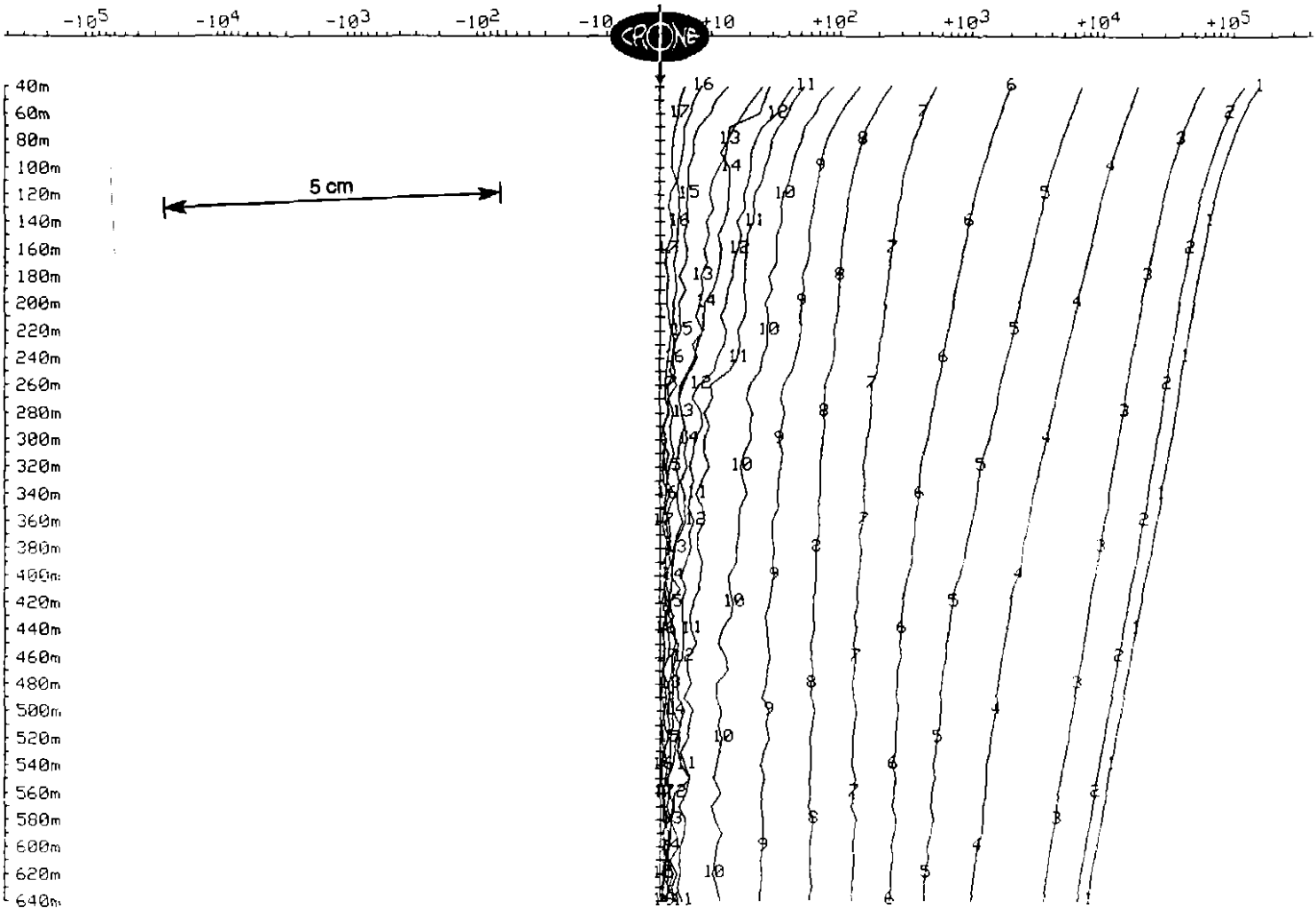
390079

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 26/27, 1997	File name	: SD12XYZ1.PEM

TOTAL FIELD dBxyz/dt nanoTesla/sec - 17 channels

Scale: 1:5000



390080

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 20, 1997	File name	: SHD12Z2.PEM
Time Base	: 10.00 ms	# Readings	: 64
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 17	Coil Area	: 6500 sq m
Sync Type	: Crystal-MASTER	Polarity	: -
Loop Size	: 400m X 400m	Receiver	: Digital #109
Current	: 20 Amps	Operator	: Paul Nielsen

Loop Coordinates (X,Y,Z)

1. 379750m, 58800m, 0m
2. 379750m, 58400m, 0m
3. 380000m, 58400m, 0m
4. 380165m, 58400m, 0m
5. 380165m, 58725m, 0m
6. 380000m, 58800m, 0m

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

1. 380360m, 58295m, 0m
2. 304.5deg, 61deg, 20m
3. 304deg, 61deg, 45m
4. 305deg, 59.6deg, 65m
5. 307deg, 55deg, 90m
6. 312deg, 50deg, 95m
7. 311deg, 49.4deg, 95m
8. 312.5deg, 48.1deg, 100m
9. 317.3deg, 46.6deg, 100m
10. 321deg, 44.8deg, 30m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	63	56	2	63	86	74
3	86	112	99	4	112	153	133	5	153	203	178
6	203	270	236	7	270	360	315	8	360	482	421
9	482	639	560	10	639	850	745	11	850	1129	990
12	1129	1498	1314	13	1498	1993	1746	14	1993	2646	2320
15	2646	3514	3080	16	3514	4666	4090	17	4666	6192	5429

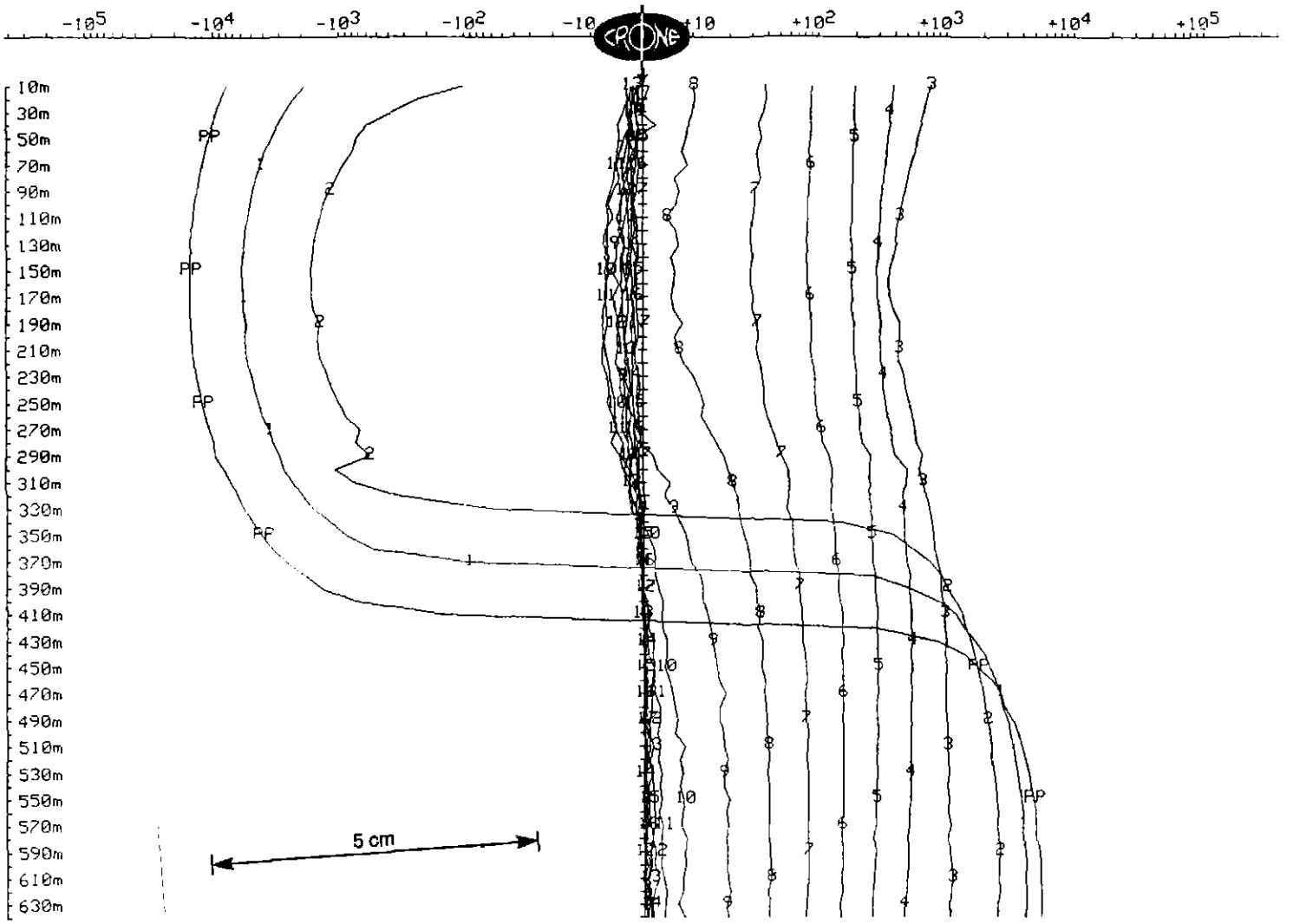
390081

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 20, 1997	File name	: SHD12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



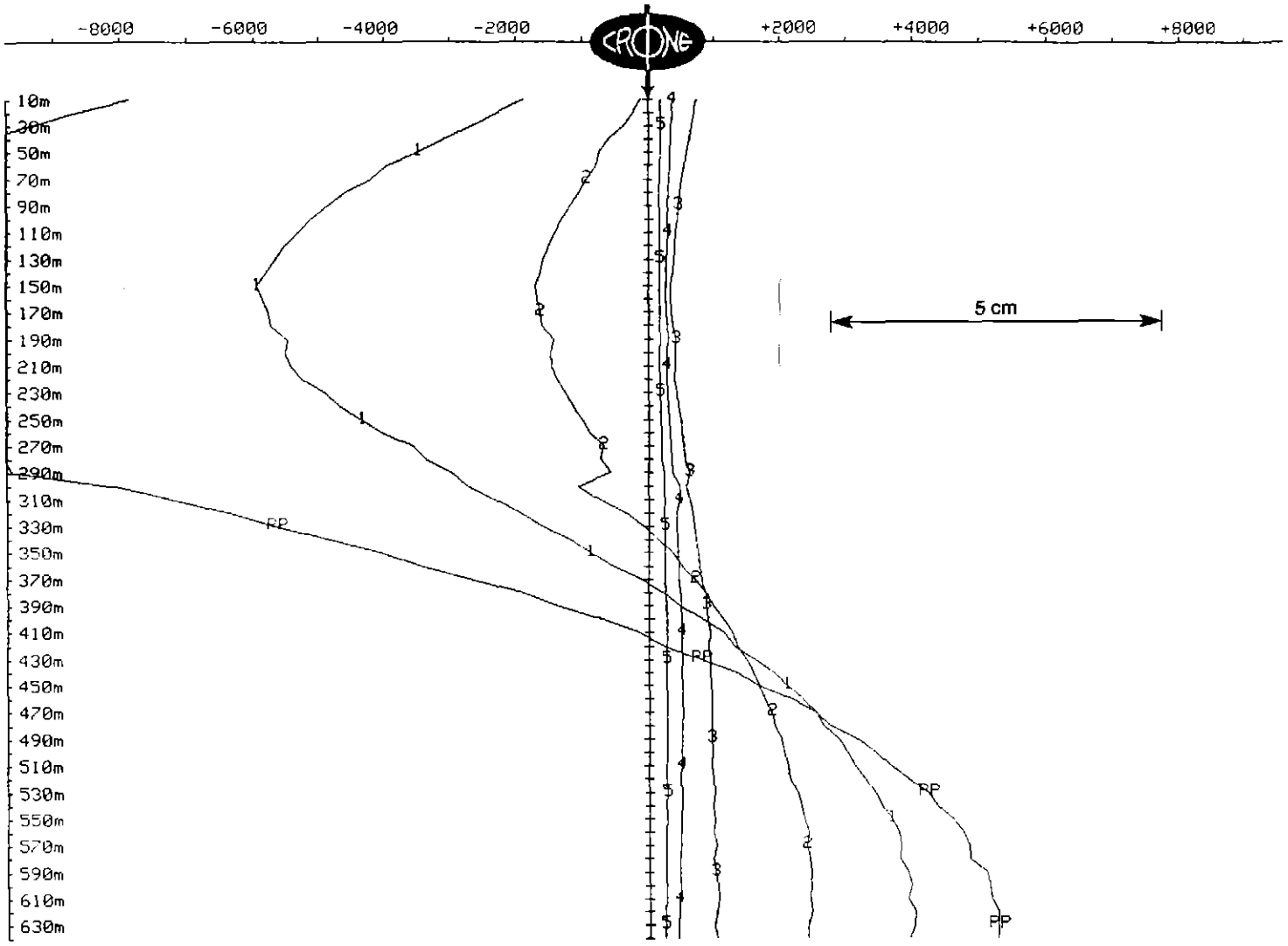
390082

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 20, 1997	File name	: SHD12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



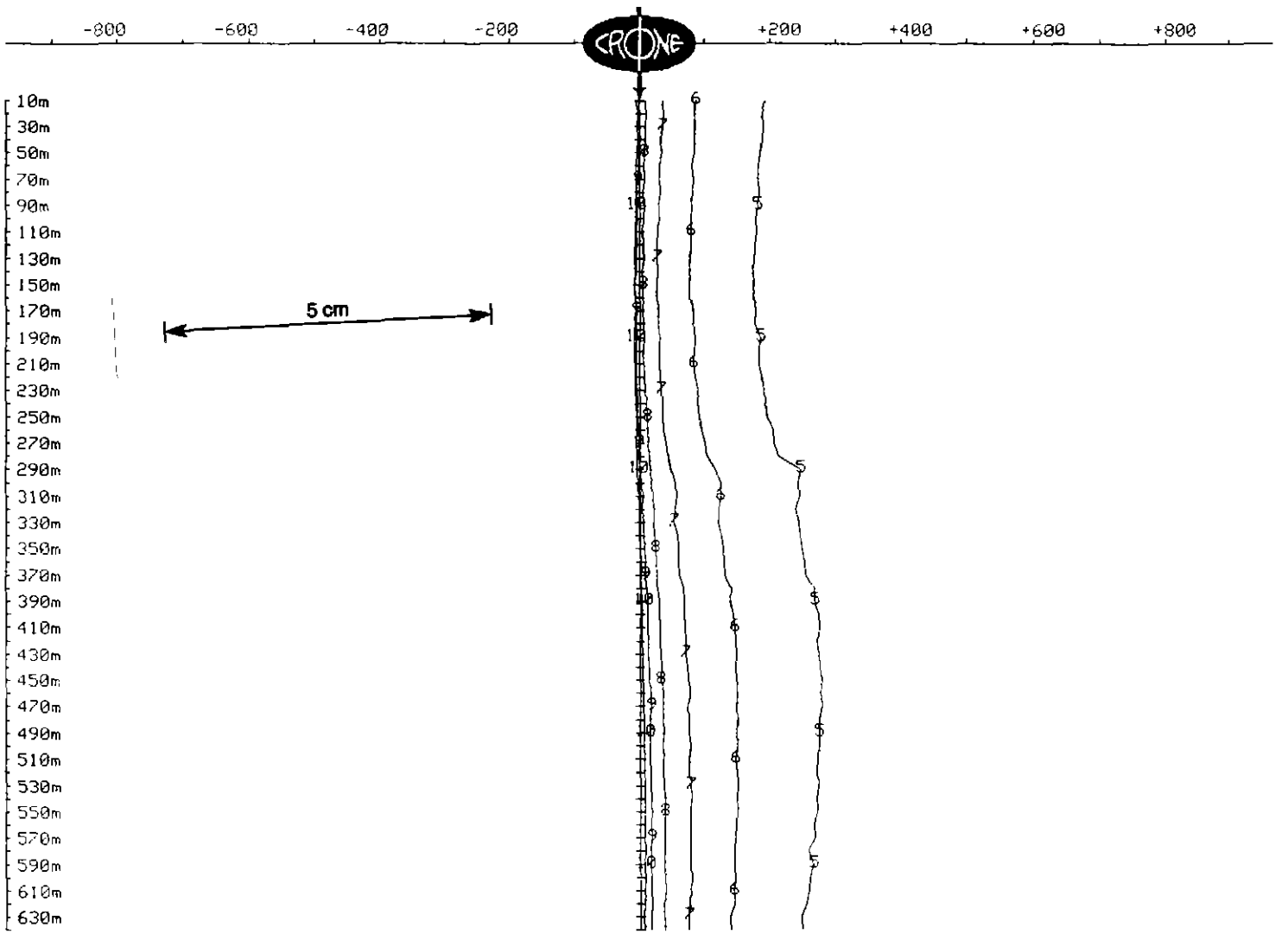
390083

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 20, 1997	File name	: SHD12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 100 nT/s



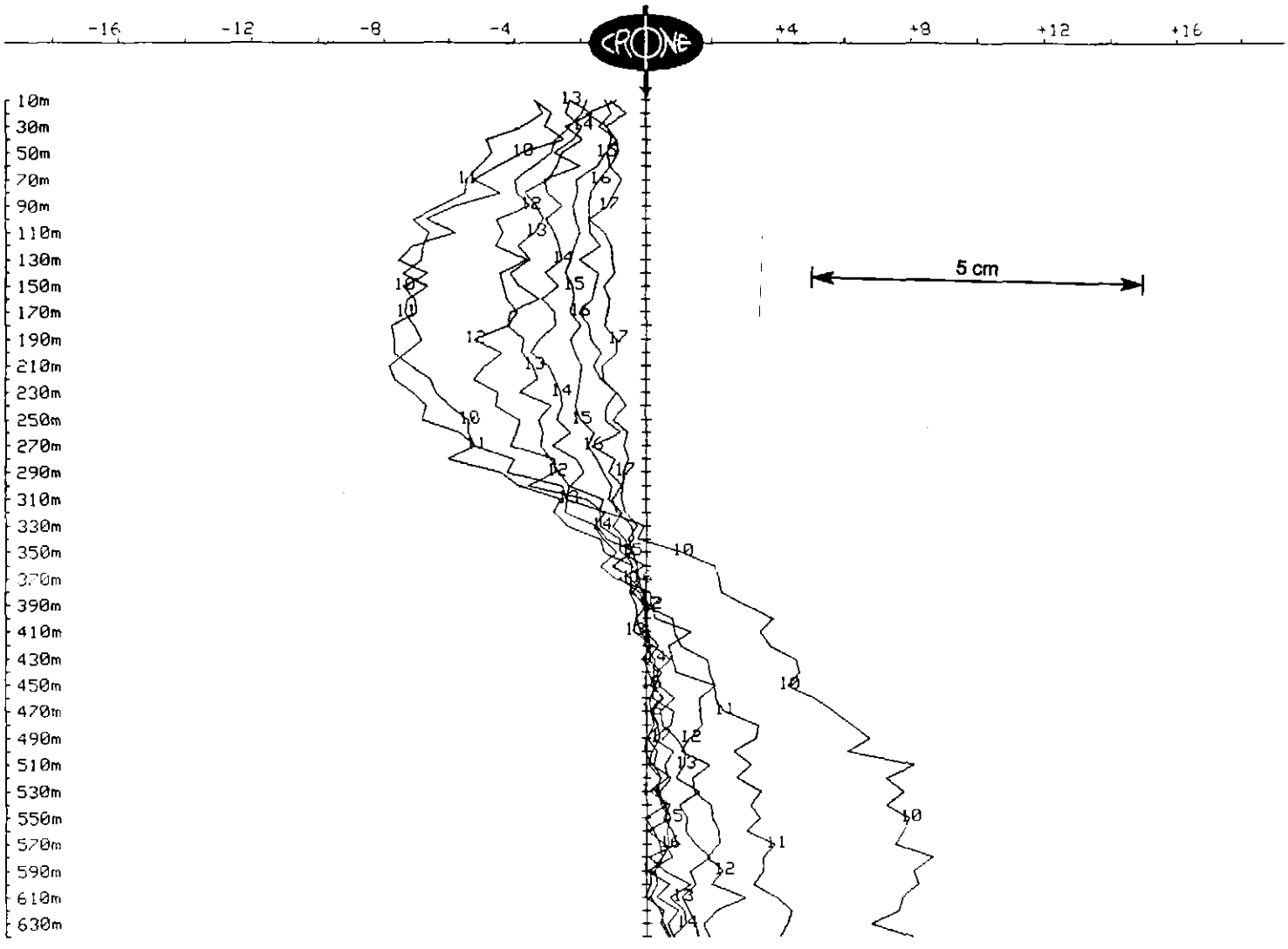
390084

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 20, 1997	File name	: SHD12Z2.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



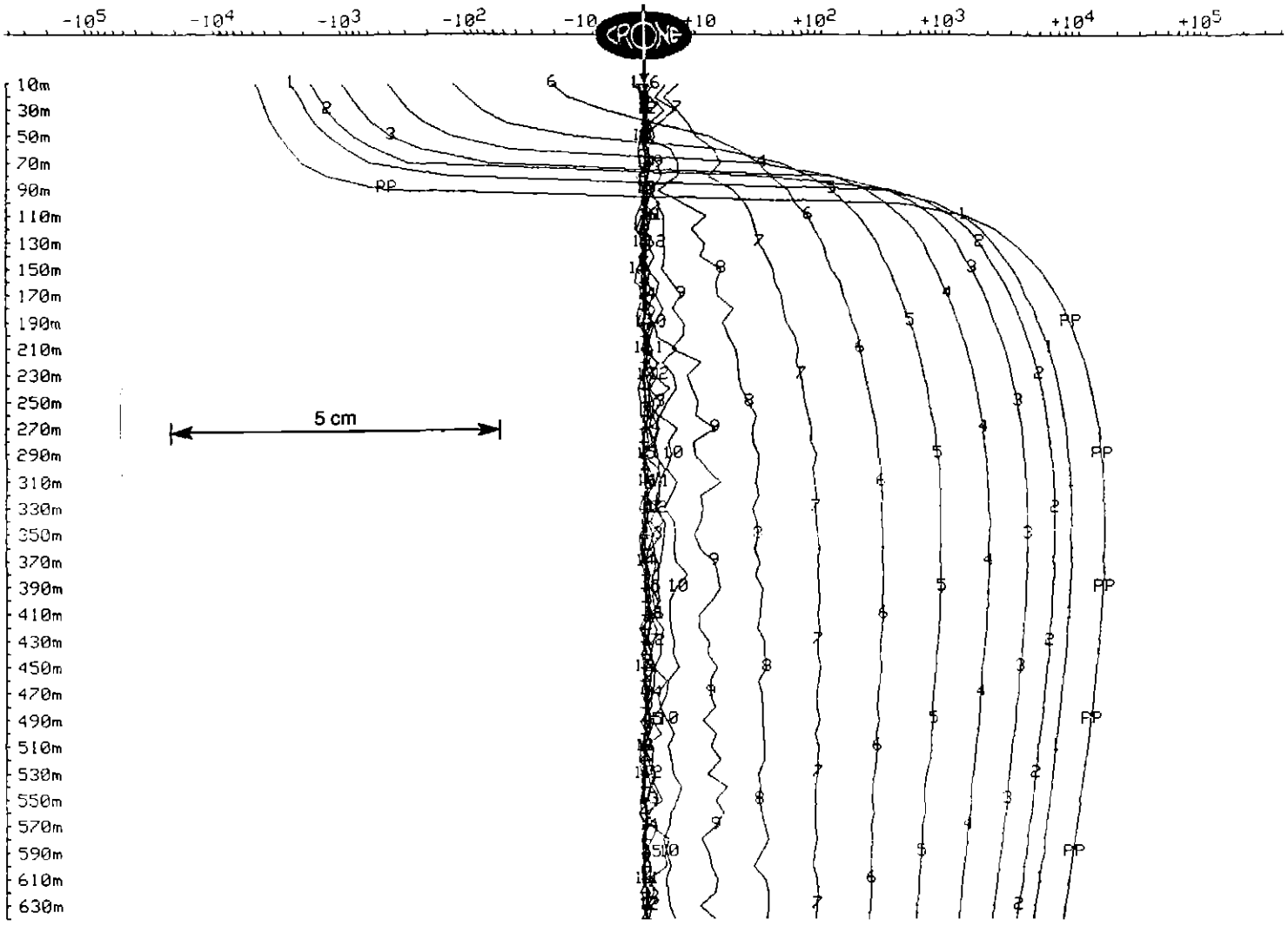
390085

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



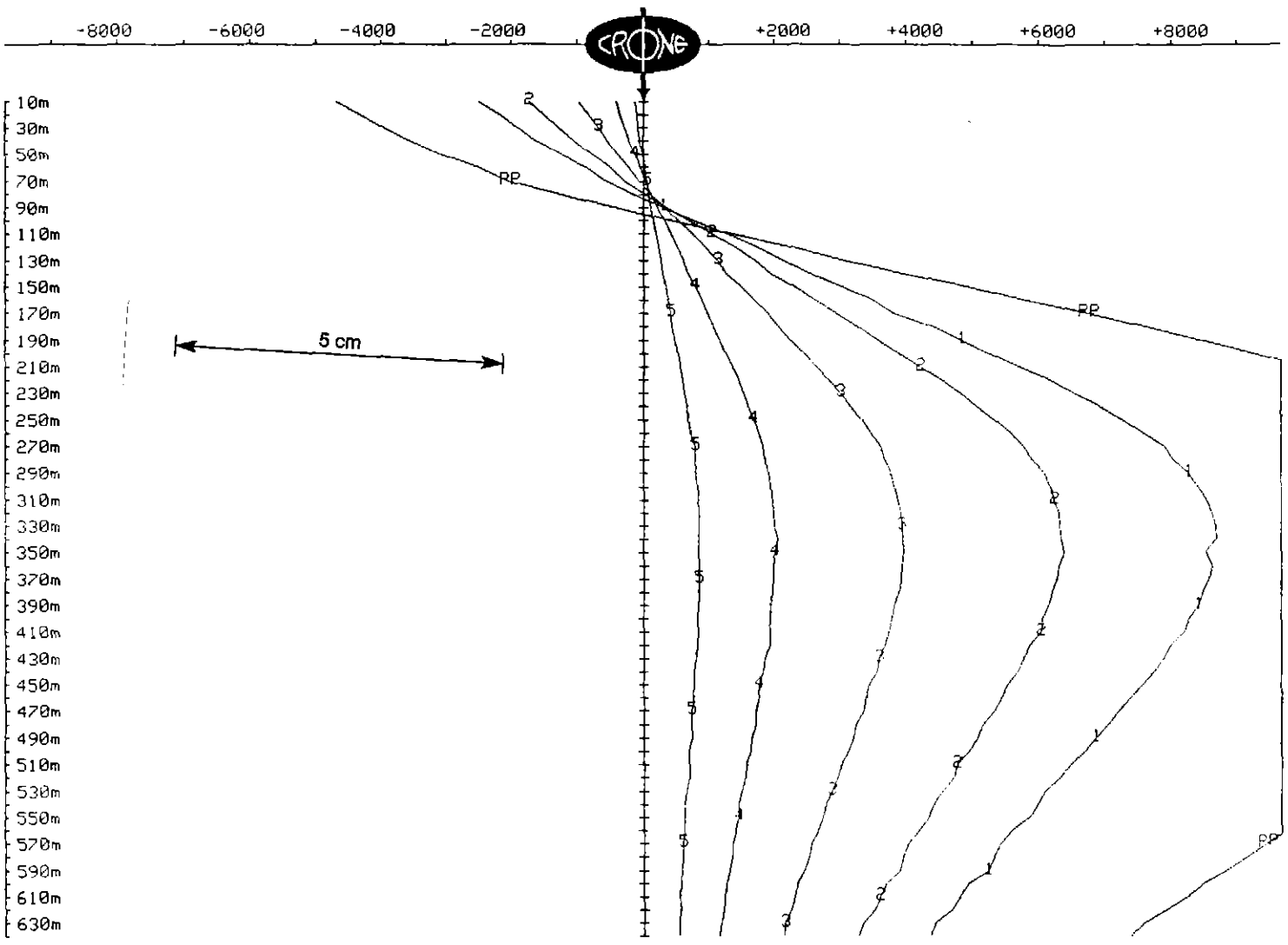
390086

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/s



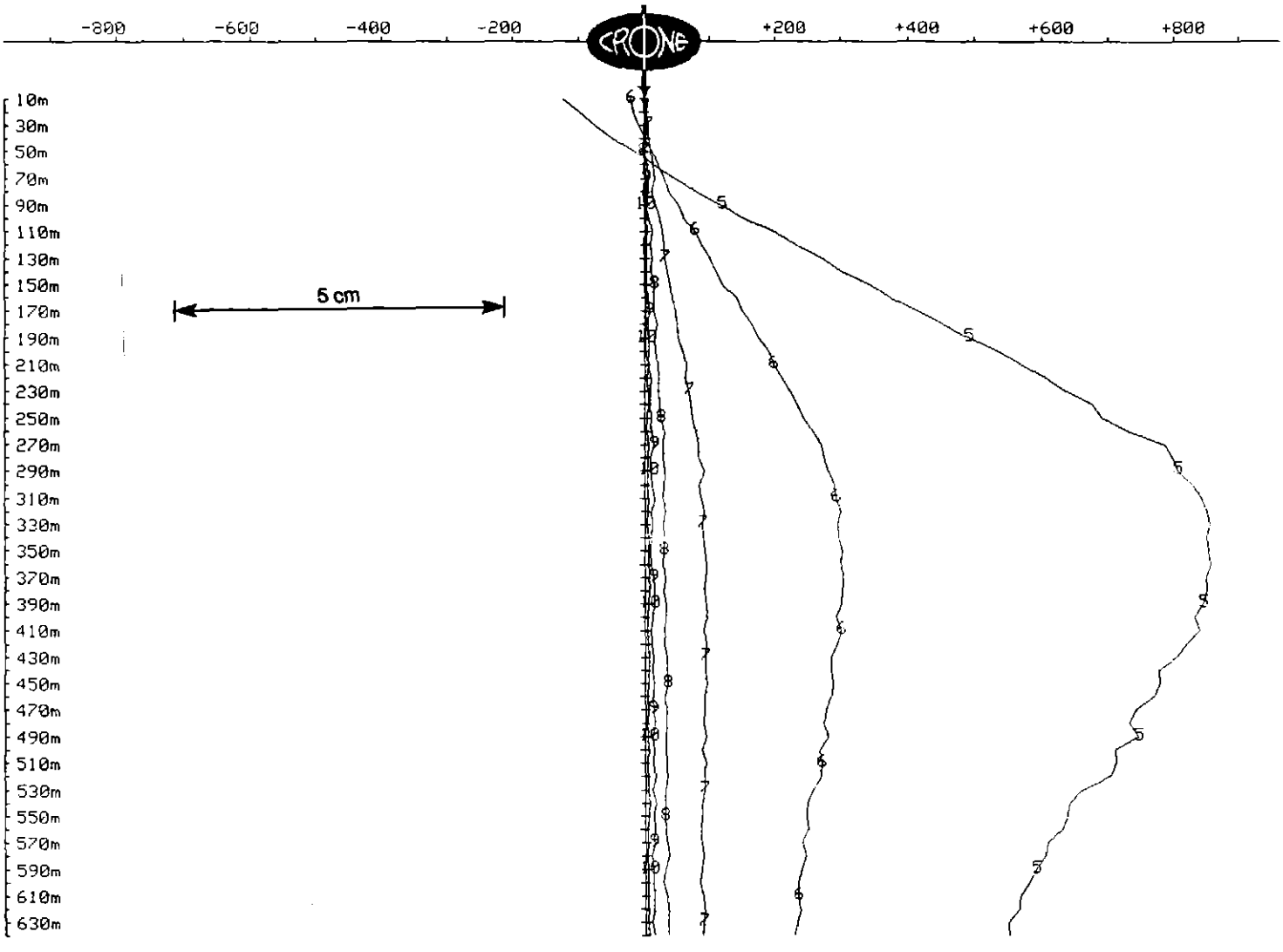
390087

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 100 nT/



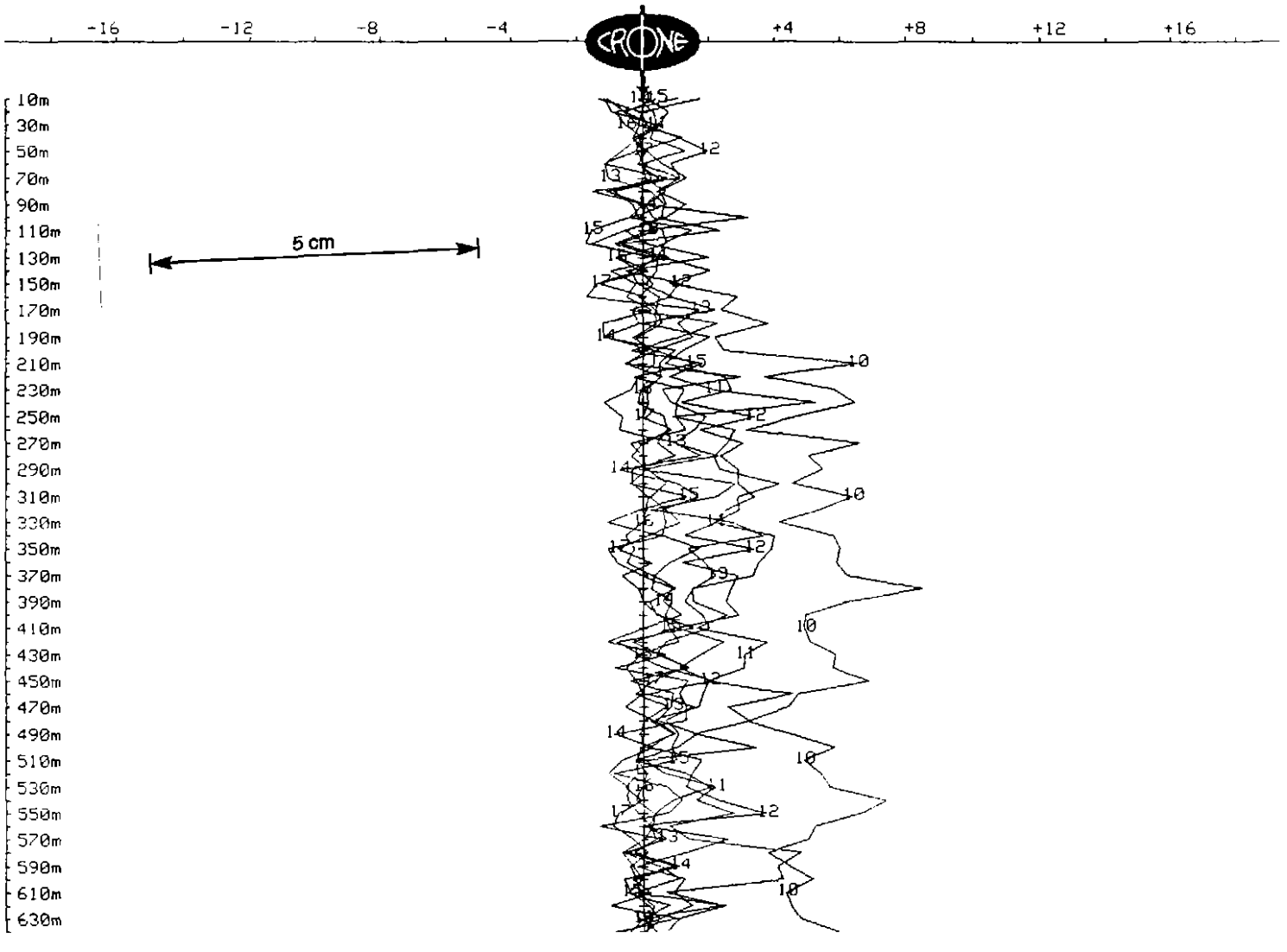
390088

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
X COMPONENT dBx/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 2 nT/s



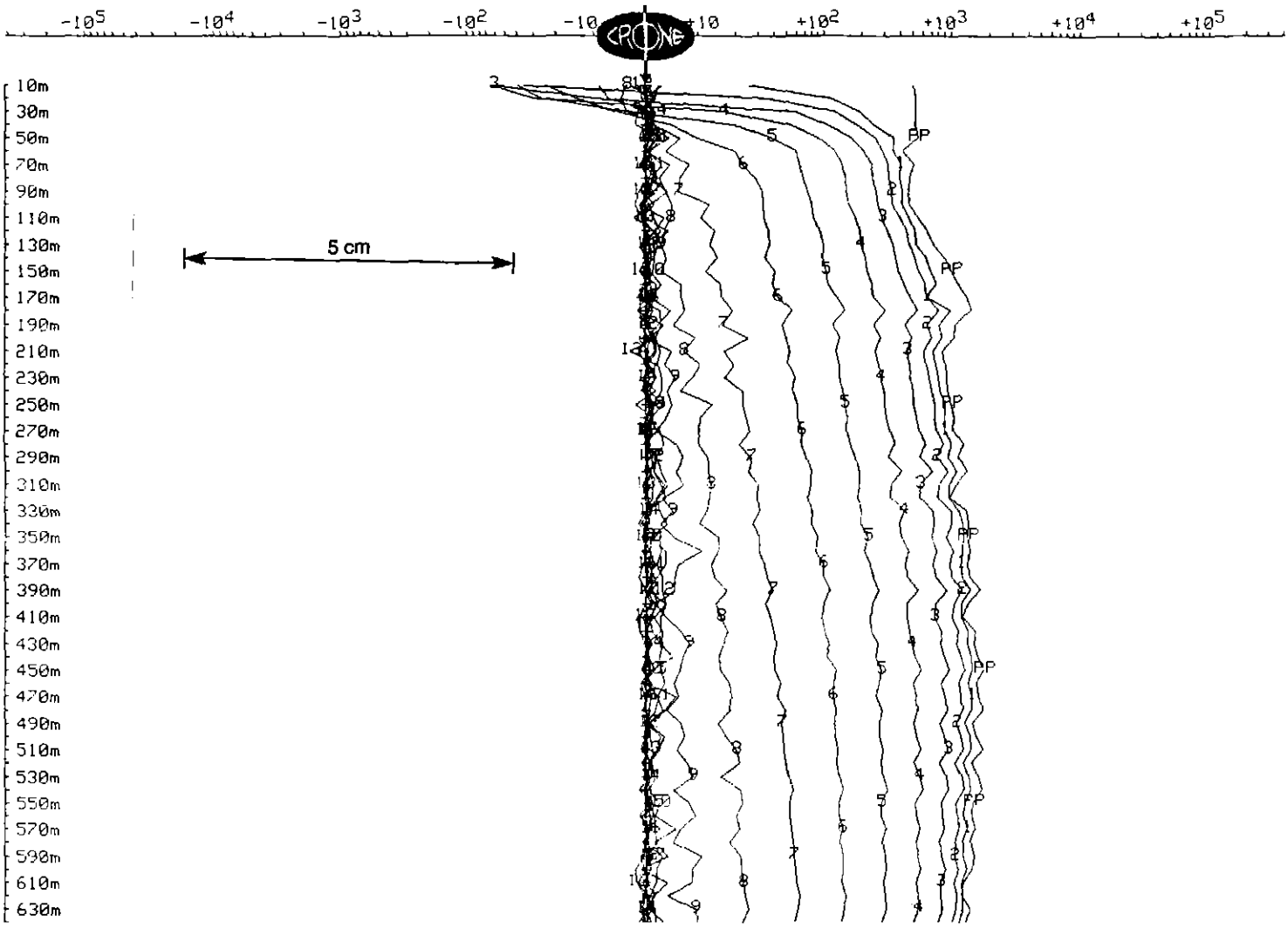
390089

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



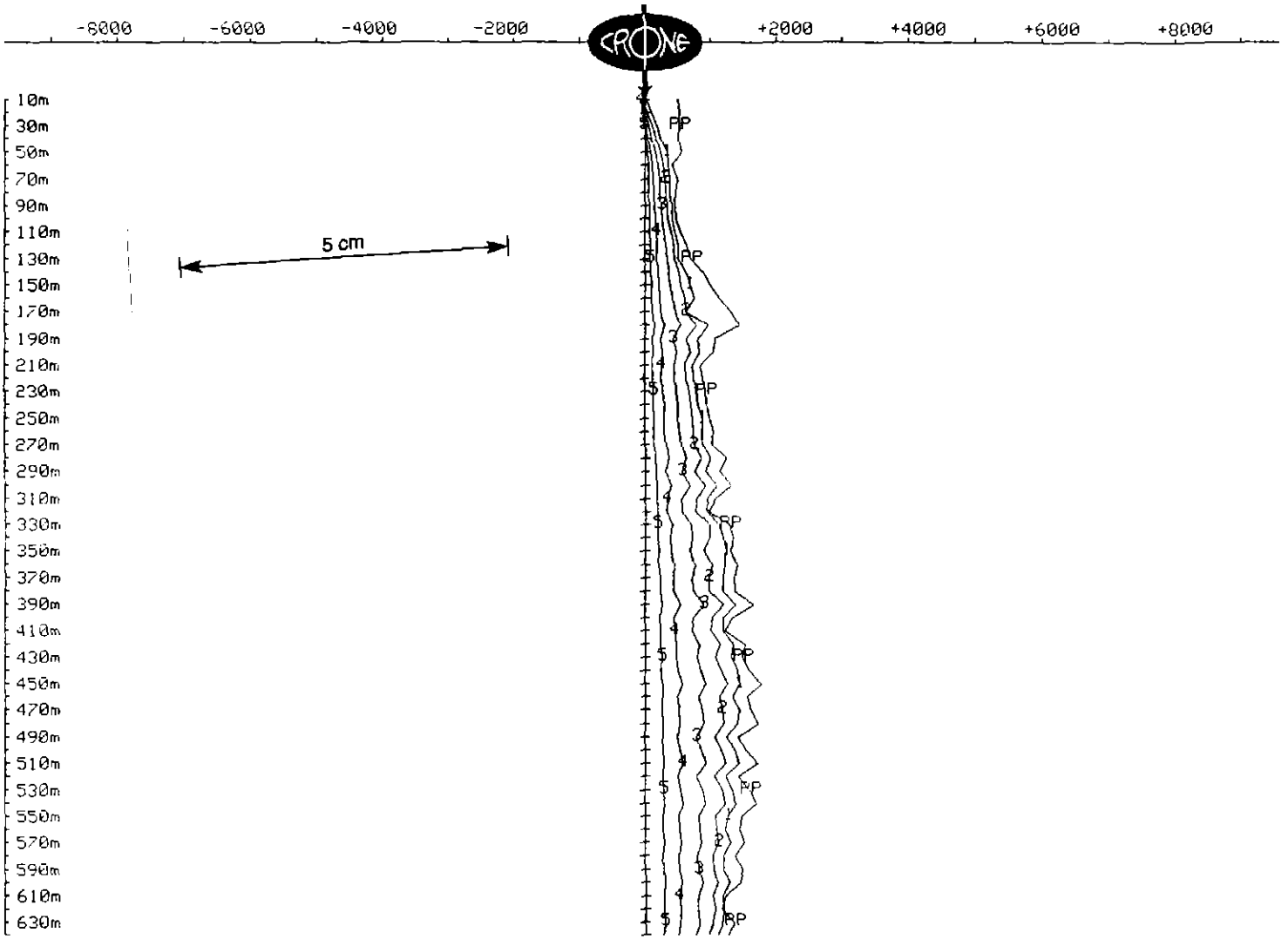
390090

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #2
Date	: Jun 27, 1997	File name	: SHD12XY2.PEM

Data Corrected for Probe Rotation using Orientation Tool #5
Y COMPONENT dBy/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000 nT/



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

SURVEY METHODS

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

Moving Coil

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

Moving Loop

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

Moving In-Loop

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

Large In-Loop

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

Deepem

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

Borehole (Z Component only)

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

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

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

3-D Borehole

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

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

Underground Borehole

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

Resistivity Soundings

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

EQUIPMENT

Transmit Loops

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

Power Supply

The PEM system normally operates with an input voltage from 24v to 120v. The maximum current is 20 amps in a single loop but the effective current can be increased by doubling the loop wire in series. For low power surveys a 20amp/hr 24v battery can be used. The power supply requires a motor generator and a voltage regulator to control and filter the input voltage to the transmitter.

Specifications: PEM Motor Generator

- 4.5 hp Wisconsin, (2 kw)
- belt drive to D.C. alternator
- cable output to regulator
- maximum output: 120v, 20amp (2 kw);
- fuse type overload protection
- steel frame
- external gas tank
- unit weight: 33kg (2 kw); 52kg (4 kw)

Specifications: PEM Variable Voltage Regulator

- selectable voltage between 24v and 120v or 48v and 240v
- 20amp maximum current
- fuse and internal circuit breaker protection

Transmitter

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

Specifications: PEM Transmitter

- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 50ms 150ms.
- ramp times: 0.5ms, 1.0ms, 1.5ms
- operating voltage: 24v to 120v (2 kw); 48v to 240v (4 kw)
- output current: 5amp to 20amp
- monitors for input voltage, output current, shut-off ramp, tx loop continuity, instrument temperature, and overload output current
- automatic shut-off for open loop, high instrument temperature, and overload
- fuse and circuit breaker overload protection
- three sync modes: 1) built-in radio and antenna
  2) cable sync output for direct wire link to receiver or remote radio
  3) connectors for the crystal clock

Receiver

The receivers measure the rate of decay of the secondary field across several time channels. Three types of receivers are available with the PEM system. Analog Rx, Datalogger Rx, and Digital Rx. The Analog Rx and Datalogger Rx read eight fixed time channels while the Digital Rx, under software control, offers a variety of channel configurations. The Digital Rx has been used in the field for contract surveys since 1987.

Specifications: Digital PEM Receiver

- operating temperature -40°C to 50°C
- unit weight 15kg; shipping weight 25.5kg

Hardware:

- 24v rechargeable gel cell battery supply
- two CMOS microprocessors (NSC800)
- alphanumeric keyboard

- 2 x 16 character cold weather display
- 16 x 40 character (256 x 128 pixels graphic) display
- 64k byte solid state memory storage
- cable, radio or crystal clock synchronization
- RS-232 serial I/O

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

Menu driven operating software system offering the following functions:
- controls channel positions, channel widths, and number of channels using a basic slice of 4.5µsec
- time bases: 10.89ms, 21.79ms, 8.88ms, 16.66ms, 33.33ms, 10ms, 20ms, 50ms and 150ms
- ramp time selectable in 4.5µsec steps
- sample stacking from 512 to 65536
- scrolling routines for viewing data
- graphic display of decay curve and profile with various plotting options
- routines for memory management
- control of data transmission
- provides information on instrument and operating status

Sync Equipment

There are three modes of synchronization available; radio, cable, and crystal clock. The radio sync signal can be transmitted through a booster antenna from either the PEM Transmitter internal radio or through a Remote Radio.

Specifications: Sync Cable
- 2 conductor, 24awg, teflon coated
- approx. 900m per aluminum spool with connectors

Specifications: Remote Radio
- operating frequency 27.12mhz
- 12v rechargeable gel cell battery supply
- fuse protection
- sync wire link to transmitter
- coaxial link to booster antenna

Specifications: Booster Antenna
- 8m, 4 section aluminum mast
- guide rope support
- ¼ wave CB fiberglass antenna
- range up to 2km
- coaxial connection to transmitter or remote radio

Specification: Crystal Clocks
- heat stabilized crystals
- 24v rechargeable gel cell battery supply
- rx unit can be separate or housed in the receiver
- outlet for external supplementary battery supply

Surface PEM Receive Coil

The Surface PEM Receive Coil picks up the EM field to be measured by the receiver. The coil is mounted on a tripod that can be positioned to take readings of any component of the field.

Specifications: Surface PEM Receive Coil
- ferrite core antenna
- built-in preamplifier
- VLF filter
- 10khz bandwidth
- 23:1 amplifier gain
- two 9v transistor battery supply
- tripod adjustable to all planes

Borehole PEM Z Component Probe

The Z component probe measures the axial component of the EM field. The Z component data is not affected

by probe rotation so no correction are required.

Specifications: Borehole PEM Z Component Probe

- ferrite core
- built-in preamplifier
- dimensions: length - 1.6m; dia - 3.02cm (3.15cm for high pressure tested probes)
- internal rechargeable ni-cad battery supply
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths 2800m

Borehole PEM XY Component Probe

The XY probe measures two orthogonal components of the EM field perpendicular to the axis of the hole. Correction for probe rotation can be achieved by two methods. The standard approach is to use the measurement of the primary field from the "PP" channel, apply a "cleaning" algorithm to remove most of the secondary field contamination, and compare this to theoretical values. The amount of probe rotation is then calculated, and the correction can be made. The second method involves the use of an optional orientation device for the X-Y probe that uses dipmeters to calculate the probe rotation.

Specifications: Borehole PEM XY Component Probe

- ferrite core
- built-in preamplifier
- dimensions: length - 2.01m; dia - 3.02cm
- internal rechargeable ni-cad battery supply
- selection of X or Y coils by means of a swich box on surface or automatic switching with Digital receiver
- replaceable heat shrink tubing for abrasion protection
- pressure tested for depths to 2800m

Orientation Device

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

Specifications: Orientation Device

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

Borehole Equipment

To lower the probe down a drill hole requires a cable and spool, winch assembly frame and cable counter. Borehole surveys also require equipment to "dummy probe" the hole before doing the survey.

Specifications: Borehole Cable

- two conductor shielded cable
- kevlar strengthened
- currently 1500m but will shortly have cabability of surveying to depths of 3000m.

