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Chapter 6

Mineralisation

6.1 INTRODUCTION

Disseminated sulphide mineralisation at the High Point prospect is present in 10 drill holes: six diamond drill holes from the Aberfoyle lease and four diamond drill holes collared by B.H.P. (HP 1-HP 4) on the Western side of the Murchison Highway. The intersected mineralisation is presently sub-economic but indicates potential for a larger resource. Grades for the mineralisation on the Aberfoyle lease reach a maximum of 1.3 % Zn (MC 14 and Mac 27) and 0.2 % Pb over a down hole distance of approximately 10 m. Similar grades of Zn are reported from the initial High Point holes drilled by B.H.P, i.e., 1.25 % Zn (HP-1, 181.5-182.5m) and 0.3 % Pb (HP-4, 409-415.7); (Barwick, 1991). Calculations for the total zinc in the area using an average grade of 0.1% Zn are in excess of 4.6 million tonnes of ore and comparable to a concentrated ore body the size of Que River. By using the initial core logging, polished slabs and thin sections, Pb isotopes and assay data, it is possible to:

1/ Characterise the styles of mineralisation;

2/ Construct a mineral paragenesis; and

3/ Construct a metal zonation using relative grades of mineralisation.

6.2 VEIN ASSEMBLAGES

The development of several generations of vein assemblages throughout the lithologies of High Point have enabled a more detailed interpretation of the mineralising events in the area. From core logging, 8 generations of veins have been recognised, and based on cross cutting

relationships and vein orientations it was possible to construct a vein paragenesis (Fig. 6.1). The earliest recorded event consists of sphalerite veinlets up to 4mm in width. These veinlets are almost exclusively sub parallel to the core axis (as determined by bedding) and are defined as type I veins in this study. The second stage of veins (type II) are sphalerite + galena ± pyrite veins that cross cut the type I veins at low angles. These veins have similar characteristics to type I veins and possibly reflect later cooler fluids responsible for type I veins. The final stage of earliest veins contain pyrite + barite (type III). These veins occur at various angles to the core axis and are typically rare. The pyrite-barite veins possibly reflect a further cooling of hydrothermal fluids which interacted with sea water (Solomon *et al.*, 1988).

The final five stages of veins represent later mineralisation events. The first of the five events (type IV) are carbonate (predominantly calcite) with pyrrhotite ± chalcopyrite veins that cut the core at an angle of between 45 and 55°. Sub-parallel to type IV veins are veins containing carbonate, sphalerite, galena with minor amounts of pyrite (type V veins). The type V veins represent the last stage of sulphide mineralisation in the area and are common, particularly in the Que River Shale and the upper sections of the basalts and andesites. The first of the sulphide barren veins are defined as type VI veins and contain carbonate (predominantly calcite with minor dolomite) and quartz. This stage of veining may also contain massive to crystalline epidote in rare 1 cm wide veins (Section 4.6). Type VII veins contain carbonate (dolomite) veins and are up to 1 m wide which occasionally form vein breccias. The thinner type VII veins can be seen to offset the type VI veins by up to 10 cm. The final vein stage (type VIII) is rare and cross-cuts all previous vein stages, occur almost parallel to the core axis. These veins are composed of a chlorite-calcite assemblage.