Specifications: Slip Ring

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

Specifications: Borehole Counter

- attaches to the drill hole casing
- calibrated in meters

Specifications: Dummy Probe and Cable

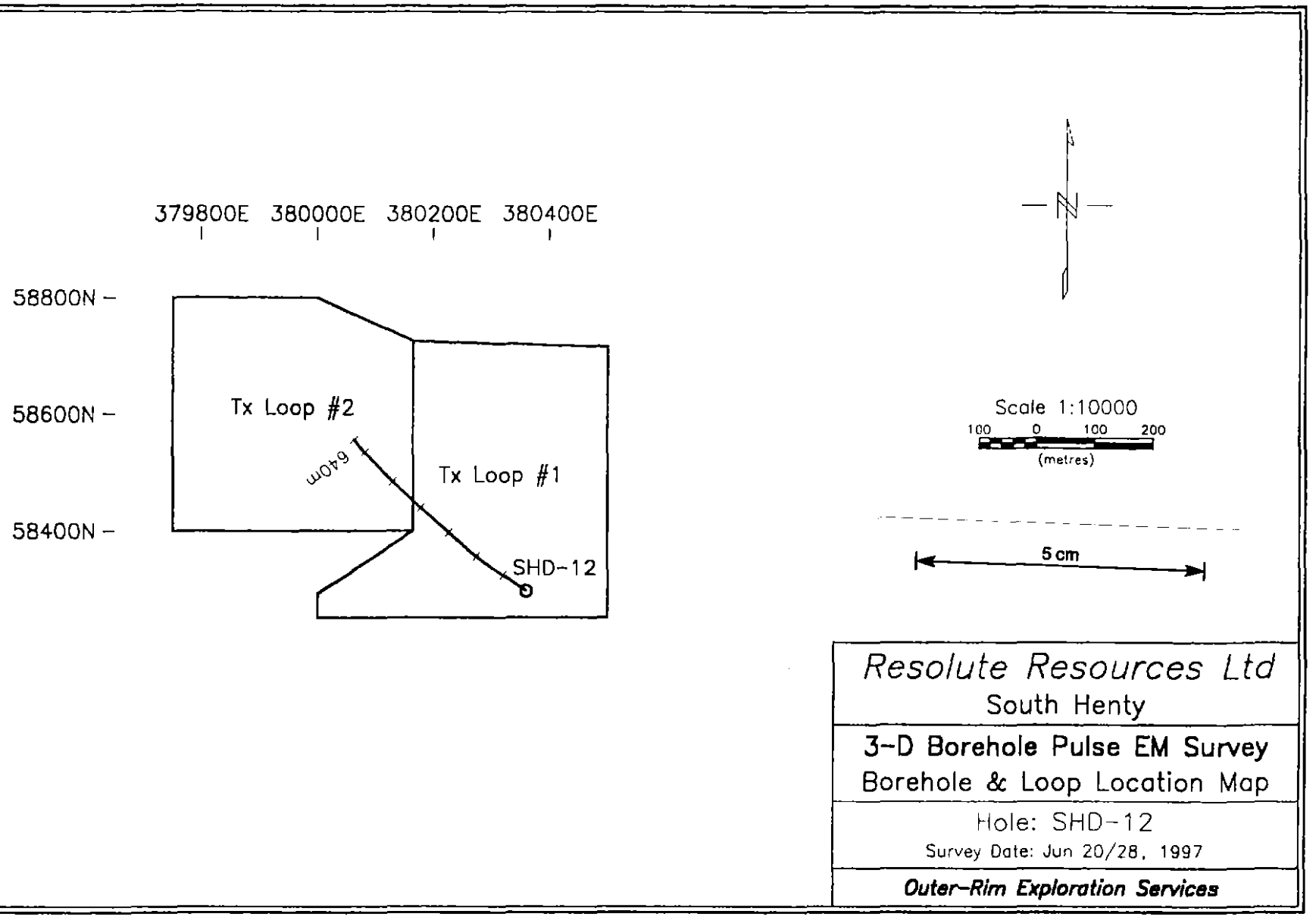
- solid steel or steel pipe
- same dimensions as borehole probe
- shear pin connection to dummy cable

390095

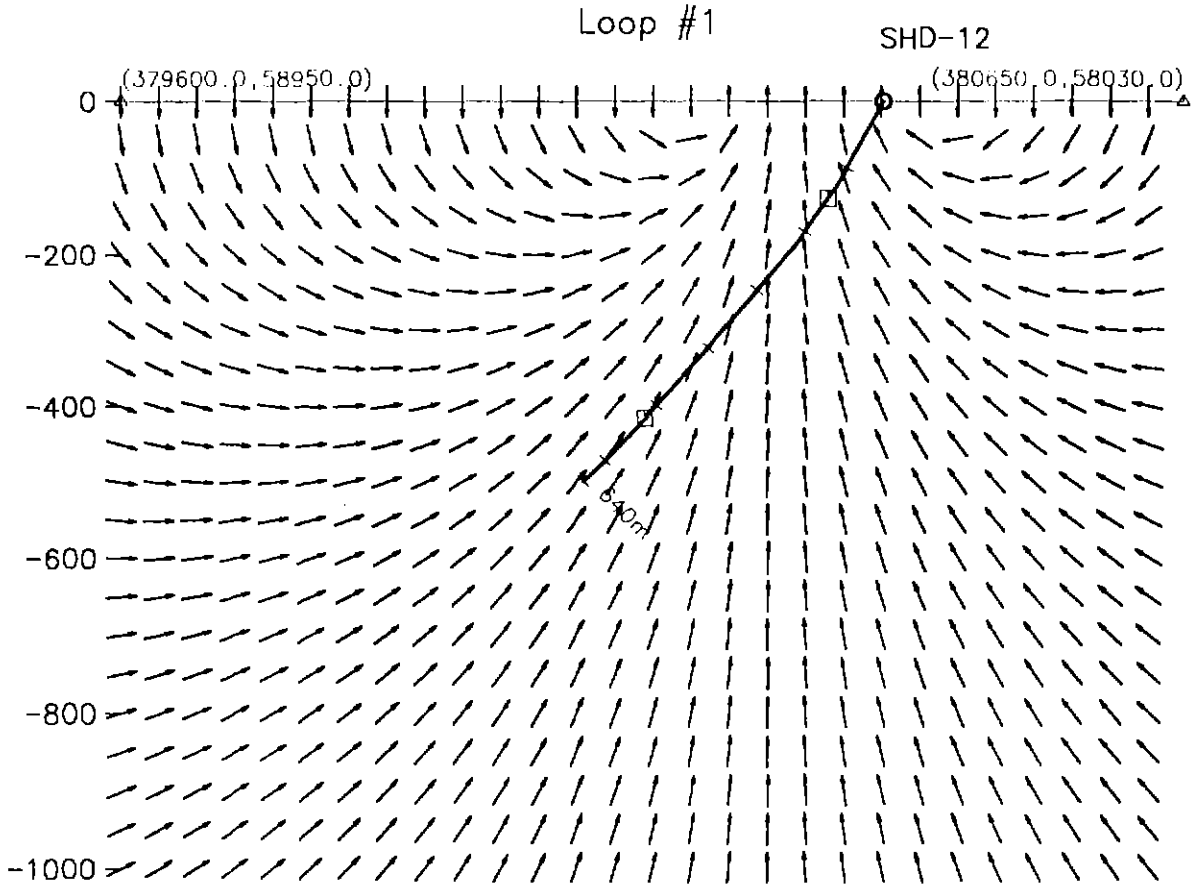
PLOTS

CONTENTS

CONTENTS


379800E
380000E
380200E
380400E
58800N
58600N
58400N
Tx Loop #2
Tx Loop #1
640m
SHD-12
N
Scale 1:10000
100 0 100 200
(metres)
5 cm
Resolute Resources Ltd
South Henty
3-D Borehole Pulse EM Survey
Borehole & Loop Location Map
Hole: SHD-12
Survey Date: Jun 20/28, 1997
Outer-Rim Exploration Services

390098



Scale 1:10000

250 0

(metres)

5 cm

Resolute Resources Ltd

South Henty

3-D Borehole Pulse EM Survey

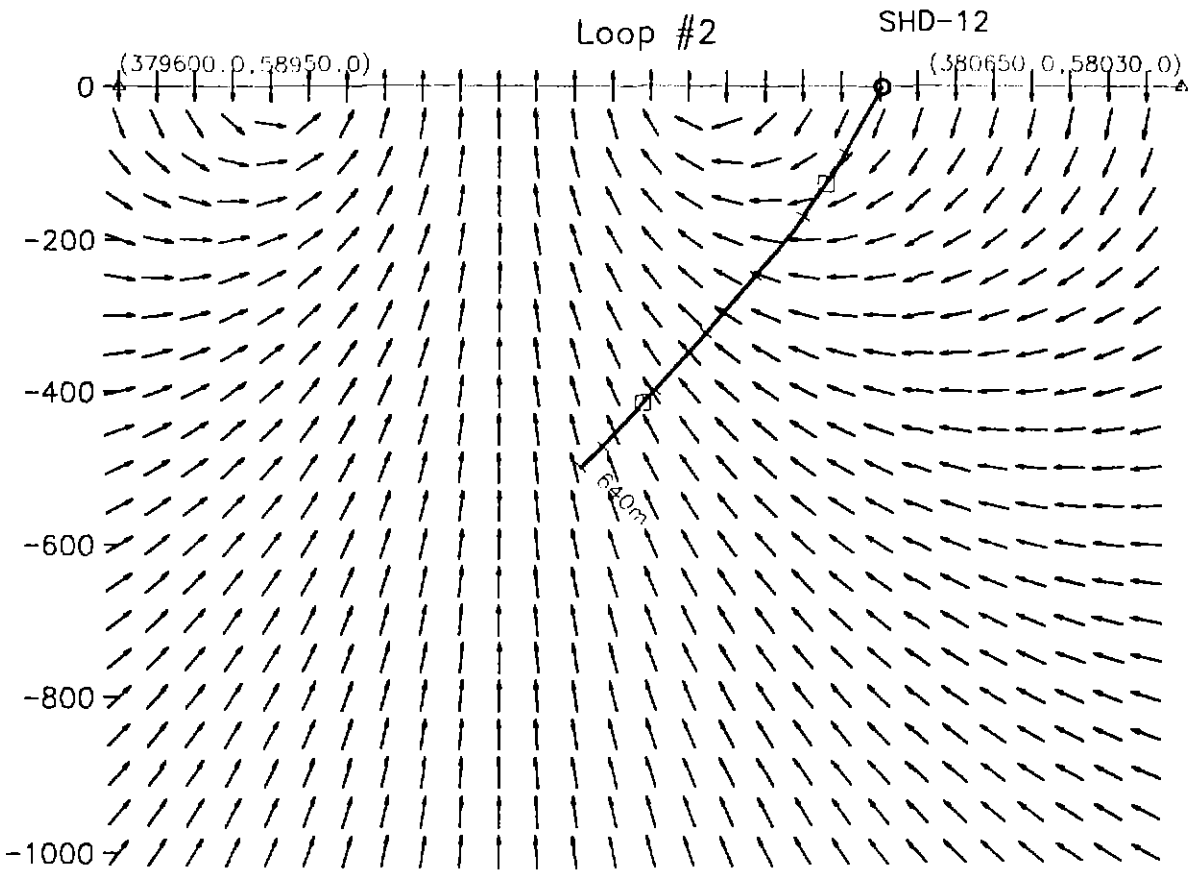
Hole Section with Primary Field

Hole: SHD-12

Survey Date: Jun 21/24, 1997

Outer-Rim Exploration Services

390099



Scale 1:10000

250 0

(metres)

5 cm

Resolute Resources Ltd

South Henty

3-D Borehole Pulse EM Survey

Hole Section with Primary Field

Hole: SHD-12

Survey Date: Jun 20, 1997

Outer-Rim Exploration Services

390100

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Resources Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 21/24, 1997	File name	: SHD12Z1.PEM
Time Base	: 10.00 ms	# Readings	: 61
Ramp Time	: 0.50 ms	Stn Units	: Metric
# Channels	: 17	Coil Area	: 6500 sq m
Sync Type	: Crystal-MASTER	Polarity	: +
Loop Size	: 500m X 400m	Receiver	: Digital #109
Current	: 20 Amps	Operator	: Paul Nielsen

Loop Coordinates (X,Y,Z)

1. 380165m, 58725m, 0m	2. 380165m, 58400m, 0m
3. 380000m, 58290m, 0m	4. 380000m, 58250m, 0m
5. 380500m, 58250m, 0m	6. 380500m, 58715m, 0m

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

1. 380360m, 58295m, 0m	2. 304.5deg, 61deg, 20m
3. 304deg, 61deg, 45m	4. 305deg, 59.6deg, 65m
5. 307deg, 55deg, 90m	6. 312deg, 50deg, 95m
7. 311deg, 49.4deg, 95m	8. 312.5deg, 48.1deg, 100m
9. 317.3deg, 46.6deg, 100m	10. 321deg, 44.8deg, 30m

Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	50	63	56	2	63	86	74
3	86	112	99	4	112	153	133	5	153	203	178
6	203	270	236	7	270	360	315	8	360	482	421
9	482	639	560	10	639	850	745	11	850	1129	990
12	1129	1498	1314	13	1498	1993	1746	14	1993	2646	2320
15	2646	3514	3080	16	3514	4666	4090	17	4666	6192	5429

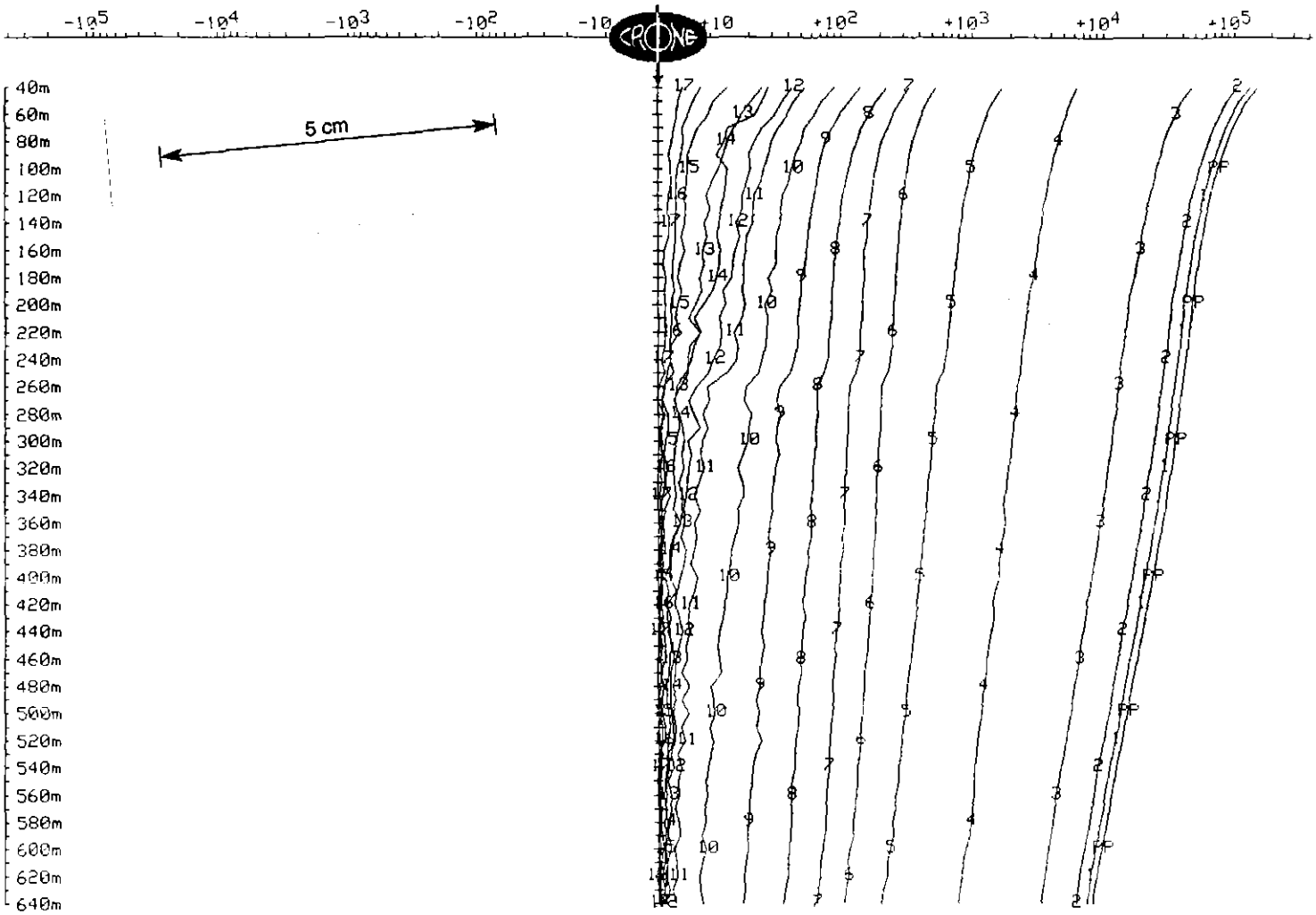
390102

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 21/24, 1997	File name	: SHD12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000



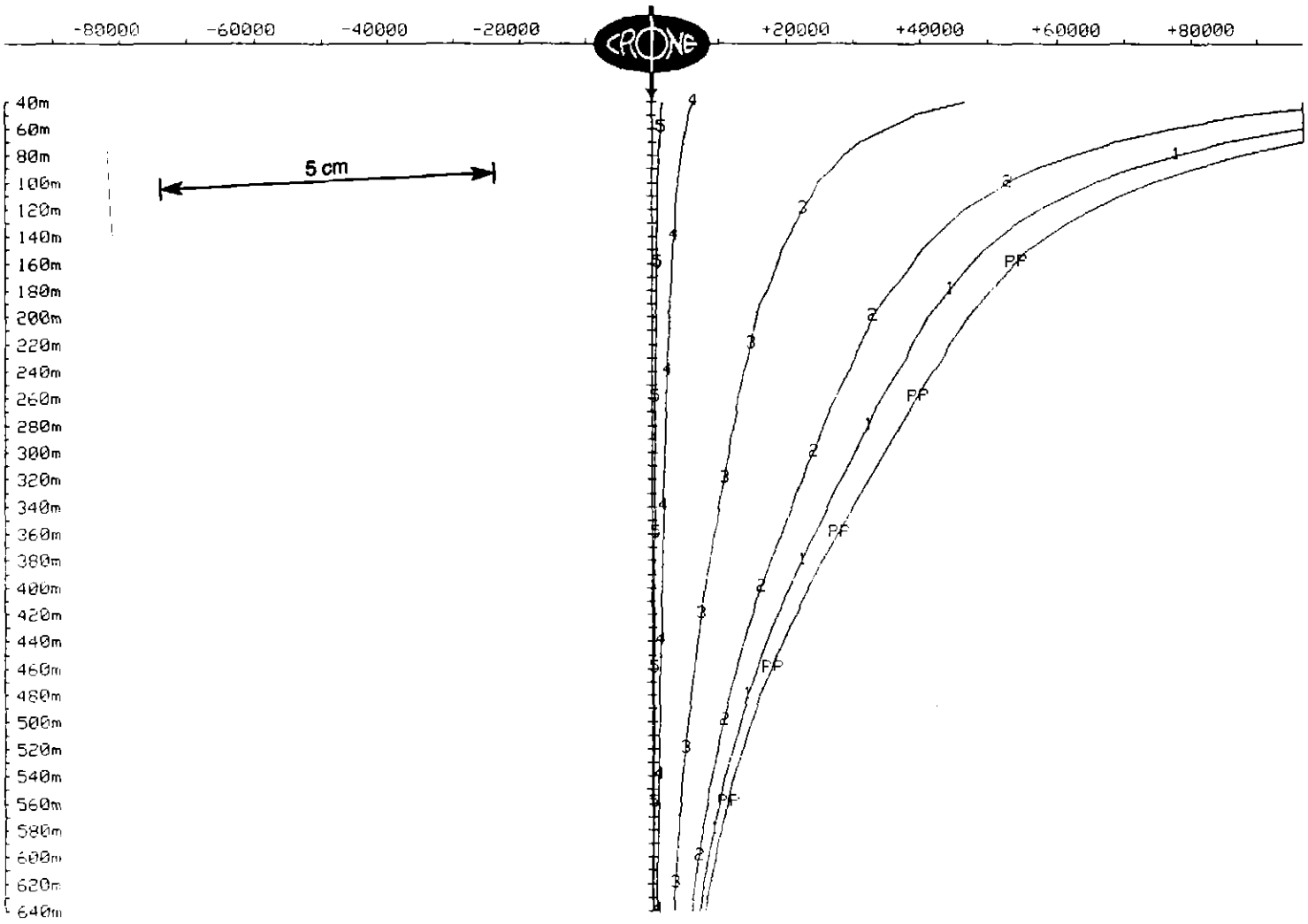
390103

OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 21/24, 1997	File name	: SHD12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 10000 nT/s

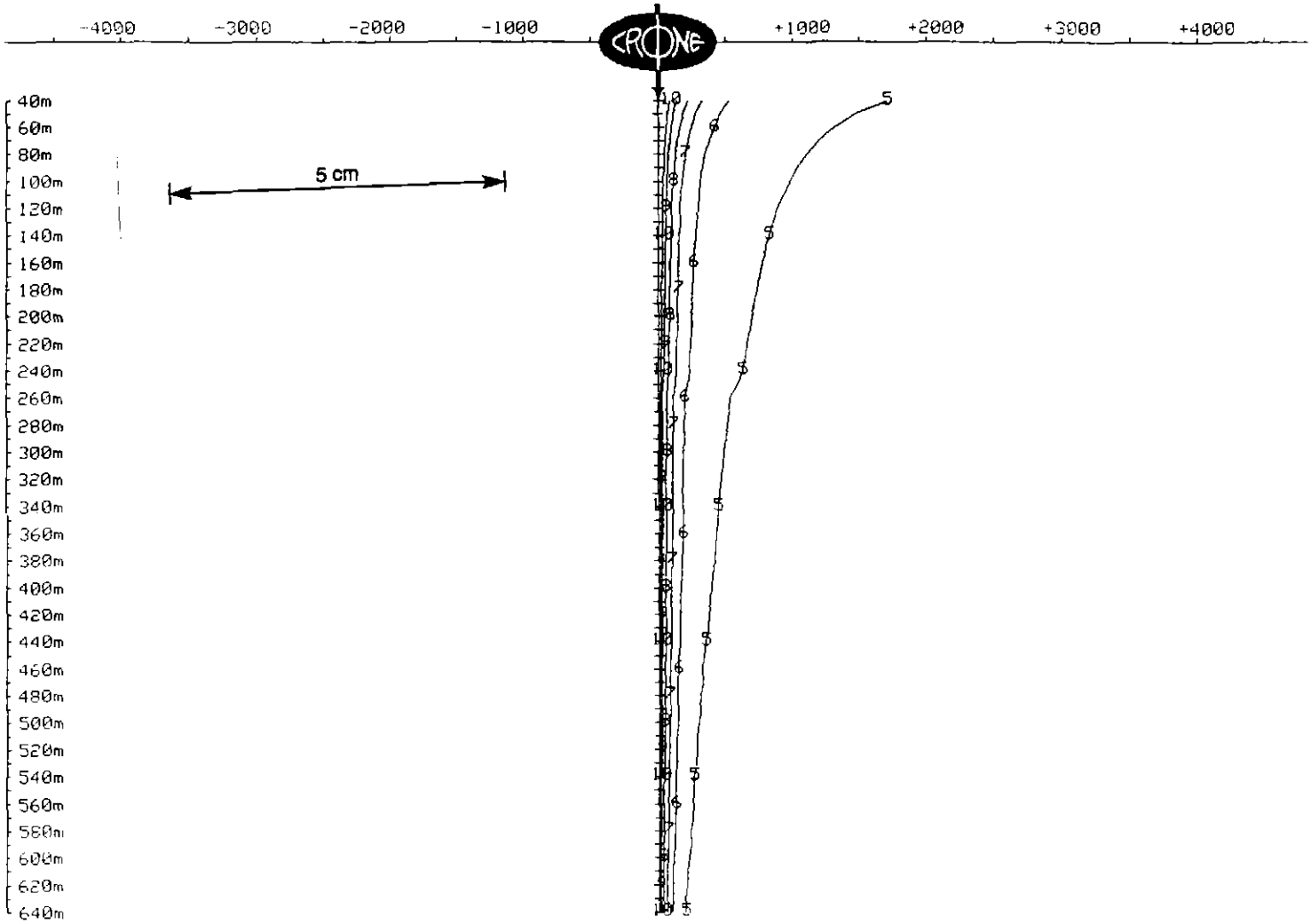


OUTER-RIM EXPLORATION SERVICES
Operating Crone PEM System
BOREHOLE PEM

Client	: Resolute Samantha Ltd	Hole	: SHD-12
Grid	: South Henty	Tx Loop	: #1
Date	: Jun 21/24, 1997	File name	: SHD12Z1.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:5000 Unit Scale: 1cm = 500 nT/s



390105

OUTER-RIM EXPLORATION SERVICES

ACN 059 220 192

Geophysical Contracting Services

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Email: oreserv@ozemail.com.au

Volume 1 of 2

Client	:	Resolute Resources Ltd.
Prospect	:	South Henty.
Area	:	Zeehan, Tas.
Survey	:	Borehole PEM Survey
Survey Period	:	20th June to 7th August 1997.
Operator	:	Adrian Page.

DAILY LOG: Resolute Resources Ltd. - June/August, 1997

DATE	COMMENTS	CHARGES
18-6-97	Boarded the boat for Tasmania, arriving the next morning at 9.00am.	
	1 Mob. day	N/C
19-6-97	Drove from Devonport, where we made landfall at 9.00am, to Zeehan where we spent the rest of the day chasing up people. That afternoon I got in contact with Grant and saw him that night to organised the next day's surveys.	
	1 Mob. day	N/C
20-6-97	Set out loop #2 around Newton Dam at South Henty and dummied SHD-12 to 640m. James helped with the first loop as Paul (another of their field assistants) cut the last line for loop #1. We then set up and read the Z component on loop #2 while James and Paul laid out loop #1 for us. We completed the Z survey, noticing a broad off-hole through out all the channels. We took at least two readings per station. We then started reading the X-Y components.	
	SURVEY PARAMETERS:	
	Loop#2 :400 x 400m 379750E, 58800N; 379750E, 58400N; 380000E, 58400N; 380150E, 58450N; 380150E, 58750N; 380000E, 58800N;	
	Current :20 Amps Time Base :10.0 ms Ramp Time :0.5 ms Sync :Clock	
	Hole No. :SHD-12 380370E; 58335N Depth :640m Channels :17 Components :Z	
	1 Survey day	$1250.00
	1 Field Assist. day	$ 180.00
21-6-97	Completed reading the X-Y on loop #2 but noticed some odd decays on the way down. Started reading the Z component on loop #1, reading to 250m for the day. After returning to the motel to plot the data, we found there were some regular spikes in the X-Y data that were too regular to be noise. It appeared to be due to a dirty slip ring so a back up was requested from Townsville.	

SURVEY PARAMETERS:

Loop#2 :400 x 400m
379750E, 58800N; 379750E, 58400N;
380000E, 58400N; 380150E, 58450N;
380150E, 58750N; 380000E, 58800N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :640m
Channels :17
Components :Z

Loop#1 :500 x 400m
380150E, 58750N; 380150E, 58450N;
380000E, 58370N; 380000E, 58300N;
380500E, 58300N; 380500E, 58750N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :250m
Channels :17
Components :Z

1/2 Survey day	$ 625.00
1/2 Field Assist. day	$ 90.00
1/2 Survey to be repeated	N/C

22-6-97 Could not survey as we were waiting for the replacement slip ring.

1 Breakdown day	N/C

23-6-97 Went to Burnie to pick up the replacement slip ring.

1 Breakdown day	N/C

24-6-97 Surveyed the rest of the Z component on loop #1, then surveyed the X-Y. But on returning and rotating the data it was noticed that the problem was still apparent.

SURVEY PARAMETERS:

Loop#1 :500 x 400m
380150E, 58750N; 380150E, 58450N;
380000E, 58370N; 380000E, 58300N;

380500E, 58300N; 380500E, 58750N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :640m
Channels :17
Components :Z,X,Y

1/2 Survey day	$ 625.00
1/2 Field Assist. day	$ 90.00
1/2 Breakdown day	N/C

25-6-97 Waited for the replacement X-Y probe to arrive.

1 Breakdown day	N/C

26-6-97 While waiting for the X-Y probe, we went out to site and ran a few tests. On return to the motel, we found the replacement X-Y probe and returned to the field. We began the X-Y surveys on loop #1 again, surveying to 400m for the day. The data this time was good.

SURVEY PARAMETERS:

Loop#1 :500 x 400m
380150E, 58750N; 380150E, 58450N;
380000E, 58370N; 380000E, 58300N;
380500E, 58300N; 380500E, 58750N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :400m
Channels :17
Components :X,Y

1/2 Breakdown day	N/C
1/2 Survey day	$ 625.00
1/2 Field Assist. day	$ 90.00

27-6-97 Completed the X-Y on hole SHD-12 for both loops #1 and #2 for the day, then started to pack up the loops. The loop and hole coordinates are only approximate at this stage - the client will provide more accurate coordinates and downhole survey information.

SURVEY PARAMETERS:

Loop#1 :500 x 400m
380150E, 58750N; 380150E, 58450N;
380000E, 58370N; 380000E, 58300N;
380500E, 58300N; 380500E, 58750N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :240m
Channels :17
Components :X,Y

Loop#2 :400 x 400m
379750E, 58800N; 379750E, 58400N;
380000E, 58400N; 380150E, 58450N;
380150E, 58750N; 380000E, 58800N;
Current :20 Amps
Time Base :10.0 ms
Ramp Time :0.5 ms
Sync :Clock

Hole No. **:SHD-12**
380370E; 58335N
Depth :640m
Channels :17
Components :X,Y

1 Survey day	$1250.00
1 Field Assist. day	$ 180.00

28-6-97 Went back to Henty South and picked up both loops then drove to the next client.

1/2 Survey day	$ 625.00
1/2 Field Assist. day	$ 90.00

1-8-97 Saw Grant about the remaining surveys to be conducted at South Henty.

1 Office day	N/C

2-8-97 Went out to the site and dummied the hole. The dummy probe took some time to get down the hole, possibly due to grease, but we couldn't get past 860m (EOH at 1051m). We packed up and returned to Zeehan, but could not find Grant - we passed the message on to Jeremy that night.

1/2 Survey day	$ 625.00
1/2 Field Assist. day	$ 90.00

1/2 Office day N/C

3-8-97 Waited for the next client to be ready for us but as it turned out that night Grant got in touch with us about continuing the hole as far as we can get.

Standby day N/C

4-8-97 Dummied hole SHD-13 again, this time to 710m. As it was beyond the 600m cut off depth we set up the loop and began surveys. Paul and James began to lay out the next loop using the boat. Finished that night at 780m.

SURVEY PARAMETERS:

Loop 13E	:400 x 400m
	381200E; 359200N: 381200E; 358800N
	381600E; 358800N: 381600E; 359200N
Current	:25 Amps
Time Base	:20.0 ms
Ramp Time	:0.5 ms
Sync	:Cable
Hole No.	**:SHD-13**
	381325E; 358920N
Depth	:780m
Channels	:20
Components	:X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

5-8-97 Completed the Z and X-Y on loop 13E, as well as setting out the west loop over the lake for the day. Managed to get right to the bottom of the hole.

SURVEY PARAMETERS:

Loop 13E	:400 x 400m
	381200E; 359200N: 381200E; 358800N
	381600E; 358800N: 381600E; 359200N
Current	:25 Amps
Time Base	:20.0 ms
Ramp Time	:0.5 ms
Sync	:Cable
Hole No.	**:SHD-13**
	381325E; 358920N
Depth	:1045m
Channels	:20
Components	:Z,X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

6-8-97 Surveyed Z,X,Y on the west loop, surveying the X-Y to 800m for the day. We also recovered the east loop. The wind was gale force blowing over the tent we used to shelter the transmitter. As a result, the tent was damaged and the transmitter shutdown. Fortunately it restarted OK and we continued the survey. The hole was blocked below 1018m. Surveyed the X-Y to 800m for the day.

SURVEY PARAMETERS:

Loop 13W :400 x 400m
380400E; 359200N: 380400E; 359000N
380500E; 358800N: 380900E; 358800N
380900E; 359200N
Current :25 Amps
Time Base :20.0 ms
Ramp Time :0.5 ms
Sync :Cable

Hole No. **:SHD-13**
381325E; 358920N
Depth :1018m
Channels :20
Components :Z,X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

7-8-97 Completed the X-Y, on the west loop, on SHD-13. We finished the hole by 11.45am, then packed up, taking until 3.00pm to get the loop in across the lake and through the thick scrub. Drove to Queenstown that night.

SURVEY PARAMETERS:

Loop 13W :400 x 400m
380400E; 359200N: 380400E; 359000N
380500E; 358800N: 380900E; 358800N
380900E; 359200N
Current :25 Amps
Time Base :20.0 ms
Ramp Time :0.5 ms
Sync :Cable

Hole No. **:SHD-13**
381325E; 358920N
Depth :218m
Channels :20
Components :X,Y

1 Survey day $1250.00
1 Field Assist. day $ 180.00

39011.

APPENDIX

CRONE PULSE EM SYSTEM

SYSTEM DESCRIPTION

The Crone Pulse EM system is a time domain electromagnetic method (TDEM) that utilizes an alternating pulsed primary current with a controlled shut-off and measures the rate of decay of the induced secondary field across a series of time windows during the off-time. The system uses a transmit loop of any size or shape. A portable power source feeds a transmitter which provides a precise current waveform through the loop. The receiver apparatus is moved along surface lines or down boreholes.

The transmitter cycle consists of slowly increasing the current over a few milliseconds, a constant current, abrupt linear termination of the current, and finally zero current for a selected length of time in milliseconds. The EMF created by the shutting-off of the current induces eddy currents in nearby conductive material thus setting-up a secondary magnetic field. When the primary field is terminated, this magnetic field will decay with time. The amplitude of the secondary field and the decay rate are dependent on the quality and size of the conductor. The receiver, which is synchronized to the off-time of the transmitter, measures this transient magnetic field where it cuts the surface coil or borehole probe. These readings are across fixed time windows or "channels".

SYSTEM TERMINOLOGY

Ramp Time

"Ramp time" refers to the controlled shut-off of the transmitter current. Three ramp times are selectable by the operator; 0.5ms, 1.0ms, and 1.5ms. By controlling the shut-off rather than having it depend on the loop size and current ensures that the same waveform is maintained for different loops so data can be properly compared.

The 1.5ms ramp is the normally used setting for good conductors. It keeps the early channel responses on scale and decreases the chance of overload. The faster ramp times of 1.0ms and 0.5ms will enhance the early time responses. This can be useful for weak conductors when data from the higher end of the frequency spectrum is desired.

Time Base

Time base is the length of time the transmitter current is off (it includes the ramp time). This also equals the on time of the current. Eight time bases are selectable by the operator. They include the original time bases used in the analog system as well as time bases to eliminate the effects of powerline interference. The eight time bases are as follows: compatible to analog Rx: 10.89ms, 21.79ms; 60hz powerline noise reduction: 8.33ms, 16.66ms, & 33.33ms; 50hz powerline noise reduction: 10.00ms, 20.00ms, 50.00ms and 150ms.

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

Zero Time Set

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

Receiver Channels

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

PP Channel

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

Synchronization

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

390114

Appendix F

Petrology - Dr A Crawford

SOUTH HENTY LICENCE: QUARTZ FELDSPAR PORPHYRITES
Summary based on Petrographic and Geochemical Data

Background

Grant McDonald provided me with seven drillcore samples and one outcrop sample of quartz feldspar porphyries and one 'basaltic clast' for thin sectioning and summary petrographic descriptions. Also provided were comprehensive background geological information (including a geological map showing drillhole locations), some wholerock geochemical data and pertinent questions about these rocks. These are addressed below, and the thin section descriptions are appended.

Petrographic Summary

With the exception of outcrop sample 15 (a quartz+plag-phyric crystal tuff) and the apparently intrusive or slowly-cooled sample 386255 from SHD 2, the petrographic data, including the descriptions of Aberfoyle samples 623044 (HA8 at 180.0m) and 623039 (HA7 at 200.1m) support the notion that all the samples in this set are from the same lithostratigraphic unit. With expected minor modal variations, this unit is a quartz+plagioclase ±biotite±hornblende-phyric rhyodacitic lava or very shallow sill. The very fine-grained, formerly glassy groundmass probably precludes a deeper intrusive origin for this unit, particularly when the groundmass textural difference of the convincingly intrusive-looking rock 386255 is taken into account.

Q1: Are the felsic rocks in SHD 11 and in SHD 2 likely to be from the same lithostratigraphic unit.

Although apparently intrusive sample 386255 from SHD 2 is little different (apart from the coarser-grained holocrystalline groundmass) petrographically from the other rhyolitic lavas in this set, wholerock chemical data show a significant difference. This is obvious in major element compositions (rocks from SHD 2 have higher TiO_2, lower P_2O_5, and generally lower SiO2 contents), and immobile element ratios (Ti/Zr and P_2O_5/TiO_2 Table 1), which serves to illustrate the usefulness of geochemical data in assessing altered felsic volcanic and shallow intrusive rocks.

SAMPLE	386251	386252	386253	386254	386255	386256	386257
	SHD11	SHD11	SHD11	SHD11	SHD2	SHD2	SHD2
	8.5-9m	24.3m	39.4m	54.9m	75.5m	164.5m	252.5m
SiO2	66.7	64.9	65.9	64	64.3	63.6	64.1
TiO2	0.39	0.37	0.37	0.37	0.47	0.5	0.46
Al2O3	15.6	16.8	15.9	17	16.2	16	15.5
Fe2O3	6.55	3.85	4.13	4.44	7.39	7.05	6.78
MnO	0.54	0.53	0.55	0.56	0.16	0.17	0.19
MgO	0.74	0.69	0.57	0.52	0.95	0.85	3.54
CaO	0.32	2.1	1.59	1.86	3.05	4.58	2.85
Na2O	1.34	0.95	0.49	0.43	4.24	3.85	5.2
K2O	7.6	9.66	10.2	10.6	2.57	3.18	1.1
P2O5	0.18	0.19	0.18	0.21	0.15	0.14	0.13
LOI	2.5	2.8	2.53	3.05	3.51	4.03	4.12
Zr	162	161	162	174	131	123	124
Ti/Zr	14.4	13.8	13.7	12.7	21.5	24.3	22.2

On the basis of the data above, I would suggest that the samples from SHD 11 definitely cannot be directly correlated with those in SHD 2. It cannot be ruled out, however, that the SHD 2 dacitic rocks are less fractionated products of the same parental magma that evolved (from these dacites) eventually to a rhyodacitic composition. Only sophisticated isotopic data could test this possibility. However, considering the very similar compositional fields of these rocks on Figure 1 with respect to the entire spectrum of MRV compositions, and the striking similarity of the REE patterns (Fig. 2a and b) of representative averages of these two units, I would strongly suggest that the rhyodacites in SHD 11 are related to the dacites in SHD 2 by fractional crystallization, and are derived from the same parental magma.

Q2: Significance of the alteration.

Hydrothermal alteration is variable, but as a generalisation, it appears that an early weak quartz-chlorite±pyrite alteration, possibly the background regional propylitic alteration, was overprinted by a sericite-quartz ± Kspar(?) ± pyrite alteration assemblage. A point worth noting about the SHD 11 rhyodacites is that their remarkably high K2O contents and relatively low LOI values suggest that at least some of the K2O may be located in very fine-grained Kspar intergrown with quartz and sericite in the altered

presence of Kspar could be tested by staining or XRD analysis; however we can be certain that if Kspar is present, then it is an alteration phase, and not primary. Working within a porphyry-type model, this pronounded Kspar alteration, especially if it coincides with the 'low magnetic alteration mushroom' you have defined, suggests proximity to an intrusive source of the K-rich fluids, and has obvious implications for exploration. A chat with Steve Hunns on the Lake Selina 'alteration zone looking for an orebody' might be productive.

Given that it is very difficult to pick the inferred Kspar alteration petrographically in these particular rocks, it is clearly misleading to judge alteration style and intensity based solely on intensity of sericite overprinting.

Q3: Affinities of these felsic rocks

I fiddled around a bit with a few simple plots to try to get an idea whether the South Henty felsics in question could be simply correlated with other regional felsic units. On a plot of TiO2 vs Zr (Fig. 1), a surprising separation exists between those rocks believed to involve crustal melting or strong crustal contamination (CVC Group 1, concordant dacite-rhyolite sills in the former Western Sequence between Boco and Queenstown, Murchison Granite), and those more likely to be direct fractionation products of mantle derived magmas (Que Footwall Andesite felsic members, CVC Group 2 Anthony Rd andesite equivalents). The SHD 2 and SHD 11 rocks almost bracket the CVC Group 2 hornblende andesites, and I would suggest are thus both related to the Anthony Rd andesites.

SAMPLE NUMBER: 15, near HA8
SUMMARY DESCRIPTION:
This sample is a strongly hydrothermally altered felsic volcaniclastic rock, probably originally a quartz+plagioclase-phyric crystal vitric tuff. Quartz is present as abundant (~15 modal%) highly angular crystal fragments, some with one margin quite rounded (indicating an origin via fragmentation of rounded phenocrysts during eruption?); these occur scattered through the slide, but also concentrated in occasional discontinuous bands in which the modal abundance of quartz is >30 modal%. Former plagioclase phenocrysts were much less abundant (<5 modal%) and have been thoroughly destroyed by intense silica-sericite-pyrite alteration, and are mainly evident as stretched silica±fine grained pyrite aggregates. The groundmass of this rock was probably glassy originally, although the strong alteration has led to total textural reconstitution and no shard textures are present. The groundmass is rather patchy, presenting an almost 'false-breccia' texture on a fine scale, with common irregular patches of secondary quartz, variably intense development of a sericite mesh, and common fine-grained pyrite. I am not at all convinced that this is a formerly pumiceous rock. This is a strongly silica-sericite±pyrite-altered formerly quartz+plag-phyric crystal vitric tuff.

SAMPLE NUMBER: 384091 YNC 10 226.6m
SUMMARY DESCRIPTION:
This sample is a petrographically distinctive, foliated and altered formerly glassy rhyolitic lava with abundant (~10 modal%) large quartz phenocrysts, many with former rounded melt inclusions. Most quartz phenocrysts have been strained, fragmented and partially disaggregated, and they show strong subgrain recrystallization and common calcite replacement along fractures. Former plagioclase phenocrysts were almost certainly as abundant as quartz, but are obliterated by the strong alteration, and are usually evident as stretched sericite±chlorite intergrowths. A few former mafic phenocrysts are evident; several associated with common tiny zircon crystals and now dominated by chlorite and calcite were probably biotite, but at least one unambiguous former hornblende shape is preserved, with a chlorite core marked out by a rim of fine-grained magnetite. The groundmass appears to have been glass that devitrified to a quartzo-feldspathic intergrowth before being strongly chlorite-quartz hydrothermally altered. Overprinting the latter assemblage is an intense foliation-related sericite alteration which has broken the silica-chlorite groundmass into streaky, dark fine-grained domains in a paler sericite-dominated matrix; this is best evident in hand specimens of the core.

This is a quartz+plagioclase±biotite±hornblende-phyric rhyolitic lava that has suffered silica-chlorite and subsequent sericite-silica hydrothermal alteration.

SAMPLE NUMBER: 384090 YNC 10 187.4m
SUMMARY DESCRIPTION:
This sample is a strongly plagioclase-phyric dacitic lava or shallow intrusive with subordinate quartz phenocrysts. Albitized plagioclase phenocrysts (~20 modal%) to 2mm long show minor sericite alteration, and often occur in multi-crystal clots. Quartz phenocrysts are larger on average than plagioclase, and are broken and strained, with chloritized melt inclusions. A few mm-sized former biotite phenocrysts are replaced by green metamorphic biotite and chlorite, and common aggregates of opaques. Small zircon crystals are quite common. The groundmass of this sample was either an originally very fine-grained quartzo-feldspathic material, or glass that subsequently devitrified to the same. It is quite strongly chloritized, with minor disseminated pyrite, and is riddled by trains and patches of very fine-grained hematite evident in the hand specimen.

This sample is apparently from the same flow unit as the preceding sample from ~39m deeper in the same hole. The intense and pervasive sericite-quartz alteration of the deeper sample precludes confident correlation, but it is true that both samples were certainly very similar originally. Furthermore, the shallower sample 384090 has significant silica-chlorite-hematite alteration, and in the deeper sample, this has been strongly overprinted by intense foliation-related sericite-silica alteration. This sericite-dominant alteration is probably related to the location of this sample close to the high-permeability base of the flow/sill. Despite the big difference in K2O contents, Ti/Zr values of these two samples are almost identical within analytical error (13.2 and 13.8).

SAMPLE NUMBER: 384038 HA8 197.3m
SUMMARY DESCRIPTION:
This sample is a quite strongly quartz-phyric rhyolitic lava in which plagioclase phenocrysts were definitely less abundant (~5 modal%) and smaller (mainly <1mm long) than the larger (1-4mm across) quartz phenocrysts (~8 modal%). The latter are resorbed and rounded crystals that are strained and fractured, and contained abundant rounded recrystallized melt inclusions. Former plagioclase phenocrysts are totally replaced by sericite, or sericite and quartz. There are a few small former mafic phenocrysts, almost certainly biotite, replaced by quartz, sericite and fine-grained opaques. The groundmass of this sample was glassy, and altered to a very even-textured and fine-grained quartzo-feldspathic intergrowth (some Kspar?). This has fractured and been overprinted by a moderately well-developed sericite-quartz±pyrite hydrothermal alteration assemblage in which pyrite occurs as disseminated tiny crystals and occasional trails of similar small crystals. I have no doubt that this sample is from the same stratigraphic unit as that represented by the two samples described above from YNC 10, 1500m further north. Despite the very high K2O contents of this sample (8.5%),Ti/Zr value is13.7, identical to values for the two

SAMPLE NUMBER: 384039 HA8 204.4m
SUMMARY DESCRIPTION:
This sample is petrographically very similar to the previous slide from the same hole, although the intensity of the hydrothermal alteration is slightly less than the rock from 197.3m in this hole. The rock is a quartz+plagioclase-phyric rhyolitic lava with large, rounded and strained quartz phenocrysts (~5 modal%) with abundant round recrystallized melt inclusions, and subordinate sericite-altered smaller plagioclase phenocrysts. A number of euhedral small former biotite phenocrysts are also evident, now replaced chlorite and sericite with abundant opaques in the altered rims. The formerly glassy groundmass is very similar in appearance to that in the preceding sample, being a sericite-silica-altered extremely fine-grained quartzo-feldspathic intergrowth, with disseminated very fine-grained pyrite (less than in 384038). I have no hesitation assigning both this sample and 384038 to the same lithostratigraphic unit, and alteration zone. I note that despite coming from close to the logged base of this lithostratigraphic unit, unlike the basal sample from YNC10 which was strongly altered, this rock is not significantly different in alteration assemblage and intensity from the sample 7m higher in the same hole (384038). It has an identical Ti/Zr (13.9) to the sample 038 from higher in this hole, and to those samples described from YNC 10.

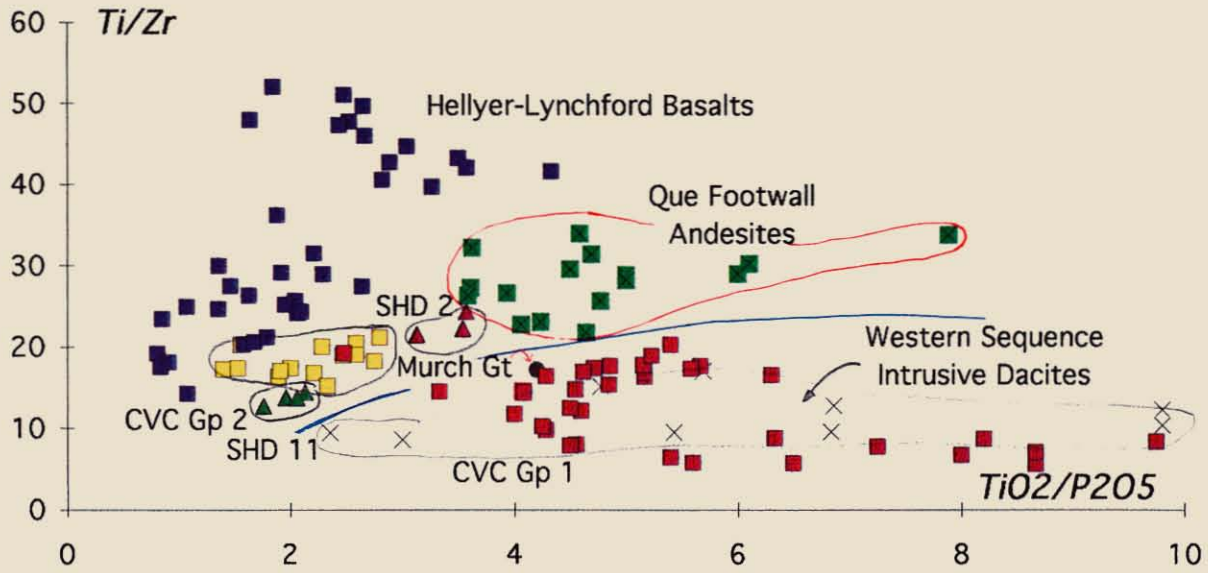
SAMPLE NUMBER: 386252 SHD 11 24.7m
SUMMARY DESCRIPTION:
This sample is a quartz+plagioclase±biotite-phyric rhyodacitic to rhyolitic lava not very different originally from the two lavas sampled for thin section in HA8. It consists of common (~10 modal%) albitized plagioclase phenocrysts usually <1-2mm across, most with a fine sericite speckling, and larger but slightly less abundant rounded, resorbed and fractured quartz phenocrysts. A number of small chlorite- or green metamorphic biotite-altered former biotite phenocrysts are also present. The groundmass is a very fine-grained dark quartzo-feldspathic intergrowth with abundant tiny fractures filled by sericite and quartz, or by common chlorite. The abundance of chlorite in this sample is greater than in the HA8 sample 197.3m. The hydrothermal alteration assemblage is silica-chlorite, cut by weak to moderate later sericite alteration. There is no pyrite associated with alteration of this sample. Despite being at least 25m from the logged top of this unit, and 30m from the base, it still shows a clear very fine-grained groundmass almost certainly after glass. There is probably no effective way to determine in thin section whether this unit is a flow, or a sill that burrowed through sediments just below the seafloor.

SAMPLE NUMBER: 386254 SHD11 55.1m
SUMMARY DESCRIPTION:
This sample is another quartz+plagioclase-phyric rhyolitic lava with occasional small former biotite and hornblende phenocrysts, and the sample is petrographically extremely similar to those from HD8, although less altered. Quartz and albitized plagioclase phenocrysts were probably present in subequal abundances, but quartz phenocrysts are up to 4mm long whereas plagioclases are mainly <1mm across and partially replaced by quartz, sericite and minor calcite. Some biotite and one narrow hornblende phenocryst appear to be unaltered, although most are replaced by pleochroic green chlorite or metamorphic biotite. The very fine-grained dark groundmass is composed of a fractured quartzo-feldspathic material, and shows weak sericite-quartz alteration. The sample lacks pyrite.

SAMPLE NUMBER: 386255 SHD2 75.5m
SUMMARY DESCRIPTION:
This sample is a rather coarsely plagioclase+quartz-phyric rhyolitic intrusive rock, or the core of a thick flow unit. Plagioclase phenocrysts are albitized, make up around 10 modal% of the rock, and are often compound crystals partially replaced by very fine-grained chlorite. Less abundant and larger quartz phenocrysts are strongly rounded and resorbed. There are no obvious former mafic phenocrysts in this rock, although apatite microphenocrysts are not uncommon. The major difference between this sample and the preceding seven is that the groundmass of this rock is unambiguously holocrystalline and composed of intergrown laths of albitized plagioclase, with interstitial quartz, abundant chlorite, and common fine-grained dirty brown epidote. The rock contains only rare, disseminated pyrite. The alteration of this sample is typically regional, rather than local hydrothermal in nature.

In terms of sericite alteration, this rock is certainly much less hydrothermally altered than the lavas described above, although this may reflect the more massive, impervious nature of the intrusive(?) unit relative to the formerly glassy lavas or upper parts of the intrusive unit.

SAMPLE NUMBER: 10
SUMMARY DESCRIPTION:
This sample is from a large dark green clast in the 'basalt' unit of the EL. In thin section it is clearly a strongly plagioclase-phyric andesitic lava that has suffered intense chloritic alteration. Small tabular plagioclase phenocrysts, mainly <1mm long, but commonly occurring multi-crystal clots, make up around 20 modal% of the rock. These are albitized, and partly overprinted by fine-grained sericite. A careful search showed that no former mafic silicate phenocrysts were present in this lava, although leucoxene-altered FeTi oxide microphenocrysts were not uncommon. The groundmass of this sample has been thoroughly overprinted by an intense hydrothermal chlorite-quartz±pyrite alteration assemblage with no primary textural preservation. This assemblage is obviously not present in the pale coloured host to this clast, indicating that the strong chlorite-quartz hydrothermal alteration of the clast occurred prior to its incorporation in the host volcaniclastic. I would have linked this sample with either the Que-Hellyer Footwall Andesites, or the more evolved Lynchford Basalts, but require geochemical data for a sensible attempt at correlation. It is more plagioclase-phyric and lacks the olivine and abundant cpx phenocrysts that characterise many of the Hellyer basalts.



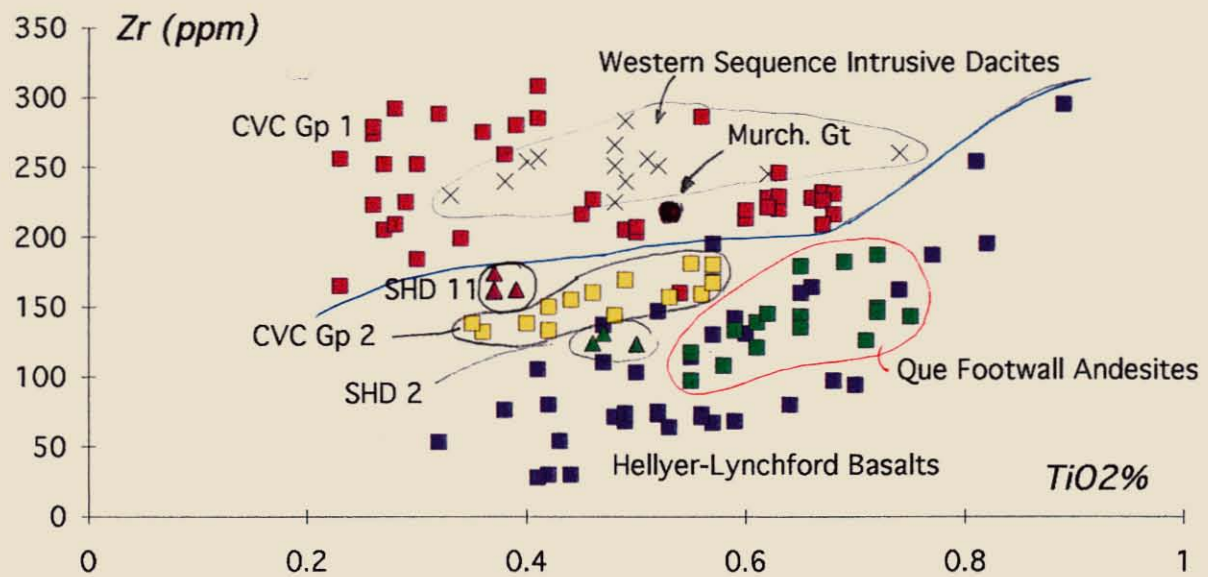


Figure 1: Variation diagrams showing fields for various lithostratigraphic units in the Mt Read Volcanics, and samples fromSHD 11 and SHD 2

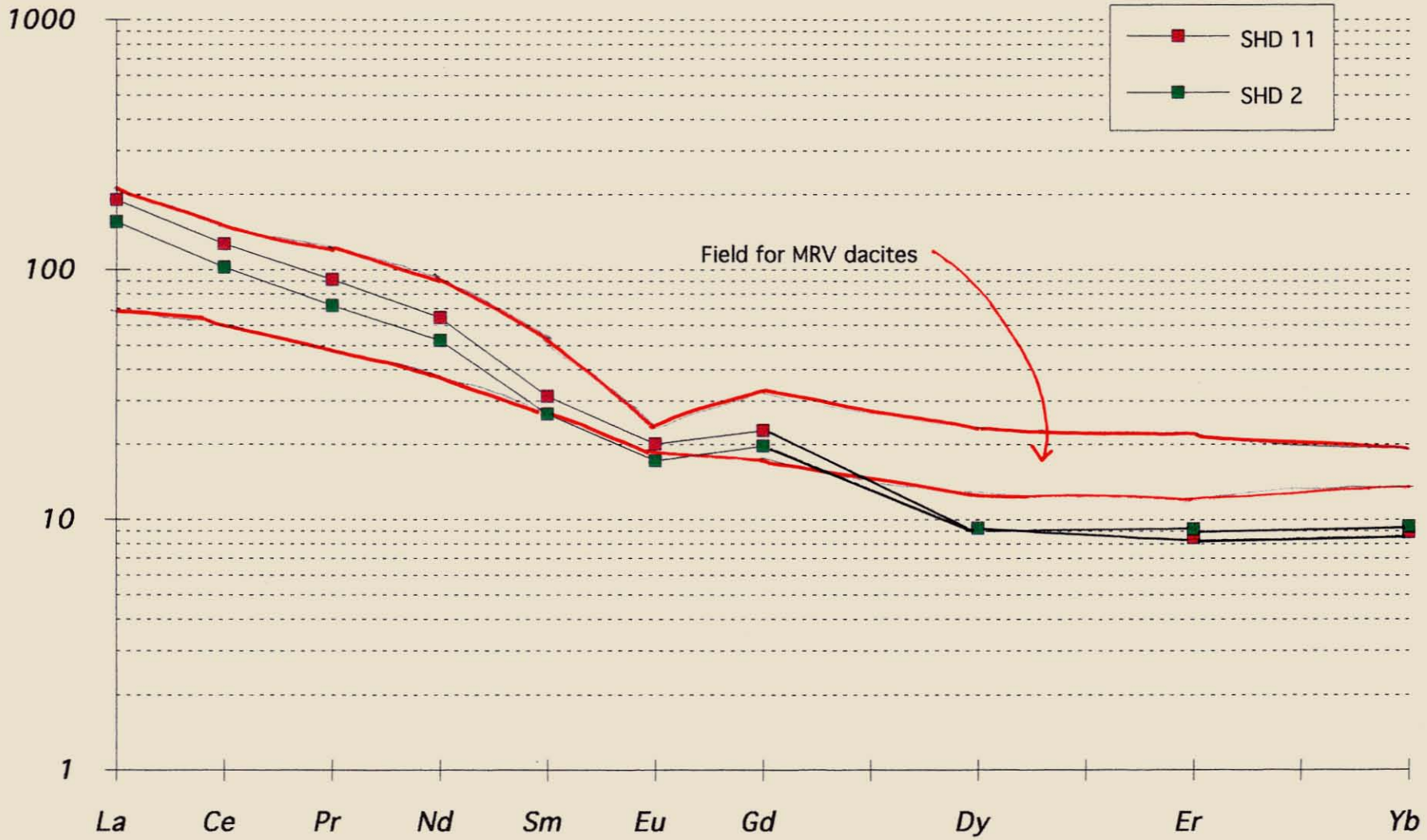


FIGURE 2A: REE patterns (chondrite-normalized) for average SHD 11 and SHD 2 felsic lavas

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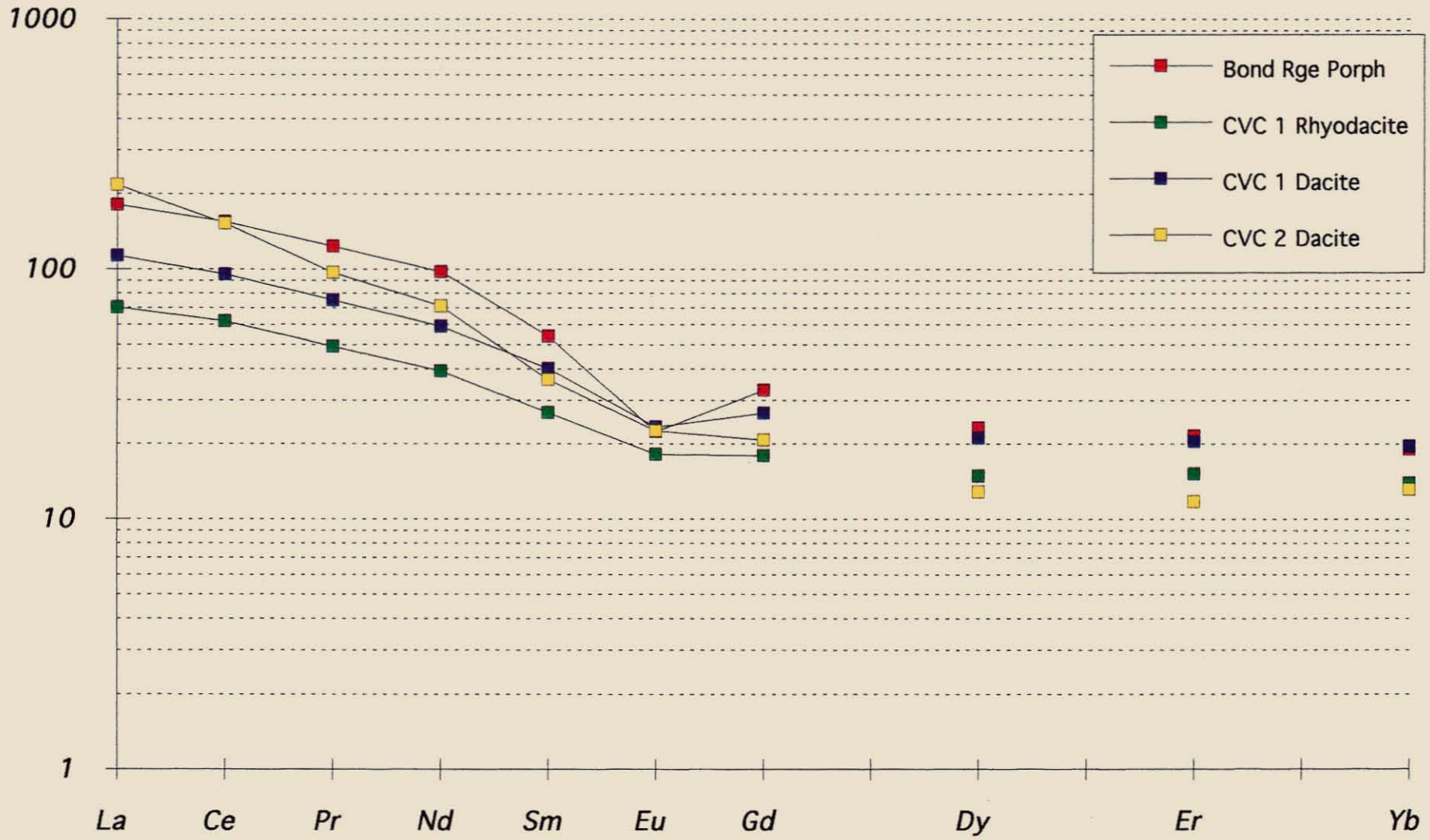


FIGURE 2B: REE patterns (chondrite-normalized) for dacites and rhyodacites from the Mt Read Volcanics

3901259

HENTY SOUTH E/L BASALT STUDY

Background

To address problems relating to the nature, affinities, correlates and alteration of two broadly basaltic levels in the Henty South EL, Grant McDonald provided me with comprehensive background information, including a preliminary geological map, wholerock geochemistry, and eleven thin sections representative of the two units in question. Thin section descriptions are appended. The lower unit is called the Fire Fountain Basalt, the upper unit Howards Basalt Breccia.

FIRE FOUNTAIN BASALT

SAMPLE NUMBER: 386265 SHD 2 at 435m

SUMMARY DESCRIPTION:

This sample is a moderately foliated rock that preserves abundant evidence that its protolith was a moderately plagioclase-phyric andesitic lava breccia. Slightly stretched clasts to at least 1cm long are essentially identical, and are composed of 5-10 modal% of small single albitized plagioclase phenocrysts, mostly heavily replaced by chlorite, carbonate and sericite. Their groundmass is mainly a formerly finely vitrophyric intergrowth of tiny altered albitized plagioclase laths in a very fine, murky quartzo-feldspathic matrix speckled with sericite, chlorite and carbonate. Small calcite+chlorite-filled vesicles are common. Intra-clast matrix shows strong carbonate-chlorite-hematite alteration.

SAMPLE NUMBER: 386264 SHD 2 at 478m

SUMMARY DESCRIPTION:

This sample is another andesitic lava breccia derived from a moderately plagioclase-phyric lava similar to that represented by clasts in the previous sample. Many clasts in this sample are, however, notably more vesicular than in 265, vesicles being filled by quartz, or calcite and chlorite. The sample contains cm-wide zones of intense development of closely spaced foliation planes, which show far more intense sericite than less foliated domains. Late stage veinlets and patches of strongly pleochroic brownish carbonate and subordinate chlorite are common.

SAMPLE NUMBER: 384042 NC1 at 662.6m

SUMMARY DESCRIPTION:

This sample is another coherent, massive, strongly plagioclase-phyric andesitic lava lacking signs of autobrecciation or foliation, in which the small plagioclase phenocrysts are aggregated in multicrystal clots. Plagioclase clots are heavily overprinted by calcite and sericite, and subordinate chlorite. The groundmass consists of tiny albite microlites in

murky brown quartzo-feldspathic material largely after glass, that contains abundant chlorite. Disseminated small pyrite crystals are not uncommon, and larger pyrite grains occur in chlorite-calcite veins that transect the sample.

These two Fire Fountain Basalt samples have been analyzed, and recalculated volatile-free wholerock analyses are given below, together with other available analyses of the Fire Fountain Basalt from different drillholes.

SAMPLE	386264	386265	37159	384084	384085	384096	39337	39816
	SHD 2	SHD 2	YNC 7	YNC 8	YNC 9	YNC 10	YNC 11	YNC 12
	485m	440m	201.9m	235.6m	120.8m	503.0m	89.3m	8.5m
SiO2	52.3	49.4	54.4	53.41	57.4	60.1	54.1	50.5
TiO2	0.86	0.7	0.83	1.07	0.69	1	0.87	0.87
Al2O3	18.4	14.8	16.9	19.4	16.7	18.4	18.5	17.5
Fe2O3	10.3	16.1	12.6	11.9	8.15	10.83	12.3	12.1
MnO	0.68	0.25	0.21	0.17	0.18	0.11	0.23	0.18
MgO	2.69	6.46	4.16	2.92	2.6	3.16	5.29	3.71
CaO	9.83	10.4	6.25	4.14	8.09	1.18	4.59	10.8
Na2O	1.08	1.46	2.68	5.24	4.48	2.31	3.18	2.05
K2O	3.71	0.35	1.84	1.51	1.56	2.77	0.82	2.28
P2O5	0.14	0.08	0.07	0.29	0.1	0.16	0.126	0.145
Zr	113	95	93	220	107	130	109	101
Ti/Zr	45.6	44.2	53.5	29.2	38.7	46.1	47.9	51.6
TiO2/P2O5	6.1	8.8	11.85	3.7	6.9	6.25	6.9	6

It is clear that the Fire Fountain Basalt samples are moderately- to strongly plagioclase-phyric basaltic andesite lava breccias, with rare or no former mafic phenocrysts, and a strongly altered formerly glassy groundmass. Wholerock data above show that these samples have similar TiO2 abundances (0.7-1%), similar high Ti/Zr (39-54 for all but 1 sample, se later), Zr contents between 93 and 130 ppm, and the very variable K2O, Na2O and MgO as expected. Sample 386265 has very high Fe2O3 contents due to hematite alteration.

Sample 384084, believed to be from the Fire Fountain Basalt level of hole YNC 8, has P2O5, Zr and Ti/Zr values far more appropriate for a Howards Basalt Breccia sample. Check this possibility, as it seems quite unambiguous to me.

HOWARDS BASALTIC BRECCIA

SAMPLE NUMBER: (core grind sample 625574) NC 4 199m

SUMMARY DESCRIPTION:

This sample is an intensely foliated and altered, almost phyllonitic rock that was almost certainly derived from a coarse volcaniclastic or lava breccia. The foliation is so strong as to obliterate primary textures in this sample, although highly elongate domains retain vague traces of a plagioclase-phyric volcanic texture, with all plagioclase phenocrysts stretched to ten or more times their width, and replaced by sericite. Most of the rock is composed of finely banded sericite, abundant hematite, including some very stretched lava fragments or clasts that are totally replaced by hematite, and very fine-grained quartzo-feldspathic material thoroughly pervaded by sericite. Occasional laminae of pale green chlorite are also present, and a few foliation-parallel veinlets of quartz, calcite and chlorite are also present. This rock was probably strongly hydrothermally altered before it was recrystallized in a high strain zone associated with a major fault. The hematite alteration may be related to the foliation-development, rather than the earlier hydrothermal event.

SAMPLE NUMBER: (core grind sample 625574) NC4 203m

SUMMARY DESCRIPTION:

This sample is a strongly foliated and hydrothermally altered lava breccia probably of broadly andesitic composition. Discrete lava fragments to ~1cm long, although stretched and flattened, are still obvious, most being sparsely plagioclase-phyric andesitic lava. Some fragments were weakly vesicular, and chlorite filling former vesicles is not uncommon. Plagioclase phenocrysts are almost totally sericitized, as is the groundmass of all fragments, which is invariably moderately to strongly foliated and composed largely of sericite. The matrix between fragments is now replaced by chlorite, calcite and common but very patchily developed hematite. As for the previous sample, I would say that this was a strongly sericite+chlorite-altered andesitic lava breccia in which the secondary minerals and alteration were redistributed and enhanced during foliation development. Except for the absence of widespread hematite alteration in this sample, it is little different from the previous sample.

SAMPLE NUMBER: (core grind sample 625579) NC4 231m

SUMMARY DESCRIPTION:

This sample is another hydrothermally altered, foliated and largely recrystallized former broadly andesitic lava breccia composed of elongate, stretched sparsely plagioclase-phyric small (to 1cm long) lava fragments. A few drawn out clasts appear to have had spherulitic textures originally, with spherules replaced by chlorite and quartz. Sericite alteration, although common, is far less pronounced in this sample than

the two previous samples from this hole, and quartz-chlorite alteration is notably more abundant. Murky carbonate alteration is common, mainly intergrown with chlorite. Minor very fine-grained disseminated pyrite is present in this sample.

COMMENTS ON NC4

The three samples described above are all probably derived from the same sparsely plagioclase-phyric andesitic or basaltic andesite lava breccia that was hydrothermally altered (sericite±chlorite) before major faulting forced strong foliation development, recrystallization, and possibly further carbonate-sericite alteration. Analytical data for NC4 samples from the Howards Basalt Breccia section (~198-235m) are given below, recalculated volatile-free.

	625574	**575**	**576**	**577**	**578**	**579**
SiO2	58.4	57.1	53.4	55.0	54.1	52.6
TiO2	1.38	1.42	1.40	1.44	1.34	1.28
Al2O3	18.9	19.7	19.3	20.4	19.1	18.6
Fe2O3	8.57	9.62	11.3	11.3	10.7	13.4
MnO	0.35	0.65	2.74	0.55	2.32	1.46
MgO	2.32	2.32	2.14	1.91	2.38	1.46
CaO	3.42	2.16	3.10	1.93	3.50	4.25
Na2O	2.04	1.51	0.12	0.20	0.61	0.71
K2O	4.31	4.74	6.07	6.90	5.43	4.55
P2O5	0.38	0.38	0.39	0.40	0.44	0.39
Zr (ppm)	191	202	193	203	191	196
Ti/Zr	43.3	42.1	43.4	42.5	42.1	39.2
Ti/P2O5	3.63	3.74	3.60	3.60	3.05	3.28

The first two of the three sections described above, from 199m and 203m, are represented by composition 625574, and the third, from 231m, is represented by composition 625579 above. Despite the petrographic range (essentially alteration) of the three samples, key compositional features of these samples (and others between them, as shown by the analyses above) are very similar. All are broadly basaltic andesite compositions. As expected in such altered and foliated rocks, SiO2, Fe2O3, CaO, Na2O and K2O abundances are variable, and MnO shows some remarkably high abundances in the analyzed levels between the samples examined in thin section. The constancy of the Ti/Zr values, Zr and TiO2 abundances, and P2O5 abundances all suggest to me that this was a single eruptive unit, or derived from the same magma batch, and serves again to emphasise the utility of the geochemical approach in altered terrains. It might be argued

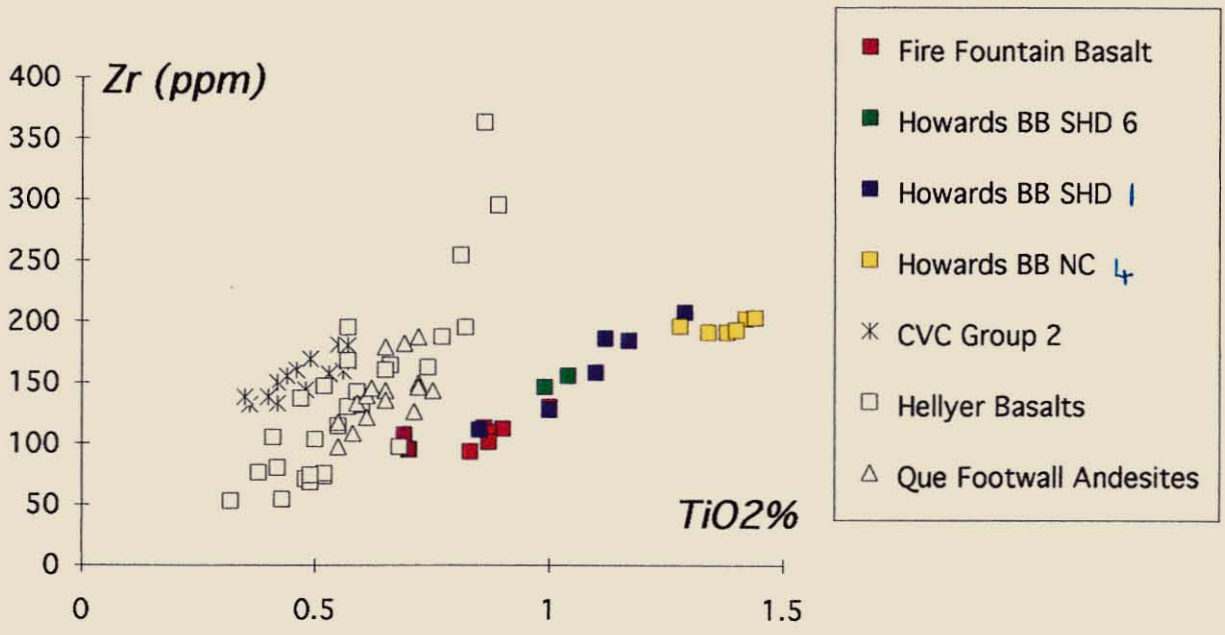
(but it is difficult to prove) that the high TiO2 and Zr levels in these rocks (Ti/Zr 42-43) compared to the best preserved samples in SHD 1 (Ti/Zr =36-38 may be due to volume loss associated with strong foliation development, in which both these conserved elements increase in abundance in the same proportion.

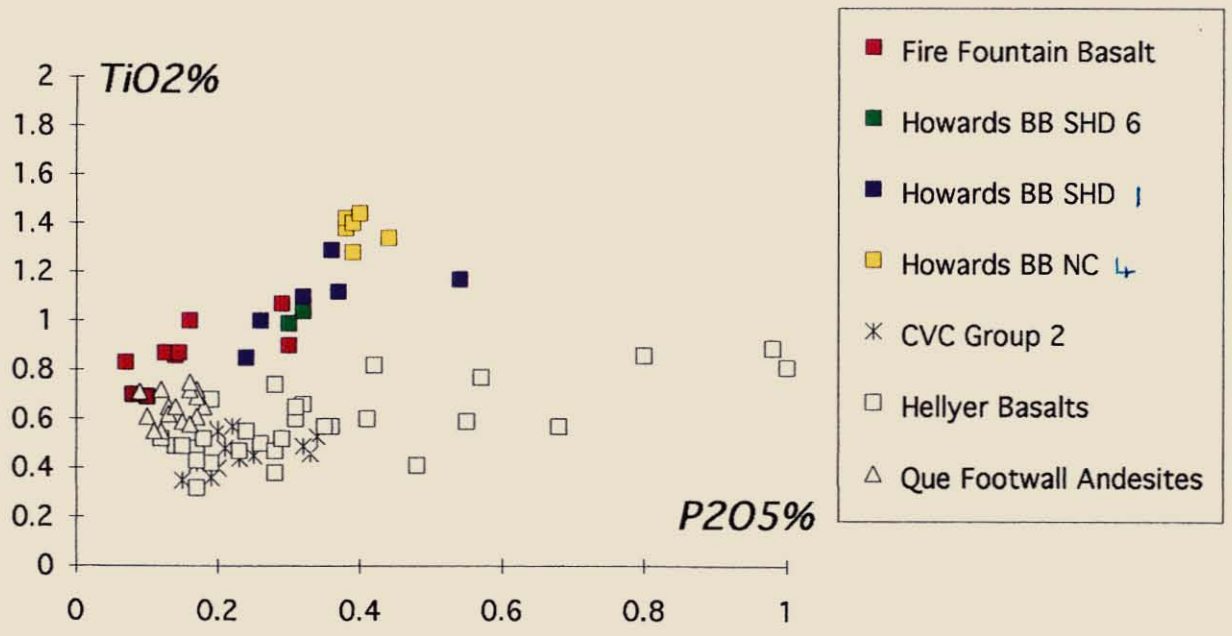
The MnO contents of several of the lava breccias from NC 4 are remarkably high, and in the one thin section examined from a high-MnO level of this hole, there is no obvious 'host' for the excess MnO. In particular, it shows no correlation with CaO or Fe2O3, and is apparently unrelated to carbonate alteration. Several compositional plots below show that the only significant major element correlation with MnO is K2O, and this correlation is particularly good. K2O extends to abnormally high levels for broadly 'sericite-altered' andesitic lavas. Na2O shows a good inverse correlation with MnO, indicating, together with the correlation with K2O, that the MnO phase is associated with a K-rich phase replacing plagioclase. I am unaware of MnO-rich sericite, but am willing to consider that perhaps some of the green chlorite is a stilpnomelane-like phase with a strange MnO enrichment. This is certainly worthy of further study.

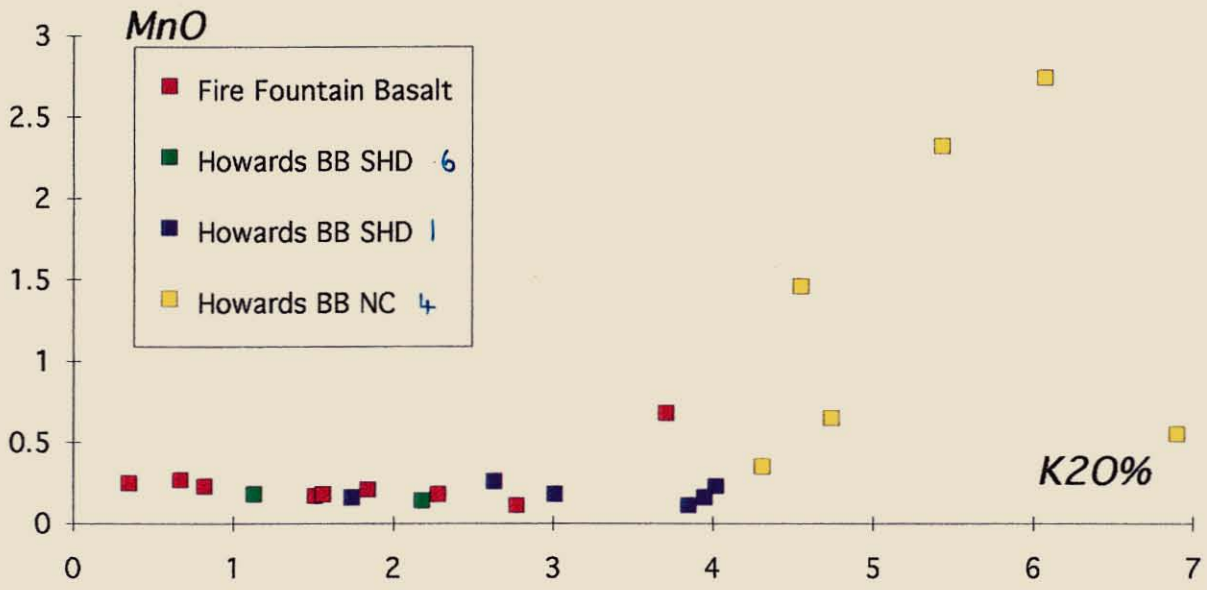
SAMPLE NUMBER: NC2 73.6m

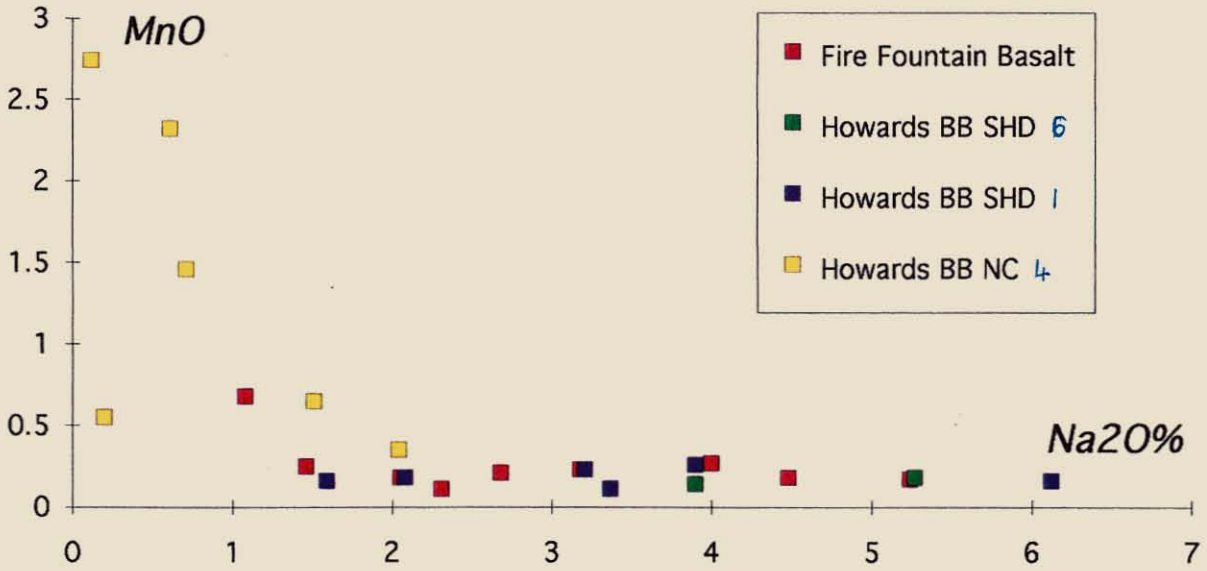
SUMMARY DESCRIPTION:

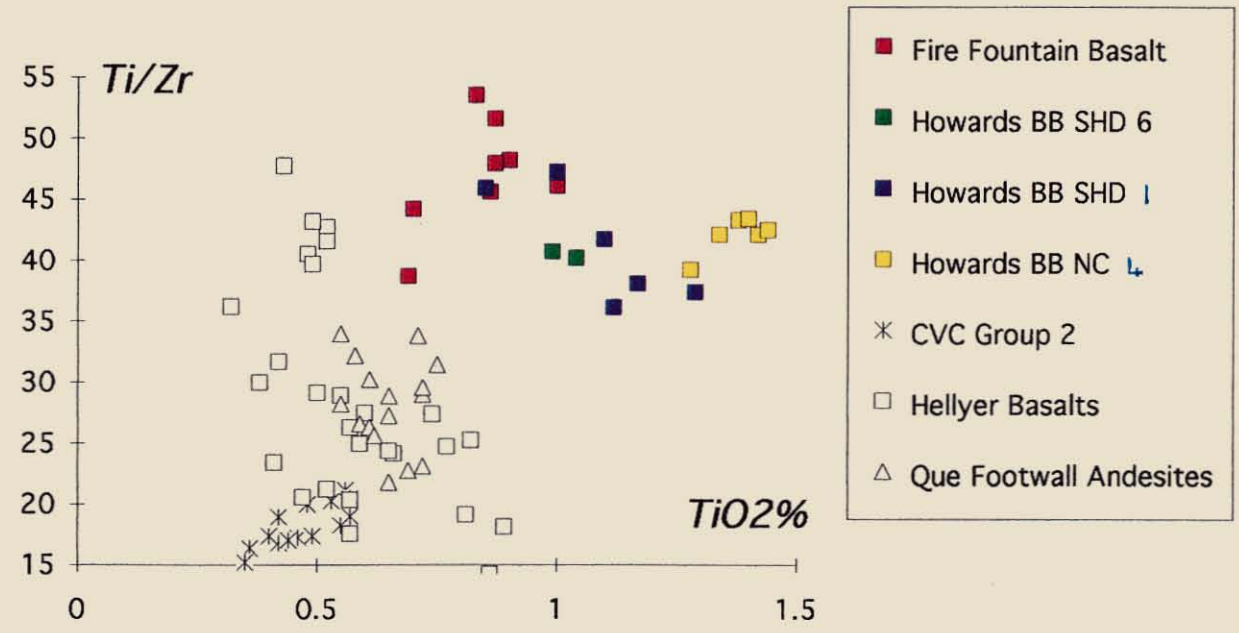
This sample, presumably from the Howards Basalt intersection in this hole, is a weakly foliated and texturally much better preserved andesitic lava breccia than those described above from NC4. Slightly stretched lava fragments are all moderately plagioclase-phyric andesite with a formerly glass groundmass now composed of a very fine-grained murky intergrowth of quartz, sericite and chlorite. Plagioclase phenocrysts are small (<0.5mm long), albitized, and only weakly sericitized, indicating that this sample has not suffered plag-destructive Na2O depletion. Green chlorite is common as streaks and patches throughout the section and tends to define the weak foliation. A few irregular calcite-quartz veinlets cut this rock. This sample is almost certainly a fair example of the protolith of rocks that, due to subsequent proximity to high-strain deformation and alteration near fault zones, ended up looking like those described from NC4. A wholerock analysis of this sample would pin down much more accurately, the composition of the protolith of the Howards Basalt than those samples analyzed from NC4.

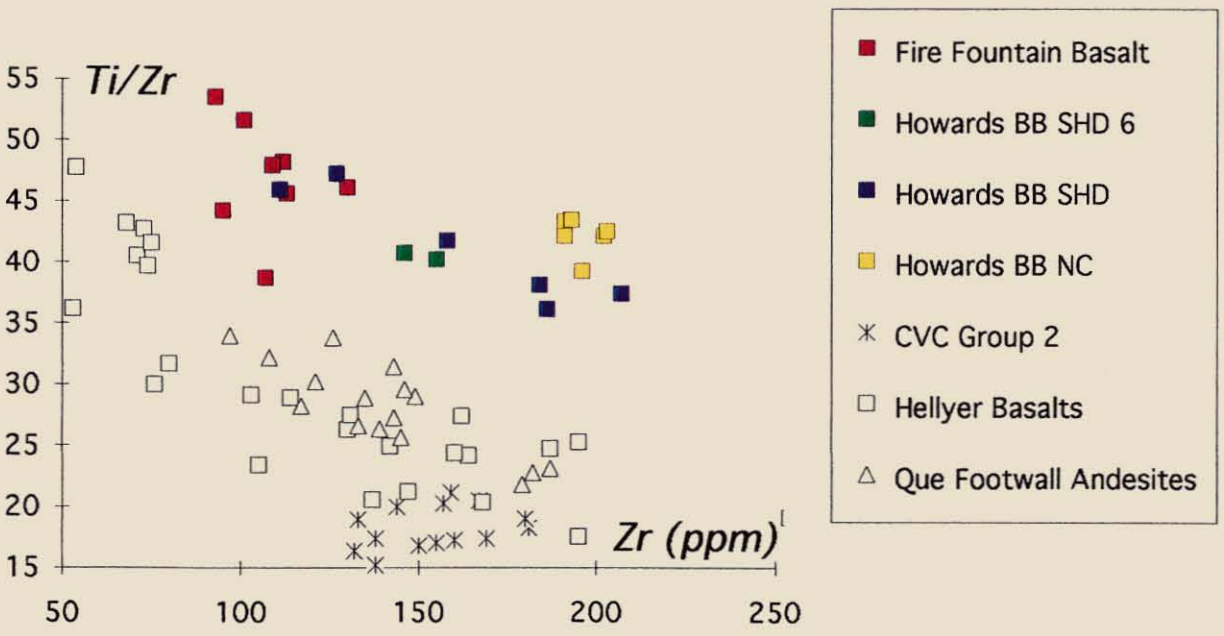

Zr (ppm)
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
TiO2%
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD 1
Howards BB NC 4
CVC Group 2
Hellyer Basalts
Que Footwall Andesites


TiO2%
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1
P2O5%
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD 1
Howards BB NC 4
CVC Group 2
Hellyer Basalts
Que Footwall Andesites


MnO
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD 1
Howards BB NC 4
K2O%
0
0.5
1
1.5
2
2.5
3
0
1
2
3
4
5
6
7


MnO
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD 1
Howards BB NC 4
Na2O%
0
0.5
1
1.5
2
2.5
3
0
1
2
3
4
5
6
7


Ti/Zr
TiO2%
55
50
45
40
35
30
25
20
15
0
0.5
1
1.5
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD
Howards BB NC
CVC Group 2
Hellyer Basalts
Que Footwall Andesites


Ti/Zr
Zr (ppm)
55
50
45
40
35
30
25
20
15
50
100
150
200
250
Fire Fountain Basalt
Howards BB SHD 6
Howards BB SHD
Howards BB NC
CVC Group 2
Hellyer Basalts
Que Footwall Andesites

SAMPLE NUMBER: 385622 from SDH1 (~225m)

SUMMARY DESCRIPTION:

This sample is a very weakly autobrecciated andesitic lava breccia, much less foliated and altered than 385625 from deeper in SDH1. It consists of ~20 modal% of small albitized plagioclase phenocrysts, often in multi-crystal clots, scattered through a messy brown groundmass composed of tiny albite laths and common leucoxene-altered equant, small former FeTi oxide grains set in a moderately sericite+chlorite-altered very fine-grained quartzo-feldspathic groundmass. Plagioclase phenocrysts are more than 50% replaced by chlorite, sericite and calcite. This sample is almost a coherent massive lava, and brecciation is probably limited to minor in situ fragmentation with little disaggregation, now defined by small changes in groundmass texture along sharp lines. It is an appropriate protolith, albeit rather more plagioclase-phyric, for many of the strongly foliated lava breccias described above.

SAMPLE NUMBER: 385623 from SDH1 (~237m)

SUMMARY DESCRIPTION:

This sample is a massive coherent and unbrecciated lava of strongly plagioclase-phyric andesitic composition. Aggregates of blocky albitized plagioclase phenocrysts, now partly peppered by sericite and patchy calcite, reach almost 4mm across, and make up ~25 modal% of the rock. A few aggregates contain rather prismatic chlorite concentrations that may be former mafic phenocryst sites, although it is not obvious whether these were augite or hornblende. The groundmass is a texturally well-preserved intergrowth of tiny albite laths in a chlorite±sericite-altered quartzo-feldspathic matrix riddled with tiny leucoxene-altered former FeTi oxide grains. This sample was clearly more slowly cooled, and from an interior part of the flow unit(s) represented in this hole. The sample contains narrow meandering chlorite veinlets and occasional small pyrite grains. Epidote is a dispersed and not uncommon alteration phase in this rock, in which both the deformation and the hydrothermal alteration are less than either the preceding or following samples.

SAMPLE NUMBER: 385625 from SDH1 (~262m)

SUMMARY DESCRIPTION:

This sample is another strongly foliated formerly andesitic lava breccia dominated by 2mm->1cm sized stretched and flattened clasts or fragments of moderately plagioclase-phyric andesite. In most clasts textural details are totally obliterated by the intense foliation and sericite development and concomitant alteration. The rock is texturally very close to those described above from NC4, but the alteration assemblage and style is slightly different. Long patches of finely crystalline calcite are common in this sample, but appear to be former veinlets subsequently rotated into the foliation and boudinaged. Coarse

calcite-chlorite intergrowths are also common in interstitial areas between clasts, and hematite alteration is patchy but widely distributed through the rock, favouring some clasts over others. Submicroscopic hematite in sericite has produced unusual brownish sericite in places. A late generation of narrow calcite veinlets cuts the foliation.

Wholerock analyses of six samples of Howards Basalt intersected in SHD1 are given below, recalculated volatile-free.

	385621	**622**	**623**	**625**	**626**	**628**
SiO2	51.9	48.3	49.2	42.8	38.4	51.0
TiO2	1.17	1.29	1.12	1.00	0.85	1.10
Al2O3	21.9	23.7	21.1	19.2	15.3	20.5
Fe2O3	8.51	10.7	12.5	15.7	9.18	10.2
MnO	0.11	0.23	0.26	0.16	0.18	0.16
MgO	2.00	1.86	1.87	1.81	1.70	2.31
CaO	6.64	6.32	6.99	13.5	29.0	4.25
Na2O	3.37	3.21	3.90	1.59	2.08	6.12
K2O	3.85	4.02	2.63	3.95	3.01	1.74
P2O5	0.54	0.36	0.37	0.26	0.24	0.32
Zr (ppm)	184	207	186	127	111	158
Ti/Zr	38.1	37.4	36.1	47.2	45.9	41.7
Ti/P2O5	2.17	3.58	3.02	3.84	3.54	3.44

The strongly foliated and intensely altered samples 625 and 626 show very high loss on ignition values (12-20%), very high CaO (13.5-29%) and massive SiO2 depletion, all expected from strong carbonate-alteration. There has been no corresponding increase in MnO. Hematite-altered 625 also shows a significantly higher Fe2O3 content than the others from this hole. Note that the intense carbonate-sericite alteration in this hole appears to have produced a significant increase in Ti/Zr, but has not significantly altered Ti/P, perhaps indicating hydrothermal dissolution of some Zr during the intense alteration and foliation development. This is worth taking in consideration in comparing the SHD 1 samples with those described above from NC4. The latter, all quite strongly foliated, show Ti/Zr values (42-43) consistently higher than the better preserved samples in SHD 1 (36-38), but have TiO2/P2O5 values around the average for the SHD 1 samples (3.6). It is probable that samples 621, 622 and 623 are the closest to the primary compositions of the Howards Basalt Breccia. This is discussed further on.

SAMPLE NUMBER: 386267 SHD 6 at 246m

SUMMARY DESCRIPTION:

This sample is almost identical petrographically to sample 385623 from SHD 1, being a coarsely and abundantly plagioclase-phyric andesitic lava in which the plagioclase phenocrysts occur in aggregates to 4mm across. The groundmass is slightly more coarse-grained in this than the previous sample, and epidote is absent, but otherwise the primary and secondary details of texture and mineralogy are remarkably similar between these two samples, which would very reasonably be expected to have come from the same level of the same eruptive unit, well away from the flow margins judging by the groundmass texture. This certainly implies original continuity between the isolated band (on the surface) of basalt breccia intersected by SHD 6 and the more continuous band mapped further south and sampled by SHD 1 and NC4 among other drillholes.

Below, wholerock analyses of two samples from SHD 6, and 384042 from NC 1 at 662.6m are given, recalculated volatile-free,

	386267	**386268**	**384042**
SiO2	51.1	53.9	55.7
TiO2	1.04	0.99	0.90
Al2O3	20.4	19.3	15.6
Fe2O3	10.6	9.50	11.5
MnO	0.18	0.14	0.27
MgO	3.29	2.37	3.73
CaO	5.65	7.29	7.35
Na2O	5.27	3.90	4.00
K2O	1.13	2.18	0.67
P2O5	0.32	0.30	0.30
Zr (ppm)	155	146	112
Ti/Zr	40.2	40.7	48.2
Ti/P2O5	3.25	3.30	3.00

They match closely in immobile element ratios with samples from NC1, SHD 1 and NC4, confirming the nature of the Howards Basaltic Breccia as a moderately to abundantly plagioclase-phyric basaltic andesite lava with TiO2 levels ~ 1.0-1.3%, Zr ~ 150-200ppm, Ti/Zr in least altered samples of ~34-40, P2O5 contents ~0.25-0.354% (typically 0.3-0.4%), and TiO2/P2O5 values ~ 3 -3.6.

SUMMARY

Q1 and Q3 combined: Are the two types of lava breccias, foliated and unfoliated, the same protolith, with petrographic and compositional differences simply enhanced by foliation development and accompanying further alteration?

A1: In my opinion, the foliated and unfoliated basaltic andesite lava breccias are undoubtedly the same unit. It is true that foliated samples show more evidence of having been lava breccias (flow tops?) originally, and coherent lavas always show coarser-grained groundmasses, suggesting derivation deeper within flow units, where slower cooling occurred. Thus enhanced fluid activity in the brecciated flowtops (and bases), producing more chlorite, calcite and sericite, may have focussed deformation into these zones, having a positive feedback and so sustaining further alteration.

An important observation that surprised me in a way is that those samples showing the strongest carbonate alteration (385625 and 385626 in SHD 1) and strong foliation, show apparently higher Ti/Zr and lower Zr abundances (but no change to P2O5 and TiO2) than the best-preserved samples such as SHD 1 sample 385623.

Q2: Are these units actually basalts?

A2: Best preserved samples of these units (both the Howards Basaltic Breccia and Fire Fountain Basalt) are probably best classified as basaltic andesites geochemically, although the absence of mafic phases (or their altered counterparts) in these lava/breccias is far more typical of andesites. My guess would be that protolith lavas had 52-55% SiO2, and were particularly low-Mg basaltic andesites.

Q3: What does the association with carbonate mean?

A3: I am not sure. The presence of some limestones with fossils in the Comstock Fmn (see White and McPhie, 1996) indicates clearly that there were probably shallow banks of limestones around the place during this stage of MRV magmatism. However in the samples I looked at, ALL carbonate is absolutely clearly secondary in origin, and probably quite variable in composition.

Q4: What is the regional stratigraphic significance of the basalts?

A4: Although these samples are hardly well preserved, and not optimum on which to do comparative geochemistry, some useful information can be drawn from their geochemical features. These are discussed with reference to the assembled compositional variation plots appended.

Fire Fountain Basalt

The available data show a significant range in Ti/Zr and TiO2/P2O5, far more than I might expect from a single eruptive unit. I don't believe that this variation can be due to alteration, which usually results in just a scatter around the original compositional cluster, and variations in TiO2 and P2O5 that would head to the origin of plots such as TiO2 vs P2O5. More than one flow is thus likely present in the Fire Fountain Basalt.

Howards Basalt Breccia

Samples analyzed from this unit also show far more compositional variation than would be present within a single flow, even taking alteration into account, and as is evident from some of the logs made available, this unit consists of a number of brecciated flows. Strong carbonate alteration of two samples in SHD 1 has apparently increased Ti/Zr via a significant depletion in Zr abundances, and these two samples overlap the compositional field of the Fire Fountain Basalt.

Affinities

Basaltic to andesitic lavas in the upper part of the Mount Read Volcanics include:

(1) the Que Footwall Andesites, which show no shoshonitic tendencies and have P2O5 <0.25%,

(2) the Group 2 hornblende-phyric andesites of the Central Volcanic Complex, which are high-K to shoshonitic andesites probably related to Lyell mineralisation,

(3) the Hellyer Basalts, a remarkably variable and mafic basalt sequence, contains members which show strong shoshonitic affinities (P2O5 for many sample 0.3-1%). Correlates are known from Lynchford, but are rarely as mafic as those from the thick Hellyer pile. Towards the top of the Hellyer basalt pile at Sock Ck Sth, the Hellyer Basalts show a fairly sharp transition into tholeiitic basalts, marked in terms of immobile element

ratios by a dramatic increase in Ti/Zr to values from 80-90, and a decrease in Zr and P2O5 abundances. Similar magmas as erupted to form the late Hellyer tholeiitic basalts also occur as dolerite plugs around Hellyer and as the tholeiitic Henty Dyke Swarm, which appears to be concentrated along the Henty Fault system.

This temporal change from calc-alkaline and shoshonitic magmas through to tholeiitic magmas late in the sequence of events reflects the change in the site of magma generation from the enriched, old subcontinental lithosphere to the upwelling, convecting asthenosphere. Crustal extension draw up the asthenosphere, which moves into hydrous, enriched lithospheric mantle, forcing partial melting of the latter and generation of calc-alkaline to shoshonitic magmas. As the upwelling asthenosphere rises higher, the asthenospheric mantle itself partially melts by decompression, eventually yielding the tholeiitic magmas.

A sudden halt in the crustal extension led to trapping and pooling of the hot basaltic magmas in the base of the crust, as these no longer had the 'room' to ascend to upper crustal levels. Heat generated by crystallization of these basaltic magmas in the deep crust triggered crustal melting, and production of the felsic magmas of the Tyndall Group, Murchison and Darwin Granites, Southwell Subgroup, and the large quartz-plagioclase porphyrite sheets that extend along the western side of the main Mount Read Volcanics belt.

In comparing the available wholerock data for the Sth Henty E/L basaltic andesites with other Mt Read Volcanics mafic-intermediate series lavas, I have been restricted to using the so-called immobile elements Ti, Zr, and P. Optimally, such an exercise would also include REE, Nb, Ta, Th, and much better preserved lavas.

The plots appended show clearly that the major difference between the compositional fields for Sth Henty basaltic andesites and those for the Hellyer Basalts (including those from its correlates at Lynchford), the Que Footwall Andesites, and the Group 2 CVC lavas and intrusives (best represented by the Anthony Rd andesites) is the notably higher TiO2 contents of the Sth Henty lavas at any Zr or P2O5 level, particularly those from the Howards Basalt Breccia. The relatively smooth trends defined by

the Sth Henty lavas on the Zr vs TiO2 and P2O5 vs TiO2 plots suggests that both the Fire Fountain Basalt and the Howards Basalt Breccia probably derive from the same mantle source, but it is not possible to link these units via any fractional crystallisation scheme *within the basaltic andesite compositional range.*

The Howards Basalt Breccia shows the relatively high P2O5 tendency (to 0.54%) of the Hellyer shoshonitic basalts (note that not all the Hellyer-Lynchford basalts are shoshonitic) and the position in the stratigraphic sequence in the area supports a broad correlation with that unit. However, the Ti/Zr values of the Sth Henty lavas are obviously consistently higher than most Hellyer Basalts, suggesting first notice of the change from the calc-alkaline and shoshonitic basalts to the high Ti/Zr tholeiitic basalts.

More problematical in the scheme proposed above is the Fire Fountain Basalt. Although the data available are for strongly altered rocks, it appears that this unit is significantly lower P2O5, lower Zr and lower TiO2 than the Howards Basalt Breccia, features broadly suggesting more tholeiitic affinities for the Fire Fountain Basalt. However, as noted above for the Hellyer area, tholeiitic magmas followed calc-alkaline and shoshonitic magmas in that region, whereas at Sth Henty, if the mapping is correct, the Fire Fountain Basalt certainly occurs well beneath, and clearly pre-dates, the Howards Basalt Breccia. I am sure that the apparent tholeiitic affinities of the Fire Fountain unit are not due to alteration, so this presents an interesting puzzle for the regional tectono-magmatic picture developed for the Mt Read Volcanics. Note also that if the broad correlation of the quartz-phyric andesitic to dacitic lavas between the two basaltic units with the Anthony Rd Andesites is viable, then the Fire Fountain Basalt is even more puzzling. Rod Allen's descriptions of the latter appear to absolutely preclude that it is a dyke/sill. Yet the similarity in general geochemical terms (look at the TiO2-Zr plot, for example), indicate that the magma source and crystallization processes involved in the generation of the Fire Fountain Basalt changed little by the time the Howards Basalt Breccia was erupted.

Perhaps we could discuss this point, and its implications some time when you are next in Hobart.

THIN SECTION DESCRIPTIONS OF A SUITE OF 13 ALTERED ROCKS FROM THE STH HENTY E/L, APRIL 1997

SAMPLE NUMBER: 385502
SUMMARY DESCRIPTION:

This sample is a massive, strongly hydrothermally altered volcaniclastic rock probably derived from a pumice-rich relatively fine-grained lava breccia. Former pumice fragments to several mm long are thoroughly sericitized, and pumice textures are obliterated. Small non-vesicular former glassy fragments, occasionally carrying small albitized plagioclase phenocrysts, are not uncommon, and are altered to very fine-grained quartz-sericite aggregates. Most of the rock is composed of a messy, heterogeneous quartz-sericite-pyrite aggregate, in which pyrite occurs as trails and streaks of fine-grained crystals. Former small plagioclase phenocrysts are replaced mainly by a murky ultra-fine grained carbonate aggregate. Occasional albitized plagioclase phenocrysts are preserved, indicating that this strong hydrothermal alteration (sericite-quartz-pyrite), and was not strongly feldspar-destructive.

SAMPLE NUMBER: 385505
SUMMARY DESCRIPTION:

This sample is a lava breccia composed of fragments to ~1cm long (max) of formerly glassy quartz+plagioclase-phyric rhyolitic lava. Individual fragments are more difficult to discern in thin section than in hand specimen because the alteration/recrystallization of the probable vitric ash matrix between fragments is identical to that affecting the glassy groundmass of the fragments. The latter has altered to a fairly fine-grained quartz-sericite aggregate. Strongly resorbed and rounded quartz phenocryst are <1mm long and make up about 1-2 modal% of the rock; similarly abundant plagioclase phenocrysts are now totally replaced by fine-grained sericite and murky ultra-fine-grained carbonate. Discontinuous veinlets cut the rock; these are composed of two different carbonates, one clear (probably calcite), the other rather darker and pleochroic. In many veins and patches the latter shows dog-tooth habit and often grows inward to a clearer calcite core. Pyrite is much less abundant in this sample than the previous rock, being present as disseminated tiny crystals throughout the rock. A few small anhedral grains of colourless sphalerite are also present.

SAMPLE NUMBER: 385513

SUMMARY DESCRIPTION:

This weakly foliated rock is very difficult to diagnose. In hand specimen. It looks like a felsic volcaniclastic or lava breccia in hand specimen, but in thin section the more obvious apparent fragments are seen to be mainly clots of murky brown carbonate. However, the bulk of the sample is a rather uniform fine- to medium-grained quartz-sericite intergrowth in which ghost textures of shards are not uncommon, and meshes of sericite and irregular carbonate patches overprint the rock. This rock was probably an aphyric vitric tuff that has suffered moderate sericite-carbonate alteration. Pyrite is insignificant.

SAMPLE NUMBER: 385538

SUMMARY DESCRIPTION:

This sample is probably a strongly hydrothermally altered felsic lava breccia or volcaniclastic in which much of the primary texture has been obliterated. Resorbed and altered quartz phenocrysts are evident in a few fragments, but as in several of the previous samples, the fragments are very difficult to distinguish. Most of the rock consists of quite foliated quartz-sericite-pyrite in which pyrite often occurs as dense trails and patches of tiny crystals drawn out into the foliation, as if they may have been originally coarser pyrite aggregates. One large anhedral patch almost 1cm long, and several much smaller spots consist of pale yellow Fe-poor sphalerite and quartz. These are stretched in the foliation, and probably recrystallized in the foliation-producing event.

SAMPLE NUMBER: 385560

SUMMARY DESCRIPTION:

This sample is probably derived via intense hydrothermal alteration from a felsic lava breccia composed of very similar quartz-phyric glassy rhyolitic fragments probably mainly <1cm across. Very strong and patchy quartz-sericite-pyrite alteration has affected this sample, and most of the rock consists of a weakly foliated intergrowth of rather coarse-grained quartzose intergrowths pervaded by sericite and overprinted by spotty by abundant murky carbonate alteration. Occasionally, the carbonate forms diffuse veinlets that eNd abruptly, or spread into patches probably defining matrix areas between former fragments. Pyrite is quite common as streaks and small elongate patches of tiny crystals.

SAMPLE NUMBER: 385566

SUMMARY DESCRIPTION:

This sample is definitely derived via brecciation and intense hydrothermal alteration of a felsic crystal-poor vitric tuff. Good shard textures are preserved in a few places, although most of the rock now consists of a weakly foliated quartzose intergrowth strongly streaked by sericite and common ultra fine-grained murky carbonate. The quartzose intergrowth is mainly fine- to medium-grained but is only preserved in small roundish patches in the sericite-carbonate matrix. Small spots of anhedral yellow sphalerite are common in this sample, probably amounting to almost 1 modal%. There appears to be no pyrite in this sample.

SAMPLE NUMBER: 385592

SUMMARY DESCRIPTION:

This sample is a less schistose former felsic vitric tuff composed almost entirely of a fine- to medium-grained sugary quartzose aggregate peppered with sericite, that occasionally forms more dense streaks and patches defining a fine-scale false brecciation texture. The tuff shows no former phenocryst or crystal detritus. Small 0.2-2mm sized patches of colourless to pale yellow sphalerite are present, but not common. The textural destruction associated with hydrothermal alteration of this sample is less severe than in most samples described above.

SAMPLE NUMBER: 385502

SUMMARY DESCRIPTION:

This sample was originally a felsic, fairly fine-grained vitric lithic tuff that has suffered strong hydrothermal alteration and is weakly foliated. Much of the rock probably consisted of vitric ash, with no crystal detritus. Several fragments, one almost 2cm long, are evident, the largest being a formerly glassy sparsely plagioclase+augite-phyric andesite or dacite in which the groundmass has crystallized to sugary quartz, with common well-formed calcite rhombs and tiny pyrite disseminated throughout. Several other fragments appear to have been originally pumice, but the texture is largely destroyed by alteration. The matrix of the rock has crystallized to a quartzose intergrowth with streaky sericite, and overprinted by common large blotches and clots of carbonate. Disseminated pyrite is a minor phase in this rock, and a few patches of pale yellow sphalerite are present.

SAMPLE NUMBER: 385633
SUMMARY DESCRIPTION:
This sample is the first of this set that is clearly different from the others described above. It is a lava breccia of probably dacitic composition. Most fragments are very difficult to discern from the matrix, since both were composed largely of felsic glass. Many of the lava fragments, most of which were 1-3mm across, were prolifically-cracked glassy aphyric rhyolite in which the groundmass glass has crystallized to sugary quartz. However, equally abundant were moderately plagioclase-phyric dacitic to andesitic clasts, also with glassy groundmasses, which show strong chlorite alteration. One clast of this type is more than 1cm long, and shows common albitized plagioclase phenocrysts heavily peppered with chlorite. The matrix of this rock is strongly altered, but there are some suggestions of former shard textures. Disseminated very fine-grained pyrite is a minor component, but no sphalerite was noted.

SAMPLE NUMBER: 385646
SUMMARY DESCRIPTION:
This sample is another crystal-free vitric tuff in which the packed vitric shards, occasional shadows of which are preserved in places, have altered to a rather coarse quartzose intergrowth with not uncommon spots of chlorite, all heavily overprinted by coarse murky carbonate. The entire sample has been flooded by strong sericite and very fine-grained carbonate alteration, producing a fine-scale false brecciation texture with islands of quartz-chlorite-coarse carbonate set in a matrix of sericite-carbonate. Disseminated fine-grained pyrite is uncommon, and no sphalerite is noted.