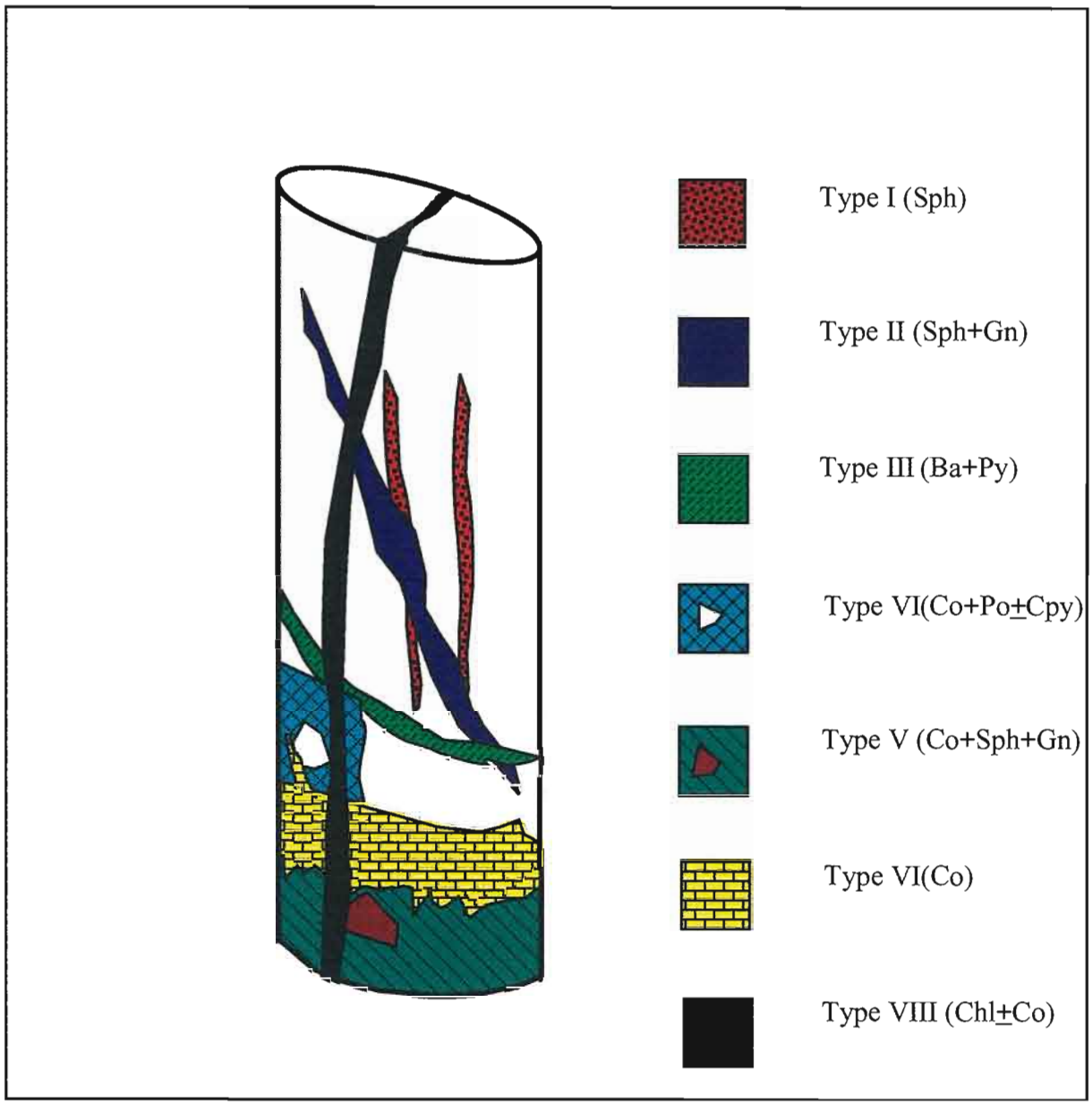


Figure 6.1: Cartoon of cross cutting vein relationships at High Point. (Sph= Sphalerite, Gn= Galena, Py= Pyrite, Ba= Barite, Co= Carbonate, Po= Pyrrhotite, Cpy= Chalcopyrite, Chl= Chlorite).

6.2.1 Comparison with stringer veins at Hellyer

The veins that have been recorded in the stratigraphy at High Point can be partially correlated with those recorded in the stringer zone underlying Hellyer (Gemmell and Large, 1992). The High Point stage II and stage III veins are the respective equivalents of the syn-mineralisation 2B and 2C veins at Hellyer. The vein types V, VI, VII and VIII at High Point correspond to the post-mineralisation vein stages III, IV, V, and VI at Hellyer. The post-

mineralsation veins at Hellyer are attributed to the Devonian Tabberaberran Orogeny (Williams *et al.*, 1989; Drown and Downs, 1990), a similar origin for vein types V-VIII at High Point are envisaged. Type I and type IV veins at High Point do not directly correlate to any stages at Hellyer, although the type I veins may represent a different stage of the type 2B veins. Missing in the paragenetic sequence at High Point are the stage 1 and stage 2A veins.

6.3 MINERALOGY

Mineralisation intersected in the Aberfoyle and B.H.P. drill holes extends from the overlying Southwell Subgroup and Que River Shale into the andesites, basalts, dacitic lavas and volcaniclastics of the Que-Hellyer suite. Mineralisation in the only Que River Shale and the volcanic package will be considered in this section, as it is considered to be indicative of all styles of mineralisation. The mineralisation occurs dominantly as sphalerite and pyrite with lesser amounts of galena, chalcopyrite, pyrrhotite and other gangue minerals.