SAMPLE NUMBER: 385648
SUMMARY DESCRIPTION:
This sample is a strongly hydrothermally altered quartz+plagioclase-phyric volcanic or volcaniclastic rock in which the intense textural alteration precludes definitive diagnosis of this rock. Resorbed quartz phenocrysts (<2 modal%) are <1mm across and fairly evenly distributed through the rock. Euhedral formerly albitized plagioclase phenocrysts are also about 2-3 modal%, and are totally replaced by polycrystalline quartz, or less commonly sericitized. The matrix of the sample consists of a mainly fine-grained, heterogeneous, murky, strongly sericite-carbonate altered intergrowth in which both equant small pyrite grains, and small quite bladed hematite grains are not uncommon.

390145

Appendix G

Carbonate geochemistry/petrology

390146

MINERAL RESOURCES TASMANIA

TASMANIA
DEVELOPMENT
AND RESOURCES

Enquiries: Clive Calver
Phone: (03) 62 33 8327
Your Ref:
Our File: I:\ism\gs\geo\crc\6crc004:TRC

11 October, 1996

Grant MacDonald
Resolute Samantha Ltd.
PO Box 63
ZEEHAN TAS 7469

Dear Grant,

Thank you for the opportunity to examine core samples and thin sections of the Tyndall Group carbonates.

There is nothing very definitive of water depth in the carbonates from the NC3 drillcore. Fossil occurrences appear to be restricted to limestone clasts in breccias, and hence are reworked from probably shallower environments (at 363.8, 700.6, and 709.4 m). The fossils are very fragmentary (possibly reworked from still shallower environments before incorporation into the limestone), and are dominated by trilobites (probably benthonic forms judging from their size and only to be expected in abundance in shallow marine environments). The only other taxon recognisable is echinoderm ossicles. The 'rugose coral' seen at 363.8 m is of interest, as corals didn't evolve until the Ordovician. I can't think what else it could be. Jim Jago now has this sample - you could chase it up with him.

The limestone-clast breccia samples from 467.4 and 471.4 m show apparently unfossiliferous, pale calcareous clasts, mostly with rather diffuse boundaries, in a sandy volcaniclastic matrix. The thin section from 467.4 m shows no definite primary limestone, but some heavily carbonate-altered clasts of ?volcaniclastic sandstone. There is diffuse carbonate alteration in the matrix. Possibly the carbonate is mostly of secondary origin, post-dating the formation of the breccia. Carbonate alteration may have been enhanced by the more porous nature of some of the clasts.

The sample from 740.8 m is a white dolomite marble composed almost entirely of saddle dolomite. Saddle dolomite (also known as baroque dolomite) is a non-stoichiometric variant with a distorted crystal lattice, resulting in bent-looking crystals (hence the name) and strongly undulose extinction in thin section. It is a diagenetic mineral thought to form at 100 - 150 ° C, and is commonly associated with epigenetic base-metal mineralisation (see Radke & Mathis, 1980, *Journal of Sedimentary Petrology*, 50: 1149 - 1168). In this rock it results from near-total replacement of a fine-grained cherty precursor lithology surviving as a few remnant patches into which the saddle dolomite crystals project with euhedral terminations.

30 Gordons Hill Road Rosny Park Tasmania 7018
PO Box 56 Rosny Park Tasmania 7018

Samples 384001 and 384003 from YNC16 appear to be bona fide, in situ fossiliferous limestones. 384001 is exceptionally rich in trilobite fragments, and possible echinoderm ossicles. It's hard to imagine that the fossil fragments would have been transported very far without becoming mixed with non-carbonate sediment, and a reasonably shallow environment - a few tens of metres or less - would be my guess. 384002 - a clast from a mass flow breccia? - is sparsely fossiliferous and contains a sprinkling of volcaniclastic material.

Needless to say, these rocks need a thorough petrographic, isotopic and trace-element study to help sort out the problems of genesis and palaeodepth that you are concerned with. Nonetheless, I hope you find the above of some use. I find the presence of saddle dolomite intriguing.

Regards,

Clive Calver
GEOLOGIST

Comments on the Henty and Comstock carbonate stable isotopes

Garry J.Davidson
Centre for Ore Deposit & Exploration Studies
1/11/96

Introduction

Grant MacDonald requested me (some time ago, unfortunately) to comment on the carbon-oxygen isotope systematics of carbonate lenses in the Tyndall Group, using data available from Henty and Comstock. The specific questions raised were:

1. Is it reasonable to assume a value of 0‰ for $\delta^{18}O$ for Cambrian seawater?
2. Can anything be concluded about the genesis of the carbonates from the stable isotope values?
3. Can we use isotopes, e.g., O-isotopes, as a temperature vector?
4. Why are the Henty and Comstock carbonates so different isotopically?

Discussion and answers to queries

The questions above seem to be inspired by the divergence of the Tyndall Group data from the general fields of Cambrian hydrothermal and sedimentary carbonates, and rightly so. The data seem to signal an interesting problem, and I certainly was not aware that the Tyndall data departed from the rest of the Cambrian massive sulfide systems. Now it would be easy to just wrap the Cambrian hydrothermal field around the Henty data and dismiss the variation as due to previously small data sets. However, the Henty data show an interesting trend of changing carbon values with little change in oxygen, which is unusual for any system where, for instance, temperature change is the prime control on isotopic composition. The trend needs to be accounted for by special circumstances during or following deposition of the carbonates.

There is also the problem of the rich fossiliferous character of the lenses in the Tyndall Group. I agree that it is unikely that benthic fauna flourished at high temperatures, although it is possible that rich vent communities of organisms developed around hydrothermal centres. However, even if this were so, in most instances the "higher" organisms around modern vents, such as crustaceans, seawhips etc, are thriving in water adjacent to the vent, and they are not themselves bathed in heated water. Consequently, the isotopic value of their testes should not reflect high temperatures of formation, they should reflect the temperature of ambient seawater.

The answer to the problem therefore seems to be that carbonates developed in the Tyndall Group, either around hydrothermal vents, or in shallow water at sites favouring normal marine carbonate deposition, and that these carbonates initially had normal marine isotopic compositions. However, the values from both Comstock and Henty could not now be considered marine, nor do they show any trend towards Devonian carbonate values identified by Khin Zaw, and so are not likely to reflect overprinting by Devonian fluids. Another explanation is necessary.

I have modelled the affect of a 200° C typical seafloor fluid interacting with Cambrian limestone at a range of W/R ratios, and having different initial carbonate contents. I believe that this type of interaction best explains the type of variation observed at Comstock and Henty, and also explains why these two prospects are so different isotopically.

At very high levels of W/R interaction, the oxygen isotopic value of replaced calcite does not change rapidly, whereas small variations in W/R can produce large changes in the carbon isotope values, as shown on the accompanying graph. The converse is true at low W/R conditions. It is possible that the Henty and the Comstock values represent respectively high and low W/R reaction with the same altering fluid. That is, the difference

between Comstock and Henty is that at Comstock only minor amounts of high temperature fluid interacted with previously deposited carbonate, and the opposite is the case at Henty. This makes geological sense if Henty-style fluids continued to alter previously formed units once they were buried. If it were true, then more prospective systems would lie close to the thick black line (mole fraction of H_2CO_3 = 0.01), and would trend along it towards the Henty Group. The modelling here is fairly inexact, but there is the firm suggestion that the altering fluid must have had low H_2CO_3 to get the vertical and horizontal trends in the Comstock and Henty data sets. However, it may be that the fluid temperature selected is too low, or too high; I used an average hydrothermal fluid of moderate temperature, and I assumed that the carbon in this fluid had the composition of carbon in seafloor fluids ($\delta^{13}C$ = ~-6‰, $\delta^{18}O$ = ~0‰). I also assumed that the original carbonate had the value implicated by the "prong" of Cambrian carbonates ($\delta^{13}C$ = ~1‰, $\delta^{18}O$ = ~17.5‰).

Another alternative for the Comstock data (but not for Henty) is that it represents a pure hydrothermal trend, but that the carbon species was HCO_3-, in which cooling forms a flattish trend, ie, no change in carbon isotope value. However, this carbon speciation in the fluid mainly characterises low temperature alkaline systems, which are not common in VMS envrionments.

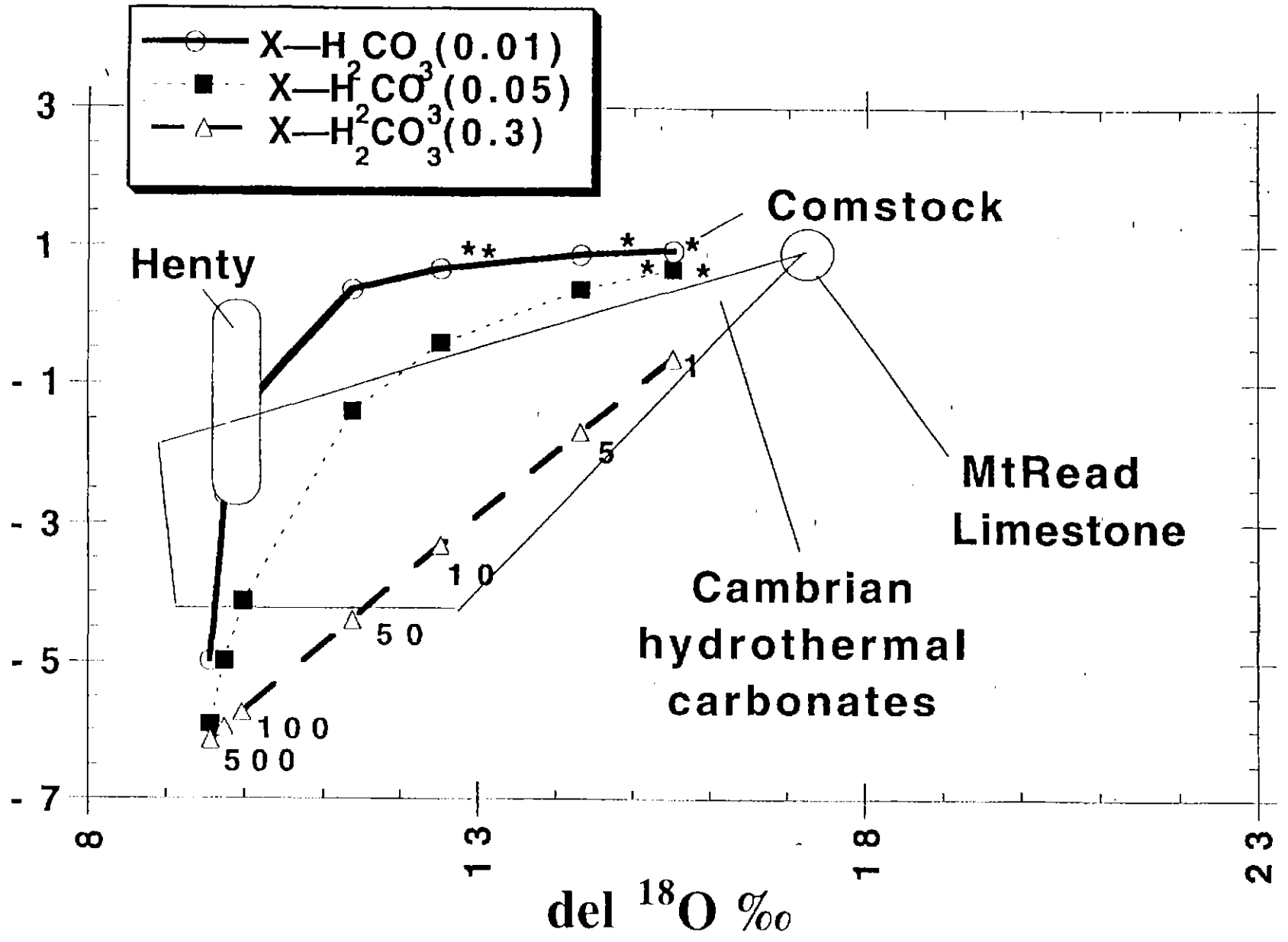
I believe that some of the variation described by Khin Zaw as "Cambrian hydrothermal carbonates" could also represent the alteration of low temperature marine carbonate by hotter fluids once the carbonates were buried— note how the X=0.05 and the X=0.3 lines tend to enclose the field of hydrothermal Cambrian carbonates in the figure. To achieve this, it is possible that the older Mt Read fluids (forming VHMS deposits) contained more dissolved carbon, possibly from interacting with the abundant black shales in the Mt Read volcanics. This is getting fairly speculative!

In answer to the specific questions:

1. No, I think the evidence suggests that seawater in the Cambrian had the same oxygen value as today, although this is an area of major argument.
2. Yes I think a conclusion can be reached about the genesis of the carbonates, and I've put in my ten cents worth.
3. C-O isotopes as a temperature vector?? I would say that is not likely if the main cause of change is W/R, rather than temperature. The trends of both data sets do not resemble normal cooling trends. If they did, then yes, you could infer temperatures if you ASSUMED an initial flud value. You can refine this by obtaining fluid temperatures from fluid inclusions, and actually calculating the composition of the fluid. However, I think the idea that higher W/R might indicate a better prospect is equally as useful as knowing that temperatures were higher.
4. I have covered the difference between Comstock and Henty, or at least two ways of explaining it.

Sorry this has arrived so late. I have been coping with the late pregnancy and birth phases of our new baby, which has restricted my after-hours activities, in fact I'm off to the hospital now! I won't charge you because of this, but I hope these thoughts are still of some use. I would be interested in following the problem further if there is scope.

Regards,
Dr Garry Davidson


X—H2CO3(0.01)
X—H2CO3(0.05)
X—H2CO3(0.3)
Comstock
Henty
MtRead
Limestone
Cambrian
hydrothermal
carbonates
1
5
10
50
100
500
3
1
- 1
- 3
- 5
- 7
8
13
18
23
del 18O ‰

390150

390151

Facsimile Transmission

UNIVERSITY OF TASMANIA

To: GRANT McDONALD

Fax Number: 03 64716344

Total Pages: 1

From: Michael Power
OIC Stable Isotope Mass Spectrometry

Central Science Laboratory
GPO Box 252-71
Hobart
Tasmania 7001
Australia

Fax Number: (03) 6226 2494

Date: 9th DEC 96

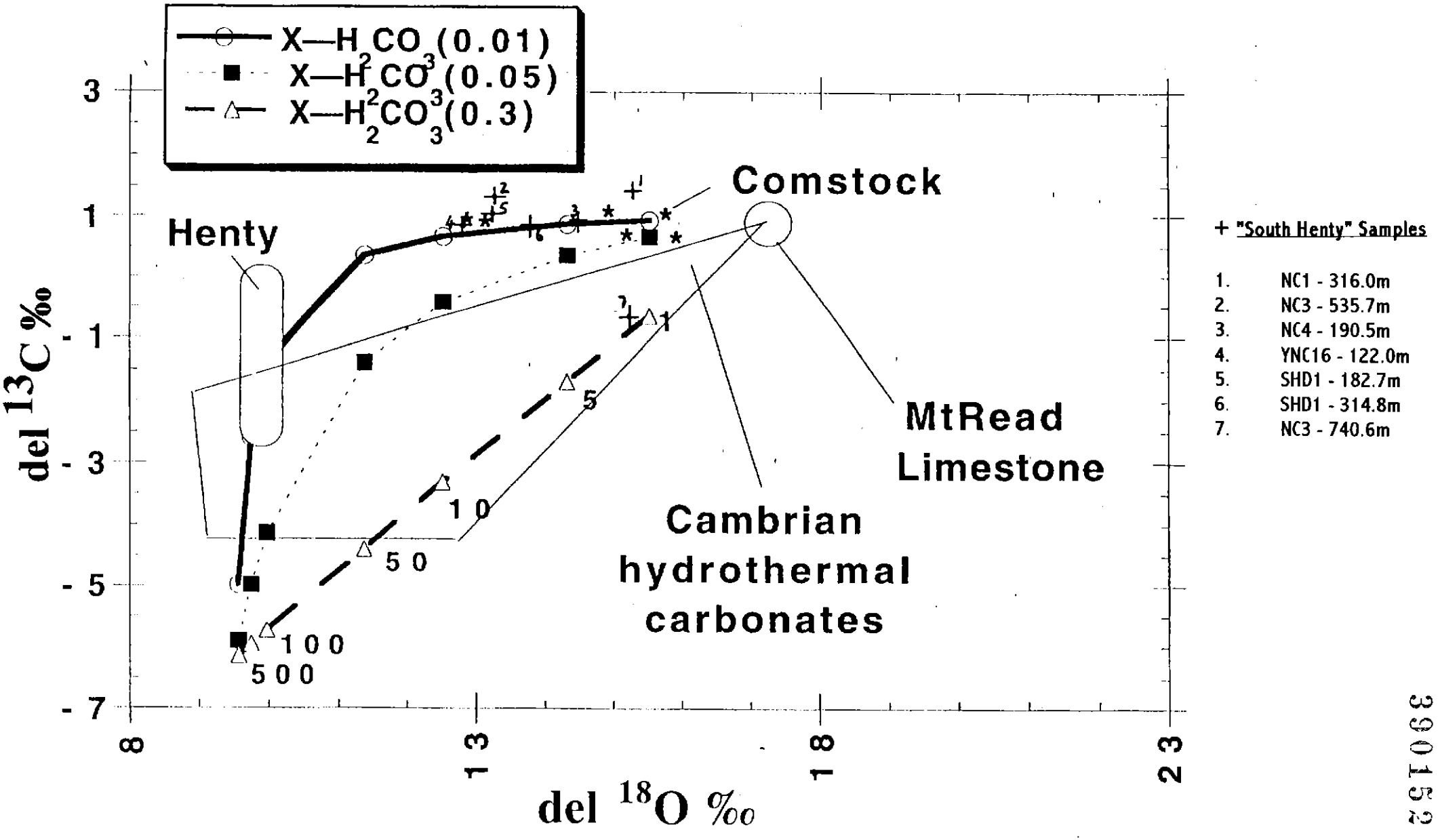
Subject: ISOTOPE ANALYSIS

Dear Grant,

Here are the results of the analysis that you requested on your seven limestone samples, please let me know if you have any problems and we will invoice you in due course for $490.

C.S.L.. No.	Sample Identification	δ13C wrt PDB	δ18O wrt PDB	δ18O wrt smow
7294	NC1-316.0	1.392	-15.101	15.293
7295	NC3-535.7	1.326	-17.020	13.314
7301	NC4-190.5	0.909	-15.879	14.491
7297	YNC16-122.0	0.985	-17.468	12.853
7298	SHD1-182.7	1.000	-17.104	13.228
7299	SHD1-314.8	0.837	-16.564	13.785
7300	NC3-740.6	-0.574	-15.180	15.212

Regards, Mike



Comstock results after MacDonald (1990),
Henty results after Yeats (1989),
Cambrian Hydrothermal Carbonates
field after Khin Zaw (1991)

Appendix H

Drill hole locations and surveys

DDH SHD-1

Collar (AMG easting) 381000mE (estimated from aerial photo's and topo. maps)
Collar (AMG northing) 5358935mN "
Collar (R.L.) 485 m.a.s.l. "
Depth 779.0 metres
Commenced 1st Nov. '96
Completed 3rd Dec. '96
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-73	237.5	250
17.5	-73	237.7	250.2
46	-73	238.5	251
75.6	-73	239	251.5
106	-72.8	240.5	253
136	-73.2	242.7	255.2
166	-72.2	239	251.5
196	-71.2	240.3	252.8
226	-70.2	240	252.5
256	-69.7	240	252.5
286	-69.2	239	251.5
316	-68.7	239.7	252.2
346	-64.3	241	253.5
355	-61.8	242.2	254.7
367	-60.4	244.5	257
379	-59	245	257.5
391	-58.2	240.5	253
403	-57.4	240.5	253
415	-56.4	240.5	253
430	-55.2	240.3	252.8
460	-53	240.5	253
490	-51	241	253.5
520	-49	241.5	254
550	-46.2	242	254.5
580	-44.7	242	254.5
610	-44	242	254.5
640	-43	241	253.5
700	-40.5	241	253.5
736	-39.6	242.2	254.7
760	-38.3	242	254.5
779	-37.3	242.5	255

Gear in hole: HQ rods to 39m, back-off tool at bottom.
Lined with 40mm Class 12 PVC

DDH SHD-2

Collar (AMG easting) 380335mE (estimated from aerial photo's and topo. maps)
Collar (AMG northing) 5358900mN "
Collar (R.L.) 485 m.a.s.l. "
Depth 655.0 metres
Commenced 11th Dec. '96
Completed 21st Jan. '97
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Azimuth (magnetic)	Inclination	Azimuth (AMG)
0	223	-67	235.5
20	223	-67	235.5
50	223	-66	235.5
80	224.5	-65.7	237
110	226	-65.7	238.5
140	227.7	-65.7	240.2
175	229	-65.2	241.5
205	229	-65	241.5
235	230.5	-65	243
265	229.7	-64.3	242.2
283	230.2	-64	242.7
298	229.5	-63.4	242
313	229.5	-62.2	242
340	230	-60.3	242.5
370	230.25	-60	242.75
400	230.5	-59.8	243
430	232.2	-59.3	244.7
460	232	-58.8	244.5
490	233	-57.3	245.5
520	232.2	-55.8	244.7
550	231.7	-53	244.2
580	232.7	-49.3	245.2
610	232.5	-47.2	245
640	233	-44.8	245.5
655	233	-41.6	245.5

Gear in hole: HQ rods to 39m, back-off tool at bottom.
Lined with 40mm Class 18 PVC

DDH SHD-3

Collar (Grid westing)	398mW	
Collar (Grid northing	930.5mN	
Collar (AMG easting)	380380mE	(estimated from approximate locations of grid lines)
Collar (AMG northing)	5357745mN	"
Collar (R.L.)	500m	"
Depth	56.15m	
Commenced	10th Jan. '97	
Completed	16th Jan. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:
Compass/clino

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-48	34	46.5

Gear in hole: None

DDH SHD-4

Collar (Grid westing)	390.5mW	
Collar (Grid northing	866.5mN	
Collar (AMG easting)	380338mE	(estimated from approximate locations of grid lines)
Collar (AMG northing)	5357700mN	"
Collar (R.L.)	500m	"
Depth	57.65m	
Commenced	17th Jan. ' 97	
Completed	23rd Jan. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:
Compass/clino

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-52	32	44.5

Gear in hole: None

DDH SHD-5

Collar (Grid westing)	302.5mW	
Collar (Grid northing	940mN	
Collar (AMG easting)	380462mE	(estimated from approximate locations of grid lines)
Collar (AMG northing)	5357692mN	"
Collar (R.L.)	500m	"
Depth	47.2m	
Commenced	24th Jan. '97	
Completed	29th Jan. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:
Compass/clino

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-51.5	30	42.5

Gear in hole: None

DDH SHD-6

Collar (AMG easting) 380655mE (estimated from aerial photo's and topo. maps)
Collar (AMG northing) 5359750mN "
Collar (R.L.) 520 m.a.s.l. "
Depth 249.5 metres
Commenced 28th Jan. '97
Completed 13th Feb. '97
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-40	226.5	239
30	-37.8	225	237.5
60	-36.8	225.5	238
90	-36.4	228	240.5
120	-35.5	227	239.5
160	-32.7	228.5	241
201	-31.3	230	242.5
249.5	-30.2	198.5 magnetic?	

Gear in hole: None. Not lined with PVC

DDH SHD-7

Collar (Grid westing)	301.5mW	
Collar (Grid northing	960.5mN	
Collar (AMG easting)	380475mE	(estimated from approximate locations of grid lines)
Collar (AMG northing)	5357707mN	"
Collar (R.L.)	500m	"
Depth	52.0 metres	
Commenced	31st Jan. '97	
Completed	4th Feb. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:	Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
Compass/clino	0	-48	27	39.5

Gear in hole: None

DDH SHD-8

Collar (AMG easting)	380066.5mE	(on 59300N 'AMG' grid line)
Collar (AMG northing)	59300mN	"
Collar (R.L.)	520 m.a.s.l.	"
Depth	55.0 metres	
Commenced	5th Feb. '97	
Completed	8th Feb. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:	Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
Compass/clino	0	-52	78	90.5

Gear in hole: None

DDH SHD-9

Collar (AMG easting)	380180.5mE	(on 53900N 'AMG' grid line)
Collar (AMG northing)	5359300mN	"
Collar (R.L.)	515 m.a.s.l.	"
Depth	47.5 metres	
Commenced	13th Feb. '97	
Completed	17th Feb. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:	Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
Compass/clino	0	-48	72	84.5

Gear in hole: None

DDH SHD-10

Collar (AMG easting) 381320mE (estimated from aerial photo's and topo. maps)
Collar (AMG northing) 5359090mN "
Collar (R.L.) 500 m.a.s.l. "
Depth 574.0 metres
Commenced 17th Feb. '97
Completed 22nd Jan. '97
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-71	240	252.5
10	-71.3	240	252.5
19	-71.2	239.7	252.2
28	-70.4	240	252.5
37	-70	239.7	252.2
46	-70	239.5	252
55	-70	239	251.5
64	-69.7	239.5	252
73	-69.7	238.5	251
91	-69.2	240.5	253
106	-68.7	240.5	253
121	-68.2	240.5	253
136	-68	240.5	253
151	-68.7	242.7	255.2
166	-68.2	200 magnetic?	
181	-68.4	243	255.5
198	-68.3	243	255.5
214	-68.3	240	252.5
226	-68	244.7	257.2
241	-68	245	257.5
256	-68	246	258.5
286	-67.5	244.5	257
316	-66.8	243.5	256
346	-66.1	244.7	257.2
379	-65.6	244.5	257
411	-64.8	244.7	257.2
448	-64.1	245	257.5
454	-64	244.5	257
484	-62.8	246.5	259
514	-62.1	246.5	259
536	-61	246.5	259
556	-59.8	247	259.5
576	-59	246	258.5

Gear in hole: None. Not lined with PVC

DDH SHD-11

Collar (AMG easting)	380525mE	(estimated from aerial photo's and topo. maps)
Collar (AMG northing)	5358710mN	"
Collar (R.L.)	485 m.a.s.l.	"
Depth	56.5 metres	
Commenced	18th Feb. '97	
Completed	22nd Feb. '97	
Contractor	Nick Poltock	
Drill Rig	Man portable	

Downhole Surveys:
Compass/Clino.

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-58.5	145	157.5

Gear in hole: None

DDH SHD-12

Collar (AMG easting) 380360mE (estimated from aerial photo's and topo. maps)
Collar (AMG northing) 5358290mN "
Collar (R.L.) 490 m.a.s.l. "
Depth 643 metres
Commenced 1st April '97
Completed 28th April '97
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-61	292	304.5
19	-61.2	291.5	304
40	-61	291.5	304
61	-60.4	291.5	304
91	-59.6	292.5	305
115	-58.7	293.5	306
142	-57	294.5	307
168	-55	294.5	307
201	-52	293	305.5
235	-50.6	295.5	308
268	-50	299.5	312
300	-49.9	297	309.5
331	-49.5(?)	297(?)	
361	-49.4	298.5	311
400	-48.9	298	310.5
430	-48.5	299.5	312
460	-48.1	300	312.5
496	-47.4	302	314.5
526	-47	303.5	316
559	-46.6	304.8	317.3
589	-46.1	306	318.5
619	-45.1	308	320.5
640	-44.8	308.5	321

Gear in hole: Back-off tool at bottom. Lined with 40mm Class 18 PVC

DDH SHD-13

Collar (AMG easting) (estimated from aerial photo's and topo. maps)
Collar (AMG northing) "
Collar (R.L.) "
Depth
Commenced
Completed
Contractor Almac Drilling
Drill Rig Longyear 44

Downhole Surveys:
Compass/Clino.
Eastman single shot

Depth (metres)	Inclination	Azimuth (magnetic)	Azimuth (A.M.G.)
0	-64	237.5	250
12	-63.4	237	249.5
24	-63.3	240	252.5
48	-63.1	239.5	252
79	-62.2	244.5	257
109	-61.8	244	256.5
139	-61.6	244.5	257
169	-61.1	243.5	256
199	-60.8	245	257.5
229	-60.7	245	257.5
262	-60.6	245	257.5
289	-60.2		
319	-59.8	247	259.5
349	-59.6	246.5	259
379	-59.4	250	262.5
412	-58.8	252	264.5
445	-58	253.5	266
475	-57.8	254	266.5
505	-57.3	253.5	266
535	-57	251	263.5
568	-56.1	251.5	264
598	-55.5	255.5	268
628	-54.7	254.5	267
658	-53.4	255	267.5
688	-52.2	256	268.5
718	-51.2	256	268.5
748	-50.1	257.5	270
781	-48.8	258.5	271
814	-47.2	259	271.5
844	-45.8	259	271.5
877	-44.6	260	272.5
913	-43.2	264.5	277
943	-41.4	265	277.5
973	-40.3	265	277.5

Appendix I

Drill hole assays

SHD-1 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
203	203.6	385621	33	<3	-	140	-	<1	<50	4.1	<0.005	-	827	-	<0.01	<5
224.1	224.6	385622	135	<3	-	138	-	<1	<50	4.7	<0.005	-	1590	-	<0.01	<5
236.35	236.75	385623	132	<3	-	165	-	<1	<50	2.4	<0.005	-	1780	-	<0.01	<5
262.2	262.4	385624	196	3	-	236	-	<1	<50	5.7	<0.005	<0.005	1338	-	<0.01	<5
263.4	263.7	385625	4	<3	-	87	-	<1	<50	2.5	0.035	-	1007	-	<0.01	<5
265.5	265.8	385626	19	<3	-	67	-	<1	<50	2.7	<0.005	-	1036	-	<0.01	<5
273.6	274	385627	127	40	-	180	-	<1	<50	37.2	0.019	-	1092	-	6	<5
274.7	274.9	385628	9	<3	-	188	-	<1	<50	2.9	0.071	-	1160	-	<0.01	<5
314.7	315	385629	5	11	-	25	-	<1	<50	18.5	0.079	-	2417	-	<0.01	<5
317	318	385630	3	<3	-	227	-	<1	<50	3.2	0.007	-	972	-	<0.01	<5
332	333	385631	39	6	-	132	-	<1	<50	3.6	<0.005	-	1152	-	<0.01	<5
348	349	385632	26	30	-	319	-	<1	<50	2.7	<0.005	-	1573	-	<0.01	<5
360	361	385633	6	14	-	228	-	<1	<50	2.3	<0.005	-	1740	-	<0.01	<5
377	378	385634	15	33	-	198	-	<1	<50	10.6	<0.005	<0.005	618	-	<0.01	<5
389	390	385635	26	9	-	240	-	<1	<50	5.3	<0.005	-	2014	-	<0.01	<5
394	395	385681	8	137	-	835	-	<1	-	-	<0.005	-	-	-	-	-
395	396	385636	5	552	-	1513	-	<1	<50	4.8	<0.005	-	347	-	5	<5
396	397	385682	14	1026	-	1240	-	<1	-	-	<0.005	-	-	-	-	-
397	398	385683	11	33	-	299	-	<1	-	-	<0.005	-	-	-	-	-
412	413	385637	13	15	-	131	-	<1	<50	2.3	<0.005	-	2339	-	<0.01	<5
434	435	385638	13	28	-	323	-	<1	<50	2.2	<0.005	-	2610	-	<0.01	<5
440.3	441	385654	49	786	-	4979	-	4	<50	32.6	0.005	-	2293	-	<0.01	<5
459	460	385684	16	90	-	200	-	<1	-	-	<0.005	-	-	-	-	-
460	461	385685	13	67	-	84	-	<1	-	-	<0.005	-	-	-	-	-
461	462	385686	24	156	-	164	-	<1	-	-	<0.005	-	-	-	-	-
462	463	385687	24	59	-	199	-	<1	-	-	<0.005	-	-	-	-	-
463	464	385688	39	35	-	1046	-	<1	-	-	<0.005	-	-	-	-	-
464	465	385689	20	23	-	176	-	<1	-	-	<0.005	-	-	-	-	-
465	466	385690	21	37	-	95	-	<1	-	-	<0.005	-	-	-	-	-
466	467	385691	20	60	-	182	-	<1	-	-	<0.005	-	-	-	-	-
467	468	385692	14	90	-	128	-	<1	-	-	<0.005	<0.005	-	-	-	-
468	469	385693	11	168	-	769	-	<1	-	-	<0.005	-	-	-	-	-
469	470	385694	30	120	-	305	-	<1	-	-	<0.005	<0.005	-	-	-	-
470	471	385695	25	40	-	264	-	<1	-	-	<0.005	-	-	-	-	-
471	472	385696	21	29	-	193	-	<1	-	-	<0.005	-	-	-	-	-
472	473	385697	14	23	-	143	-	<1	-	-	<0.005	-	-	-	-	-
473	474	385698	30	19	-	154	-	<1	-	-	<0.005	-	-	-	-	-
474	475	385699	19	15	-	158	-	<1	-	-	<0.005	-	-	-	-	-
475	476	385640	10	8	-	92	-	<1	<50	9.1	0.024	-	1506	-	5	<5

390164

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
476	477	385700	35	24	-	239	-	<1	-	-	<0.005	-	-	-	-	-
477	478	385701	42	21	-	188	-	<1	-	-	<0.005	-	-	-	-	-
478	479	385702	10	4	-	140	-	<1	-	-	<0.005	<0.005	-	-	-	-
479	480	385703	9	44	-	127	-	<1	-	-	<0.005	-	-	-	-	-
480	481	385704	9	378	-	430	-	2	-	-	<0.005	-	-	-	-	-
481	482	385705	14	66	-	79	-	<1	-	-	<0.005	-	-	-	-	-
482	483	385706	56	739	-	501	-	4	-	-	<0.005	-	-	-	-	-
483	484	385641	14	222	-	460	-	<1	<50	30.3	<0.005	-	272	-	<0.01	<5
484	485	385707	15	169	-	511	-	1	-	-	<0.005	-	-	-	-	-
485	486	385708	22	134	-	167	-	1	-	-	0.023	-	-	-	-	-
486	487	385709	17	109	-	229	-	<1	-	-	<0.005	-	-	-	-	-
487	488	385710	20	66	-	178	-	<1	-	-	<0.005	-	-	-	-	-
488	489	385711	25	85	-	717	-	<1	-	-	<0.005	-	-	-	-	-
489	490	385642	28	58	-	95	-	<1	<50	40.1	0.018	-	575	-	<0.01	<5
490	491	385712	30	26	-	155	-	<1	-	-	<0.005	-	-	-	-	-
491	492	385713	17	38	-	329	-	<1	-	-	<0.005	<0.005	-	-	-	-
493	494	385639	19	14	-	281	-	<1	<50	12.5	<0.005	<0.005	2728	-	<0.01	<5
497.7	498.7	385714	444	22	-	103	-	<1	-	-	0.005	-	-	-	-	-
502	503	385643	37	10	-	282	-	<1	<50	7.4	<0.005	-	2687	-	<0.01	<5
513	514	385644	21	28	-	247	-	<1	<50	15.9	<0.005	-	2262	-	<0.01	<5
527	528	385645	13	<3	-	201	-	<1	<50	2.5	<0.005	-	1732	-	<0.01	<5
543	544	385646	8	<3	-	281	-	<1	<50	12.3	<0.005	-	2829	-	<0.01	<5
546.3	547	385715	49	57	-	170	-	1	-	-	<0.005	-	-	-	-	-
547	547.7	385716	46	20	-	368	-	<1	-	-	0.007	-	-	-	-	-
553.8	554.4	385717	4	13	-	30	-	<1	-	-	0.098	0.09	-	-	-	-
557	558	385647	50	<3	-	288	-	<1	<50	15.9	<0.005	-	4275	-	<0.01	<5
574	575	385648	63	19	-	153	-	<1	<50	26.7	<0.005	-	3127	-	<0.01	<5
579	580	385718	169	140	-	512	-	2	-	-	0.032	-	-	-	-	-
580	581	385719	32	160	-	1106	-	1	-	-	<0.005	-	-	-	-	-
581	582	385720	8	131	-	319	-	<1	-	-	<0.005	-	-	-	-	-
582	583	385721	76	72	-	480	-	2	-	-	<0.005	-	-	-	-	-
583	584	385722	461	22	-	355	-	5	-	-	<0.005	-	-	-	-	-
584	585	385723	59	14	-	178	-	2	-	-	<0.005	-	-	-	-	-
592	593	385649	31	77	-	321	-	<1	<50	34.8	<0.005	<0.005	2611	-	<0.01	<5
596	597	385724	35	28	-	77	-	1	-	-	<0.005	-	-	-	-	-
602	603	385650	22	4	-	70	-	<1	<50	19.9	<0.005	-	3733	-	<0.01	<5
607	608	385725	44	31	-	101	-	1	-	-	<0.005	-	-	-	-	-
616	617	385726	21	<3	-	114	-	<1	-	-	0.022	-	-	-	-	-
622	623	385651	12	5	-	82	-	<1	<50	18.4	0.027	-	1396	-	<0.01	<5
627	628	385727	25	11	-	75	-	<1	-	-	<0.005	<0.005	-	-	-	-
633	634	385728	35	38	-	79	-	1	-	-	<0.005	-	-	-	-	-

390165

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
636	637	385652	19	6	-	74	-	<1	<50	18.2	<0.005	-	1603	-	<0.01	<5
639	640	385729	14	110	-	509	-	2	-	-	<0.005	-	-	-	-	-
640	641	385730	19	34	-	119	-	1	-	-	<0.005	-	-	-	-	-
641	642	385731	13	100	-	789	-	2	-	-	<0.005	-	-	-	-	-
642	643	385732	5	32	-	478	-	<1	-	-	<0.005	<0.005	-	-	-	-
643	644	385733	28	14	-	90	-	<1	-	-	0.04	-	-	-	-	-
644	645	385653	17	24	-	105	-	<1	<50	25.3	0.089	-	2110	-	<0.01	<5
645	646	385734	26	163	-	680	-	<1	-	-	0.02	-	-	-	-	-
646	647	385735	29	30	-	333	-	<1	-	-	0.011	-	-	-	-	-
647	648	385736	15	28	-	210	-	<1	-	-	0.196	-	-	-	-	-
648	649	385737	14	12	-	136	-	<1	-	-	0.016	-	-	-	-	-
649	650	385738	68	70	-	235	-	2	-	-	0.014	-	-	-	-	-
650	651	385739	23	51	-	92	-	<1	-	-	0.052	-	-	-	-	-
651	652	385740	14	55	-	133	-	1	-	-	0.07	-	-	-	-	-
652	653	385741	21	44	-	120	-	1	-	-	<0.005	-	-	-	-	-
653	654	385742	29	266	-	864	-	3	-	-	0.032	-	-	-	-	-
654	655	385743	58	390	-	921	-	8	-	-	0.014	-	-	-	-	-
655	656	385744	31	142	-	666	-	3	-	-	<0.005	-	-	-	-	-
656	657	385745	20	64	-	240	-	<1	-	-	<0.005	<0.005	-	-	-	-
657	658	385746	21	12	-	54	-	<1	-	-	<0.005	-	-	-	-	-
658	659	385747	25	11	-	61	-	<1	-	-	<0.005	-	-	-	-	-
659	660	385748	24	19	-	109	-	<1	-	-	<0.005	-	-	-	-	-
660	661	385749	33	114	-	105	-	1	-	-	<0.005	-	-	-	-	-
661	662	385750	18	41	-	259	-	<1	-	-	<0.005	-	-	-	-	-
664	665	385501	45	1783	-	2280	-	8	-	-	<0.005	-	-	-	-	-
665	666	385502	-	-	-	-	-	-	<50	37.6	-	-	-	1.26	<0.01	<5
665	666	385502	16	1039	-	1510	-	3	-	-	0.012	-	-	-	-	-
666	667	385503	198	-	3.45	-	0.92	32	-	-	0.044	-	-	-	-	-
667	668	385504	42	905	-	2323	-	2	-	-	0.048	-	-	-	-	-
668	669	385505	-	-	-	-	-	-	60	-	-	-	-	1.7	<0.01	<5
668	669	385505	85	1294	-	827	-	3	-	-	0.019	-	-	-	-	-
669	670	385506	64	605	-	1121	-	2	-	-	0.064	-	-	-	-	-
670	671	385507	30	726	-	1265	-	2	-	-	0.063	-	-	-	-	-
671	672	385508	32	1427	-	1366	-	5	-	-	0.038	-	-	-	-	-
672	673	385509	94	3393	-	-	0.93	13	-	-	0.168	-	-	-	-	-
673	674	385510	57	1010	-	1779	-	3	-	-	0.039	-	-	-	-	-
674	675	385511	34	826	-	1185	-	2	-	-	0.034	-	-	-	-	-
675	676	385512	37	814	-	1495	-	3	-	-	0.042	0.036	-	-	-	-
676	677	385513	-	-	-	-	-	-	64	-	-	-	768	-	10	<5
676	677	385513	404	-	0.69	-	1.82	14	-	-	0.168	0.168	-	-	-	-
677	678	385514	283	2899	-	1635	-	14	-	-	0.132	-	-	-	-	-

390166

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
678	679	385515	60	2271	-	1485	-	5	-	-	0.042	-	-	-	-	-
679	680	385516	80	894	-	2281	-	2	-	-	0.06	-	-	-	-	-
680	681	385517	76	3281	-	3083	-	8	-	-	0.078	-	-	-	-	-
681	682	385518	49	923	-	1664	-	2	-	-	0.064	-	-	-	-	-
682	683	385519	57	363	-	1070	-	1	-	-	0.048	-	-	-	-	-
683	684	385520	24	328	-	804	-	1	-	-	0.019	-	-	-	-	-
684	685	385521	50	310	-	1066	-	1	-	-	0.028	-	-	-	-	-
685	686	385522	-	-	-	-	-	-	77	-	-	-	-	1.29	<0.01	<5
685	686	385522	37	631	-	965	-	1	-	-	0.013	0.009	-	-	-	-
686	687	385523	84	1508	-	933	-	3	-	-	0.008	-	-	-	-	-
687	688	385524	65	135	-	956	-	<1	-	-	0.008	-	-	-	-	-
688	689	385525	39	198	-	587	-	<1	-	-	0.008	-	-	-	-	-
689	690	385526	35	676	-	979	-	1	-	-	0.012	0.021	-	-	-	-
690	691	385527	85	320	-	240	-	1	-	-	<0.005	-	-	-	-	-
691	692	385528	63	243	-	1504	-	<1	-	-	<0.005	-	-	-	-	-
692	693	385529	76	130	-	283	-	<1	-	-	<0.005	-	-	-	-	-
693	694	385530	1361	455	-	1348	-	6	-	-	0.023	-	-	-	-	-
694	695	385531	38	1095	-	2211	-	3	-	-	0.017	-	-	-	-	-
695	696	385532	-	-	-	-	-	-	95	-	-	-	-	1.01	<0.01	<5
695	696	385532	40	674	-	1506	-	2	-	-	0.029	-	-	-	-	-
696	697	385533	14	353	-	926	-	<1	-	-	0.023	-	-	-	-	-
697	698	385534	30	1326	-	2138	-	2	-	-	0.017	-	-	-	-	-
698	699	385535	21	716	-	3609	-	1	-	-	0.005	-	-	-	-	-
699	700	385536	110	806	-	1214	-	2	-	-	<0.005	-	-	-	-	-
700	701	385537	36	637	-	1593	-	2	-	-	0.012	-	-	-	-	-
701	702	385538	-	-	-	-	-	-	<50	49.7	-	-	-	2.02	<0.01	<5
701	702	385538	48	549	-	3020	-	2	-	-	0.016	-	-	-	-	-
702	703	385539	1131	109	-	107	-	2	-	-	0.007	-	-	-	-	-
703	704	385540	760	34	-	209	-	2	-	-	0.006	-	-	-	-	-
704	705	385541	77	36	-	233	-	<1	-	-	<0.005	-	-	-	-	-
705	706	385542	17	41	-	116	-	<1	-	-	<0.005	<0.005	-	-	-	-
706	707	385543	83	147	-	187	-	<1	-	-	<0.005	-	-	-	-	-
707	708	385544	14	135	-	224	-	<1	-	-	0.016	-	-	-	-	-
708	709	385545	22	387	-	529	-	1	-	-	0.034	-	-	-	-	-
709	710	385546	-	-	-	-	-	-	83	-	-	-	-	1.4	<0.01	<5
709	710	385546	18	440	-	1107	-	1	-	-	0.046	-	-	-	-	-
710	711	385547	13	434	-	1151	-	<1	-	-	0.016	0.021	-	-	-	-
711	712	385548	20	540	-	1006	-	1	-	-	0.026	-	-	-	-	-
712	713	385549	30	799	-	1638	-	1	-	-	0.036	-	-	-	-	-
713	714	385550	16	646	-	704	-	<1	-	-	0.031	-	-	-	-	-
714	715	385551	71	1488	-	4387	-	1	-	-	0.089	-	-	-	-	-

390167

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
715	716	385552	378	2455	-	-	0.72	7	-	-	0.266	-	-	-	-	-
716	717	385553	-	-	-	-	-	-	65	-	-	-	-	1.98	<0.01	<5
716	717	385553	68	1679	-	3668	-	3	-	-	0.331	-	-	-	-	-
717	718	385554	100	1020	-	-	0.66	1	-	-	0.042	-	-	-	-	-
718	719	385555	45	919	-	1581	-	<1	-	-	0.039	-	-	-	-	-
719	720	385556	8	623	-	887	-	<1	-	-	0.025	-	-	-	-	-
720	721	385557	-	-	-	-	-	-	<50	35.6	-	-	-	1.7	<0.01	<5
720	721	385557	7	129	-	430	-	<1	-	-	0.031	-	-	-	-	-
721	722	385558	11	266	-	777	-	<1	-	-	0.024	-	-	-	-	-
722	723	385559	22	338	-	718	-	<1	-	-	0.01	-	-	-	-	-
723	724	385560	16	127	-	1128	-	<1	<50	12.6	0.015	-	-	1.85	6	<5
724	725	385561	40	310	-	1808	-	<1	-	-	0.019	-	-	-	-	-
725	726	385562	23	345	-	1063	-	<1	-	-	0.029	-	-	-	-	-
726	727	385563	51	1030	-	2223	-	<1	-	-	0.048	-	-	-	-	-
727	728	385564	16	614	-	1411	-	<1	-	-	0.029	-	-	-	-	-
728	729	385565	26	693	-	2067	-	<1	-	-	0.032	-	-	-	-	-
729	730	385566	60	1077	-	1785	-	<1	<50	45.8	0.048	0.041	-	1.18	<0.01	<5
730	731	385567	174	1441	-	-	0.73	<1	-	-	0.051	-	-	-	-	-
731	732	385568	296	1857	-	2939	-	2	-	-	0.06	-	-	-	-	-
732	733	385569	56	941	-	2528	-	2	-	-	0.063	0.06	-	-	-	-
733	734	385570	102	1432	-	3123	-	3	-	-	0.052	-	-	-	-	-
734	735	385571	72	727	-	2309	-	4	-	-	0.114	-	-	-	-	-
735	736	385572	85	750	-	2660	-	1	-	-	0.09	0.092	-	-	-	-
736	737	385573	35	675	-	1817	-	2	-	-	0.057	-	-	-	-	-
737	738	385574	68	1695	-	3164	-	12	-	-	0.074	-	-	-	-	-
738	739	385575	46	815	-	2373	-	4	-	-	0.068	-	-	-	-	-
739	740	385576	45	983	-	1798	-	2	-	-	0.045	-	-	-	-	-
740	741	385577	105	890	-	3762	-	1	-	-	0.018	-	-	-	-	-
741	742	385578	16	530	-	1200	-	<1	-	-	0.008	-	-	-	-	-
742	743	385579	19	373	-	1199	-	<1	-	-	0.024	0.028	-	-	-	-
743	744	385580	25	734	-	1752	-	<1	-	-	0.025	-	-	-	-	-
744	745	385581	75	903	-	2589	-	1	-	-	0.039	-	-	-	-	-
745	746	385582	26	750	-	1606	-	1	-	-	0.015	-	-	-	-	-
746	747	385583	14	648	-	1621	-	<1	-	-	0.007	-	-	-	-	-
747	748	385584	26	992	-	2523	-	<1	-	-	<0.005	-	-	-	-	-
748	749	385585	79	1147	-	2725	-	<1	-	-	0.043	-	-	-	-	-
749	750	385586	119	1581	-	3230	-	<1	-	-	0.009	-	-	-	-	-
750	751	385587	7	263	-	888	-	<1	-	-	0.008	-	-	-	-	-
751	752	385588	8	140	-	960	-	<1	<50	9.8	<0.005	-	-	1	<0.01	<5
752	753	385589	9	341	-	1593	-	<1	-	-	0.01	-	-	-	-	-
753	754	385590	8	811	-	2235	-	<1	-	-	<0.005	-	-	-	-	-

390168

From (m)	To (m)	Sample No.	Cu	Pb	Pb%	Zn	Zn%	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
754	755	385591	12	1509	-	2453	-	<1	-	-	<0.005	-	-	-	-	-
755	756	385592	41	2372	-	3151	-	<1	<50	7.6	<0.005	-	-	0.87	9	<5
756	757	385593	108	1296	-	3547	-	<1	-	-	0.008	-	-	-	-	-
757	758	385594	96	880	-	2273	-	<1	-	-	<0.005	<0.005	-	-	-	-
758	759	385595	8	407	-	946	-	<1	-	-	0.012	-	-	-	-	-
759	760	385596	8	146	-	706	-	<1	-	-	<0.005	-	-	-	-	-
760	761	385597	3	246	-	771	-	<1	-	-	0.016	-	-	-	-	-
761	762	385598	4	303	-	946	-	<1	-	-	0.006	-	-	-	-	-
762	763	385599	4	467	-	735	-	<1	-	-	<0.005	-	-	-	-	-
763	764	385600	5	448	-	1075	-	<1	-	-	<0.005	-	-	-	-	-
764	765	385601	6	170	-	644	-	<1	-	-	<0.005	-	-	-	-	-
765	766	385602	6	113	-	544	-	<1	<50	5.1	<0.005	-	-	0.86	<0.01	<5
766	767	385603	14	184	-	555	-	<1	-	-	<0.005	-	-	-	-	-
767	768	385604	4	172	-	486	-	<1	-	-	<0.005	<0.005	-	-	-	-
768	769	385605	5	338	-	520	-	<1	-	-	<0.005	-	-	-	-	-
769	770	385606	10	175	-	338	-	<1	-	-	0.008	-	-	-	-	-
770	771	385607	11	147	-	506	-	<1	-	-	0.005	-	-	-	-	-
771	772	385608	43	215	-	625	-	<1	-	-	0.008	-	-	-	-	-
772	773	385609	15	222	-	510	-	<1	-	-	0.005	0.007	-	-	-	-
773	774	385610	12	140	-	535	-	<1	-	-	<0.005	-	-	-	-	-
774	775	385611	10	185	-	465	-	<1	-	-	0.179	-	-	-	-	-
775	776	385612	12	252	-	611	-	<1	-	-	<0.005	-	-	-	-	-
776	777	385613	10	276	-	689	-	<1	<50	5.8	<0.005	-	4046	-	<0.01	<5
777	778	385614	23	393	-	1221	-	<1	-	-	0.013	-	-	-	-	-
778	779	385615	8	275	-	682	-	<1	-	-	<0.005	-	-	-	-	-
UNITS			ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm
DETECTION LIMIT			2	3	0.01	2	0.01	1	50	0.5	0.005	0.005	3		0.01	5
METHOD (ANALABS)			GA140	GA140	GA104	GA140	GA104	GA140	GA140	HA140	GG313	GG313	GA140		GA104	GA140

390169

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Ti	Zr	Ti from TiO2	Ti/Zr	P2O5/TiO2
385621	20.6	48.8	1.1	8	0.1	6.25	3.17	3.62	1.88	0.511	<0.01	6.12	100.2	0.025	1076	4301	173	6594	38.1	0.46
385622	21.9	44.6	1.19	9.91	0.21	5.84	2.97	3.72	1.72	0.331	0.2	6.65	99.1	0.11	905	4679	191	7134	37.4	0.28
385623	19.7	46	1.05	11.7	0.24	6.53	3.64	2.46	1.75	0.345	0.04	6.83	100.2	0.016	802	5125	174	6295	36.2	0.33
385624	15.6	53.6	0.48	13.2	0.17	3.03	2.3	1.05	4.17	0.131	0.08	6	99.8	0.052	443	2878	217	2878	13.3	0.27
385625	16.9	37.7	0.88	13.83	0.13	11.85	1.4	3.48	1.59	0.229	<0.01	12.04	100.1	0.015	1495	4582	112	5276	47.1	0.26
385626	12.2	30.7	0.68	7.34	0.13	23.22	1.66	2.41	1.36	0.194	<0.01	20.03	100	<0.005	1176	3154	89	4077	45.8	0.29
385627	13.2	61.3	0.44	8.51	0.14	3.66	2.47	1.41	2.5	0.166	1.82	5.2	99	0.99	638	2482	170	2638	15.5	0.38
385628	19.7	49.1	1.06	9.85	0.15	4.09	5.9	1.68	2.22	0.311	<0.01	5.3	99.4	<0.005	908	5576	152	6355	41.8	0.29
385629	1.77	6.75	0.04	1.01	0.32	49.2	0.44	0.23	0.51	0.091	0.01	39.2	99.6	<0.005	209	208	12	240	20.0	2.28
385630	13.2	68.3	0.45	5.93	0.12	1.3	2.41	2.17	2.16	0.127	0.02	3.11	99.2	0.011	1813	2461	199	2698	13.6	0.28
385631	15.5	67.9	0.52	3.45	0.15	1.83	1.79	3.72	1.03	0.142	<0.01	3.36	99.4	<0.005	2306	2710	228	3117	13.7	0.27
385632	14.3	67.1	0.51	7.12	0.21	1.24	1.75	2.79	1.54	0.143	<0.01	3.17	99.8	<0.005	2442	2692	204	3057	15.0	0.28
385633	15.6	65.6	0.56	5.52	0.23	1.71	2.88	2.81	1.24	0.15	0.1	2.98	99.3	0.068	1765	2768	221	3357	15.2	0.27
385634	14.8	70.9	0.52	4.51	0.07	0.24	2.25	3.05	1.16	0.145	0.15	2.1	99.8	<0.005	1315	2744	219	3117	14.2	0.28
385635	14.7	64	0.69	6.04	0.28	2.87	2.58	2.77	0.88	0.241	0.09	3.91	99	0.049	925	4045	228	4137	18.1	0.35
385681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385636	13.8	72.3	0.64	3.04	0.04	0.59	2.56	3.18	0.64	0.227	0.54	1.86	99	0.27	1717	3667	213	3837	18.0	0.35
385682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385683	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385637	13.1	61.4	0.46	5.19	0.33	6.38	1.06	3.31	1.24	0.135	0.18	6.74	99.4	0.1	965	2326	190	2758	14.5	0.29
385638	15	63.2	0.51	5.38	0.36	2.62	0.13	4.74	1.61	0.14	0.04	5.42	99.1	0.018	1283	2409	230	3057	13.3	0.27
385654	12.5	53.6	0.67	3.97	0.3	2.58	0.09	4.41	1.12	0.169	5.26	4.31	84.4	2.3	64000	4080	106	4017	37.9	0.25
385684	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385685	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385688	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385689	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385691	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385692	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385693	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385694	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385696	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385697	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385698	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385699	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385640	15.1	65.9	0.86	3.56	0.21	1.63	0.62	5.08	1.09	0.262	0.89	3.9	98.2	0.49	1600	5115	219	5156	23.5	0.30