6.3.1 Sphalerite

Typically there are two forms of sphalerite that can be separated by colour, mineral habit and mineral associations (Plates 25, 27). The earliest form of sphalerite is a light orange brown in colour and occurs as aggregates of fine grained anhedral crystals and are associated with the type I and II veins (Section 6.2). The most common occurrence of this sphalerite habit is in small millimetre wide veinlets that have a maximum core length of between 8-10 cm. Other associations of this form are at the edges of alteration assemblages (mainly silica-sericite and silica-albite) and within the pseudo-fragmental alteration patches (Section 4.2). In reflected light and under 200 x magnification, the earliest sphalerite stage occurs as fine grained disseminated aggregates within the mafic host rocks and do not appear to have any significant association with other minerals, except minor galena (Plate 26).

The later form of sphalerite is deep red to brown in colour and occurs as coarse grained subhedral crystals that are up to 2 cm in width (Plate 27). This type of sphalerite is found with intergrown with coarse grained galena $\pm$ pyrite in carbonate and quartz veins up to 5 cm wide and are the type V and VI veins (Section 6.2). It is also found within amygdales and breccia

matrices as coarser grain crystals associated with quartz and carbonate. Reflected light studies indicate that the sphalerite is complexly intergrown with galena (Plate 28). A common feature of this sphalerite in reflected light is chalcopyrite disease that occurs dominantly on the outer edges of the crystals. Under high power magnification (200 x) several sub-triangular intergrowths of clear sphalerite are observed as inclusions within the coarse grain sphalerite(Plate 28).

6.3.2 Galena

Galena occurs in association with both disseminated and vein style sphalerite. It typically occurs as fine grained (ie; less than 1mm in size) anhedral masses in association with the disseminated sphalerite. The ratio of disseminated galena to disseminated sphalerite is approximately 1:10 and therefore is only a minor part of this mineralising phase. Disseminated galena is also observed to be associated with fuchsite alteration (drill holes. Mac 33 and Mac 35). This style of galena appears to have the same characteristics as the fine grained galena that occurs in association with the disseminated sphalerite.

Galena also occurs within carbonate and silica veins (Type V) as coarse grained subhedral to euhedral crystals (less than 2mm) associated with the coarser grained sphalerite (previous section). In both thin section and hand sample the coarse grain galena is observed to be intergrown with the coarse sphalerite (Plate 28). Pyrite intergrowths occur on the outer margins of the coarser grained galena and sphalerite crystals.

6.3.3 Chalcopyrite

The presence of visible chalcopyrite in drill core is rare and is reflected by the copper assay data that reaches a maximum of only 347 ppm for the core fillet grinds. Where chalcopyrite is visible, it is observed as small millimetre sized blebs within silica-sericite alteration patches, or more rarely as millimetre wide veins with or without pyrrhotite (Type IV veins) (Plates 29-30). In reflected light under high power magnification chalcopyrite is seen as subhedral grains or as inclusions within sphalerite, representing chalcopyrite disease (Plates 28, 30).

6.3.4 Pyrite

The most abundant sulphide mineral visible in hand specimen and thin section is pyrite. Pyrite has three main habits and for the purposes of this study will be classified as FPy, DPy and MPy.

FPy refers to framboidal pyrite that occurs as individual rounded grains up to 35 μm in diameter or clusters up to a maximum of 1.9 mm. The FPy can also be seen to occur within close proximity to disseminated euhedral pyrite (DPy) (Plate 32). Sharpe (1991) reported a similar association between FPy and disseminated euhedral pyrite from the Glassy Silica Pyrite cap at Hellyer.

MPy refers to massive pyrite, which typically lacks crystal form and occurs in veins with other minerals such as carbonate and quartz and represents a form of type V veins

DPy is a disseminated form of euhedral pyrite that occurs as μm to mm sized individual crystals with occasional clusters present. The most common occurrence of this habit of pyrite is within the mafic hosts rocks.

6.3.5 Pyrrhotite

The presence of pyrrhotite is very sporadic and is limited mainly to drill core from Mac 27. The main zone of pyrrhotite mineralisation is between 300 and 380 m downhole depth and occurs as fine grained anhedral to subhedral disseminations as well as in rare cm sized calcite veins (Type IV veins) (Plates 29, 31). The presence of pyrrhotite with VHMS style mineralisation in the Que-Hellyer volcanics is unusual and has not been reported from either Que River or Hellyer.

6.4 MINERAL PARAGENESIS

Using the mineral relationships observed in this study, a complex mineral paragenesis has been constructed (Fig. 6.1). The earliest form of mineralisation occurring within the area is pyrite associated with the deposition of the basalts and andesites. This event is followed by the

first of the Pb-Zn mineralising events that deposited fine grained disseminated sphalerite and galena. The coarse grained sphalerite and galena mineralising event is a more complex system in comparison to the earlier Pb-Zn mineralising event. The later stage sulphide mineralisation is characterised by early stage carbonate + pyrrhotite ± chalcopyrite veins. This assemblage is followed deposition of carbonate (calcite) + coarse grained sphalerite + coarse grained galena veins. The final stage of sulphide deposition is that of massive pyrite. Following the deposition of the carbonate + sulphide veins is the deposition of barren sulphide veins consisting of a variety of gangue minerals (Section 6.2). The barren veins may be associated with mineralisation or it may be some younger event in the Que-Hellyer Volcanics. The paragenetic history is therefore quite complex and involves the combination of at least two major mineralisation events in the Mount Read volcanic belt.