390170

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl from TiO2	Tl/Zr	P2O5/TiO2
385700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385702	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385703	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385704	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385705	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385706	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385641	17.8	66.2	0.65	3.18	0.03	0.4	0.15	6.2	1.06	0.161	1.5	3.47	99.3	0.92	1405	2589	268	3897	14.5	0.25
385707	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385708	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385710	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385711	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385642	17.8	63.4	0.75	4.59	0.08	0.59	0.27	6.2	0.98	0.176	3.32	3.97	98.8	1.75	1472	3648	261	4496	17.2	0.23
385712	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385639	17.6	58.9	0.88	8.5	0.39	0.81	0.4	5.24	1.73	0.219	0.48	4.48	99.1	0.22	1172	4664	259	5276	20.4	0.25
385714	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385643	21.5	53.1	1.3	8.02	0.4	0.7	0.32	6.88	1.69	0.386	0.28	4.97	99.3	0.11	1398	7304	289	7793	27.0	0.30
385644	15.1	59.6	0.74	7.62	0.33	3	0.06	4.72	1.77	0.209	0.51	6.01	99.2	0.23	996	4090	221	4436	20.1	0.28
385645	14.9	65.3	0.52	5.73	0.25	1.56	X	4.73	1.5	0.141	0.06	4.38	99	0.028	1070	2649	226	3117	13.8	0.27
385646	14.2	65.4	0.51	6.08	0.42	1.01	X	5.15	1.46	0.136	0.03	5.45	99.8	0.021	1125	2653	211	3057	14.5	0.27
385715	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385717	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385647	18	58.8	0.72	6.74	0.65	0.38	0.06	6.81	1.4	0.19	0.09	5.39	99.2	0.054	1412	3926	194	4316	22.2	0.26
385648	15.8	59.6	0.64	7.23	0.47	2.02	0.09	5.76	1.25	0.174	0.23	6.2	99.2	0.11	1524	3433	166	3837	23.1	0.27
385718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385649	17.4	60.3	0.59	5.43	0.4	0.96	0.1	7.03	1.31	0.16	1.78	4.68	98.4	1.05	996	2814	266	3537	13.3	0.27
385724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385650	15.1	66.3	0.53	5.23	0.58	0.53	0.07	5.96	0.98	0.138	0.09	4.34	99.7	0.038	677	2578	229	3177	13.9	0.26
385725	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385726	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385651	15.7	67.5	0.54	4.6	0.2	0.71	X	5.73	0.93	0.152	0.04	3.91	100.1	0.024	857	2646	241	3237	13.4	0.28
385727	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385728	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3901721

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl from TiO2	Tl/Zr	P2O5/TiO2
385652	15	66	0.51	4.84	0.23	1.64	0.07	5.25	0.94	0.144	0.15	4.65	99.3	0.088	816	2562	227	3057	13.5	0.28
385729	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385731	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385732	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385733	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385653	14.3	67	0.52	4.48	0.31	1.77	X	4.95	0.9	0.132	0.05	4.91	99.2	0.032	1541	2511	219	3117	14.2	0.25
385734	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385736	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385738	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385739	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385740	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385742	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385743	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385744	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385745	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385747	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385748	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385749	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385502	15.7	57.1	0.65	5.08	1.55	3.2	0.5	6.34	0.99	0.157	1.47	5.92	97.3	0.83	4545	3622	251	3897	15.5	0.24
385502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385503	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385504	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385505	12.6	58.5	0.5	5.26	2.12	3.75	0.35	5.5	1.27	0.13	1.2	7.23	97.3	0.66	3675	2912	146	2997	20.5	0.26
385505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385506	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385508	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385509	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385512	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385513	4.33	50.7	0.22	1.62	0.07	0.76	1.16	1.5	0.17	0.045	11.46	4.07	66.4	6.29	205000	1320	55	1319	24.0	0.20
385513	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385514	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

390172

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl from TiO2	Tl/Zr	P2O5/TiO2
385515	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385516	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385517	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385518	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385519	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385522	14.4	62.1	0.62	6.32	1.58	1.23	0.12	5.24	0.98	0.158	1.13	5.88	98.7	0.53	3267	3591	150	3717	24.8	0.25
385522	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385523	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385525	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385527	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385528	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385529	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385531	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385532	15.3	61.8	0.64	5.71	1.23	1.15	0.8	5.42	0.79	0.145	2.54	5.41	98.6	1.55	4062	3688	157	3837	24.4	0.23
385532	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385533	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385537	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385538	12.2	62	0.49	7.08	2.51	1.14	0.18	4.07	0.9	0.101	2.46	7.08	98.1	1.34	5285	3069	139	2938	21.1	0.21
385538	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385543	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385546	15.6	59.3	0.94	6.32	1.7	1.48	0.07	5.06	1.05	0.162	1.13	6.78	98.6	0.65	3390	5785	210	5635	26.8	0.17
385546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385547	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385548	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385549	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385551	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

390173

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl from TiO2	Tl/Zr	P2O5/TiO2
385552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385553	12.8	53.6	0.49	11.36	2.44	1.32	0.07	4.15	1.23	0.102	3.29	9.46	97.4	1.42	5010	3105	143	2938	20.54	0.21
385553	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385554	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385555	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385556	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385557	15	54.8	0.64	9.75	2.06	1.39	0.08	4.62	1.27	0.166	0.86	8.68	98.4	0.53	3504	4046	147	3837	26.1	0.26
385557	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385559	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385560	14.3	57.3	0.57	9.41	2.31	0.67	0.12	4.45	1.11	0.133	1.67	8.41	98.8	0.74	2527	3723	149	3417	22.9	0.23
385561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385562	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385563	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385565	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385566	16.7	60.4	0.59	6.89	1.52	0.31	0.13	5	0.81	0.144	0.96	6.68	99.4	0.57	3458	3061	253	3537	14.0	0.24
385567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385569	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385570	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385572	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385573	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385574	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385575	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385576	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385577	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385578	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385579	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385583	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385585	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385586	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385588	13.1	69.5	0.33	3.81	1.25	1.36	0.11	3.93	0.77	0.052	0.68	4.99	99.3	0.41	1534	1837	272	1978	7.3	0.16
385589	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

390174

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl from TiO2	Tl/Zr	P2O5/TiO2
385591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385592	12	73.6	0.28	3.85	1.06	0.17	0.09	3.61	0.54	0.04	0.81	4.05	99.6	0.4	1292	1488	269	1679	6.2	0.14
385593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385594	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385595	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385596	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385597	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385598	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385601	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385602	12.2	70.2	0.3	3.22	1.03	2.19	0.11	3.57	0.95	0.02	0.27	5.36	99.1	0.12	879	1582	261	1798	6.9	0.07
385603	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385605	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385607	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385608	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385611	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385612	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385613	13.5	66.4	0.51	4.15	0.61	2.66	0.13	3.81	1.27	0.109	0.22	6.16	99.4	0.093	1213	2814	249	3057	12.3	0.21
385614	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385615	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm			
	0.05	0.05	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.005	0.01	0.01	0.01	0.005	10	50				
	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	O<0.0140	OX408	OX408	OM613	GX401	GX401	GX401			

390123

SHD-2 Assays

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
75.5	76	386255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
164.5	165	386256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
252.5	253	386257	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
264.8	266	385771	2887	-	131	-	32	-	2	-	-	-	0.04	-	-	-	-	-
266	267	385772	4533	-	154	-	94	-	2	-	<50	10.1	0.199	-	1137	-	5	28
267	268	385773	48	-	415	-	383	-	1	-	-	-	0.017	-	-	-	-	-
268	269	385774	19	-	401	-	329	-	1	-	-	-	<0.005	-	-	-	-	-
269	270	385775	17	-	433	-	226	-	<1	-	-	-	<0.005	-	-	-	-	-
270	271	385776	28	-	1087	-	513	-	1	-	-	-	<0.005	-	-	-	-	-
271	272	385777	141	-	3790	0.52	-	0.74	4	-	-	-	<0.005	-	-	-	-	-
272	273	385778	222	-	687	-	4108	-	1	-	-	-	0.008	-	-	-	-	-
273	274	385779	294	-	42	-	327	-	<1	-	-	-	0.017	-	-	-	-	-
274	275	385780	215	-	3	-	404	-	<1	-	-	-	0.03	0.028	-	-	-	-
275	276	385781	1837	-	20	-	126	-	1	-	-	-	0.037	-	-	-	-	-
276	277	385782	175	-	32	-	27	-	1	-	<50	49.1	0.067	-	140	-	7	<10
277	278	385783	356	-	42	-	40	-	1	-	-	-	0.04	-	-	-	-	-
278	279	385784	388	-	18	-	333	-	1	-	-	-	0.04	-	-	-	-	-
279	280	385785	203	-	28	-	82	-	<1	-	<50	36.1	0.328	-	403	-	6	13
280	281	385786	52	-	15	-	25	-	2	-	-	-	0.193	-	-	-	-	-
281	282	385787	2041	-	6	-	162	-	2	-	-	-	0.162	-	-	-	-	-
282	283	385788	452	-	17	-	358	-	1	-	-	-	0.039	-	-	-	-	-
283	284	385789	233	-	9	-	53	-	2	-	-	-	0.111	-	-	-	-	-
284	285	385790	515	-	11	-	194	-	2	-	-	-	0.126	0.12	-	-	-	-
285	286	385791	600	-	29	-	344	-	2	-	-	-	0.053	0.064	-	-	-	-
286	287	385792	392	-	244	-	671	-	10	-	-	-	0.821	-	-	-	-	-
287	288	385793	74	-	3754	-	3657	-	10	-	-	-	0.289	-	-	-	-	-
288	289	385794	50	-	461	-	347	-	7	-	<50	41.1	1.502	-	21	-	<5	<10
289	290	385795	728	-	14	-	222	-	5	-	-	-	0.515	-	-	-	-	-
290	291	385796	266	-	14	-	673	-	<1	-	-	-	0.02	-	-	-	-	-
291	292	385797	137	-	15	-	297	-	<1	-	<50	13.6	0.008	-	-	0.32	<5	<10
292	293	385798	1100	-	22	-	229	-	1	-	-	-	0.057	-	-	-	-	-
293	294	385799	541	-	46	-	98	-	2	-	-	-	0.047	-	-	-	-	-
294	295	385800	309	-	20	-	792	-	1	-	-	-	0.03	-	-	-	-	-
295	296	385801	219	-	30	-	53	-	<1	-	-	-	0.381	-	-	-	-	-
296	297	385802	219	-	30	-	87	-	1	-	-	-	0.423	0.428	-	-	-	-
297	298	385803	96	-	63	-	67	-	<1	-	-	-	0.467	-	-	-	-	-
298	299	385804	512	-	386	-	257	-	2	-	-	-	0.818	-	-	-	-	-
299	300	385805	338	-	42	-	92	-	1	-	-	-	0.488	-	-	-	-	-
300	301	385806	261	-	38	-	114	-	<1	-	-	-	0.512	0.436	-	-	-	-
301	302	385807	21	-	35	-	187	-	<1	-	-	-	0.334	-	-	-	-	-
302	303	385808	7	-	67	-	199	-	<1	-	-	-	0.015	-	-	-	-	-
303	304	385809	32	-	333	-	183	-	<1	-	-	-	0.02	-	-	-	-	-
304	305	385810	9	-	34	-	123	-	<1	-	-	-	0.012	-	-	-	-	-
305	306	385811	32	-	19	-	223	-	<1	-	-	-	0.015	-	-	-	-	-
306	307	385812	244	-	164	-	724	-	<1	-	-	-	0.057	-	-	-	-	-
307	308	385813	25	-	50	-	287	-	<1	-	-	-	0.017	-	-	-	-	-

3901176

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
308	309	385814	21	-	10	-	265	-	<1	-	-	-	0.01	-	-	-	-	-
309	310	385815	15	-	13	-	186	-	<1	-	-	-	0.011	0.008	-	-	-	-
310	311	385816	100	-	11	-	237	-	<1	-	-	-	0.025	-	-	-	-	-
311	312	385817	3871	-	7	-	165	-	3	-	<50	7	0.071	-	3696	-	<5	18
312	313	385818	-	1.1	11	-	203	-	1	-	-	-	0.069	-	-	-	-	-
313	314	385819	1200	-	11	-	270	-	<1	-	-	-	0.041	-	-	-	-	-
314	315	385820	744	-	9	-	167	-	<1	-	-	-	0.047	-	-	-	-	-
315	316	385821	765	-	13	-	88	-	<1	-	-	-	0.925	-	-	-	-	-
316	317	385822	2497	-	12	-	51	-	<1	-	-	-	0.391	-	-	-	-	-
317	318	385823	1352	-	18	-	85	-	<1	-	-	-	0.22	-	-	-	-	-
318	319	385824	2834	-	13	-	78	-	1	-	-	-	0.199	-	-	-	-	-
319	320	385825	1041	-	14	-	170	-	1	-	-	-	0.167	-	-	-	-	-
320	321	385826	2775	-	10	-	126	-	<1	-	-	-	0.114	-	-	-	-	-
321	322	385827	581	-	7	-	220	-	<1	-	-	-	0.08	-	-	-	-	-
322	323	385828	352	-	7	-	234	-	-	-	<50	18	0.042	-	-	-	-	-
323	324	385829	497	-	15	-	288	-	-	-	<50	6	0.034	-	-	-	-	-
324	325	385830	267	-	9	-	205	-	-	-	<50	16.8	0.2	-	-	-	-	-
325	326	385831	162	-	21	-	263	-	-	-	<50	19.7	0.08	-	-	-	-	-
326	327	385832	1245	-	<3	-	316	-	-	-	<50	5.2	0.052	-	-	-	-	-
327	328	385838	405	-	11	-	179	-	1	-	-	-	0.082	-	2170	-	-	-
328	329	385839	118	-	63	-	700	-	<1	-	-	-	0.016	-	2070	-	-	-
329	330	385840	52	-	141	-	1230	-	1	-	-	-	0.023	-	2350	-	-	-
330	331	385841	31	-	264	-	790	-	<1	-	-	-	0.01	-	2200	-	-	-
331	332	385842	58	-	620	-	760	-	1	-	-	-	0.017	0.008	2300	-	-	-
332	333	385843	33	-	378	-	760	-	1	-	-	-	0.01	-	3610	-	-	-
333	334	385844	46	-	392	-	720	-	1	-	-	-	0.008	-	2560	-	-	-
334	335	385845	60	-	296	-	100	-	<1	-	-	-	0.013	-	2620	-	-	-
335	336	385846	109	-	410	-	850	-	1	-	-	-	0.01	-	2260	-	-	-
336	337	385847	54	-	264	-	152	-	1	-	-	-	0.034	-	2420	-	-	-
337	338	385848	186	-	311	-	1030	-	2	-	-	-	0.033	-	3430	-	-	-
338	339	385849	35	-	55	-	266	-	<1	-	-	-	0.019	0.038	1860	-	-	-
339	340	385850	109	-	64	-	920	-	<1	-	-	-	0.008	-	1540	-	-	-
340	341	385851	128	-	91	-	335	-	1	-	-	-	0.009	-	2690	-	-	-
341	342	385852	2720	-	110	-	348	-	2	-	-	-	0.112	-	4210	-	-	-
342	343	385853	400	-	91	-	313	-	2	-	-	-	0.026	-	3920	-	-	-
343	344	385854	630	-	219	-	810	-	2	-	-	-	0.032	-	3440	-	-	-
344	345	385855	343	-	272	-	1010	-	2	-	-	-	0.014	-	2740	-	-	-
345	346	385856	30	-	246	-	780	-	<1	-	-	-	<0.005	-	3310	-	-	-
346	347	385857	28	-	262	-	650	-	<1	-	-	-	0.011	-	3330	-	-	-
347	348	385858	27	-	253	-	890	-	<1	-	-	-	<0.005	-	3330	-	-	-
348	348.9	385859	28	-	287	-	830	-	<1	-	-	-	0.01	0.007	3410	-	-	-
348.9	350.2	385860	66	-	291	-	1570	-	2	-	-	-	0.026	-	1980	-	-	-
350.2	351	385861	39	-	276	-	232	-	2	-	-	-	0.01	-	2696	-	-	-
351	352	385862	26	-	57	-	120	-	1	-	-	-	0.015	-	2760	-	-	-
352	353	385863	23	-	19	-	103	-	1	-	-	-	0.012	-	3520	-	-	-
353	354	385864	28	-	83	-	107	-	<1	-	-	-	0.012	-	3650	-	-	-
354	355	385865	32	-	172	-	60	-	1	-	-	-	0.054	-	4120	-	-	-

390177

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
355	356	385866	22	-	125	-	286	-	<1	-	-	-	0.016	-	4520	-	-	-
356	357	385867	41	-	394	-	1500	-	1	-	-	-	0.016	-	-	0.5	-	-
357	358	385868	30	-	325	-	1410	-	<1	-	-	-	0.011	-	-	0.51	-	-
358	359	385869	26	-	125	-	640	-	<1	-	-	-	0.016	-	-	0.52	-	-
359	360	385870	25	-	58	-	362	-	<1	-	-	-	0.016	-	-	0.52	-	-
360	361	385871	25	-	29	-	251	-	<1	-	-	-	0.012	-	-	0.53	-	-
361	362	385872	8	-	182	-	144	-	<1	-	-	-	0.014	-	-	0.5	-	-
362	363	385873	6	-	217	-	1330	-	1	-	-	-	0.013	-	-	1.43	-	-
363	364	385874	11	-	720	-	3250	-	<1	-	-	-	0.021	0.018	-	2.09	-	-
364	365	385875	10	-	1840	-	-	0.53	4	-	-	-	0.02	-	-	4.09	-	-
365	366	385876	12	-	950	-	2230	-	2	-	-	-	0.023	-	-	2.75	-	-
366	367	385877	8	-	1090	-	3650	-	3	-	-	-	0.018	-	-	2.96	-	-
367	368	385878	11	-	1250	-	2850	-	1	-	-	-	0.027	-	-	2.59	-	-
368	369	385879	10	-	1570	-	3120	-	1	-	-	-	0.026	-	-	1.76	-	-
369	370	385833	20	-	2696		>5000	0.57	3	-	<50	23.2	0.032			-	-	-
370	371	385834	92	-	>5000	0.75	>5000	1.94	10	-	<50	20.1	0.05	0.058		-	-	-
371	372.3	385835	156	-	>5000	1.04	>5000	1.91	16	-	<50	50	0.09			-	-	-
372.3	372.8	385836	1300	-	>5000	11.7	>5000	18.2	>50	220	<50	40.9	3.42			-	-	-
372.8	374	385837	95	-	>5000	0.75	>5000	1.23	11	-	<50	37.9	0.062			-	-	-
374	375	385880	14	-	2360	-	3190	-	2	-	-	-	0.033	0.026	-	1.43	-	-
375	376.5	385881	37	-	1000	-	4300	-	2	-	-	-	0.036	-	-	1.66	-	-
376.45	377.1	385882	66	-	1430	-	3650	-	7	-	-	-	0.072	-	-	0.8	-	-
377.1	378	385883	31	-	4050	-	-	0.6	12	-	-	-	0.026	-	-	1.45	-	-
378	379	385884	16	-	960	-	1640	-	4	-	-	-	0.01	0.016	-	1.41	-	-
379	380	385885	19	-	810	-	2300	-	4	-	-	-	0.011	-	-	0.75	-	-
380	381	385886	13	-	270	-	1280	-	3	-	-	-	0.012	-	-	1.33	-	-
381	382	385887	21	-	600	-	2720	-	4	-	-	-	0.008	-	-	1.72	-	-
382	383	385888	10	-	147	-	114	-	2	-	-	-	0.01	-	-	1.75	-	-
383	384	385889	24	-	240	-	1150	-	3	-	-	-	0.015	-	-	1.66	-	-
384	385	385890	21	-	83	-	700	-	1	-	-	-	0.017	-	-	1.52	-	-
385	386	385891	14	-	48	-	219	-	1	-	-	-	0.011	-	-	1.41	-	-
386	387	385892	21	-	33	-	690	-	<1	-	-	-	0.09	-	-	0.85	-	-
387	388	385893	17	-	41	-	212	-	1	-	-	-	<0.005	-	-	0.99	-	-
388	389	385894	12	-	240	-	207	-	1	-	-	-	0.005	-	-	0.61	-	-
389	390	385895	7	-	60	-	89	-	1	-	-	-	0.041	-	4000	-	-	-
390	391	385896	7	-	29	-	127	-	1	-	-	-	0.007	-	-	0.57	-	-
391	392	385897	139	-	374	-	720	-	33	-	-	-	0.009	-	-	0.73	-	-
392	393	385898	22	-	87	-	1150	-	3	-	-	-	<0.005	-	-	0.66	-	-
393	394	385899	11	-	71	-	380	-	2	-	-	-	<0.005	-	-	0.5	-	-
394	395	385900	31	-	175	-	397	-	5	-	-	-	<0.005	-	-	1.24	-	-
395	396	385901	27	-	92	-	365	-	6	-	-	-	<0.005	-	-	1.38	-	-
396	397	385902	19	-	184	-	303	-	5	-	-	-	<0.005	-	-	0.8	-	-
397	398	385903	18	-	590	-	89	-	4	-	-	-	<0.005	-	4140	-	-	-
398	399	385904	15	-	176	-	385	-	2	-	-	-	<0.005	-	-	0.51	-	-
399	400	385905	16	-	209	-	1560	-	2	-	-	-	<0.005	-	3330	-	-	-
400	401	385906	12	-	670	-	1050	-	1	-	-	-	<0.005	-	1430	-	-	-
401	402	385907	24	-	320	-	750	-	1	-	-	-	<0.005	-	2020	-	-	-

390178

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
409	409.5	386266	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
434.4	434.6	386265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478.3	478.8	386264	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
486.3	486.5	386269	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
486.5	487	385908	109	-	136	-	255	-	2	-	-	-	<0.005	-	3630	-	-	-
487	488	385909	96	-	20	-	306	-	1	-	-	-	0.005	-	2700	-	-	-
488	489	385910	45	-	20	-	272	-	<1	-	-	-	<0.005	-	3120	-	-	-
489	490	385911	80	-	32	-	275	-	1	-	-	-	0.007	-	2880	-	-	-
490	491	385912	164	-	44	-	355	-	1	-	-	-	0.065	-	2540	-	-	-
491	492	385913	86	-	63	-	293	-	2	-	-	-	0.024	-	2290	-	-	-
492	493	385914	65	-	271	-	250	-	6	-	-	-	0.023	-	3370	-	-	-
493	494	385915	58	-	113	-	190	-	2	-	-	-	0.014	-	2020	-	-	-
494	495	385916	88	-	196	-	159	-	3	-	-	-	0.018	0.01	2360	-	-	-
495	496	385917	83	-	218	-	283	-	2	-	-	-	0.013	-	2420	-	-	-
496	497	385918	70	-	570	-	1360	-	6	-	-	-	0.018	-	1530	-	-	-
496	497	385918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
497	498	385919	47	-	334	-	960	-	4	-	-	-	0.015	-	4270	-	-	-
498	499	385920	38	-	102	-	730	-	2	-	-	-	0.008	-	-	0.49	-	-
499	500	385921	21	-	127	-	285	-	2	-	-	-	0.008	-	3800	-	-	-
499	500	385921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500	501	385922	25	-	239	-	349	-	2	-	-	-	0.016	-	-	0.55	-	-
501	502	385923	16	-	332	-	401	-	1	-	-	-	0.019	-	-	0.5	-	-
502	503	385924	10	-	147	-	280	-	1	-	-	-	0.007	-	3810	-	-	-
503	504	385925	6	-	66	-	261	-	2	-	-	-	0.009	-	4680	-	-	-
504	505	385926	7	-	60	-	307	-	<1	-	-	-	0.006	-	-	0.51	-	-
505	506	385927	7	-	28	-	83	-	<1	-	-	-	0.008	-	-	1.04	-	-
506	507	385928	7	-	167	-	355	-	<1	-	-	-	0.02	-	-	0.77	-	-
507	508	385929	10	-	670	-	970	-	3	-	-	-	0.038	-	-	1.32	-	-
508	509	385930	8	-	480	-	850	-	2	-	-	-	0.036	-	-	3.35	-	-
509	510	385931	5	-	500	-	1060	-	<1	-	-	-	0.016	0.026	-	1.96	-	-
510	511	385932	13	-	157	-	1440	-	<1	-	-	-	0.008	-	-	0.76	-	-
511	512	385933	11	-	77	-	1270	-	1	-	-	-	0.013	-	-	1.01	-	-
512	513	385934	18	-	129	-	1330	-	<1	-	-	-	0.009	-	-	1.14	-	-
513	514	385935	27	-	180	-	860	-	<1	-	-	-	0.013	-	-	1.13	-	-
514	515	385936	17	-	206	-	880	-	<1	-	-	-	0.01	-	-	0.89	-	-
515	516	385937	9	-	227	-	930	-	<1	-	-	-	0.008	-	-	0.82	-	-
516	517	385938	9	-	247	-	397	-	<1	-	-	-	0.005	-	2880	-	-	-
517	518	385939	8	-	258	-	311	-	<1	-	-	-	0.01	-	-	0.5	-	-
518	519	385940	5	-	83	-	410	-	<1	-	-	-	0.018	-	4660	-	-	-
519	520	385941	6	-	165	-	258	-	<1	-	-	-	0.007	0.005	4100	-	-	-
520	521	385942	4	-	284	-	204	-	<1	-	-	-	0.005	-	-	0.51	-	-
521	522	385943	7	-	148	-	131	-	<1	-	-	-	<0.005	-	4640	-	-	-
522	523	385944	5	-	89	-	134	-	<1	-	-	-	0.006	-	-	0.5	-	-
523	524	385945	7	-	81	-	111	-	<1	-	-	-	<0.005	-	4000	-	-	-
524	525	385946	4	-	34	-	109	-	<1	-	-	-	<0.005	-	2730	-	-	-
525	526	385947	5	-	35	-	140	-	<1	-	-	-	<0.005	-	3460	-	-	-
526	527	385948	38	-	36	-	295	-	<1	-	-	-	0.007	-	2660	-	-	-

390179

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
527	528	385949	97	-	72	-	399	-	1	-	-	-	<0.005	-	3130	-	-	-
528	529	385950	84	-	23	-	410	-	1	-	-	-	0.006	-	3380	-	-	-
529	530	385951	86	-	26	-	265	-	<1	-	-	-	<0.005	-	2940	-	-	-
530	531	385952	23	-	206	-	267	-	<1	-	-	-	0.178	-	3690	-	-	-
531	532	385953	62	-	81	-	560	-	<1	-	-	-	<0.005	-	3560	-	-	-
532	533	385954	173	-	3350	-	-	0.51	3	-	-	-	0.1	-	4980	-	-	-
533	534	385955	58	-	384	-	730	-	2	-	-	-	0.005	-	-	0.72	-	-
534	535	385956	11	-	216	-	325	-	1	-	-	-	<0.005	-	-	0.64	-	-
535	536	385957	8	-	152	-	332	-	1	-	-	-	<0.005	-	-	0.49	-	-
536	537	385958	12	-	82	-	200	-	<1	-	-	-	0.005	-	3120	-	-	-
537	538	385959	14	-	394	-	1050	-	<1	-	-	-	0.009	0.01	-	0.55	-	-
538	539	385960	10	-	420	-	420	-	1	-	-	-	0.01	-	-	0.62	-	-
539	540	385961	7	-	149	-	336	-	1	-	-	-	0.008	-	-	0.49	-	-
540	541	385962	14	-	300	-	-	0.66	2	-	-	-	0.038	-	-	1.64	-	-
541	542	385963	16	-	710	-	1160	-	1	-	-	-	0.032	-	-	1.89	-	-
542	543	385964	57	-	206	-	314	-	1	-	-	-	0.687	-	-	0.52	-	-
543	544	385965	15	-	56	-	136	-	<1	-	-	-	0.019	-	4210	-	-	-
544	545	385966	12	-	130	-	161	-	<1	-	-	-	0.022	-	4340	-	-	-
545	546	385967	11	-	162	-	144	-	1	-	-	-	0.012	-	3310	-	-	-
546	547	385968	7	-	230	-	173	-	<1	-	-	-	0.02	-	-	0.51	-	-
547	548	385969	7	-	158	-	133	-	<1	-	-	-	0.005	-	4220	-	-	-
548	549	385970	20	-	156	-	750	-	<1	-	-	-	<0.005	-	-	0.54	-	-
549	550	385971	24	-	1100	-	1280	-	<1	-	-	-	0.005	0.011	4430	-	-	-
550	551	385972	108	-	-	0.6	3500	-	3	-	-	-	0.037	-	-	0.59	-	-
551	552	385973	56	-	43	-	530	-	1	-	-	-	<0.005	-	3590	-	-	-
552	553	385974	94	-	50	-	290	-	1	-	-	-	<0.005	-	3160	-	-	-
553	554	385975	46	-	15	-	277	-	<1	-	-	-	0.007	-	2770	-	-	-
554	555	385976	75	-	20	-	297	-	<1	-	-	-	<0.005	-	3710	-	-	-
555	556	385977	14	-	134	-	332	-	<1	-	-	-	<0.005	-	3150	-	-	-
556	557	385978	9	-	140	-	177	-	<1	-	-	-	<0.005	-	2170	-	-	-
557	558	385979	6	-	68	-	148	-	<1	-	-	-	0.005	-	1780	-	-	-
558	559	385980	6	-	57	-	108	-	<1	-	-	-	<0.005	-	1420	-	-	-
559	560	385981	15	-	220	-	330	-	<1	-	-	-	0.023	-	1760	-	-	-
560	561	385982	12	-	49	-	200	-	<1	-	-	-	0.007	-	1250	-	-	-
561	562	385983	12	-	88	-	275	-	<1	-	-	-	0.014	-	990	-	-	-
562	563	385984	19	-	34	-	140	-	<1	-	-	-	<0.005	-	1230	-	-	-
563	564	385985	16	-	<3	-	95	-	<1	-	-	-	<0.005	-	890	-	-	-
564	565	385986	17	-	21	-	145	-	<1	-	-	-	<0.005	-	790	-	-	-
565	566	385987	20	-	32	-	162	-	<1	-	-	-	0.007	-	810	-	-	-
566	567	385988	13	-	<3	-	80	-	<1	-	-	-	0.01	-	670	-	-	-
567	568	385989	11	-	<3	-	66	-	<1	-	-	-	0.011	-	550	-	-	-
568	569	385990	10	-	<3	-	92	-	<1	-	-	-	0.01	-	880	-	-	-
569	570	385991	11	-	18	-	86	-	<1	-	-	-	0.008	-	280	-	-	-
570	571	385992	7	-	6	-	80	-	<1	-	-	-	<0.005	-	1100	-	-	-
571	572	385993	8	-	6	-	69	-	<1	-	-	-	0.017	-	540	-	-	-
572	573	385994	6	-	3	-	63	-	<1	-	-	-	0.016	-	610	-	-	-
573	574	385995	5	-	<3	-	73	-	<1	-	-	-	0.007	-	580	-	-	-

390180

From (m)	To (m)	Sample No.	Cu	Cu%	Pb	Pb%	Zn	Zn%	Ag	Ag	As	As	Au	Au(R)	Mn	Mn%	Mo	Bi
574	575	385996	6	-	<3	-	69	-	1	-	-	-	0.006	0.01	440	-	-	-
575	576	385997	4	-	<3	-	69	-	<1	-	-	-	0.005	-	410	-	-	-
576	577	385998	8	-	<3	-	64	-	<1	-	-	-	<0.005	-	530	-	-	-
577	578	385999	15	-	81	-	307	-	1	-	-	-	0.006	-	690	-	-	-
578	579	386000	71	-	58	-	304	-	<1	-	-	-	0.005	-	560	-	-	-
587.5	587.9	386263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
605.7	606	386262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
615.2	615.5	386261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
630.7	631	386260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
638.4	638.9	386259	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
651.4	651.8	386258	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Units			ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
Detection Limit			2	0.01	3	0.01	2	0.01	1	50	50	0.5	0.005	0.005	3	0.01	5	10
Method (ANALABS)			GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140	HA140	GG313	GG313	GA140	GA104	GA140	GA140

390181

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
386255	15.6	62.6	0.45	7.13	0.15	2.95	4.09	2.46	0.92	0.141	0.04	3.51	100	0.23	940	2365	126	2698	21.4	0.31
386256	15.3	60.8	0.48	6.74	0.16	4.36	3.69	3.04	0.81	0.136	0.03	4.03	99.6	0.014	843	2336	118	2878	24.4	0.28
386257	14.8	61	0.44	6.45	0.18	2.71	4.95	1.05	3.37	0.125	0.16	4.12	99.3	0.075	1300	2778	118	2638	22.4	0.28
385771	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385772	14.1	64.9	0.52	8.51	0.15	0.65	0.31	3.75	0.5	0.143	9.15	5.73	99.8	5.37	1495	2485	243	3117	12.8	0.28
385773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385774	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385775	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385776	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385777	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385779	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385781	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385782	14.2	63.9	0.51	10.44	0.02	0.24	0.31	3.86	0.25	0.189	5.84	6.79	101	7.08	1935	2490	244	3057	12.5	0.37
385783	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385785	12.6	61.8	0.45	12.54	0.07	0.18	0.26	3.36	0.24	0.142	4.22	7.73	99.3	8.43	1980	2330	226	2698	11.9	0.32
385786	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385788	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385791	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385793	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385794	11.7	60.9	0.42	14.45	<0.01	0.09	0.21	3.14	0.16	0.075	5.78	8.64	99.8	9.93	3820	2295	209	2518	12.0	0.18
385795	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385796	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385797	15	66.4	0.55	6.37	1.11	0.33	0.22	3.93	0.78	0.157	0.66	4.7	99.6	0.16	3490	2755	242	3297	13.6	0.29
385798	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385799	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385803	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385806	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385808	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385809	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385812	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385813	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

390182

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
385814	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385815	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385817	14	61.9	0.5	10.43	0.52	0.32	0.18	3.82	0.53	0.157	9.4	6.39	99.1	4.69	1715	2715	226	2997	13.3	0.31
385818	13.6	63	0.51	9.6	0.63	0.3	0.19	3.7	0.57	0.173	6.13	5.87	99.2	3.55	1562	2762	203	3057	15.1	0.34
385819	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385821	14.1	66.7	0.52	7.48	0.55	0.26	0.18	4.06	0.43	0.166	6.99	5.46	99.9	3.49	1462	2744	208	3117	15.0	0.32
385822	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385830	16.8	56.7	0.65	12.14	0.49	0.43	0.17	4.4	1.14	0.176	2.17	7.05	100	0.93	1399	3085	249	3897	15.6	0.27
385831			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385839	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385842	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385844	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385846	12.3	69.3	0.42	7.85	0.4	0.62	0.11	2.89	1.16	0.105	1.14	4.65	99.9	0.55	624	2356	193	2518	13.0	0.25
385847	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385849	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385851	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385852	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385853	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385854	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385855	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385856	14.5	64.1	0.52	4.45	0.53	3.65	0.15	3.99	1.27	0.136	0.69	5.69	99.1	0.27	485	2706	219	3117	14.2	0.27
385857	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385859	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385861	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385862	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385863	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385864	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385865	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

390183

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
385866	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385867	13.9	62.1	0.5	5.6	0.9	4.31	0.16	3.72	0.84	0.143	2.1	5.95	98.3	0.89	510	2522	210	2997	14.3	0.29
385868	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385869	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385870	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385873	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385874	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385875	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385876	13.1	59.9	0.49	6.67	5.29	0.53	1.6	3.8	0.72	0.133	0.41	8.54	99.5	0.16	412	2540	199	2938	14.8	0.27
385877	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385878	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385879	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385835	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385836	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385837	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385880	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385881	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385882	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385883	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385884	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385886	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385887	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385888	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385891	12.7	59.9	0.48	9.4	3.29	1.44	0.18	3.4	0.64	0.122	0.34	8.1	99.7	0.13	566	2358	172	2878	16.7	0.25
385892	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385893	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385894	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385895	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385896	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385897	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385898	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385899	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385901	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385902	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385904	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385905	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385906	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385907	14.6	63.9	0.69	6.09	0.36	3.7	0.44	2.88	1.38	0.175	0.85	4.84	99.1	0.36	1909	3103	184	4137	22.5	0.25

390184

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
386266	12.4	70	0.43	4.58	0.47	2.93	0.44	2.43	1.14	0.112	0.34	4.6	99.6	0.14	1675	2251	198	2578	13.0	0.26
386265	13.1	43.8	0.62	14.33	0.21	9.18	1.29	0.31	5.72	0.071	0.05	11.55	100	0.026	272	4000	84	3717	44.2	0.11
386264	16.3	46.3	0.76	9.14	0.6	8.7	0.96	3.28	2.38	0.119	1.01	10.4	99	0.39	854	4797	100	4556	45.6	0.16
386269	4.91	31	0.23	6.5	1.29	22.49	0.58	1.18	5.22	0.053	0.04	25.87	99.3	0.02	531	1468	19	1379	72.6	0.23
385908	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385911	14.3	48.5	0.66	9.19	0.47	7.97	1.33	2.61	3.23	0.11	0.2	11.02	99.3	0.092	502	4384	101	3957	39.2	0.17
385912	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385913	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385914	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385916	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385917	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3278	183	-	17.9	-
385919	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2729	204	-	13.4	-
385922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385923	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385925	12.6	70.9	0.35	3.34	0.66	2.49	0.16	3.58	1.03	0.05	0.5	4.45	99.6	0.23	397	1727	289	2098	7.3	0.14
385926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385927	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385931	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385932	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385933	11.8	70.2	0.33	5.59	2.07	0.18	0.12	3.47	0.59	0.045	0.27	4.89	99.4	0.11	364	1678	279	1978	7.1	0.14
385934	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385935	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385937	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385938	13.3	72.7	0.35	3.07	0.51	1.73	0.14	3.91	0.83	0.054	0.08	3.82	101	0.034	429	1751	298	2098	7.0	0.15
385939	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385941	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385942	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385943	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385944	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385945	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385946	13	70.4	0.34	3.04	0.45	2.85	0.12	3.94	0.85	0.048	0.1	4.52	99.6	0.044	590	1745	285	2038	7.2	0.14
385947	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385948	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3901837

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
385949	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385951	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385953	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385954	14.1	53.8	0.63	9.65	0.87	5.59	0.09	3.05	2.47	0.093	1.04	7.02	97.9	0.43	487	4163	123	3777	30.7	0.15
385955	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385956	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385957	13.1	68.7	0.37	3.4	0.87	3.22	0.1	3.91	1.04	0.052	0.04	5.1	99.9	0.022	633	1817	297	2218	7.5	0.14
385958	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385959	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385961	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385962	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385963	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385964	13.4	65.8	0.42	6.26	0.99	2.79	0.16	3.74	1.07	0.068	3.1	4.4	99.1	1.41	598	2402	248	2518	10.2	0.16
385965	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385966	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385967	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385972	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385973	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385974	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385975	15.1	49.5	0.69	10.3	0.5	7.76	0.51	2.84	3.39	0.114	0.02	8.64	99.4	0.011	680	4594	99	4137	41.8	0.17
385976	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385977	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385978	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385985	14	67.1	0.51	4.63	0.14	3.04	0.94	3.41	1.24	0.103	0.86	4.37	99.5	0.42	891	2967	178	3057	17.2	0.20
385986	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385989	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385995	15.4	66.2	0.45	4.34	0.09	2.53	1.37	3.61	1.67	0.079	0.54	3.83	99.6	0.26	986	2196	346	2698	7.8	0.18

390186

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Tl	Zr	Tl (from TiO2)	Tl/Zr	P2O5/TiO2
385996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
385999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
386000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
386263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1483	201	-	7.4	-
386262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1446	204	-	7.1	-
386261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1390	196	-	7.1	-
386260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1607	220	-	7.3	-
386259	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1819	226	-	8.0	-
386258	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1717	213	-	8.1	-
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm			
	0.05	0.05	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.005	0.01	0.01	0.01	0.01	10	50	5			
	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX40E	OM613	GX401	GX401	GX401			

3901887

SHD-4 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	As	Au	Au(R)
46	47	386011	25	4	71	<1	<50	8.6	<0.005	<0.005
47	48	386012	41	17	53	<1	<50	8.8	<0.005	-
48	49	386013	57	15	41	1	<50	14.4	0.014	-
49	50	386014	27	3	39	<1	<50	8.8	<0.005	-
50	51	386015	35	72	41	<1	<50	5.8	<0.005	-
51	52	386016	32	9	53	<1	<50	4	<0.005	-
52	53	386017	27	<3	53	1	<50	3.1	<0.005	-
53	54	386018	30	<3	49	<1	<50	4.1	<0.005	-
54	55	386019	33	<3	67	1	<50	10.5	<0.005	-
55	56	386020	30	<3	69	<1	<50	3.9	<0.005	-
56	57.65	386021	44	21	60	1	<50	4.3	<0.005	<0.005
Detection Limit			2	3	2	1	50	0.5	0.005	0.005
Method (ANALABS)			GA140	GA140	GA140	GA140	GA140	HA140	GG313	GG313

NB: All assays in ppm

390188

SHD-5 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	As	Au	Au(R)
2	3	386041	10	<3	38	<1	<50	19	0.028	-
3	4	386042	18	<3	53	1	<50	24.5	0.019	-
4	5	386043	17	<3	41	<1	<50	17.2	0.016	-
5	6	386044	47	5	23	<1	76	-	0.008	-
6	7	386045	31	62	32	<1	<50	50	<0.005	-
7	8	386046	32	85	26	<1	<50	30.7	<0.005	-
8	9	386047	31	80	30	2	<50	25.8	0.014	-
9	10	386048	50	92	43	2	<50	1.2	0.017	-
10	11	386049	52	133	54	2	<50	38.8	0.01	-
11	12	386050	27	66	88	1	<50	11.6	0.006	-
12	13	386051	19	36	132	1	<50	6.4	0.009	-
13	14	386052	30	74	95	<1	<50	9.6	0.011	-
14	15	386053	44	93	61	1	<50	11.1	0.012	-
15	16	386054	59	64	107	1	<50	4	0.006	-
16	17	386055	95	35	72	1	<50	1.1	<0.005	0.009
17	18	386056	81	26	106	<1	<50	9.1	<0.005	<0.005
18	19	386057	47	13	122	<1	<50	7.6	<0.005	-
19	20	386058	57	<3	119	<1	<50	10	<0.005	-
20	21	386059	42	6	80	<1	<50	4.2	<0.005	-
21	22	386060	29	37	56	<1	<50	10.2	<0.005	-
22	23	386061	21	23	74	<1	<50	6.7	<0.005	-
23	24.5	386062	38	15	132	<1	<50	6.8	<0.005	-
24.5	26	386063	45	55	109	<1	<50	4.6	<0.005	-
26	27	386064	38	30	99	<1	<50	4	<0.005	0.006
27	28	386065	41	3	102	<1	<50	4.8	<0.005	-
28	29	386066	30	12	146	<1	<50	2.9	<0.005	-
29	30	386067	37	30	149	1	<50	8.9	<0.005	-
30	31	386068	33	13	178	<1	<50	9.1	<0.005	-
31	32	386069	25	5	182	<1	<50	6.6	<0.005	-
32	33	386070	32	12	179	<1	<50	7.6	<0.005	-
33	34	386071	164	63	82	2	60	-	<0.005	-
34	35	386072	71	29	101	<1	<50	16.4	<0.005	-
35	36	386073	63	30	131	1	<50	6.2	<0.005	-
36	37	386074	60	30	117	<1	<50	3.8	<0.005	-
37	38	386075	94	<3	127	3	<50	6.3	<0.005	-

390189

38	39	386076	68	<3	124	<1	<50	8.2	<0.005	<0.005
39	40	386077	51	24	120	<1	<50	10	<0.005	-
40	41	386078	37	<3	162	<1	<50	6.6	<0.005	-
41	42	386079	45	<3	229	<1	<50	6.7	<0.005	-
42	43	386080	26	<3	132	<1	<50	3.1	<0.005	-
43	44	386081	23	<3	238	<1	<50	3.3	<0.005	-
44	45	386082	29	<3	231	<1	<50	5.3	<0.005	-
45	46	386083	37	<3	195	<1	<50	3.6	<0.005	-
46	47.2	386084	27	<3	160	<1	<50	5.5	<0.005	-
Detection Limit			2	3	2	1	50	0.5	0.005	0.005
Method (ANALABS)			GA140	GA140	GA140	GA140	GA140	HA140	GG313	GG313

NB: All assays in ppm

390190

SHD-6 Assays

From (m)	To (m)	Sample No	Cu	Pb	Zn	Ag	As	As	Au	Au(R)	Mn
153.8	154.4	386101	12	X	17	<1	<50	14.7	<0.005	-	281
154.4	156	386102	10	X	32	<1	<50	6.7	<0.005	-	362
156	157	386103	21	12	51	<1	<50	35.9	<0.005	-	329
157	158.6	386104	16	X	80	<1	<50	8.7	<0.005	-	470
158.6	159.6	386105	19	6	28	<1	<50	9.9	<0.005	-	285
159.6	160.6	386106	14	X	63	<1	<50	3.5	<0.005	<0.005	356
160.6	161.6	386107	5	X	78	<1	<50	3.7	<0.005	-	410
161.6	162.6	386108	11	10	34	<1	<50	8	<0.005	-	252
246.1	246.4	386268	-	-	-	-	-	-	-	-	-
248.5	248.9	386267	-	-	-	-	-	-	-	-	-
UNITS			ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION LIMIT			2	3	2	1	50	0.5	0.005	0.005	3
METHOD (ANALABS)			GA140	GA140	GA140	GA140	GA140	HA140	GG313	GG313	GA140

Sample no.	Al2O3	SiO2	TiO2	Fe2O3	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Ti	Zr	Ti from TiO2	Ti/Zr
386103	11.8	75.3	0.3	3.2	0.85	5.84	0.45	0.84	0.051	0.7	1.3	100	0.3	236	2774	214	1798	8.4
386268	17.9	49.9	0.92	8.8	6.85	3.61	2.02	2.19	0.278	0.01	6.84	99.4	0.01	506	4877	135	5515	40.9
386267	19.4	48.6	0.99	10.11	5.38	5.02	1.08	3.13	0.297	<0.01	5.57	99.8	0.01	525	5137	148	5935	40.1
	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm		
	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.005	0.01	0.01	0.01	0.01	10	50			
	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OM61:	GX401	GX401	GX401		

390191

SHD-7 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	Au	Au(R)
23.3	24.5	386236	11	6	30	<1	179	<0.01	-
29	30	386234	<2	<5	4	<1	<50	0.01	-
30	31	386235	10	<5	<2	<1	<50	<0.01	-
36.7	37.9	386237	4	<5	4	<1	80	<0.01	-
37.9	38.8	386238	9	<5	2	<1	<50	<0.01	-
	Detection Limit		2	5	2	1	50	0.01	
	Method (Analabs)		GA140	GA140	GA140	GA140	GA140	GG313	

NB: All assays in ppm

390169

SHD-8 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	As	Au	Au(R)	Mn	Mn
1.2	2	386131	31	98	191	<1	<50	16.7	<0.005	-	2131	-
2	3	386132	24	46	154	<1	<50	15.3	<0.005	-	>5000	0.66
3	4	386133	48	77	268	<1	<50	4.9	<0.005	-	760	-
4	5	386134	19	9	13	<1	<50	0.8	<0.005	-	73	-
5	6	386135	61	32	17	<1	<50	2	0.013	-	25	-
6	7	386136	273	30	127	<1	<50	17.1	0.006	-	28	-
7	8	386137	215	134	205	<1	<50	20	<0.005	-	33	-
8	9	386138	24	20	145	<1	<50	10.4	<0.01	-	-	-
9	10	386139	23	33	117	<1	<50	8.4	<0.01	-	-	-
10	11	386140	19	36	101	<1	<50	29.4	<0.01	-	1982	-
11	12	386141	11	61	141	<1	<50	11.2	<0.01	-	3777	-
12	13	386111	23	169	389	<1	<50	18.4	<0.005	-	3420	-
13	14	386112	35	237	333	1	<50	16.9	<0.005	-	4590	-
14	15	386113	34	80	410	<1	<50	27.1	0.033	-	3500	-
15	16	386114	65	161	38	1	<50	42	0.1	0.122	126	-
16	17	386115	386	242	24	2	<50	30.8	0.13	-	99	-
17	18	386116	170	125	1590	1	<50	28.8	0.014	-	2870	-
18	19	386117	130	26	128	1	<50	23.6	0.012	-	3710	-
19	20	386118	490	52	206	1	<50	28.2	0.04	-	4530	-
20	21	386119	1290	135	580	2	<50	13.2	0.05	-	1970	-
21	22	386142	1024	281	1041	<1	<50	31.4	0.02	0.027	-	-
22	23	386143	162	314	768	<1	<50	39.6	0.01	0.01	>5000	0.67
23	24	386144	91	532	778	<1	110	>50	0.01	0.016	>5000	0.65
24	25	386145	132	184	780	<1	<50	<0.5	<0.01	-	8100	-
25	26	386146	36	685	883	<1	<50	<0.5	<0.01	-	8600	-
26	27	386147	28	141	223	<1	<50	2	<0.01	<0.01	6600	-
27	28	386148	137	31	147	<1	<50	32	<0.01	-	8100	-
28	29	386149	1469	154	471	<1	<50	6.7	0.23	0.015	>5000	0.9
29	30	386150	277	124	620	<1	<50	20.4	0.01	0.009	>5000	0.66
30	31	386151	33	167	464	<1	<50	26	-	0.511	>5000	0.76
31	32	386152	17	517	656	<1	<50	16.4	-	0.01	>5000	0.88
32	33	386153	15	396	393	<1	<50	8	-	0.236	>5000	1.17
33	34	386154	247	666	1418	<1	<50	9.5	0.01	0.019	>5000	0.69
34	35	386155	60	129	342	<1	<50	2.5	0.03	<0.005	>5000	0.77
35	36	386156	437	47	193	<1	<50	26.1	0.05	<0.01	>5000	0.86
36	37	386157	46	285	673	<1	<50	15.4	0.04	<0.01	1981	-
37	38	386158	34	596	453	<1	<50	16.6	<0.01	<0.01	>5000	1.18
38	39	386159	51	395	1030	<1	<50	11.4	<0.01	<0.01	>5000	1.15
39	40	386160	17	517	656	<1	<50	16.4	<0.005	-	>5000	1.22
40	41	386161	15	396	393	<1	<50	8	<0.005	-	3165	-
41	42	386162	247	666	1418	<1	<50	9.5	0.015	-	4430	-
42	43	386163	60	129	342	<1	<50	2.5	0.039	-	4318	-
43	44	386164	246	225	437	<1	<50	25.5	0.051	-	>5000	0.79
44	45	386165	51	54	530	<1	<50	24.4	0.047	-	>5000	0.78
45	46	386166	87	65	544	<1	<50	34.5	0.054	-	>5000	0.81
46	47	386167	61	190	454	<1	<50	37.8	0.044	-	>5000	0.82

390193

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	As	Au	Au(R)	Mn	Mn
47	48	386168	384	139	646	<1	<50	25	0.037	-	>5000	0.55
48	49	386169	503	747	762	<1	<50	25	0.103	-	>5000	0.96
49	50	386170	285	840	2988	<1	<50	29	0.017	-	>5000	0.68
50	51	386171	221	628	2074	<1	<50	25.5	0.035	-	>5000	0.79
51	52	386172	92	528	826	<1	<50	25.6	0.015	-	>5000	0.83
52	53	386173	85	83	297	<1	<50	22.2	<0.005	-	1926	-
53	54	386174	40	175	331	<1	<50	30.9	0.006	-	3259	-
54	54	386175	21	589	1611	<1	<50	16.2	<0.005	-	3343	-
UNITS			ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
DETECTION LIMIT			2	3	2	1	50	0.5	0.01	0.005	3	0.01
METHOD (ANALABS)			GA140	GA140	GA140	GA140	GA140	HA140	GG313	GG313	GA140	GA104

390194

Sample No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	Na2O	K2O	MgO	P2O5	SO3	LOI	Total	S	Ba	Ti	Zr	Ti from TiO2	Ti/Zr	P2O5/TiO2
386112	14.1	63.6	0.51	9.24	0.9	0.34	0.14	3.91	0.43	0.143	0.17	7	100.4	0.079	755	2739	208	3057	14.7	0.28
386114	9.88	53.8	0.33	20.05	0.01	0.16	0.09	2.83	0.14	0.13	4.22	11.64	99	13.6	552	1956	157	1978	12.6	0.39
386118	14.1	62.7	0.5	9.71	0.77	0.27	0.15	4.03	0.74	0.145	2.87	7.3	100.5	1.78	236	2774	214	2997	14.0	0.29

Sample No.	Al_2O_3	SiO_2	TiO_2	Fe_2O_3	MnO	CaO	Na_2O	K_2O	MgO	P_2O_5	SO_3	LOI	Total	S	Ba	Ti	Zr	Ti from TiO_2	Ti/Zr	P_2O_5/TiO_2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm		
	0.05	0.05	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.005	0.01	0.01	0.01	0.005	10	50	5			
	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OM613	GX401	GX401	GX401			

SHD-9 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	Au	Au(R)	Mn
1.2	2	386191	76	14	165	<1	5.5	0.02	-	250
2	3	386192	75	15	207	<1	5.8	0.02	-	436
3	4	386193	84	13	243	<1	1.3	<0.01	-	701
4	5	386194	70	11	125	<1	<0.5	<0.01	-	476
5	6	386195	45	3	120	<1	<0.5	<0.01	-	259
6	7	386196	39	<3	130	<1	<0.5	<0.01	-	488
7	8	386197	31	<3	184	<1	0.5	<0.01	-	471
8	9	386198	30	<3	220	<1	<0.5	<0.01	-	1093
9	10	386199	24	<3	170	<1	<0.5	<0.01	-	491
10	11	386200	39	<3	133	<1	9.2	0.01	-	380
11	12	386201	27	<3	153	<1	1	<0.01	-	497
12	13	386202	16	<3	176	<1	2	<0.01	0.01	268
13	14.2	386203	26	3	175	<1	0.7	<0.01	-	191
14.2	16	386204	25	11	80	<1	<0.5	<0.01	-	69
16	17	386205	35	<3	75	<1	<0.5	<0.01	-	56
17	18	386206	29	<3	82	<1	<0.5	<0.01	-	61
18	19	386207	16	8	64	<1	<0.5	<0.01	-	48
19	20	386208	11	6	66	<1	<0.5	0.01	-	65
20	21	386209	11	20	68	<1	<0.5	0.01	-	57
21	22	386210	9	6	40	<1	4.3	0.02	-	31
22	23	386211	19	11	52	<1	<0.5	0.02	-	41
23	24	386212	14	15	63	<1	1.9	0.01	<0.01	46
24	25	386213	15	43	46	<1	3.5	0.01	-	82
25	26	386214	20	21	91	<1	3.1	<0.01	-	138
26	27	386215	16	15	57	<1	<0.5	<0.01	-	187
27	28.2	386216	27	26	88	<1	<0.5	<0.01	-	344
28.2	30	386217	34	51	204	<1	5	<0.01	-	575
30	31	386218	48	27	366	<1	5.9	0.02	-	407
31	32	386219	47	32	305	<1	9.2	<0.01	-	588
32	33	386220	45	4	203	<1	4.1	<0.01	-	308
33	34	386221	79	19	48	<1	<0.5	<0.01	-	54
34	35	386222	13	11	59	<1	<0.5	<0.01	-	55
35	36	386223	14	8	61	<1	<0.5	<0.01	-	61
36	37	386224	14	18	63	<1	<0.5	<0.01	-	51
37	38	386225	30	10	37	<1	<0.5	<0.01	-	54

038197

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	As	Au	Au(R)	Mn
38	39	386226	17	3	38	<1	<0.5	<0.01	-	46
39	40.6	386227	29	6	59	<1	5.3	<0.01	<0.01	47
40.6	42	386228	40	24	175	<1	3.8	0.01	-	196
42	43	386229	47	39	171	<1	3.8	<0.01	-	327
43	44	386230	29	38	150	<1	6.2	<0.01	-	349
44	45	386231	29	69	145	<1	7.7	<0.01	-	334
45	46	386232	14	14	156	<1	15	<0.01	-	363
46	47.5	386233	17	29	136	<1	18.9	<0.01	-	277
Detection Limit			2	3	2	1	0.5	0.01	0.01	3
Method (Analabs)			GA140	GA140	GA140	GA140	GA140	GG313	GG313	GA140

NB: All assays in ppm

390198

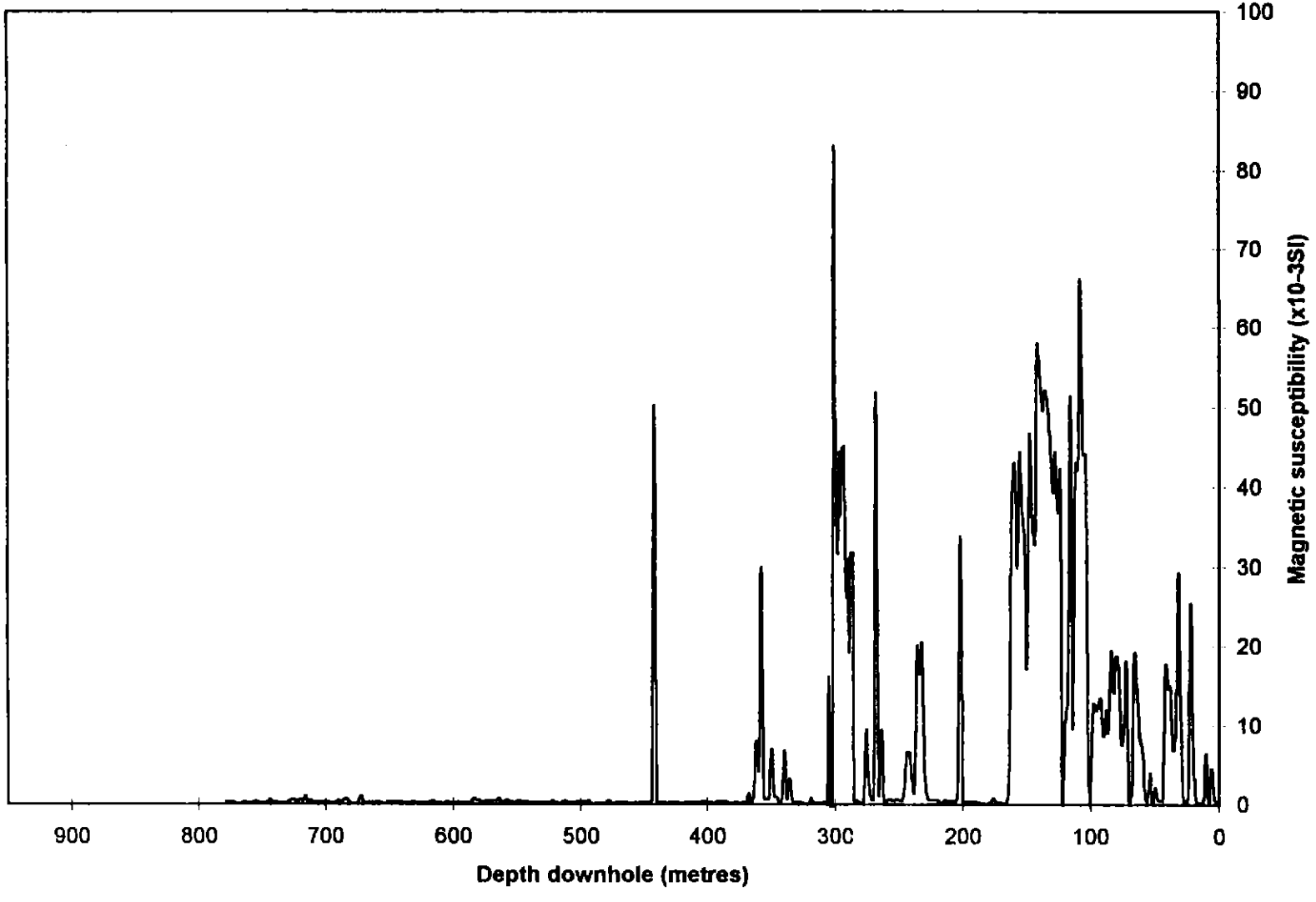
SHD-13 Assays

From (m)	To (m)	Sample No.	Cu	Pb	Zn	Ag	Au	Mn
992.6	994	854001	57	362	788	3	<0.01	698
994	995	854002	76	246	189	2	<0.01	489
995	996	854003	79	195	181	2	<0.01	558
996	997	854004	66	126	434	1	<0.01	514
997	998	854005	50	96	269	1	<0.01	625
998	999	854006	52	102	209	1	<0.01	1034
999	1000	854007	88	213	303	2	<0.01	667
1000	1001	854008	101	244	225	2	0.02	439
1001	1002	854009	86	124	173	1	0.04	372
1002	1003.35	854010	84	103	272	<1	0.03	807
1003.35	1004.2	854011	139	105	243	<1	0.01	646
1004.2	1005	854012	66	103	189	<1	<0.01	264
1005	1006	854013	73	97	350	1	<0.01	480
1006	1007	854014	33	76	230	<1	<0.01	661
1007	1008	854015	8	32	184	1	<0.01	1179
1008	1009	854016	18	180	1073	2	<0.01	521
1009	1010	854017	26	123	266	1	<0.01	1198
1010	1011	854018	16	82	225	1	<0.01	698
1011	1012	854019	25	298	206	1	<0.01	1648
1012	1013	854020	20	82	150	2	<0.01	1081
1013	1014	854021	15	58	55	<1	<0.01	1340
1014	1015	854022	14	50	77	<1	<0.01	818
1015	1016	854023	8	19	69	<1	<0.01	1039
1016	1017	854024	9	13	58	<1	<0.01	1278
1017	1018	854025	17	26	161	<1	<0.01	1417
1018	1019	854026	3	22	188	<1	<0.01	3050
1019	1020	854027	8	214	1157	<1	<0.01	1622
1020	1021	854028	12	176	899	1	<0.01	3068
1021	1022	854029	6	117	247	1	<0.01	3317
1022	1023	854030	9	114	190	1	<0.01	2012
1023	1024	854031	18	794	484	4	<0.01	922
1024	1025	854032	13	43	61	1	<0.01	2388
1025	1026	854033	47	23	60	<1	<0.01	4289
1026	1027	854034	8	56	255	<1	<0.01	1965
1027	1028	854035	9	39	72	<1	<0.01	4617
1028	1029	854036	7	43	68	<1	<0.01	2816
1029	1030	854037	6	<3	38	<1	0.08	2012
1030	1031	854038	61	8	32	<1	<0.01	1702
1031	1032	854039	111	8	65	<1	<0.01	4246
1032	1033	854040	9	7	41	<1	<0.01	2823
1033	1034	854041	6	16	28	<1	<0.01	1127
1034	1035	854042	4	22	28	<1	<0.01	1141
1035	1036	854043	4	26	26	<1	<0.01	845
1036	1037	854044	4	4	18	<1	<0.01	1000
1037	1038	854045	5	9	25	<1	<0.01	1137
1038	1039	854046	5	21	25	<1	<0.01	1128
1039	1040	854047	4	11	15	<1	<0.01	1291
1040	1041	854048	6	17	15	<1	<0.01	2175
1041	1042	854049	5	21	25	<1	<0.01	2561
1042	1043	854050	4	25	31	<1	<0.01	1103
1043	1044	854051	8	40	73	<1	<0.01	1303
1044	1045	854052	6	8	48	<1	<0.01	1721
1045	1046	854053	6	48	89	<1	<0.01	2478
1046	1047	854054	6	171	195	1	<0.01	2562
1047	1048	854055	289	301	869	3	0.02	2618
1048	1049	854056	34	111	232	<1	<0.01	3586
1049	1050	854057	15	16	111	<1	<0.01	1622
1050	1051	854058	10	22	115	<1	<0.01	1397
UNITS			ppm	ppm	ppm	ppm	ppm	ppm
DETECTION LIMIT			2	3	2	1	0.01	3
METHOD (ANALABS)			A102	A102	A102	A102	F630	A102/A103

Appendix J

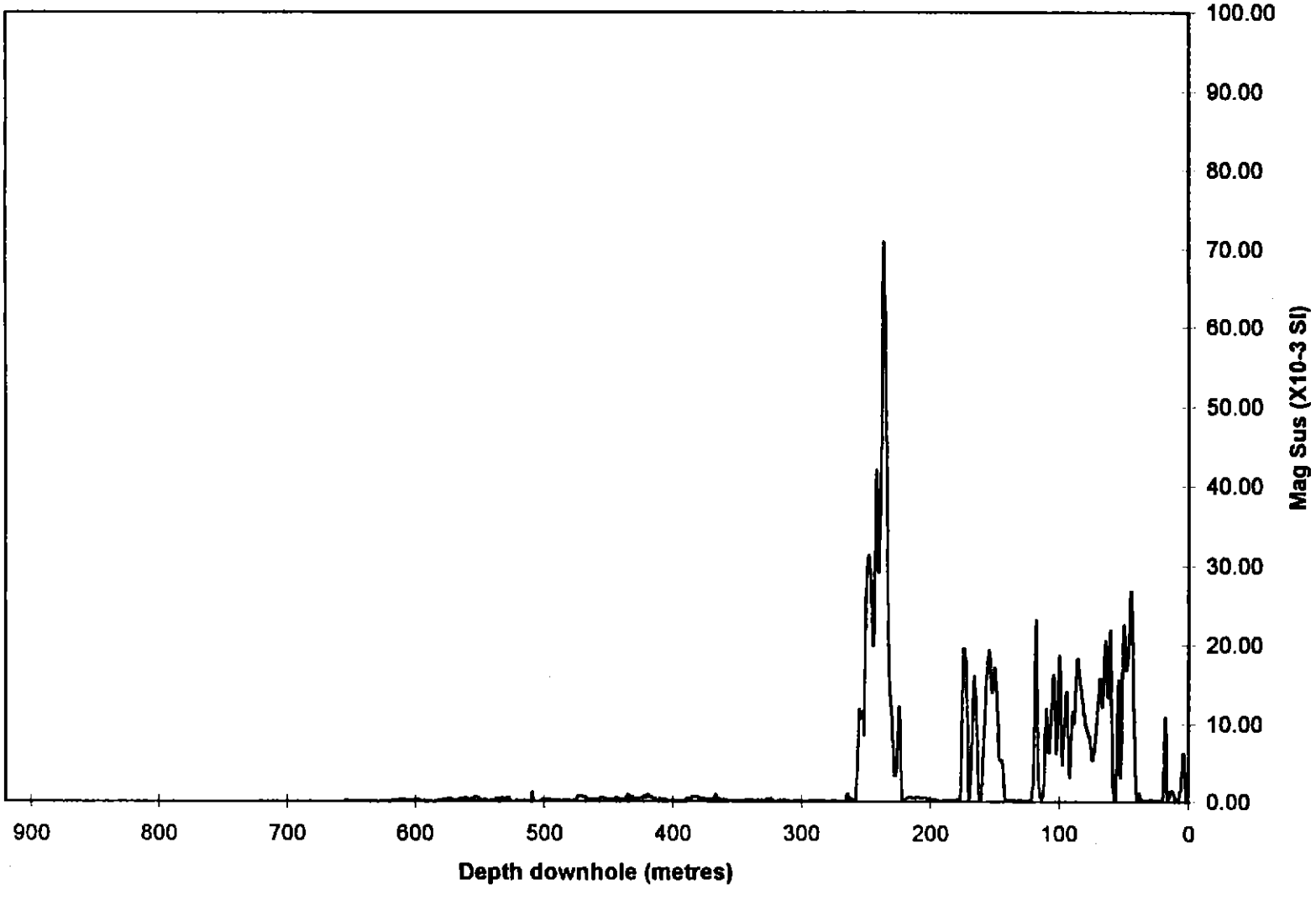
Drill hole magnetic susceptibilities

SHD-1 Magnetic Susceptibilities



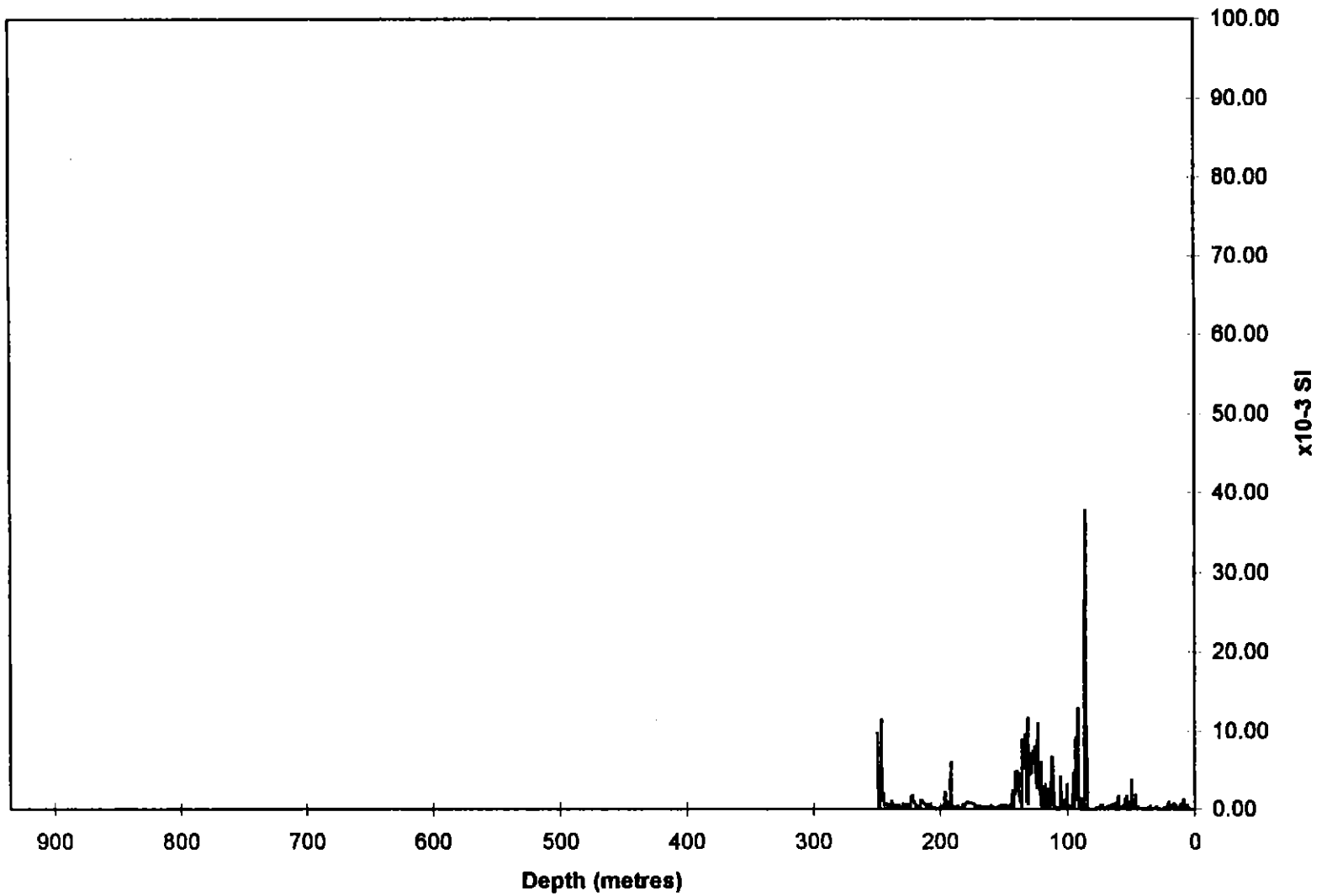
390201

SHD-2 Magnetic Susceptibility



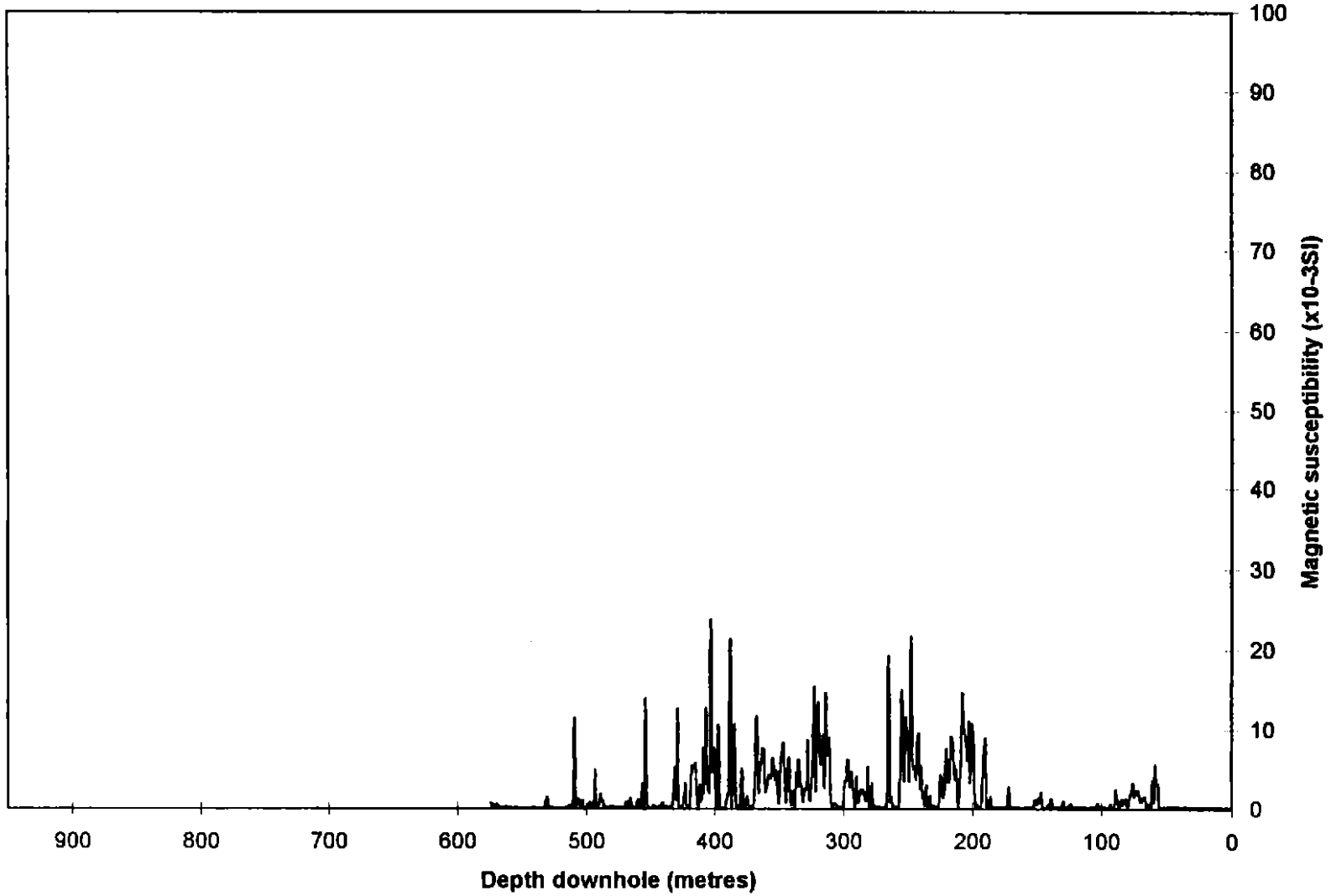
390202

SHD-6 Magnetic Susceptibility



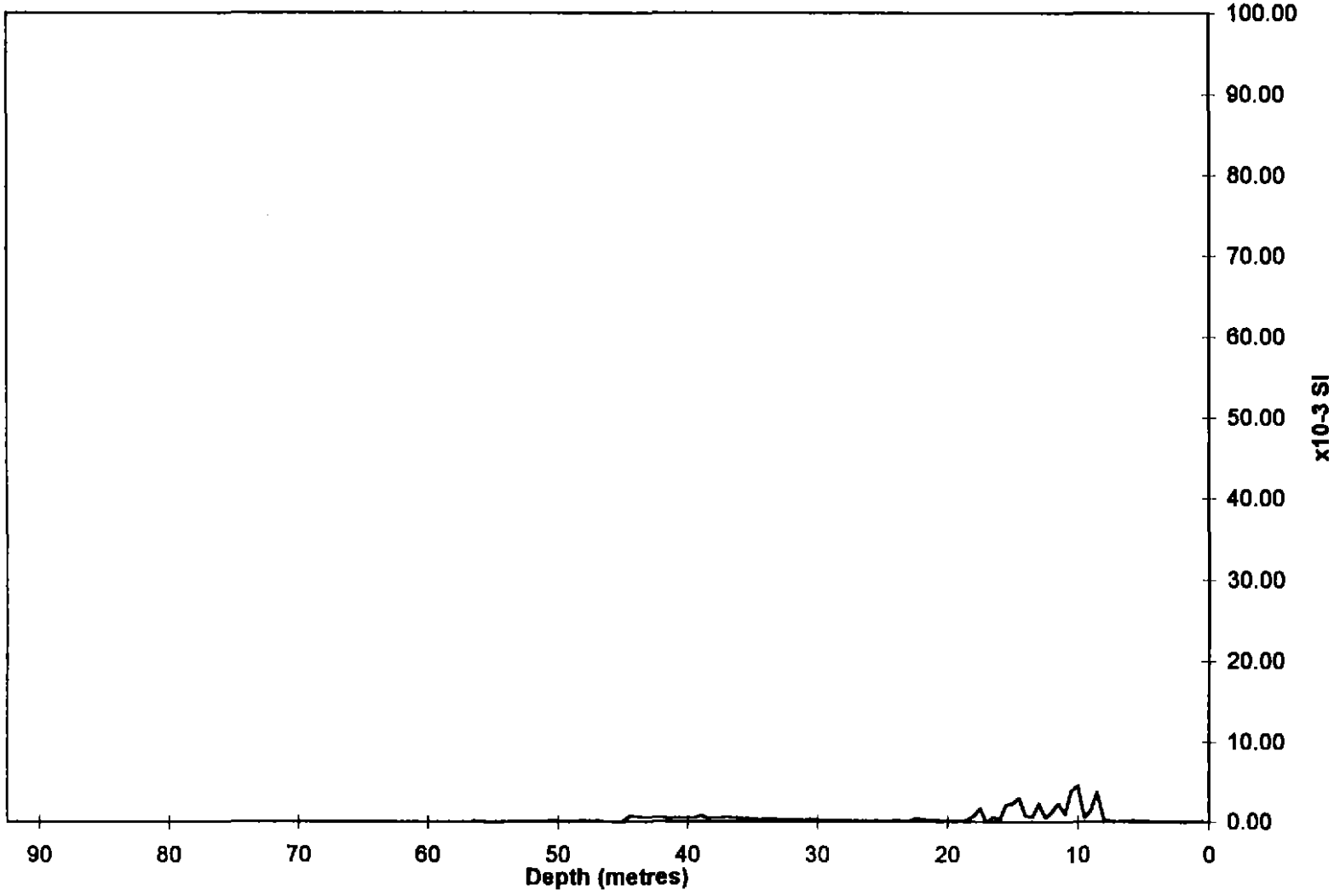
E07063

SHD-10 Magnetic Susceptibility



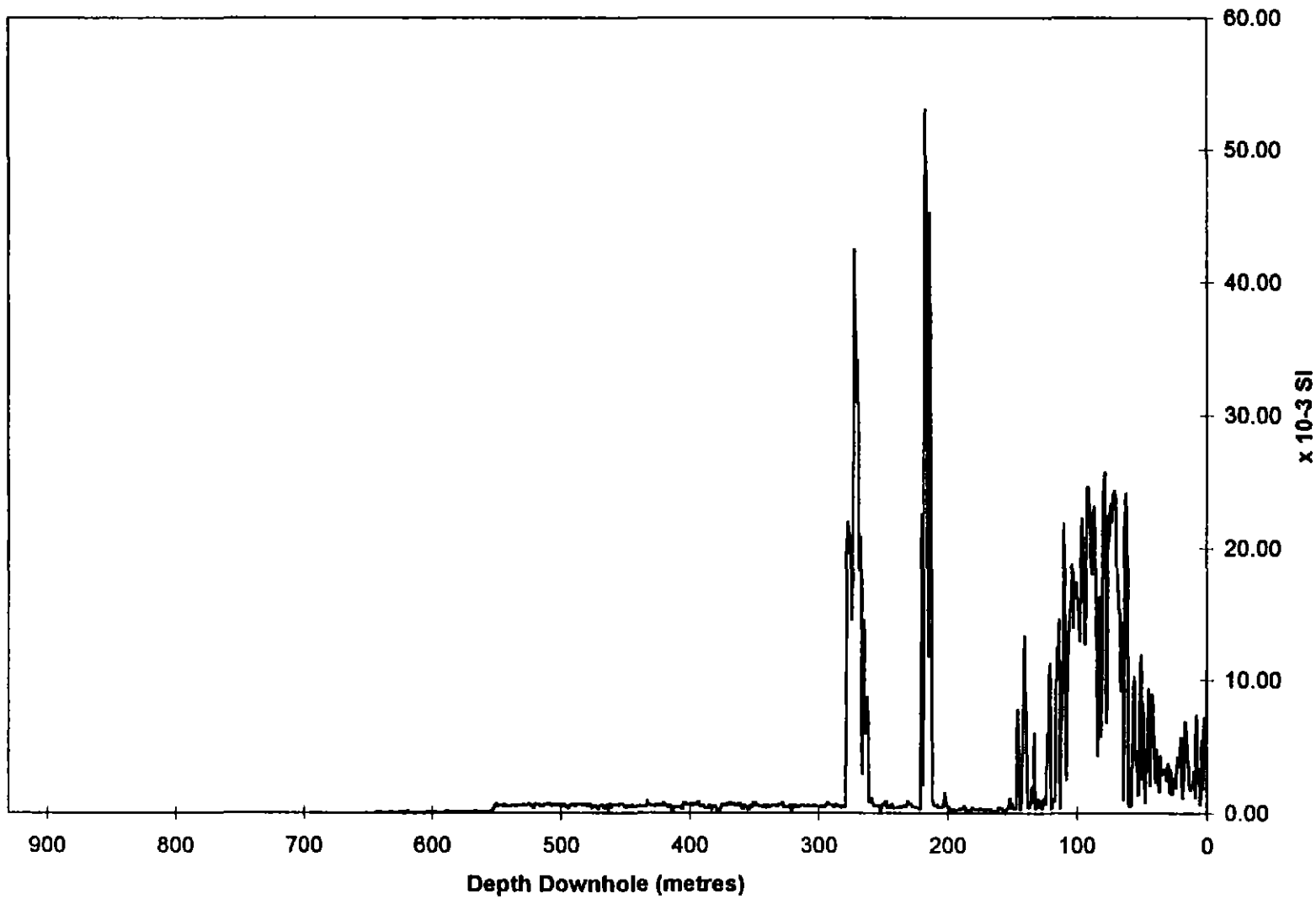
390204

SHD-11 Mag Sus



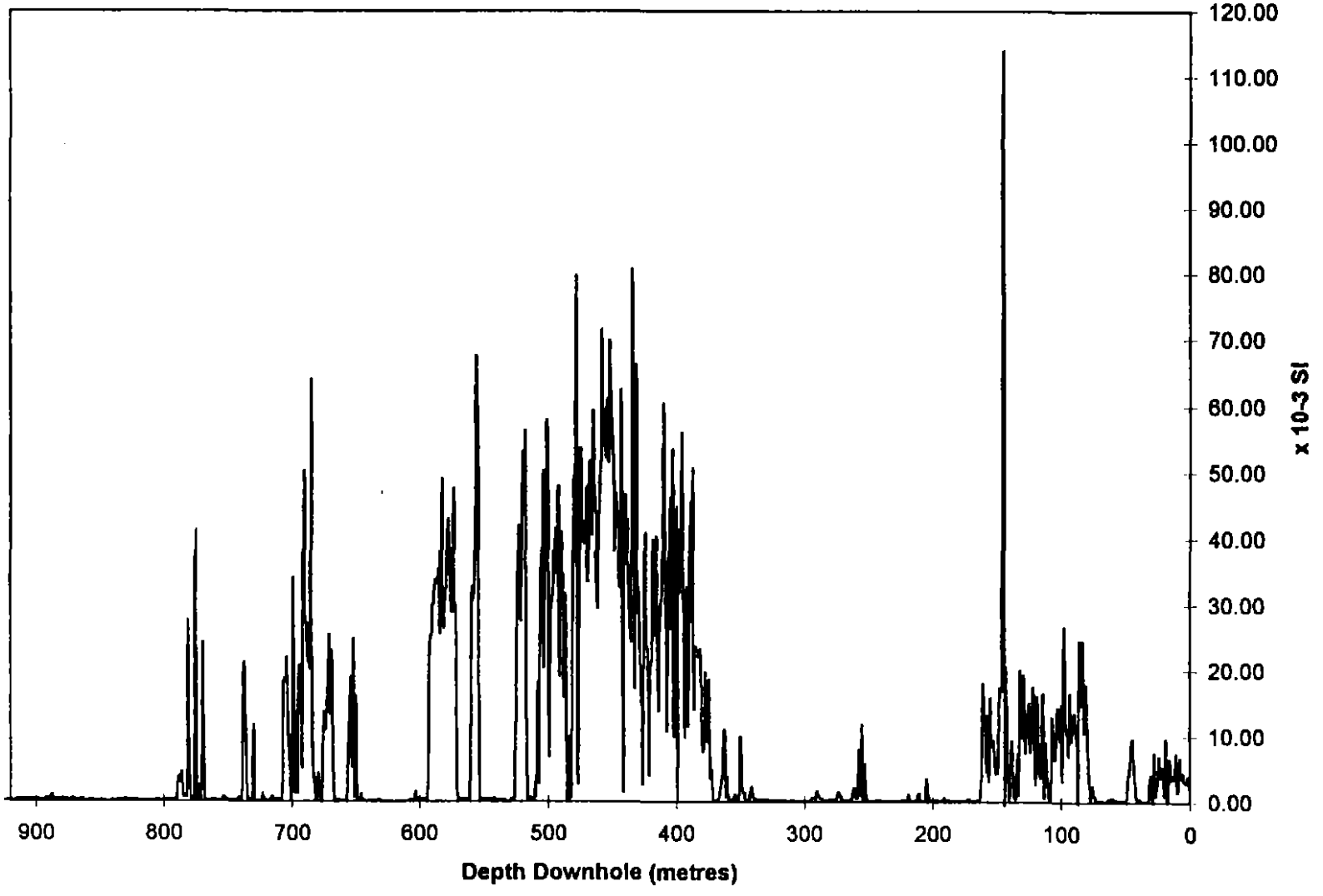
390205

SHD-12 Magnetic Susceptibilities



390206

SHD-13 Magnetic Susceptibilities



3902073

390208 97-4026 Vol 5 of 5

MINERALS TASMANIA
- 9 JUL 1997

E.L. 8/96 "SOUTH HENTY"

Annual Report on Exploration
June '96 to June '97

Resolute Limited

Volume 5/5

EL 8/96
- 9 JUL 1997
See Folio 54

MICROFILMED
FICHE No. 014502-26

97-4026
ANNUAL REPORT - VOL 5 OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Grant MacDonald BSc (Hons)
Project Geologist
July 1997

380500

381000 E

5360000mN

5359500mN

5359000mN

5358500mN

F > Q xtal sst/bx (clasts FpD, QFpR &'slst) with pn/gn alb/chl altn

384147
384146
384145
384144
384143
384142
384141
384149
384150

80 F xtal sst/bx

ser py (to 5% altd) FpD breccia, sts.

384141 py shear

F > Q xtal sst/bx (clasts QFpR) directly overlying massive QFpR

minor gn slt

F > Q xtal sst/bx (clasts QFpR - slt) with pn/gn alb/chl altn

QFpR

gn slt

SHD-6
-40° to 239° mN for 249·5m

F > Q sst/bx (clasts) QFpR

F > Q bx

gn slt

gn slt

D pumx volcaniclastics and limestone

limestone

F > Q bx lge rdd (clasts QFpR) pn/gn alb/chl altn

F > Q xtal sst pk/gn alb/chl altn

F xtal sst with chl mx

gn slt

Basalt

QFpR

cm sil QFpR with mn py eg. 384758 (5-7) & mn bdd volcaniclastic eg. 384759 (6-6)

bk slt/sh

F > Q xtal sst

gn F >> Q xtal sst

D volcaniclastics

QFpR bx

ser, py altd D(?) volcaniclastic e.g. 384121

F > Q xtal sst/bx (with clasts QFpR)

polymict bx with clasts wcd (?) QFpR, Prec. sst in a Q xtal rich mx (ZZH)

HOWARDS ROAD

gn slt, sst > Q pebble cong (NCS)

SLT and Q PEBBLE CONG

gn slt, sst > Q pebble cong (NCS)

gn slt

msv QFpR

QFpR bx

D(?) pumx volcaniclastic 384757 (8-0)

msv QFpR

ROAD

ACCESS

DAM

sy hmt FHbpA dk ppl bxd texture

384754 (20-7)

384752 (20-0)

D pumx volcaniclastic

384753 (6-1)

F > Q xtal sst

FHbp A

QFpR bx

hmt FHbpA

384751 (17-1)

QFpR

TYNDALL MINE

QFpR

QFpR fbdd

QFpR

D volcaniclastic (pumx?)

dsd py

D volcaniclastic (pumx?)

dsd py

F > Q xtal bx (clasts QFpR)

F > Q xtal sst bx (clasts QFpR)

pk F > Q xtal sst

gn F > Q xtal sst

D volcaniclastics

F > Q xtal sst and mn gn slt

FHbpA vy hmt

FHbpA bx

QFp D (A?) (ARF)

QFpR

QFpR

D pumx volcaniclastic

384755 (13-2)

D pumx volcaniclastic

384756 (10-8)

F > Q xtal sst

murky gn sst (?)

QFpR sy fol

sts, serc with rdd p gn/cm Hc in F xtal mx 384760 (12-4)

sts F xtal volcaniclastic 384761 (13-6)

D pumx volcaniclastic

F xtal volc/FpD? pumx bx? with vugs aft. py

D F xtal volc prob pumx volcaniclastic

D pumx/ltc volcaniclastic

FHbpA

FHbpA, bx, hmt

F > Q xtal sst/bx

HEC Substation

HEC Pump Station

SHD-1
-74° to 250° TN for 779·0m

FpD bx FpA(?)

F xtal sst

384763 (14-8)

TS sample 10

F > Q xtal sst/bx

FHbpA with spec hmt vn 384176, 384178

FHbpA-bx

FHbpA with hmt vn 384171, 172, 174 & 175

FpD bx

QFp A(D?)(ARF)

QFp(D?)A (ARF) 384138 - 38140

SHD-2
-67° to 235·5° TN for 655·0m

QFp D(A?)(ARF)

QFp D(A?) or volcaniclastic, hmt

384173 fol FHbpA

vy (wk-mod) serc altd vy fol Q (ARF) xtal volc with d gy xenoliths (?) indicating some porphyritic

SHD-11
-56·5° to 157·5° TN for 56·5m

QFp D/A

fol, my serc Q xtal volc

sts, serc Q (ARF) xtal volc

TS sample 15

sts, serc Q (ARF) xtal volc dsd py

sts, my serc, Q(ARF) xtal volc

HA8
-50° to 282° TN for 270·0m

LAKE NEWTON (fsl 480m)

HA7
-50° to 262° TN for 233·5m

B

F > Q xtal sst/bx (clasts QFpR)

NC4
-70° to 271° TN for 577·2m

HA3
-58·5° to 278° TN for 243·8m

Q > F xtal sst with slt frag

F > Q xtal sst/bx (clasts QFpR) > ibdd gn slt

SHD-10
-71° to 252·5° mN for 574·0m

Q pebble cong

sy fol slt

F > Q xtal sst

F > Q xtal sst bx (clasts QFpR)

F > Q xtal sst bx (clasts QFpR)

F > Q xtal sst/bx (clasts QFpR)

QFpR

SHD-13
-64° to 253° TN for 1051m

F xtal sst (rare FpD/R(?) clasts)

folded flowbanding/ jointing (?)

QFpR

F > Q xtal sst/bx (clasts QFpR)

F > Q xtal sst/bx (clasts QFpR, slt)

QFpR

NC3
-85° to 230° AMG for 1081·0m

Q PEBBLE CONG and SLT

OWEN CONG

GREAT LYELL FAULT

sy fol

gn slt (NCS)

Q pebble cong

Q > F xtal sst with prob PE clasts (i.e. ZZH)

Q pebble cong & sst

Sst, slt > Q pebble cong (NCS)

polymict bx clasts hx Prec. (ZZH)

Q pebble cong, sst & slt (NCS)

Q pebble cong > sst

fol slt (NCS)

fol slt (NCS)

F > Q xtal sst with clasts chy slt

Dark green/grey siltstones, Quartz pebble conglomerates and polymict breccias with clasts of QFpR and Precambrian metasediments in a Quartz crystal matrix (NCS and ZZH)

Quartz Feldspar porphyritic Rhyolite with Mount Julia Rhyolite. Extrusive in part with hyaloclastite breccias (=MJR)

Crystal sandstones/breccias. Predominantly F > Q crystal matrix with variable amounts of QFpR clasts (includes both LMX and MJX)

Dacitic pumiceous volcaniclastics, F phyric

Feldspar Hornblende porphyritic Andesite Coherent and hyaloclastitic Generally hematitic (= ARA)

Basalt (= HBB)

Quartz Feldspar porphyritic Dacite and Andesites

Fault

QFp D banding defined by variable alb/chl altn? (ARF)?

QFpD (ARF)

QFpd (ARF)

QFpD (ARF)

FpD volcaniclastic?

QFpd (ARF)

F HbpA msv & bx

F HbpA msv & bx

SHD-12
-61° to 304·5° TN for 643·0m

D volcaniclastics

QFpD (ARF)

5 cm

NOTE: Numbers in brackets refer to Ti/Zr.

97-4026

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RESOLUTE LTD - G MACDONALD

390209A

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Lake Newton "Mushroom" Prospect - Outcrop Geology (and Rock Sample Locations)

Compiled	GM	Scale	1:2500
Drawn	DKH	Checked	
Date	Apr1997	Plan No.	

FIGURE 15

LEGEND

- ROADS/TRACKS
- RIVERS/DRAINAGE
- TENEMENT BOUNDARY
- SURFACE CONTOURS
- POWER LINES

Denison Gp
- Owen Conglomerate: siliciclastic cgl and sst
- Newton Creek Sandstone: turbiditic micaceous siltstone, quartzwacke and congl

Tyndall Gp
- Zig Zag Hill Fmn: post eruptive volcanolithic congl and sst
- Mt Julia Member: syneruptive massive Q-F xtal rich (rhyo-dacitic) lithic Volcaniclastic sst
- " massive Q-F phyric rhyolite and assoc Volcaniclastic breccia
- Lunchford Member: synerupitive massive F xtal rich (andesitic) lithic Volcaniclastic sst
- " massive carbonate, fossiliferous limestone and calcareous (Volcaniclastic) sst
- " felsic/Intermediate (mainly dacitic, also andesitic) Volcaniclastic breccia, sst, slst and chert slst, pumiceous in SHD-1, 6 and 13
- ? Howards Basalt; fg/vesicular basalt and basaltic breccia; some mixed felsic-mafic Volcaniclastic sst; formerly "Howards Tuff"

CVC (Suite II)
- "Anthony Rd Andesite": Q-F Porphyry; dacitic, mostly coherent probably intrusive, minor assoc Volcaniclastic sst?, distinctive large resorbed inclusion rich Q phyric
- " F/Q-Hbl phyric Andesite; coherent extrusives with carbonate Volcaniclastic breccias and sst, commonly assoc
- " F-Hbl(Q) Porphyry; coherent probably intrusive stocks and sills

CVC (Suite I)
- "Newton Creek Dacites": Dacite > andesite dominated Volcaniclastic breccia, sst and minor slst, pumiceous in SHD-2 and 12
- " F phyric to aphyric massive coherent Dacite and minor assoc monomict (hyaloclastite) breccia
- "Spillway polymict Breccia": massive to bedded coarse polymictic Volcaniclastic breccia-congl (incl. rare MS clasts) and Volcaniclastic sst
- " massive to stratified, near monomictic basaltic "fire fountain" breccia and assoc finer Volcaniclastic sst
- "Footwall Pumice Breccia": massive F phyric sericitic Pumice Breccia, ubiquitous relict tube pumice, local pink felsic lava clasts, minor intermixed felsic clast rich breccia and Volcaniclastic sst

390210A

5 cm

RESOLUTE SAMANTHA LIMITED

SOUTH HENTY REGION

EL8/96

INTERPRETATIVE GEOLOGY

Scale 1 : 5 000

0 100 200 300 400 500 metres

Australian Map Grid / UTM Projection
Zone 55, Central Meridian 147° E
AGD 66

Author :	WH/GMc
Drawn :	JAC
Date :	5-11-96
File No. :	COMPX 5K
Figure No. :	6

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EL 8/96 - SOUTH HENTY
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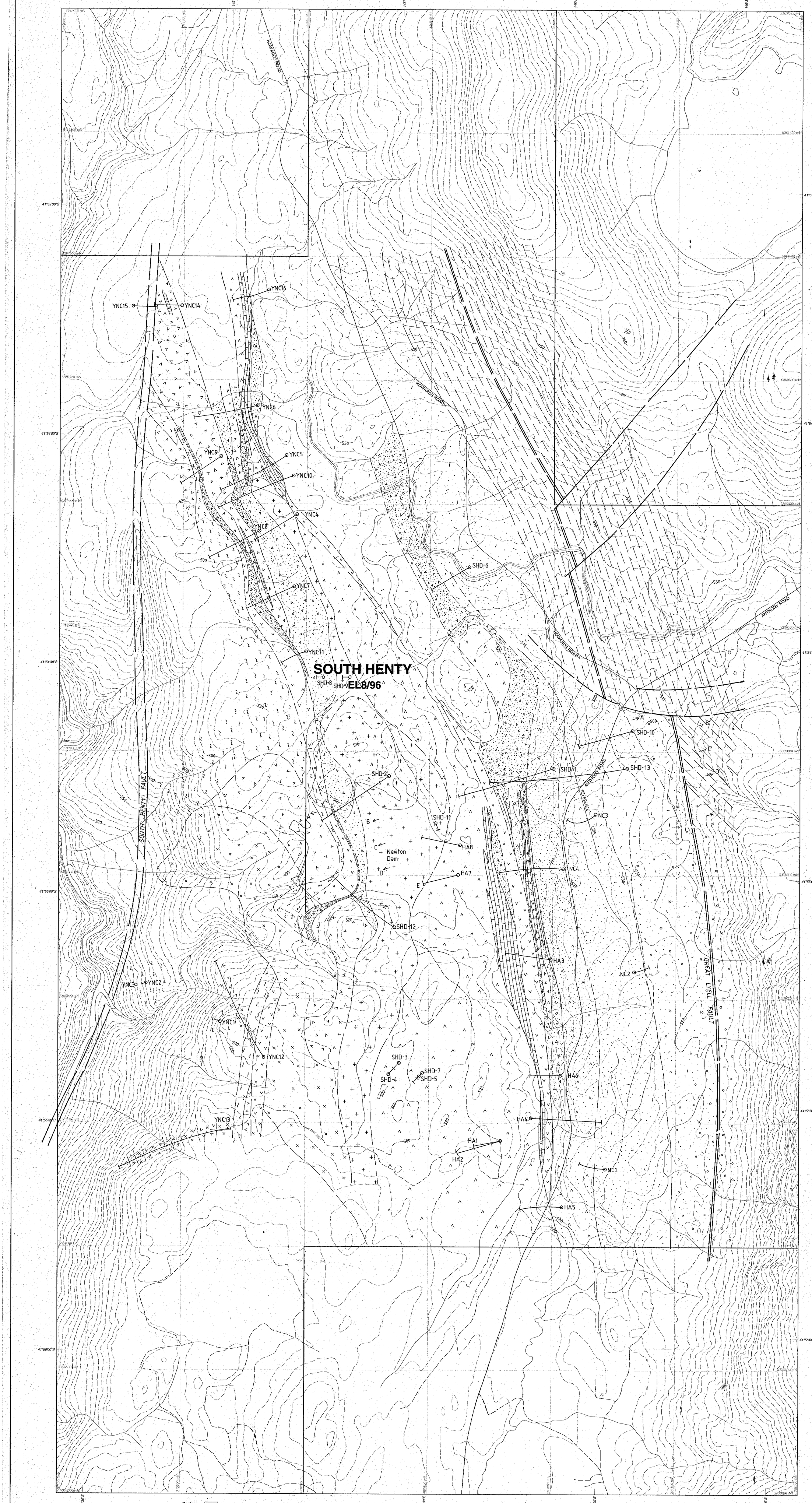

SOUTH HENTY
EL8/96
ARTHURS ROAD
HOWARDS ROAD
SOUTH HENTY FAULT
BIRCH HILL FAULT
Newton Dam
YNC15
YNC14
YNC16
YNC6
YNC9
YNC5
YNC10
YNC4
YNC8
YNC7
YNC11
SHD-8
SHD-9
SHD-6
SHD-10
SHD-1
SHD-13
SHD-2
SHD-11
HA8
HA7
NC4
NC3
SHD-12
HA3
NC2
YNC3
YNC2
YNC1
YNC12
SHD-3
SHD-4
SHD-7
SHD-5
HA6
HA4
HA1
HA2
NC1
HA5
YNC13
A
B
C
D
E
F
G
390211A
5 cm
LEGEND
ROADS/TRACKS
RIVERS/DRAINAGE
TENEMENT BOUNDARY
SURFACE CONTOURS
POWER LINES
Denison Gp
Ocean Conglomerate: silicic/acidic cgl and sst
Newton Creek Sandstone: turbiditic micaceous siltstone, quartzwacke and congl (NCS)
Tyndall Gp
Zig Zag Hill Ferr: poet eruptive volcanic/hic congl and sst (ZZH)
Mt Jutta Member: symeruptive massive Q-F xtal rich (rhyo-dacitic) lithic volcaniclastic sst (MJR)
: massive Q-F phyric rhyolite and assoc volcaniclastic breccias (MJV)
Lynchford Member: symeruptive massive F xtal rich (andesitic) lithic volcaniclastic sst (LMV)
: massive carbonate, fossiliferous limestone and calcareous (volcaniclastic) sst (LME)
felsic/intermediate (mainly dacitic, also andesitic) volcaniclastic breccia, sst, slst and chert (cb), pumiceous in SHD-1, 9 and 13 (LMD)
Howards Basalt: fg/vesicular basalt and basaltic breccia; some reworked felsic-mafic volcaniclastic sst; formerly "Howards Tuff" (HBB)
CVC (Suite II)
"Anthony Rd Andesite": Q-F Porphyry, dacitic, mostly coherent probably intrusive, minor assoc volcaniclastic sst?, distinctive large resorbed inclusion rich Q phyric (ARF)
: Q-F Porphyry, andesitic, intrusive, hithocrystalline ground-mass, with ARF type Qeabs (ARP)
: FEQ-Hbl phyric Andesite, coherent extrusives with minor volcaniclastic breccias and sst, commonly assoc with carbonaceous, tuffaceous or calcareous clastic marks (AAA & ARC)
: F-HbQ- Porphyry, coherent probably intrusive stocks and sills (ARH)
CVC (Suite I)
"Newton Creek Dacites": Dacite > andesite dominated volcaniclastic breccia, sst and minor slst, pumiceous in SHD-2 and 10 (NCC)
: F phyric to aphyric massive coherent Dacite and minor assoc monomict (hydroclastite) breccia (NCE)
"Gallinya pyhyric Breccia": massive to bedded coarse pyroclastic volcaniclastic breccia, lapilli tuff and sst, minor lava (GPB)
: massive to stratified, near monomictic breccia; "fire fountain" breccia and assoc finer volcaniclastic sst (SBB)
"Footwall Pumice Breccia": massive F phyric felsic/dc pumice breccia, ubiquitous relict tube pumice, local pink felsic lava clasts, minor interbedded felsic clast rich breccia and volcaniclastic sst (FPB)
RESOLUTE SAMANTHA LIMITED
SOUTH HENTY REGION
EL8/96
INTERPRETATIVE GEOLOGY
Scale 1 : 5 000
0 100 200 300 400 500 metres
Australian Map Grid
Transverse Mercator
Zone 55, Central Meridian 147° E
AMG 66
Author: WH/SH:
Drawn: JAC
Date: 5-11-96
File No.: COMPX_SK
Figure No.: 4.6.16

390212A

5 cm

97-4026

ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Lake Newton Prospect SHD-1 & SHD-10 Section

Compiled GM	Scale 1:1000		FIGURE 17
Drawn DRH	Checked		
Date May 1997	Plan No.		

380000mE
5358720mN

380500mE
5358980mN

LAKE NEWTON

FpD

R pu bx (FPB)

Basalt (SBB)

D pumx volcaniclastic bx

LAKE NEWTON

QFp D (?) (ARF)

SHD2
-67° to 223° (MN)

Glacials

QFpD (ARF)

FHbp A (ARA)

400·00

300·00

200·00

100·00

0·00

-100·00

100

QFpD(?) with ARF type q xtals

200

strong ser-sil-sd (py, cpy, sph, gal)- cb altd

2·4m @ 0·36% Cu
2·0m @ 0·26% Pb
0·57% Zn

4·0m @ 0·80g/t Au
inc. 1·0m @ 0·37% Pb
0·36% Zn

Dacitic pumiceous volcaniclastics (Ti/Zr 11·9-15·7)
Sy ser-sil-sd (py, cpy, sph, gn) -cb (Mn ?) altd

300 6·0m @ 0·5g/t Au

10·0m @ 0·30% Cu
0·20g/t Au
inc. 1·0m @ 1·10% Cu

Dacitic pumiceous volcaniclastics with ashy siltstone (Ti/Zr 13·0 & 14·2)
Sy ser-sil-sd (py, cpy, sph, gn) -cb (Mn?) altd

Black shale

Dacitic pumiceous volcaniclastic
Sy ser-sil-sd-(py, cpy, sph, gn) -cb

20·0m @ 0·26% Pb, 0·56% Zn as selvedge to vein
0·5m @ 0·13% Cu
11·70% Pb
18·20% Zn
220g/t Ag
3·42g/t Au — Black shale

S0 80-075 (TN)

F

400 (ornthn?)

Polymict volcaniclastic (clasts slt and murky FpD) (Ti/Zr 16·1)

Polymict volcaniclastic breccia (Ti/Zr 22·5)
with clasts FpD >> slt, basalt and QFpR(?)

Basalt bx (SBB) (Ti/Zr 44·2 & 45·6)

carbonate vein (?)

Basalt bx (SBB) (Ti/Zr 39·2)

Tuffaceous (dacitic) siltstones (Ti/Zr 13·4 & 17·9)

500 S0 80-048 (TN)

Rhyolitic pumiceous volcaniclastics (FPB) (Ti/Zr 7·0-7·3)

1·0m @ 0·34% Pb
1·0m @ 0·51% Zn
1·0m @ 0·66% Zn
1·0m @ 0·70g/t Au
1·0m @ 0·50% Pb
0·35% Zn

Basaltic bx (Ti/Zr 30·7)

Rhyolitic pumiceous volcaniclastic (FPB)

Rhyolitic pumiceous volcaniclastic (FPB) (Ti/Zr 7·5 & 10·2)

Basaltic bx (Ti/Zr 41·8)

Dacitic (?) pumiceous volcaniclastic

Polymict bx (clasts FpB? > gy chy slt) (Ti/Zr 7·8 & 17·2)

variably (weak-mod.) ser-sil-sd-cb altd

S0(?)

600

S0(?)

FpD ? clasts

Pale green/green siltstones, felsic ashy composition

Pale green/green siltstones to fine sandstones
Felsic ashy composition
Ti/Zr 7·1-8·1

S0(?)

655·0m

PLAN

SECTION LINE 243° (AMG)

SHD2
(380335mE
5358900mN)

0 20 40 60 80 100
metres

390213A

5 cm

97-4026

ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Spillway Prospect SHD-2 Section

Compiled	GM	Scale 1:1000	FIG 18
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

380060mE
5358500mN

500·00
400·00
300·00
200·00
100·00
0·00
-100·00

LAKE NEWTON

FpD

FpBasalt

FpD - coherent (?)

QFpD

SHD-12
62 to 292° MN

FHapA

100

200

300

400

500

600

Sg(?)

Sg(?)

Sg(?)

Sg(?)

Dacitic pumiceous volcaniclastic (unaltrd)

Basalt bx/sst. D gn FpB with chl filled vf-as clasts (~50%-80%) in sandy basalt derived mx. Homogenous gn zones interpreted as basaltic sst = SBB

"Footwall" pumice bx with oct pink/orange FpD clasts

Bx with rounded clasts FpD in a pumiceous mx and/or siliceous fp pumice

643·0m

Slst, pale green, felsic tuffaceous

SECTION LINE 304·5° (TN)

SHD-12
(380360mE
5358290mN)

PLAN

0 20 40 60 80 100
metres

390214A

5 cm

97-4026

ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Spillway Prospect SHD-12 Section

Compiled	GM	Scale 1:1000	fig. 19
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

381000mE
5358923mN

SHD-13
-344° to 253° (TN)

LAKE NEWTON

FHbpA

FpD bx

F> Q sst/bx

LAKE NEWTON

F> Q sst/bx
and mn QFpR

QFpR (= MJR)

F (40°)

Gy gn slt/sst and lesser bx
(clasts QFpR)

100

QFpR (= MJR)

400·00

200

F> Q xtal sst/bx
(clasts QFpR >> gn slt

300

F (25°)

F (25°-30°)

200·00

F> Q xtal sst
pk/gn alb/chl alth.

400

F> Q xtal sst/bx
(clasts QFpR >> gn slt

500

white to pale pk limestone

marly slt/bx clasts,
limestone and aphyric R

F> Q xtal sst/bx
(clasts QFpR)

0·00

F> Q xtal sst/bx
(clasts QFpR)

600

marly qtz slt with carbonate nodules
and pulse pumx F xtal volcaniclastics

pk to white limestone

Basalt bx, hematitic, foliated
pumx F xtal volcaniclastics

Basalt coherent Fp and bx
pumx F xtal volcaniclastics

Basalt extrusive (?)

700

pumx F xtal volcaniclastics
with numerous Fp basalt
dykes - feeders to upper-
extrusive basalts.

800

-200·00

pumx F xtal volcaniclastics
with graded sst/slt

Fp D extrusive ?

900

irreg. Fp D clasts - juvenile hyaloclastite

pumx F xtal volcaniclastics

Fp D

irreg. Fp D clasts - juvenile hyaloclastite

Fp D

Fp D clasts in pumx F xtal volcaniclastics

poorly graded slt/sst and pumx F xtal volcaniclastics

black slt

irreg Fp D clasts in pumx F xtal volcaniclastics

pumx volcaniclastics with occ Aph-
type 0 xtals

1000

moderately sor-Mmrcb
wtd.

F (porrhic, puggy)
1057m

-400·00

PLAN

SECTION LINE 254° (AMG)

SHD-13
381300mE
5358935mN

5 cm

0 20 40 60 80 100
metres

390215A

RESOLUTE LIMITED

EL 8/96 "SOUTH HENTY"
Lake Newton Prospect SHD-13 Section

Compiled	GM	Scale	1:1000
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

Fig. 20

TSR 97-4086

SHD-13: 45m OF SULPHIDE ZONE (ASSAYS AWAITED BUT LOW TENOR)

SHD-1: 94m @ 0.2% Zn, 0.3% Pb IN SULPHIDE ZONE + Ba + $MnCO_3$

PRINCIPAL TARGET ZONE

PROJECTION (~350m's) SHD-2 STRINGERS e.g. 10m @ 0.3% Cu, 0.5m @ 12% Pb, 18% Zn, 3.4 g/t Au

SHD-13

SHD-1

~350m's

~200m's

SHD-2: STRINGER SULPHIDES/ALTERATION e.g. 3m @ 0.3% Cu, 0.5m @ 12% Pb, 18% Zn, 3.4 g/t Au

SULPHIDE ZONE

HAB

HAT

SHD-11

"STALK" ALTERATION PIPE

HAB: 232m @ 0.2% Zn

1000m

EDGE OF "STALK" OF AEROMAGNETIC LOW

500m

T.N.

0m

480m a.s.l.

GREAT LYELL FAULT (REACTIVATED CAMBRIAN BASIN MARGIN)

HENTY-COMSTOCK HORIZON

500m

EAST

500m a.s.l.

0m a.s.l.

SULPHIDE ZONE - DRILL INTERSECTIONS SHOWN

DEPTH

N.B. DRAWN AS IF SEQUENCE VERTICAL - SEQUENCE ACTUALLY DIPS ~70° EAST

- Basalt - coherent and breccia = Howards Basalt
- Limestone
- Andesite - coherent and hyaloclastic
- Quartz Feldspar phyric Dacite sill. clastics/sulphide zone at top
- Quartz Feldspar-phyric andesitic intrusive
- Pumice rich clastics
- Shales, siltstones, sandstones
- Lower (spillway) basalt

390216A

5 cm

TCR 97-4026

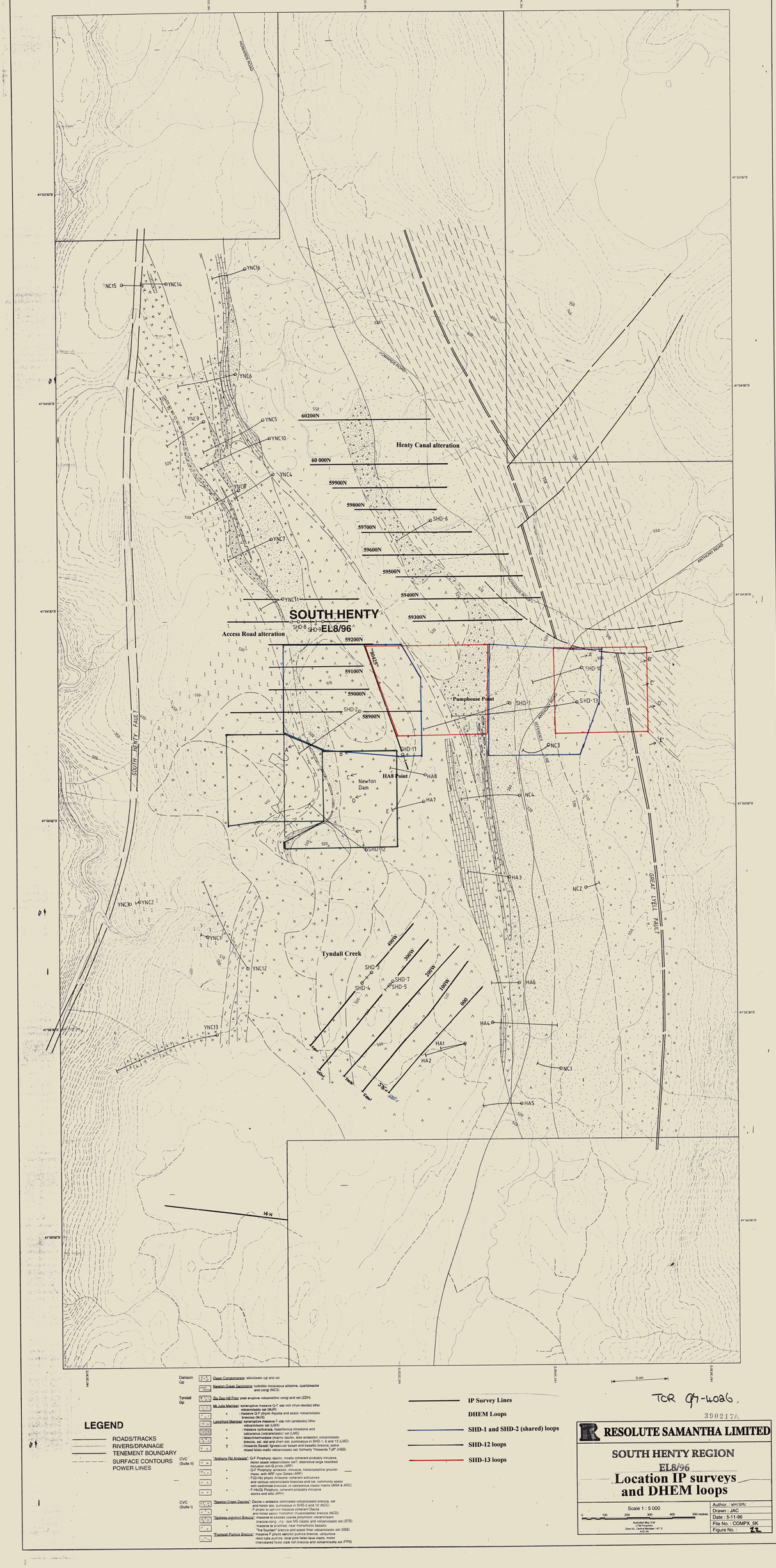
RESOLUTE SAMANTHA LTD

EL 8/96 "SOUTH HENTY"

Lake Newton Prospect - Isometric Summary

Compiled	GM	Scale	as shown
Drawn	DKH	Checked	
Date	May 1997	Plan No.	

fig 21.



LEGEND

- ROADS/TRACKS
- RIVERS/DRAINAGE
- TENEMENT BOUNDARY
- SURFACE CONTOURS
- POWER LINES

Denison Gp

- Owen Conglomerate: siliciclastic cgl and sst
- Newton Creek Sandstone: turbiditic micaceous siltstone, quartzwacke and congl (NCS)

Tyndall Gp

- Zig Zag Hill Fmn: post eruptive volcaniclithic congl and sst (ZZH)
- Mt Julia Member: synerupitive massive Q-F xtal rich (rhyo-dacitic) lithic volcaniclastic sst (MJR)
  - : massive Q-F phyric rhyolia and assoc volcaniclastic breccias (MJL)
- Vanchford Member: synerupitive massive F xtal rich (andesitic) lithic volcaniclastic sst (LMX)
  - : massive carbonate, fossiferous limestone and calcareous (volcaniclastic) sst (LMS)
  - : felsic/intermediate (mainly dacitic, also andesitic) volcaniclastic breccia, sst, slst and chert slst, pumiceous in SHD-1, 6 and 13 (LMD)
  - ?: Howards Basalt: fg/vesicular basalt and basaltic breccia, some mased felsic-mafic volcaniclassic sst; formerly "Howards Tuff" (HBB)

CVC (Suite II)

- "Anthony Rd Andesite": Q-F Porphyry; dacitic, mostly coherent probably intrusive, massive to flow banded, pumiceous, distinctive large resorbed inclusion rich Q prives (ARA)
  - : Q-F Porphyry; andesitic, intrusive, holocrystalline groundmass, with ARF type Qxtals (ARF)
  - : FiQ-Hb(-px)phyric Andesite; coherent extrusives and various volcaniclastic breccias and sst, commonly assoc with carbonate breccias, or calcareous classic matrix (ARA & ARC)
  - : F-Hb(-Q) Porphyry, coherent probably intrusive stocks and sills (ARH)

CVC (Suite I)

- "Newton Creek Dacite": Dacite > andesite dominated volcaniclastic breccia, sst and minor slst, pumiceous in SHD-2 and 12 (NCC)
  - : F phyric to aphyric massive coherent Dacite and minor assoc monomict (hyaloclastite) breccia (NCD)
- "Hadley polymict Breccia": massive to bedded coarse polymictic volcaniclastic breccia-congl. incl. rare MS clasts) and volcaniclastic sst (SPB)
  - : massive to scorified, near monomictic basaltic "fire fountain" breccia and assoc finer volcaniclastic sst (SBB)
- "Thorwell Pumice Breccia": massive F phyric sericitic pumice breccia, obtuberous relict tube pumice, local pink felsic lava clasts, rhyhor. intercalated felsic clast rich breccia and volcaniclastic sst (FPB)

- IP Survey Lines
- DHEM Loops
- SHD-1 and SHD-2 (shared) loops
- SHD-12 loops
- SHD-13 loops

TCR 97-4026.

390217A

RESOLUTE SAMANTHA LIMITED

SOUTH HENTY REGION

EL8/96

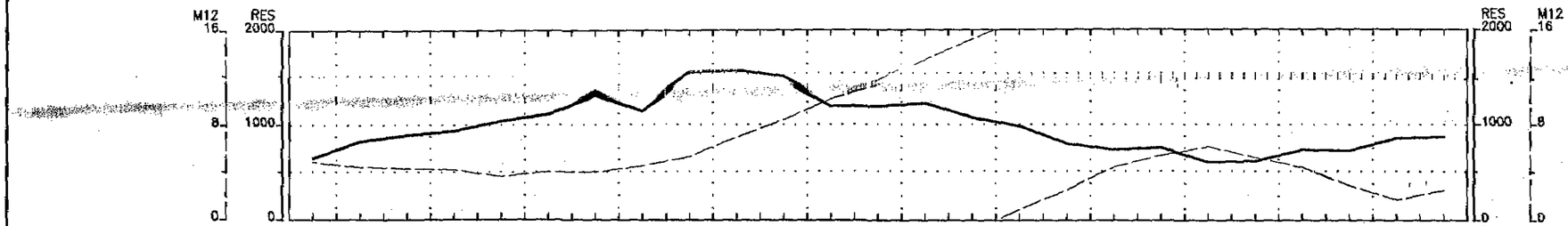
Location IP surveys and DHEM loops

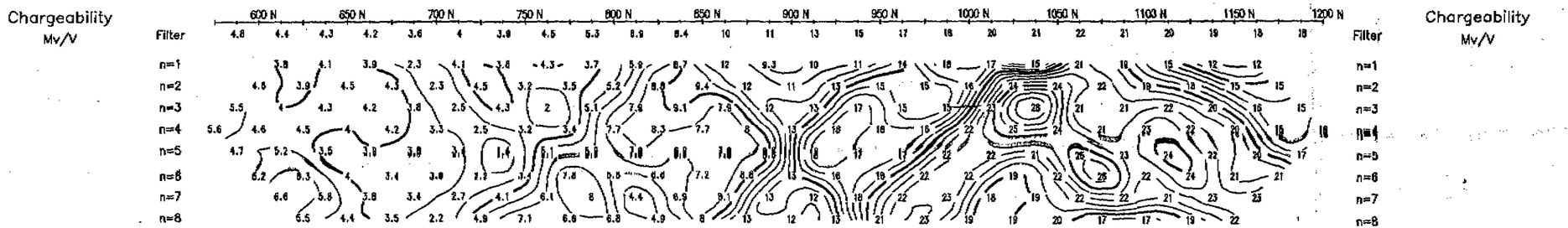
Scale 1 : 5 000

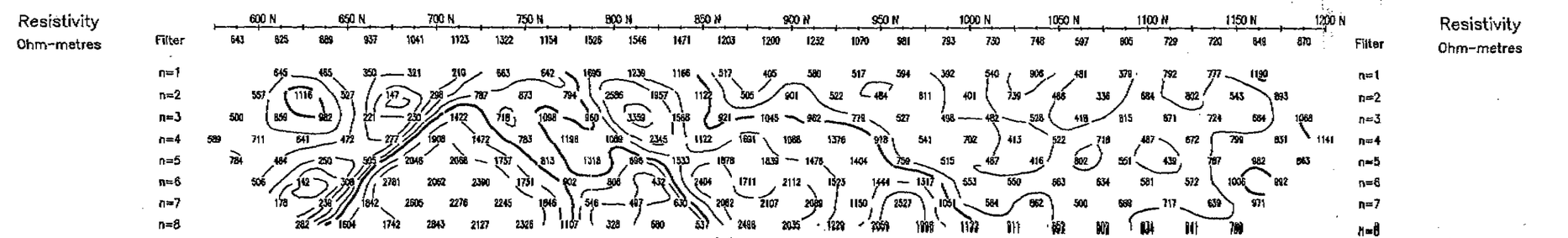
0 100 200 300 400 500 metres

Australian Map Grid
Clarke 1858 Spheroid
Zone 53, Central Meridian 147° E
AUG 1994

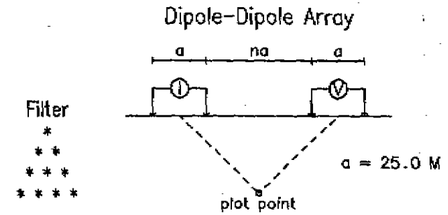
Author. : WH/GMc	
Drawn : JAC	
Date : 5-11-96	
File No. : COMPX_5K	
Figure No. :	22







Line 0



97-4026

ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

5 cm

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

390218A

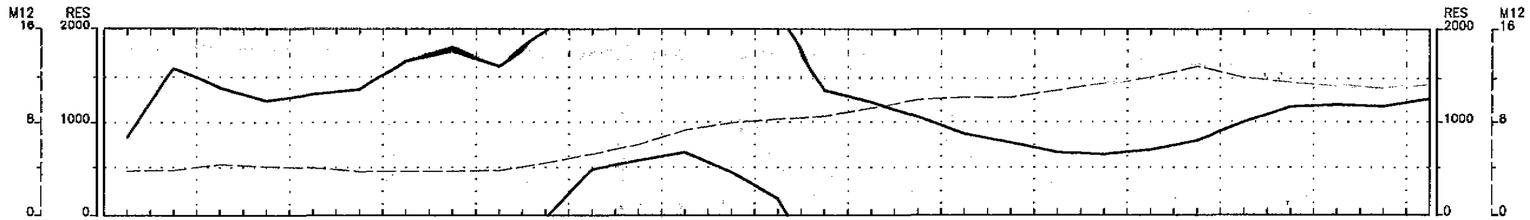
RESOLUTE SAMANTHA

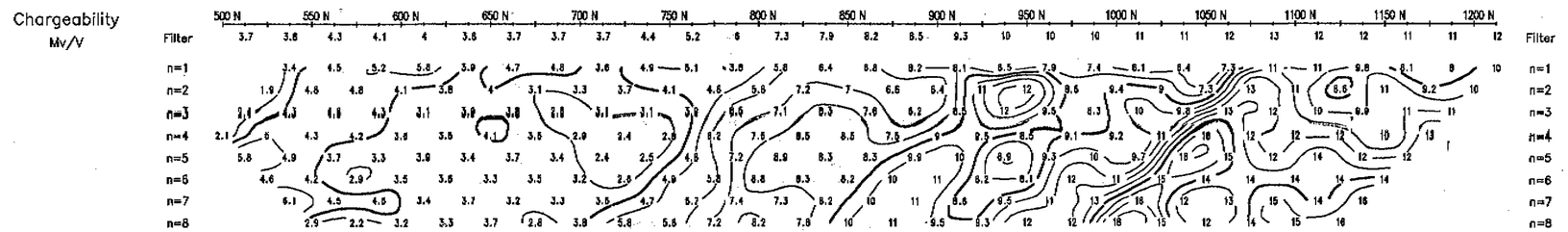
INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY

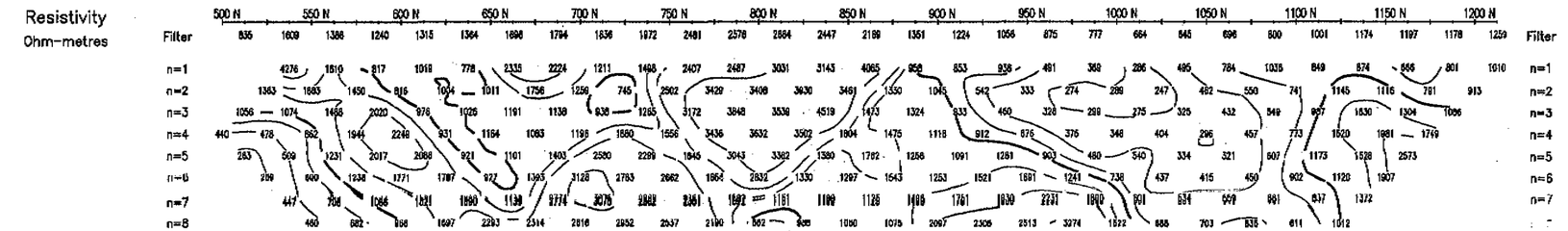
Date: 97/03/24
Interpretation:

FIG 2B

SCINTREX PTY LTD

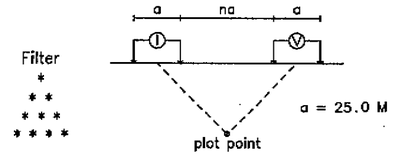






Line 100 W

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150

(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation:

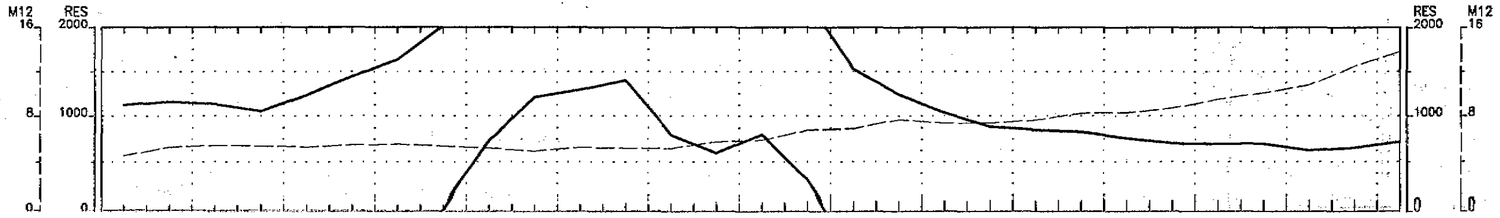
FIG 24

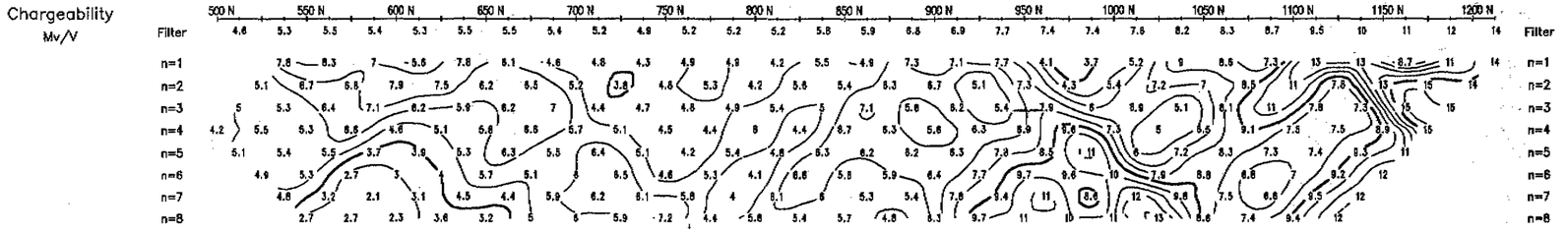
REX PTY LTD

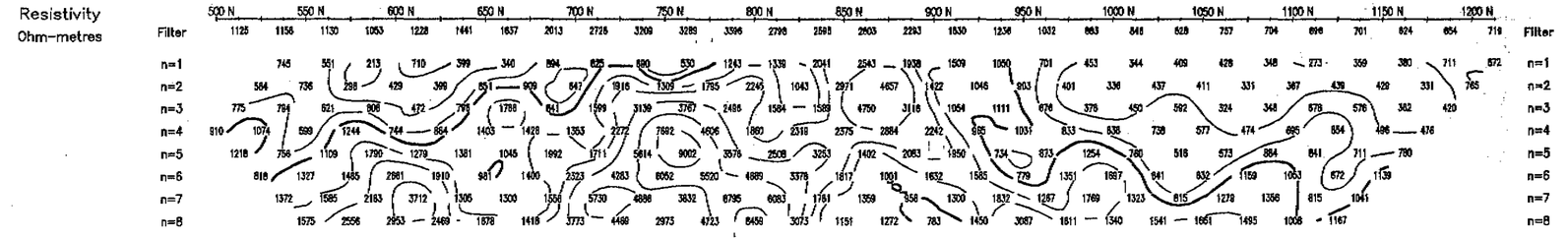
97-4026

ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

390219A

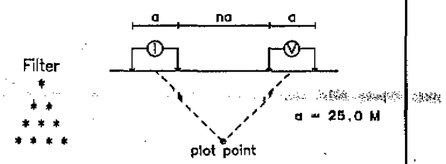






Line 200 W

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY

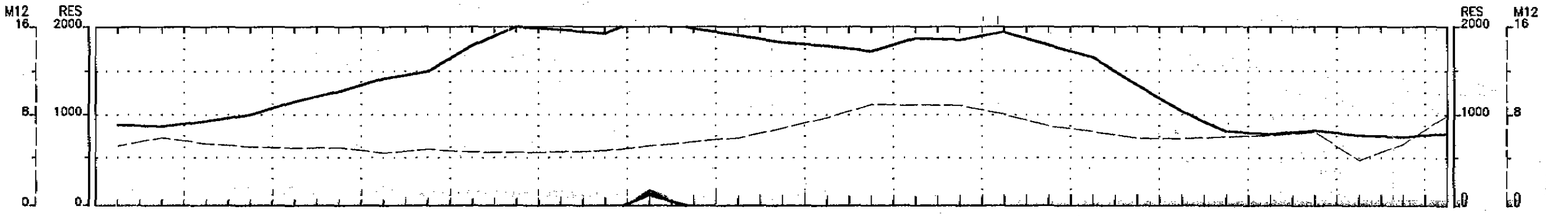
Date: 97/01/31
Interpretation:

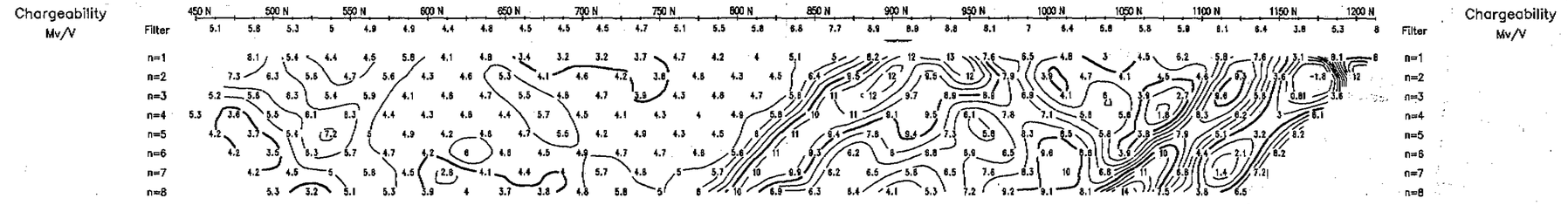
FIG 25

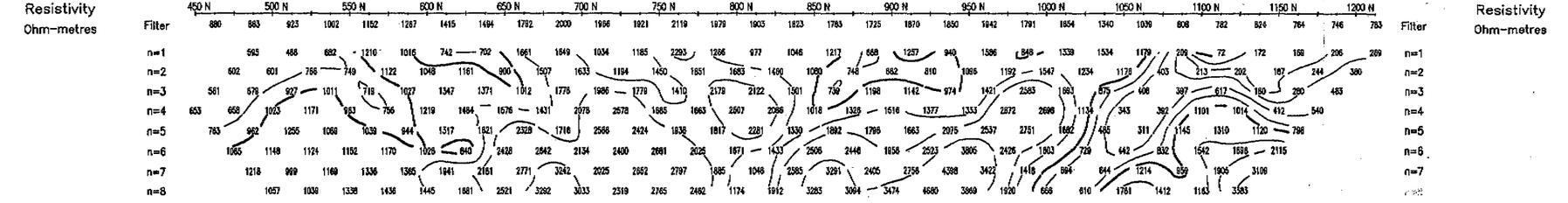
SCINTREX PTY LTD

97-4026

390220A

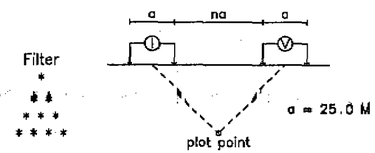






Line 300 W

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY

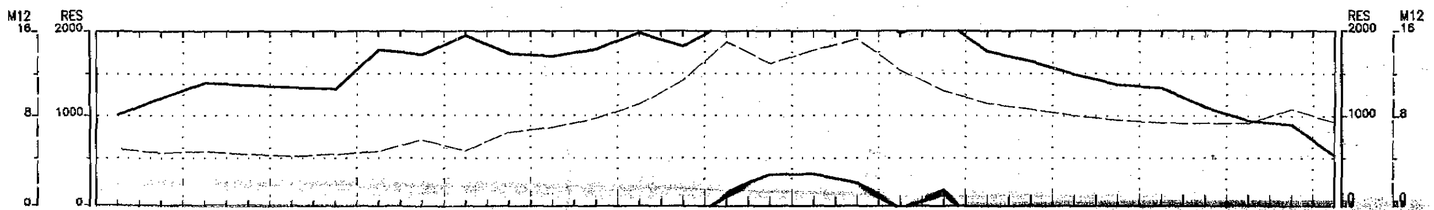
Date: 97/01/31
Interpretation: FIG 26

CINTREX PTY LTD

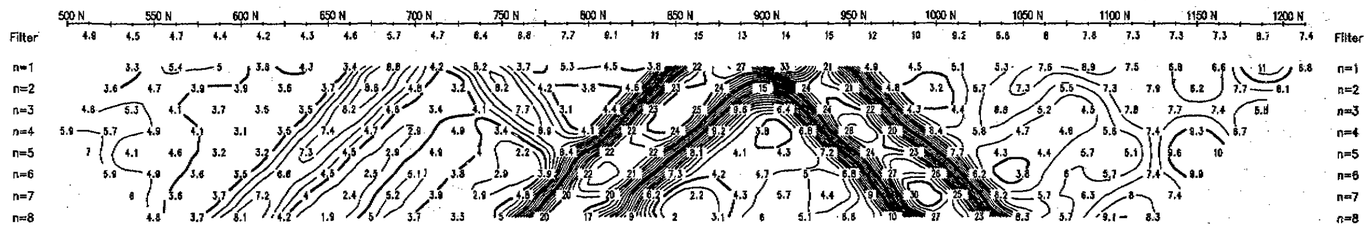
97-4026

390221A

ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

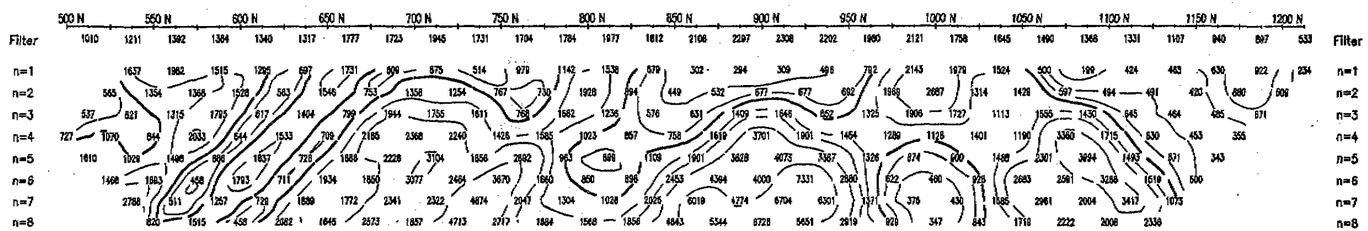


Chargeability
Mv/V



Chargeability
Mv/V

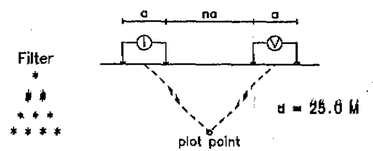
Resistivity
Ohm-metres



Resistivity
Ohm-metres

Line 400 W

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

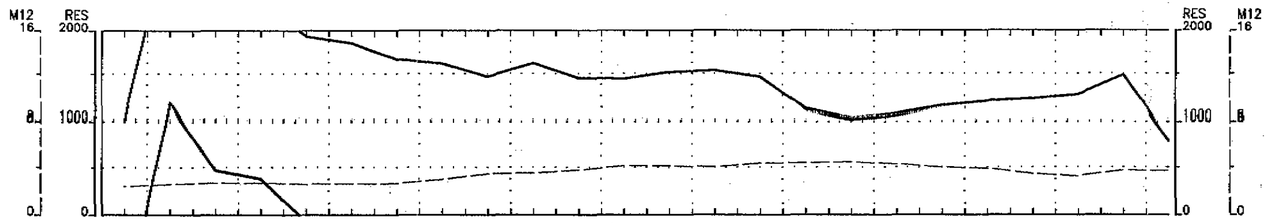
Scale 1:2500

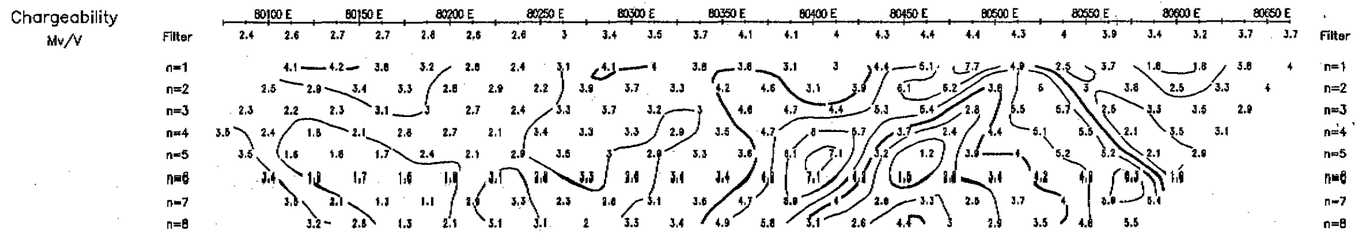
25 0 25 50 75 100 125 150
(meters)

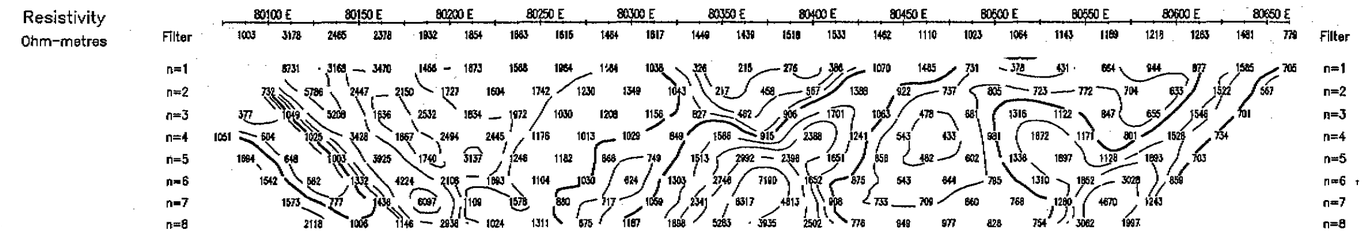
5 cm

RESOLUTE SAMANTHA
INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY
Date: 97/01/31
Interpretation: FIG 27
SCINTREX PTY LTD

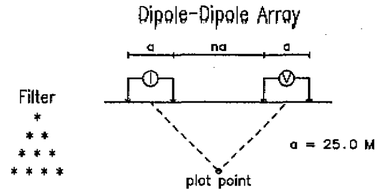
390222A







Line 60200 N



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation:

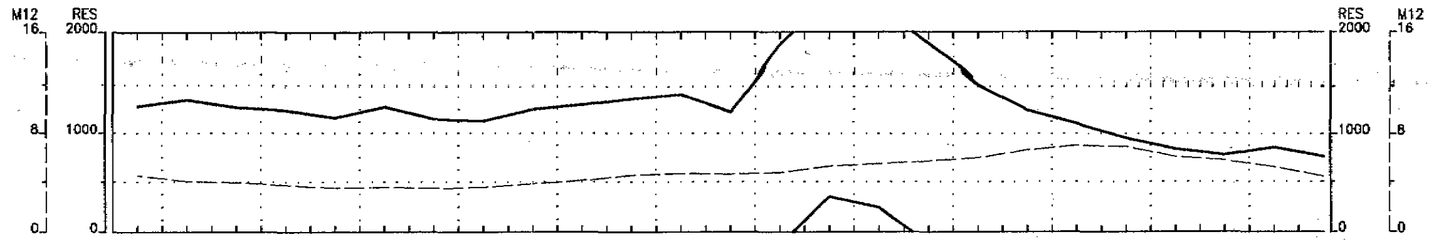
FIG 28

SCINTREX PTY LTD

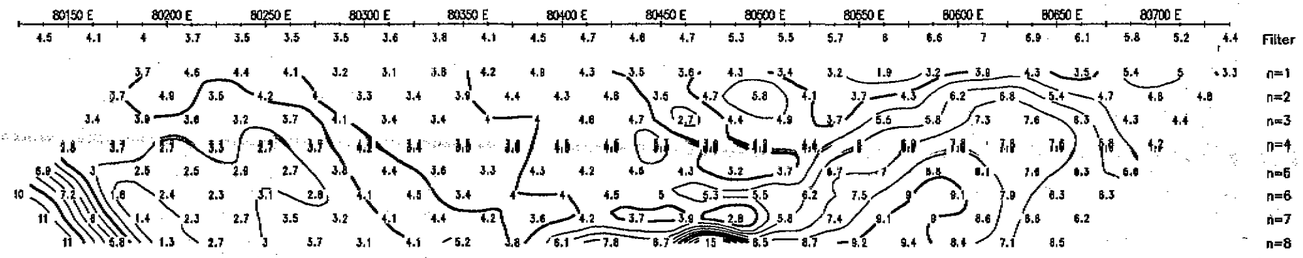
390223A

97-4026

ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

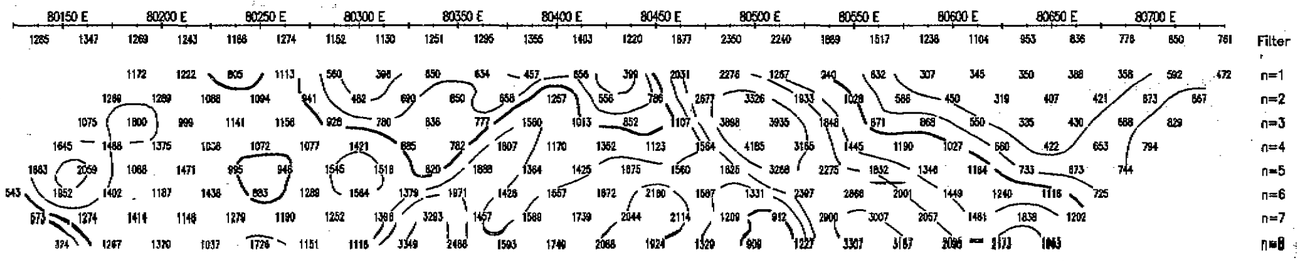


Chargeability
Mv/V



Chargeability
Mv/V

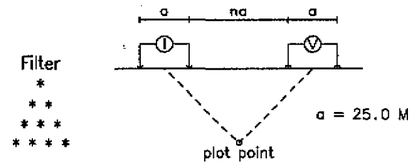
Resistivity
Ohm-metres



Resistivity
Ohm-metres

Line 60000 N

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

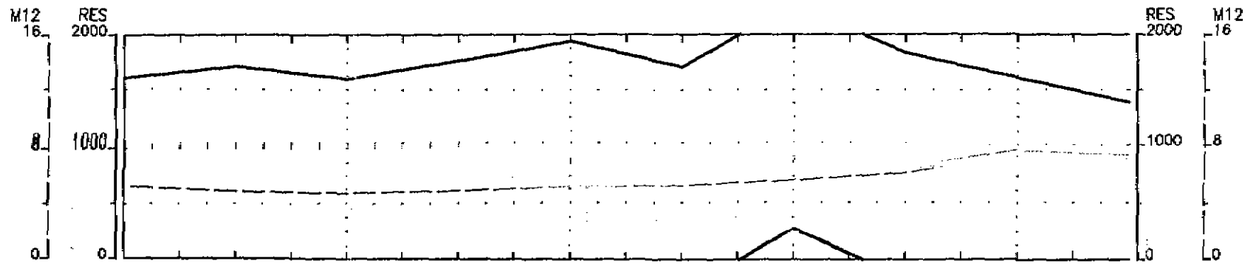
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

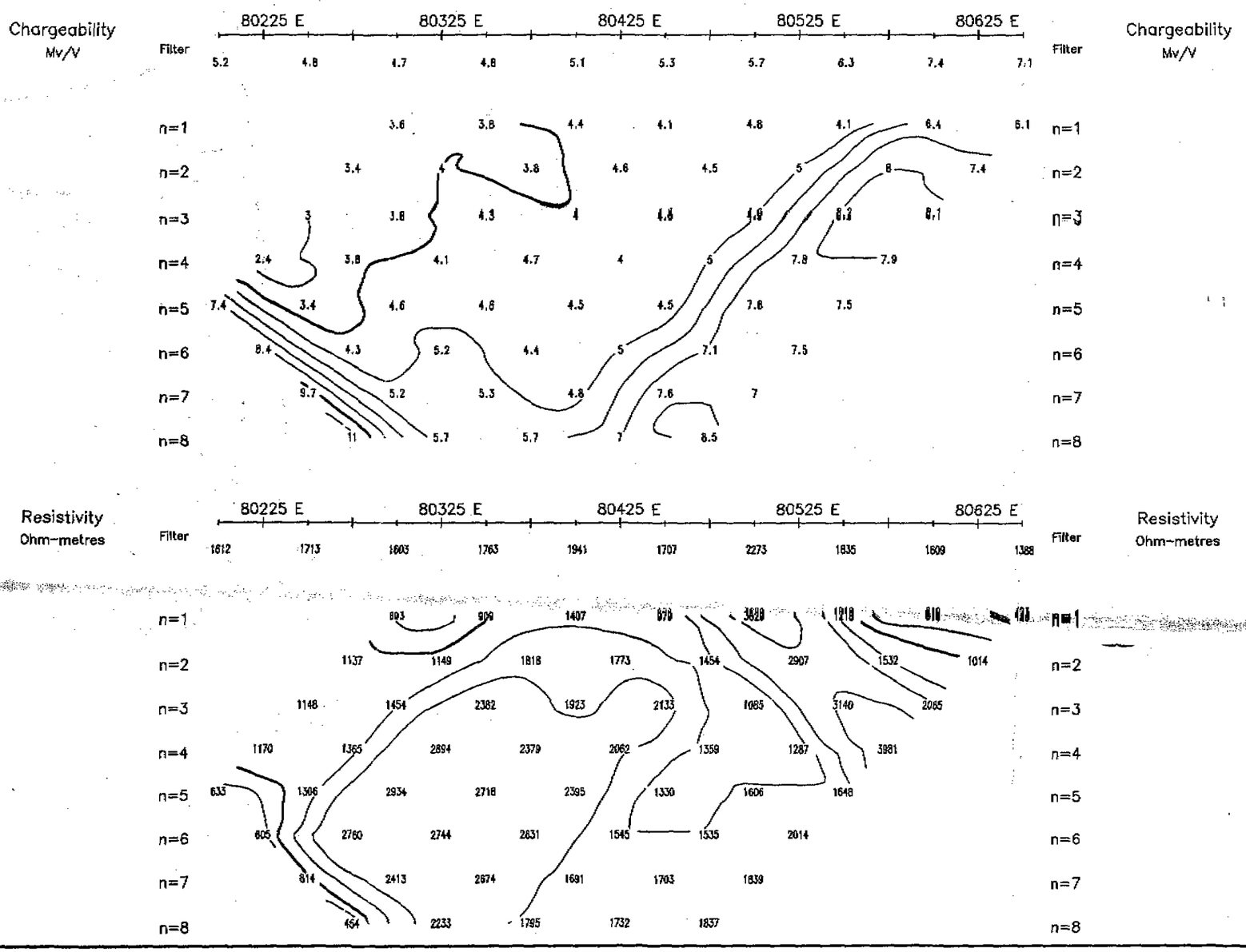
Date: 97/01/31
Interpretation:

FIG 29

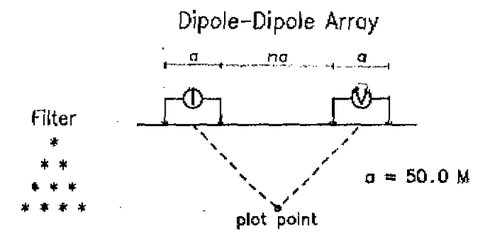
SCINTREX PTY LTD

390224A





Line 60001 N



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

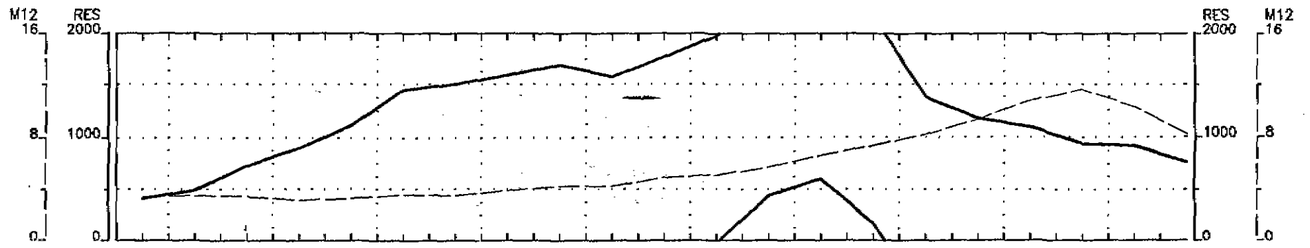
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

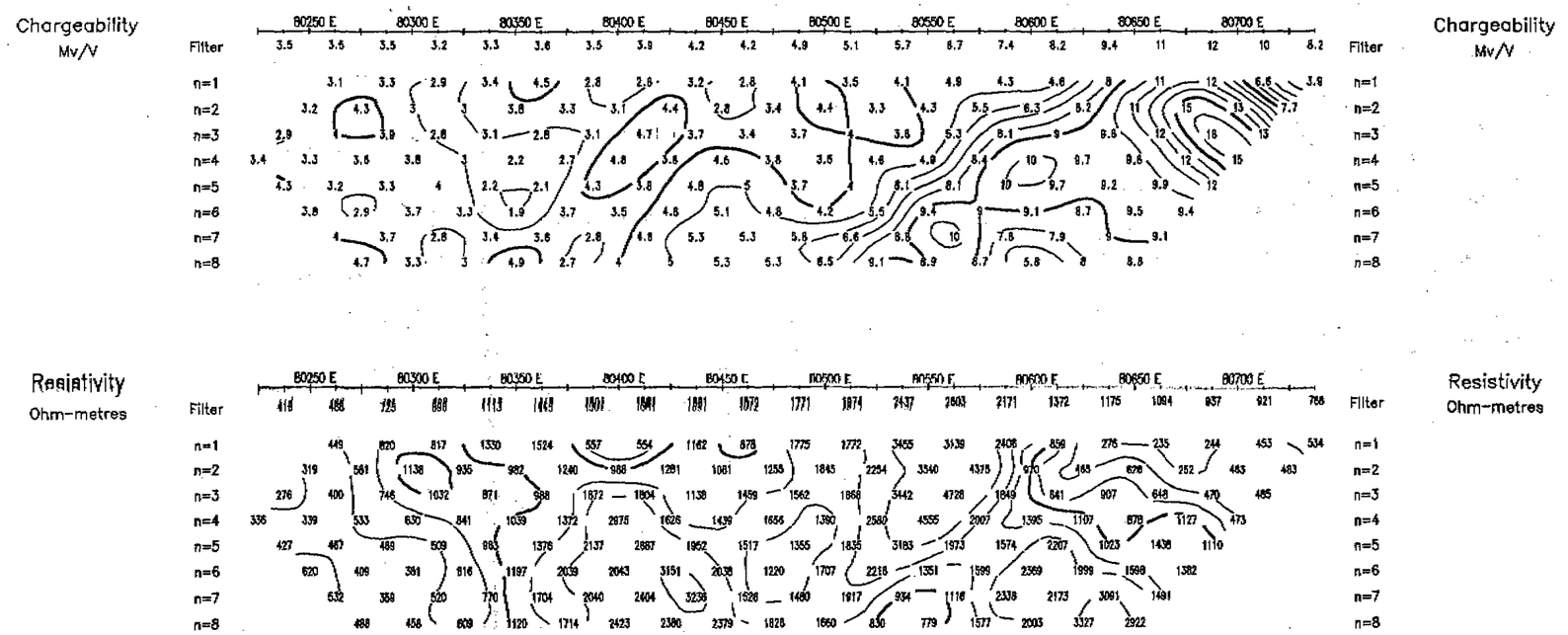
Date: 97/01/31
Interpretation:

Fig 30

SCINTREX PTY LTD

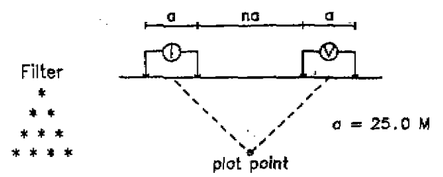
390225A





Line 59900 N

Dipole-Dipole Array



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ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

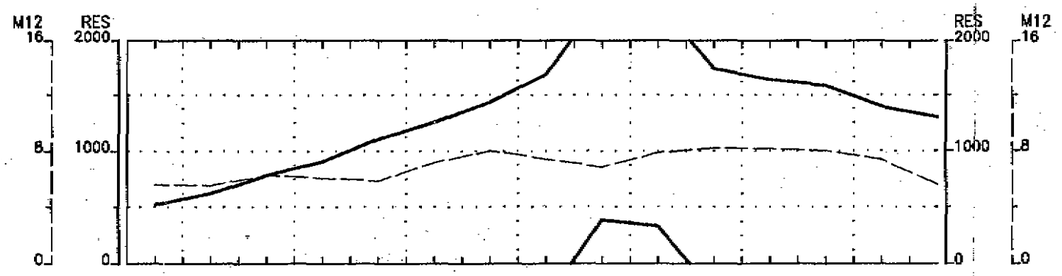
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation: FIG **3**

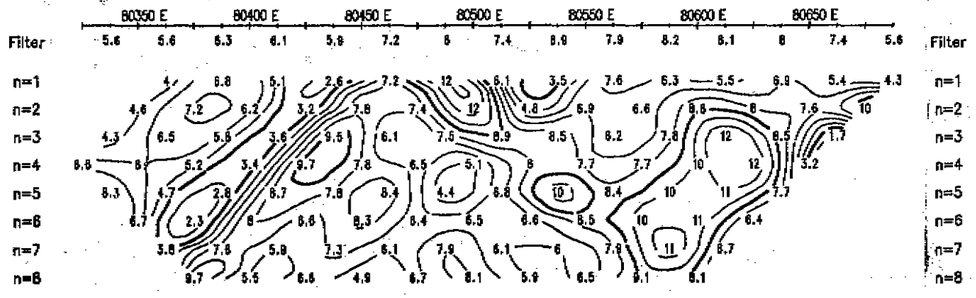
SCINTREX PTY LTD

390226A

390227A

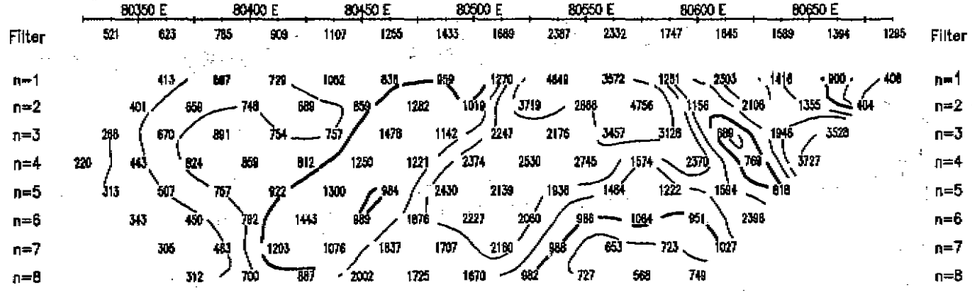


Chargeability
Mv/V



Chargeability
Mv/V

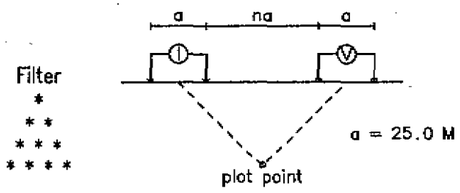
Resistivity
Ohm-metres



Resistivity
Ohm-metres

Line 59800 N

Dipole-Dipole Array



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

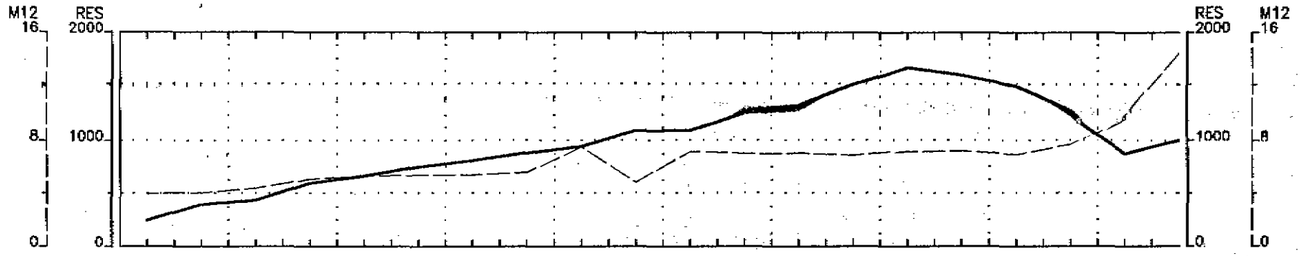
RESOLUTE SAMANTHA

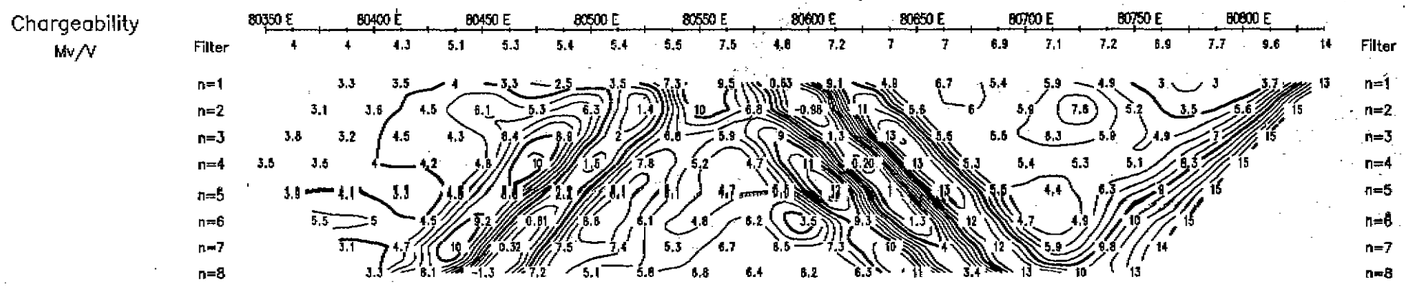
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

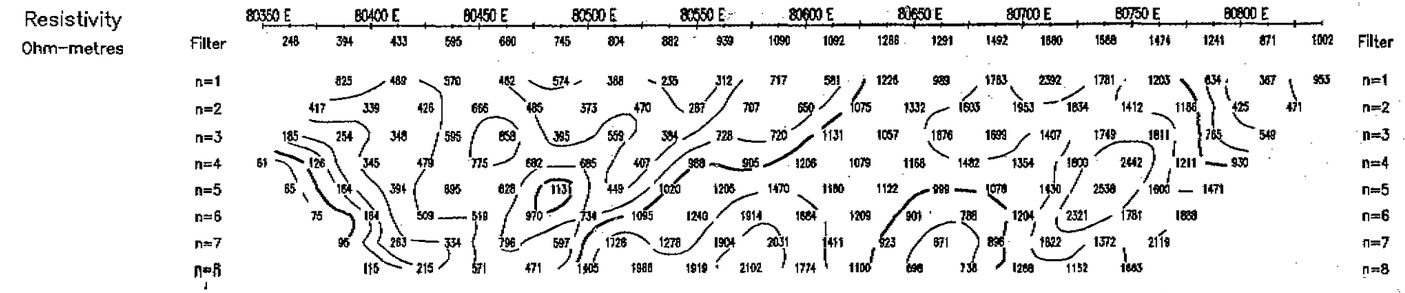
Date: 97/01/31
Interpretation:

FIG 32

SCINTREX PTY LTD

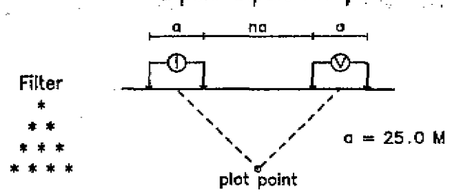






Line 59700 N

Dipole-Dipole Array



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

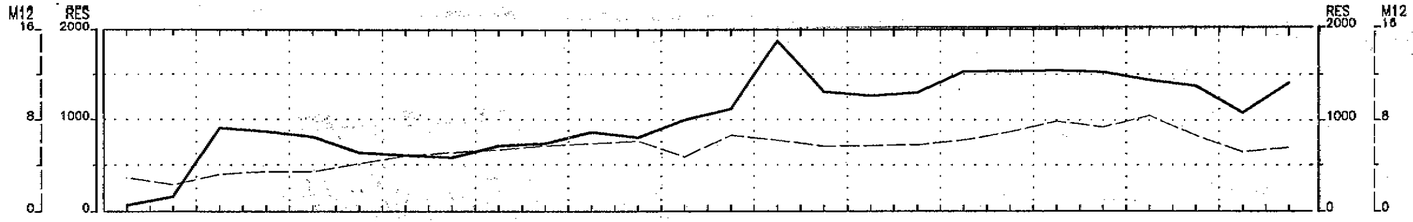
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation:

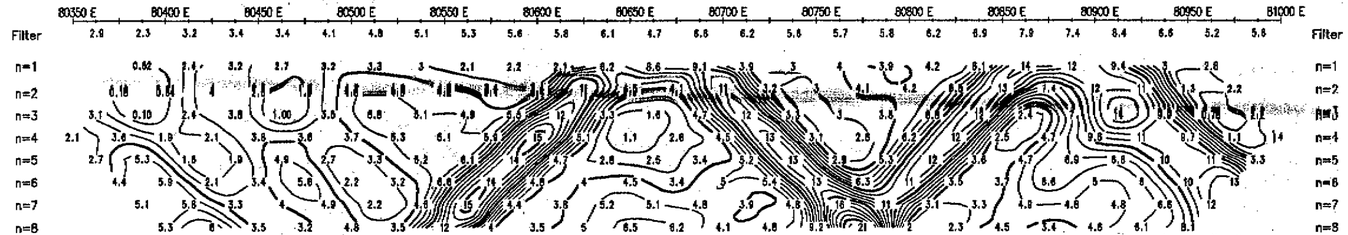
FIG 33

SCINTREX PTY LTD

390228A

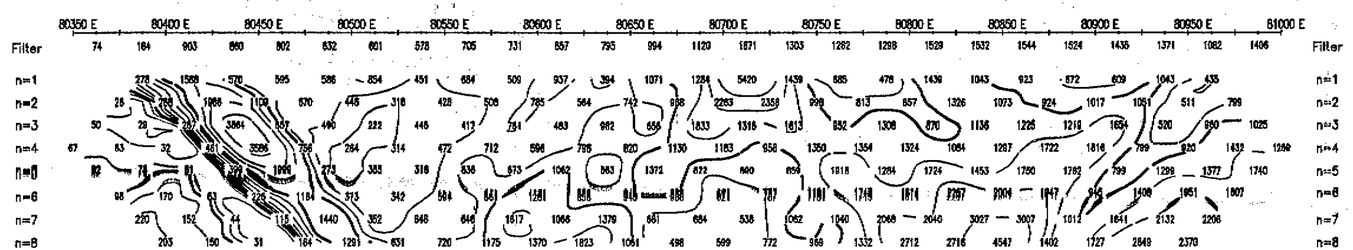


Chargeability
Mv/V



Chargeability
Mv/V

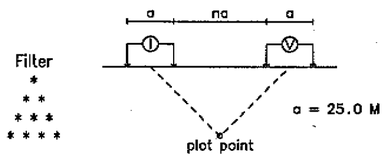
Resistivity
Ohm-metres



Resistivity
Ohm-metres

Line 59600 N

Dipole-Dipole Array



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ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

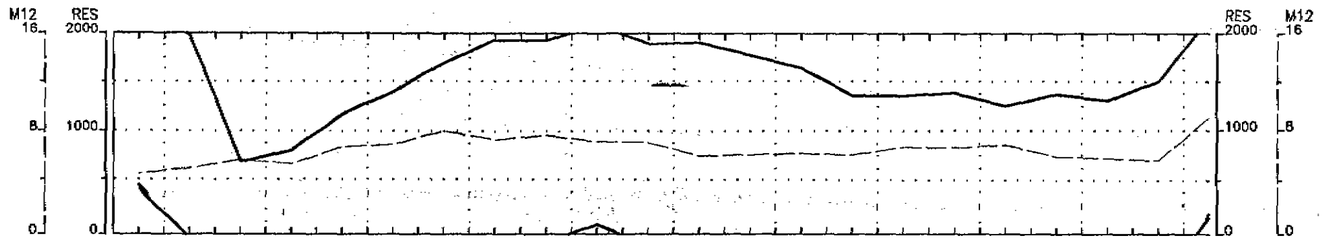
RESOLUTE SAMANTHA

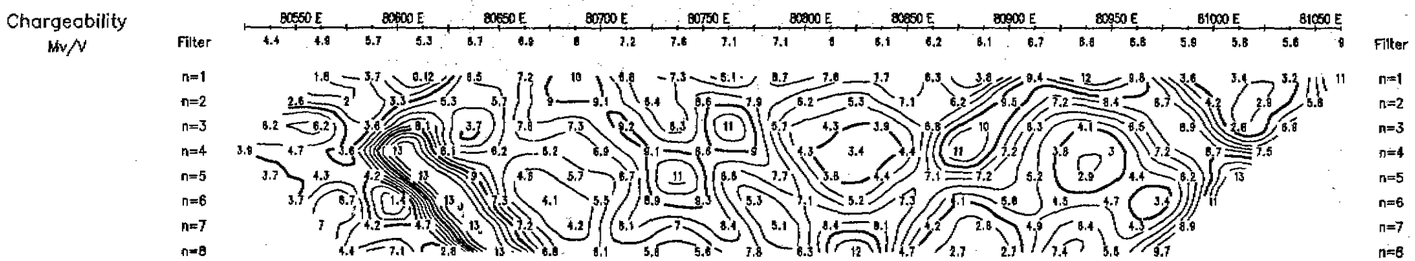
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

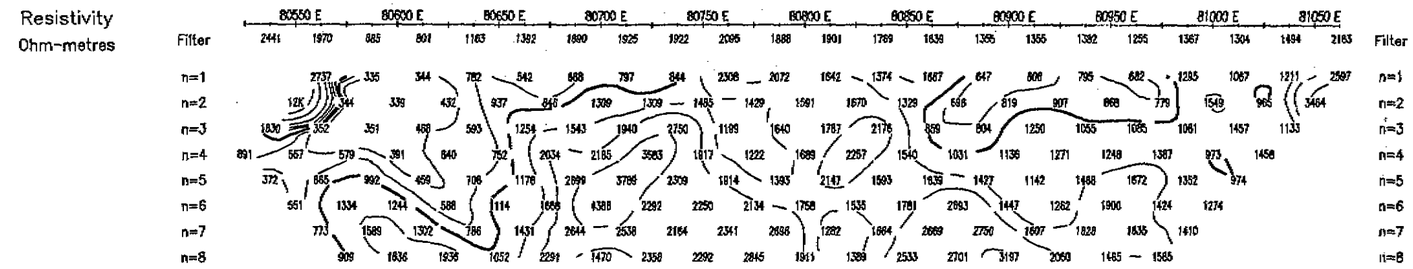
Date: 97/01/31
Interpretation: FIG 34

SCINTREX PTY LTD

390229A

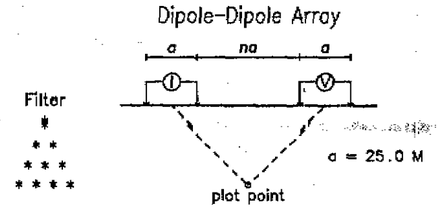






Line 59500 N

Dipole-Dipole Array



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ANNUAL REPORT - **VOL 5OF 5**
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, . .

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

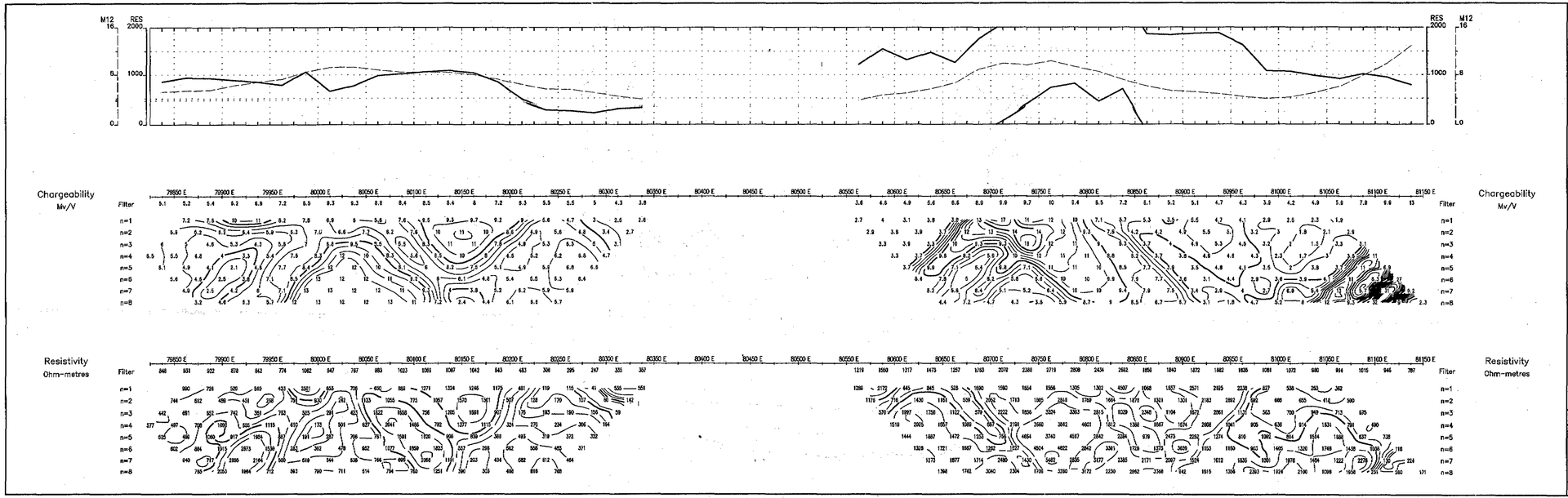
RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation:. FIG 35

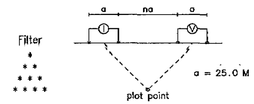
SCINTREX PTY LTD

390230A



Line 59400 N

Dipole-Dipole Array



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(metres)

5 cm

RESOLUTE SAMANTHA

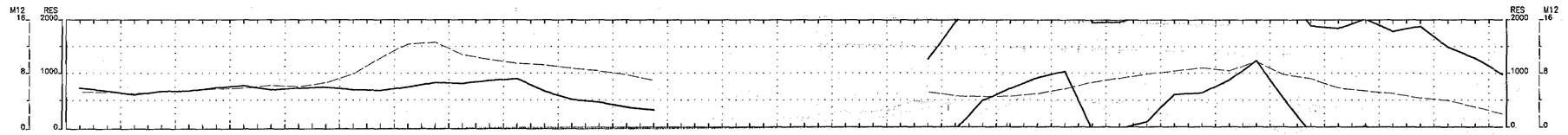
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

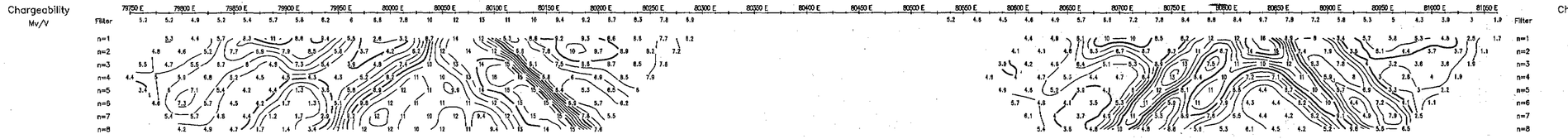
Date: 97/01/31
Interpretation:

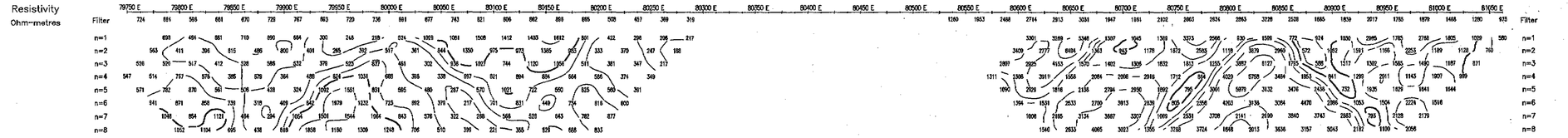
FIG 36

SCINTREX PTY LTD

390231A

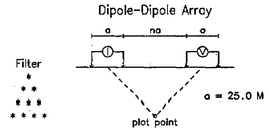






Line 59300 N

Dipole-Dipole Array



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

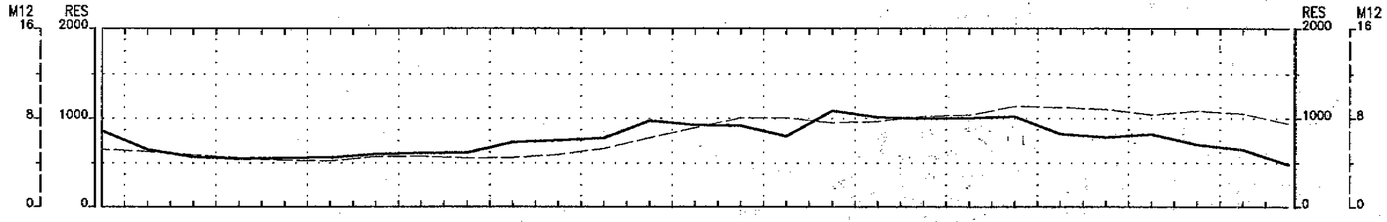
RESOLUTE SAMANTHA

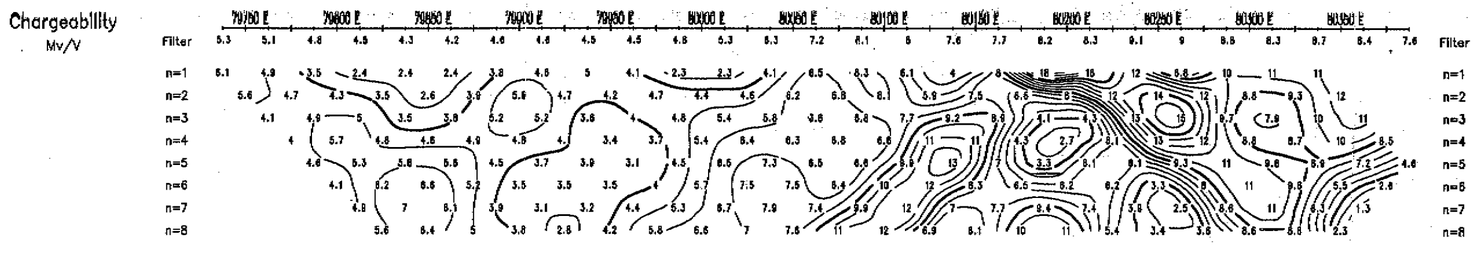
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

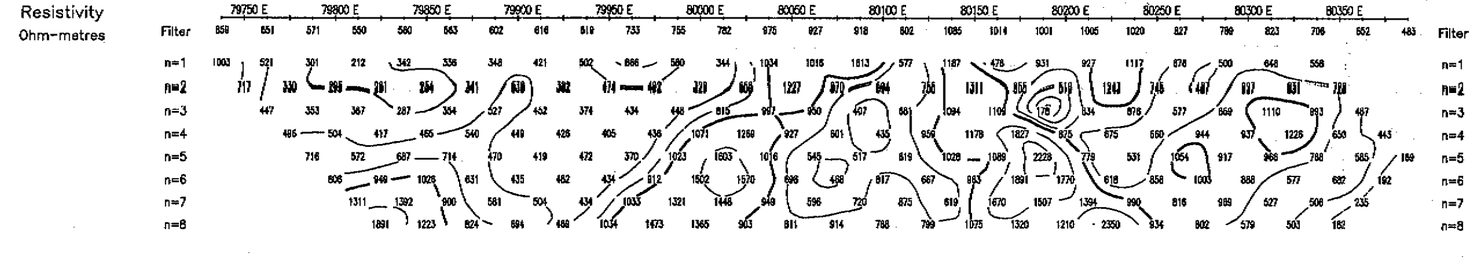
Date: 97/01/31
Interpretation: FIG 37

SCINTREX PTY LTD

390222A





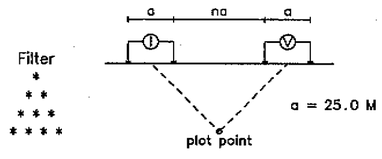


Chargeability
Mv/V

Resistivi
Ohm-meti

Line 59200 N

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

0 25 50 75 100 125 150
(meters)

5 cm

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ANNUAL REPORT - VOL 5 OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

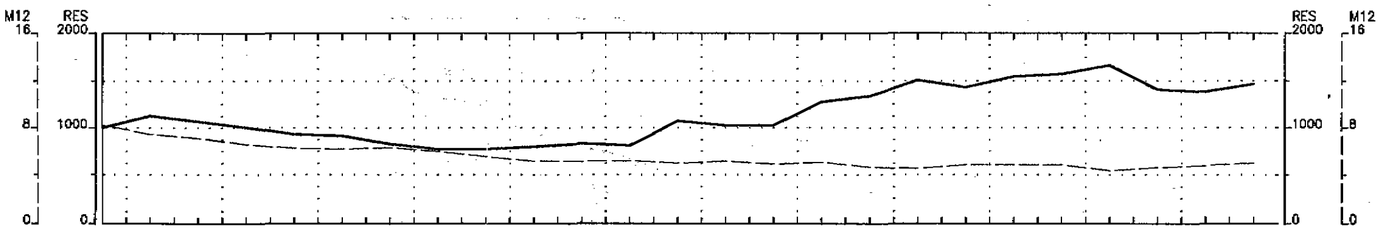
RESOLUTE SAMANTHA
INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

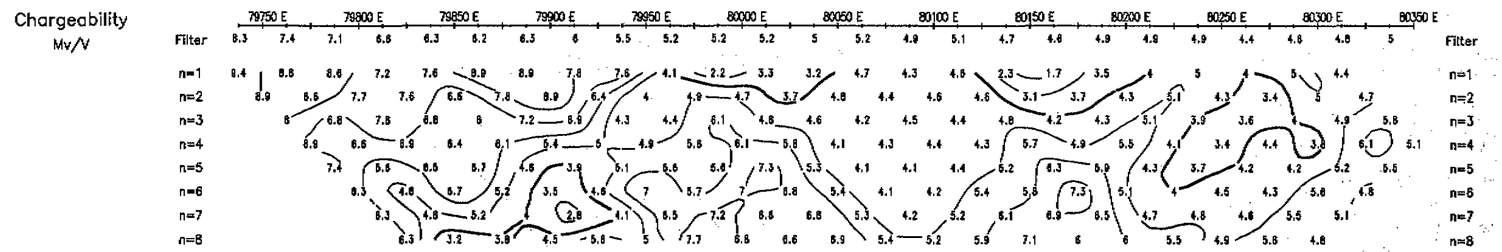
Date: 97/01/31
Interpretation:

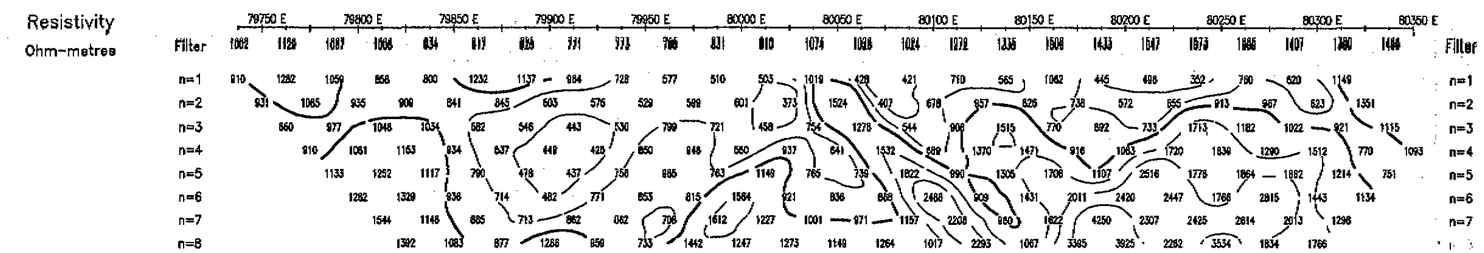
FIG 38

SCINTREX PTY LTD

390233A





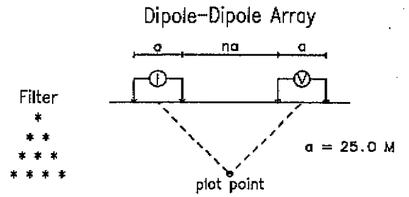


Chargeability
Mv/V

Resistivity
Ohm-metres

Line 59100 N

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
pretation: FIG 39

EX PTY LTD

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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

390234A

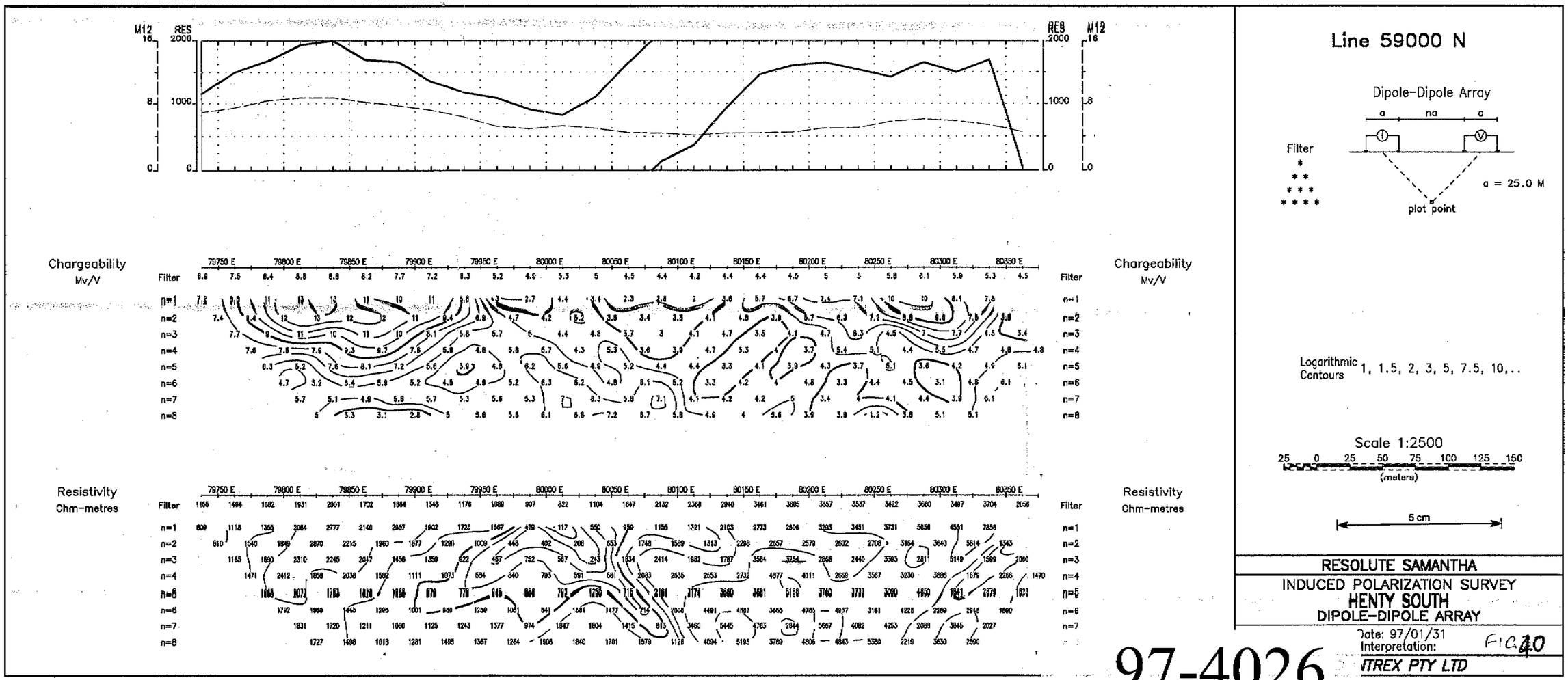

FIG 40

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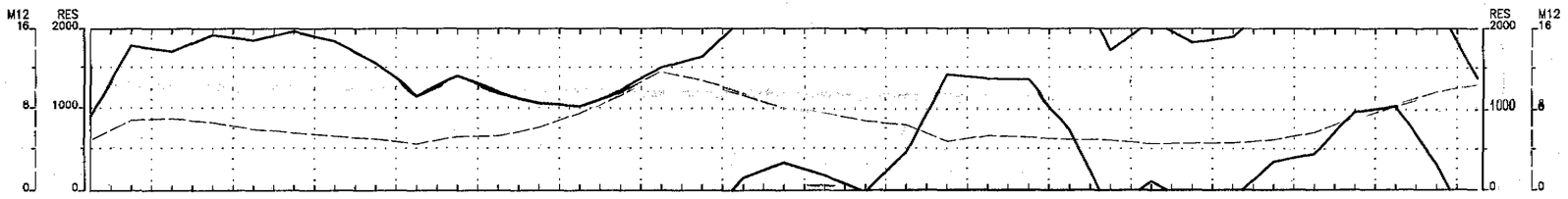
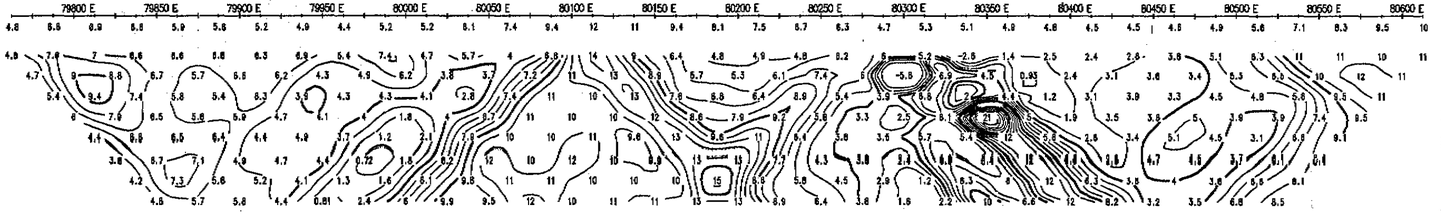
390235A

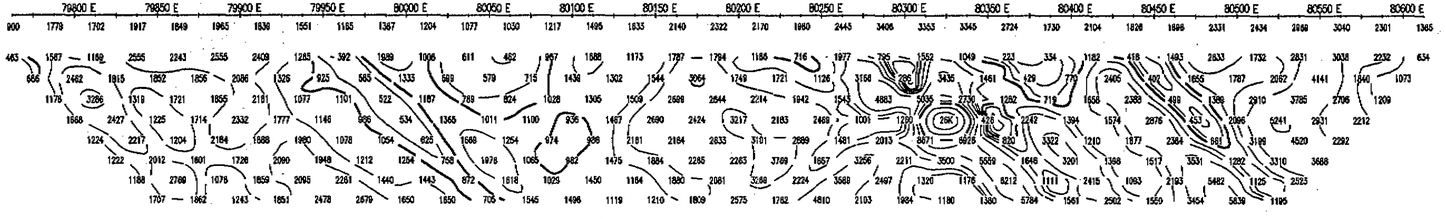
ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD



Chargeability
Mv/V

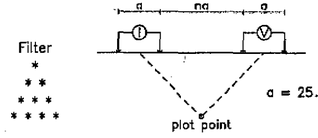


Resistivity
Ohm-metres



Line 58900 N

Dipole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

Date: 97/01/31
Interpretation:

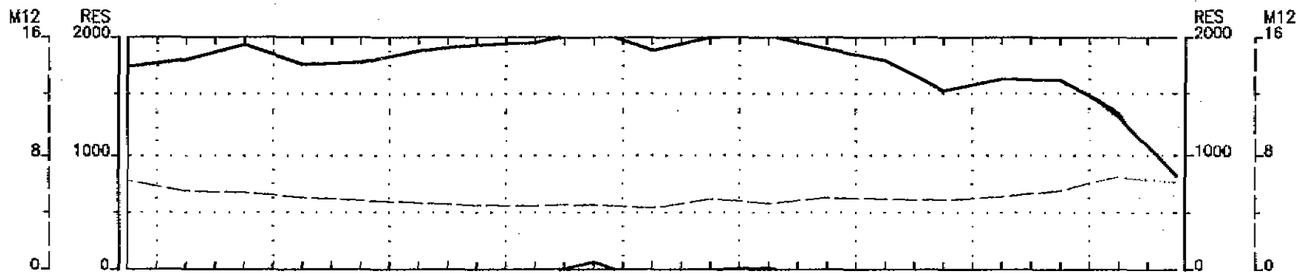
FIG 41

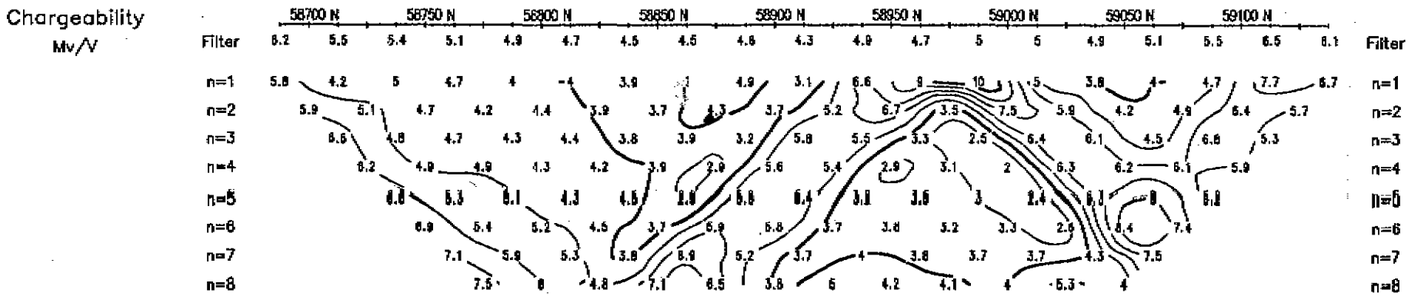
REX PTY LTD

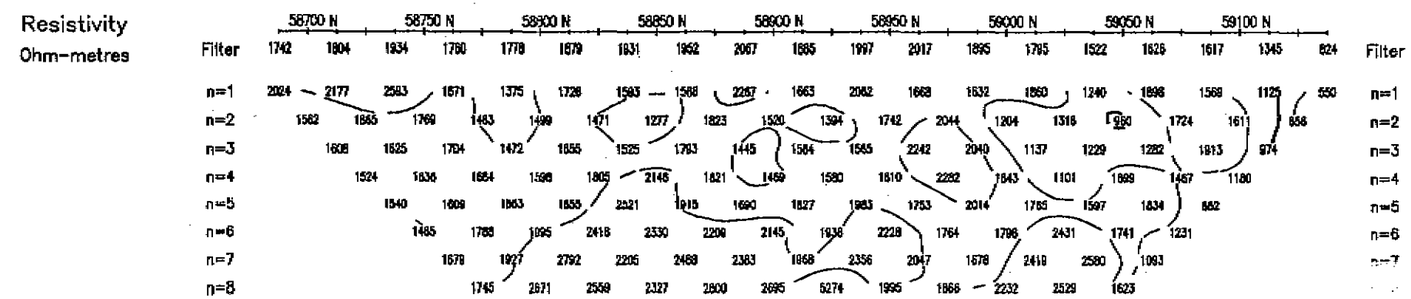
97-4026

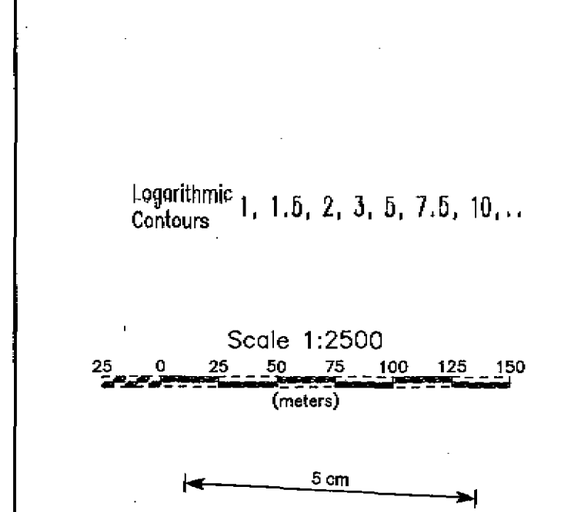
3902364

ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

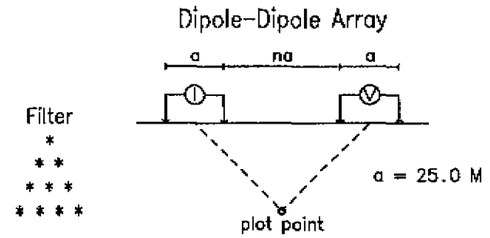








Line 80425 E



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150

(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
HENTY SOUTH
DIPOLE-DIPOLE ARRAY

e: 97/01/31
erpretation:

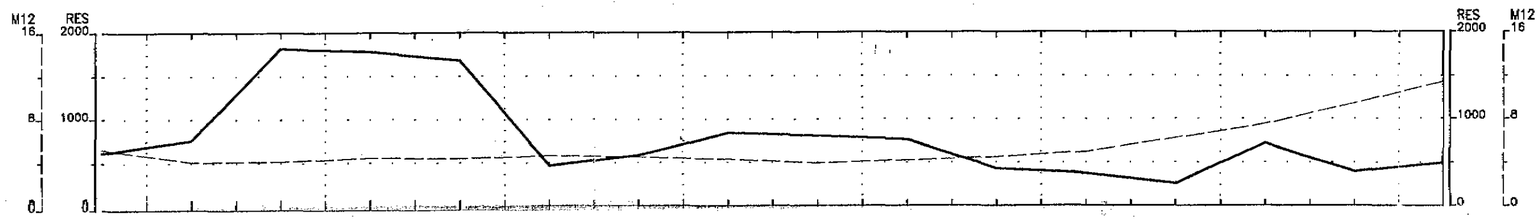
FIG 42

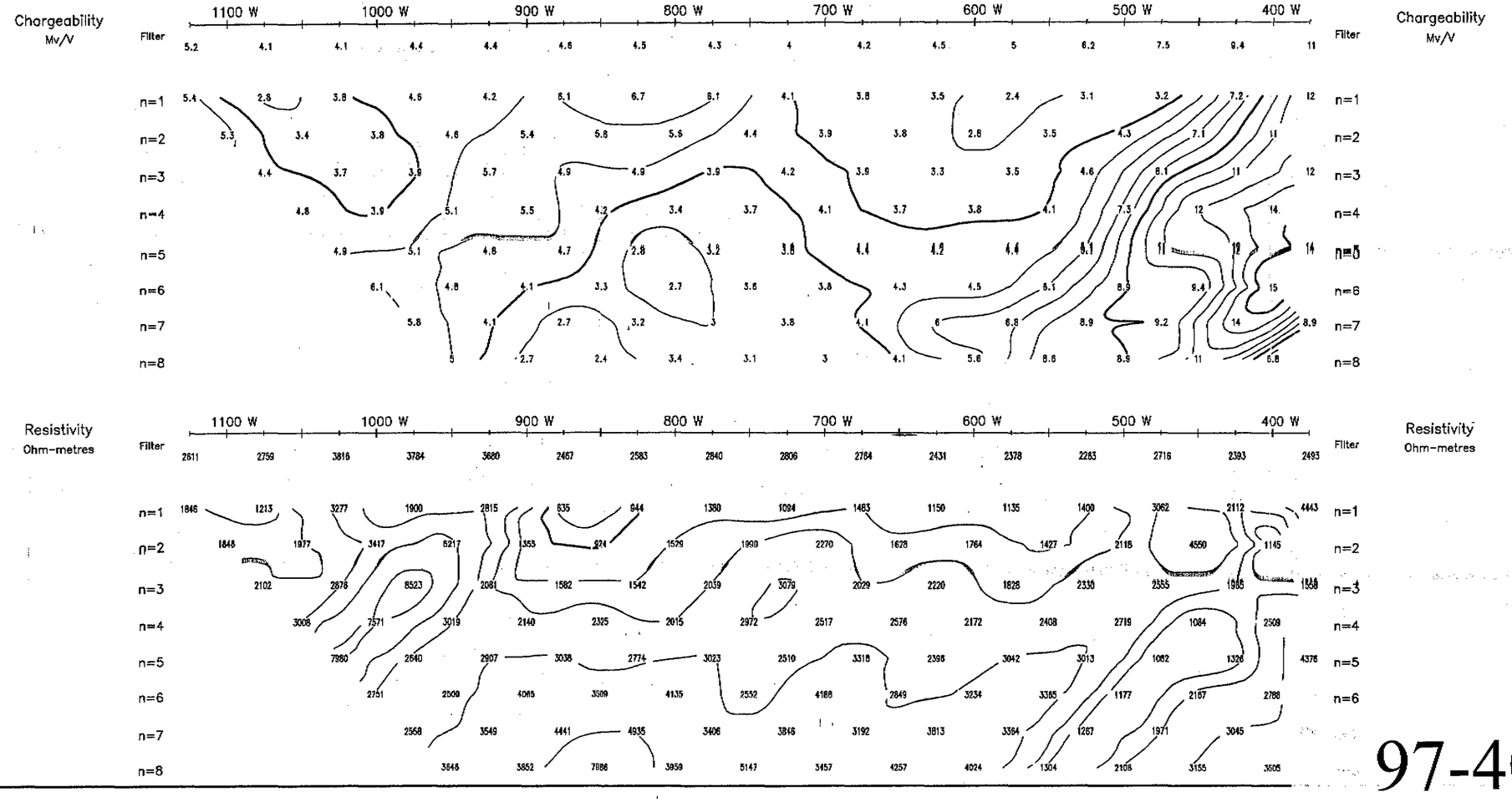
REX PTY LTD

97-4026

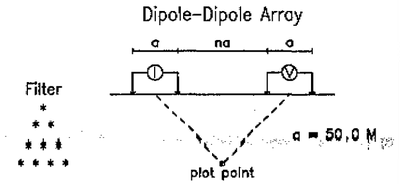
ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

390237A





Line 14 N



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,..

Scale 1:2500

25 0 25 50 75 100 125 150
(meters)

5 cm

RESOLUTE SAMANTHA

INDUCED POLARIZATION SURVEY
TYNDALL CREEK
DIPOLE-DIPOLE ARRAY

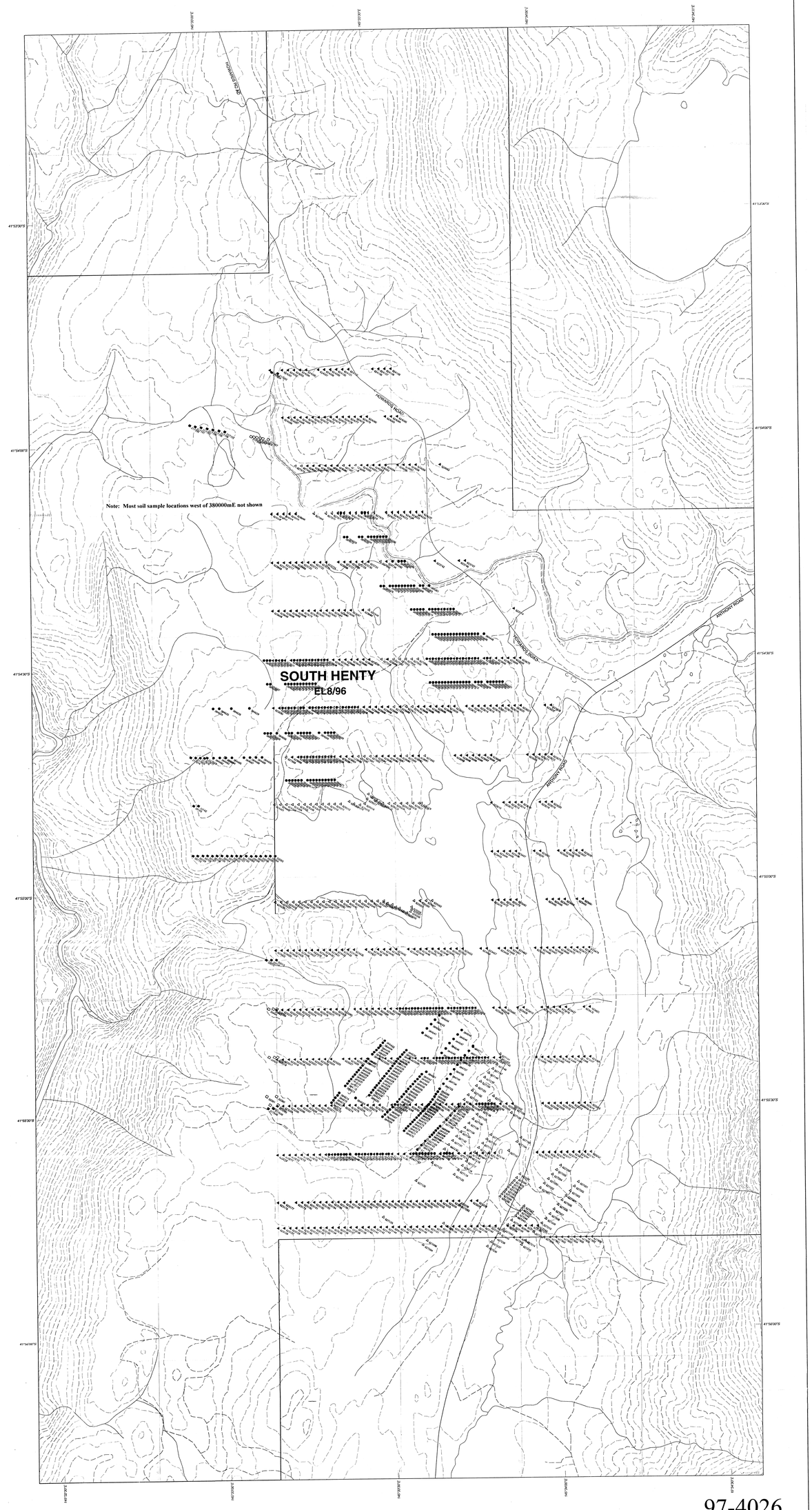
Date: 97/02/04
Interpretation:

FIG ~~40~~ 43

CINTREX PTY LTD

97-4026

390238



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ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G MACDONALD

RESOLUTE LIMITED

SOUTH HENTY REGION

EL8/96

SOIL GEOCHEMISTRY LOCATIONS

Scale 1 : 5 000

0 100 200 300 400 500 metres

Australian Map Grid
UTM Projection
Zone 55, Australian Datum 147° E
AGD 66

Author. :	G.Mc
Drawn :	JAC
Date :	18-6-97
File No. :	SH_004.DGN
Figure No. :	4

5 cm

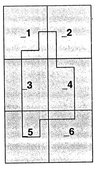
LEGEND

- ROADS/TRACKS
- RIVERS/DRAINAGE
- TENEMENT BOUNDARY
- SURFACE CONTOURS
- POWER LINES
- *LOCATION*
- WELL GOTE
- MINERAL OCCURENCE
- PROSPECT

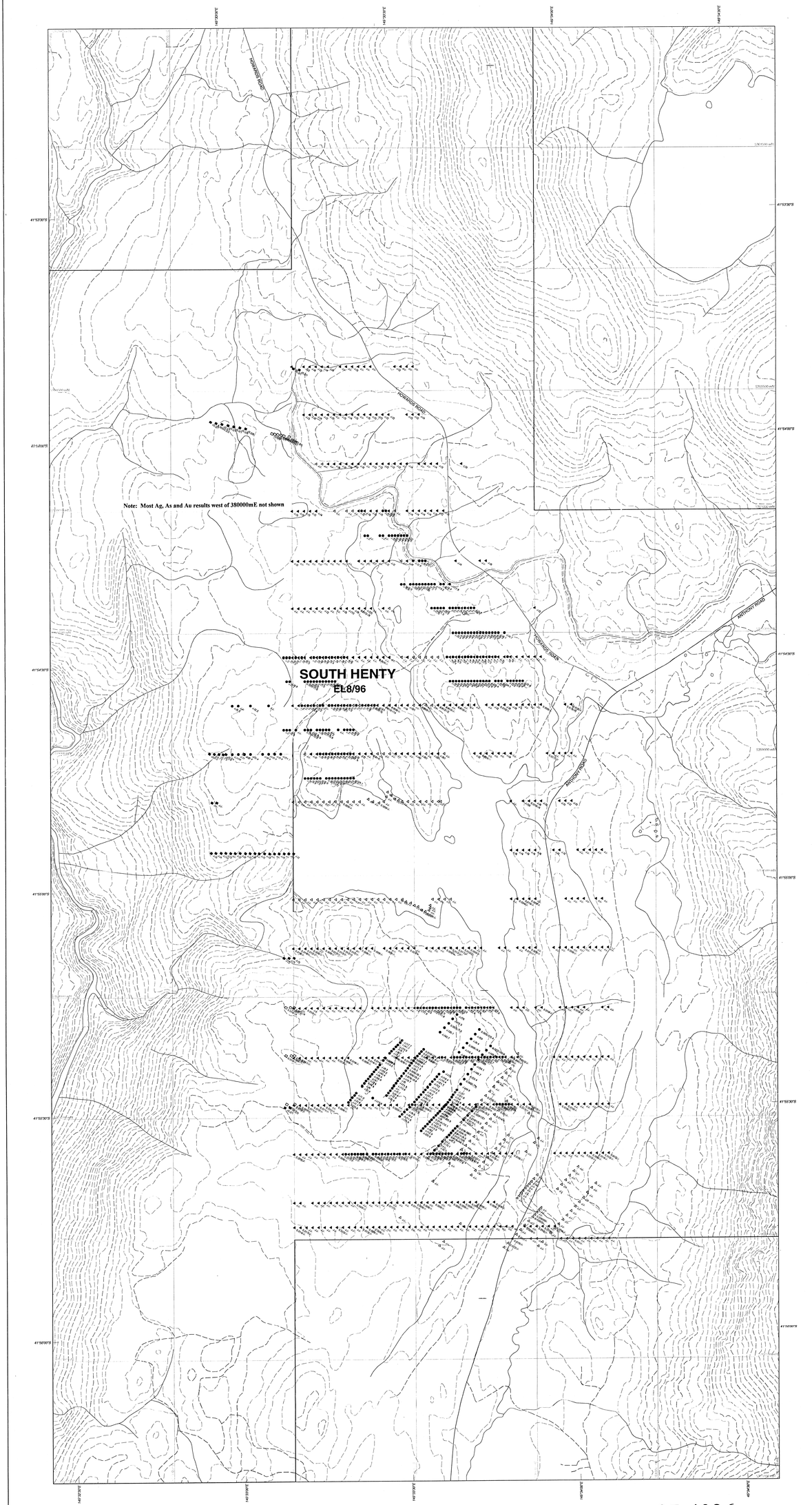
SOIL SAMPLE LEGEND

- ABERFOYLE C-HORIZON
- ABERFOYLE WACKET
- PASMINCO C-HORIZON
- PASMINCO WACKER
- RESOLUTE WACKER

MAP INDEX
1:5000 SHEET



390239A



97-4026

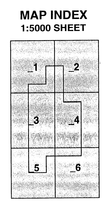
LEGEND

- ROADS/TRACKS
- RIVERS/DRAINAGE
- TENEMENT BOUNDARY
- SURFACE CONTOURS
- POWER LINES
- LOCATION
- WELLBORE
- MINERAL OCCURENCE
- PROSPECT

SOIL SAMPLE LEGEND (Au / Ag / As)

- ABERFOYLE C-HORIZON
- ABERFOYLE WACKER
- PASMINCO C-HORIZON
- PASMINCO WACKER
- RESOLUTE WACKER

MAP INDEX
1:5000 SHEET



ANNUAL REPORT - VOL 5OF 5
EL 8/96 - SOUTH HENTY
RESOLUTE LTD - G.MACDONALD

RESOLUTE LIMITED

SOUTH HENTY REGION
EL8/96
SOIL GEOCHEMISTRY
Au, Ag, As (ppm)

Scale 1 : 5 000
0 100 200 300 400 500 metres
Australian Map Grid
Australian 1966
Zone 56, Central Meridian 147° E
AGD 66

Author : G.Mc
Drawn : JAC
Date : 18-8-97
File No. : SH_002.DGN
Figure No. : 4

5 cm

390240A