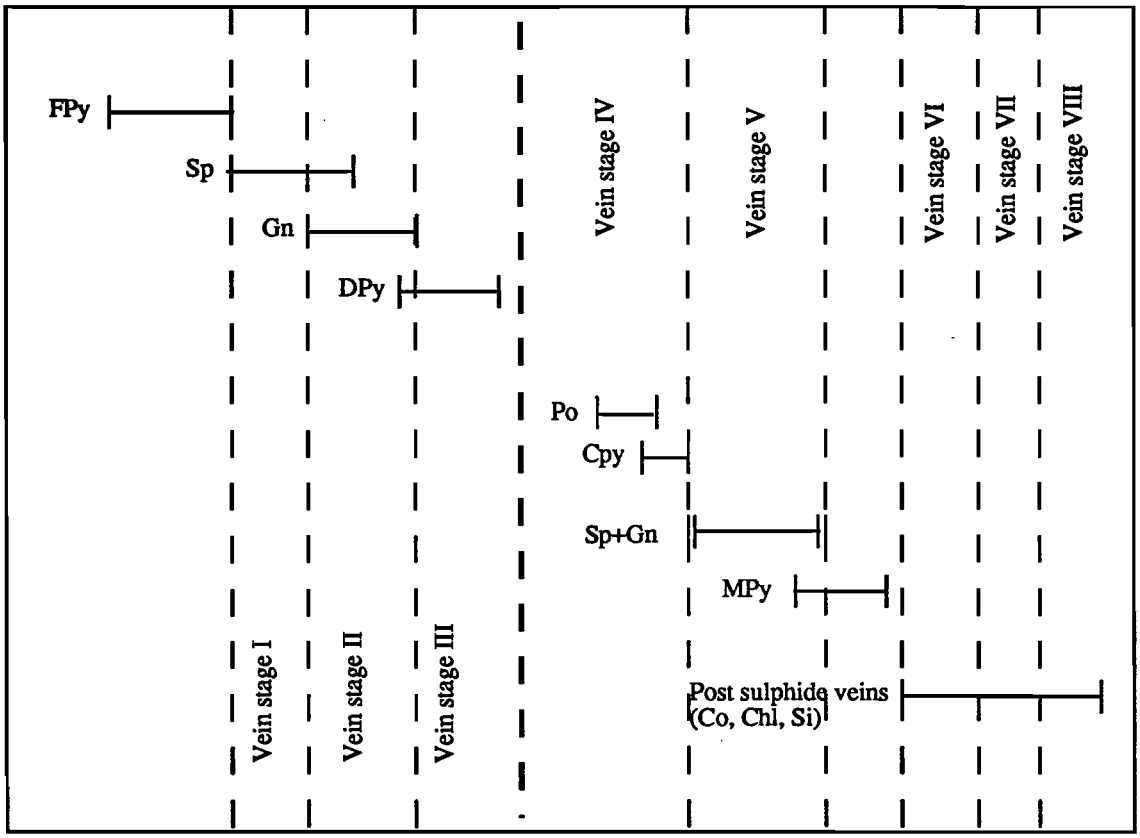


Figure 6.2: Mineral paragenesis with the vein stages superimposed. Sp= Sphalerite, Gn=Galena, Py= Pyrite, Cpy= Chalcopyrite, FPy= Framboidal pyrite, Dpy= Disseminated pyrite, Mpy= Massive pyrite, Po= pyrrhotite,Co=Carbonate, Chl= Chlorite and Si= Quartz.

Plate 25: Cambrian mineralisation (Both A and B) The disseminated light brown mineral within the silica-sericite alteration (A) and disseminated throughout the basalt (B) is sphalerite and is associated with or without galena (Sp= Sphalerite and Gn= Galena).(Mac 33, 254 m; MC 14, 171.0 m).

Plate 26: Disseminated Cambrian style mineralisation (Plate 25 B). The fine grained anhedral nature of the sphalerite is quite distinctly displayed.

Plate 27: Polished basalt slab, Cambrian sphalerite (light grey colour). Minor pyrite can be seen to occur with the sphalerite (Bright white; refl. light, mag 50 x).

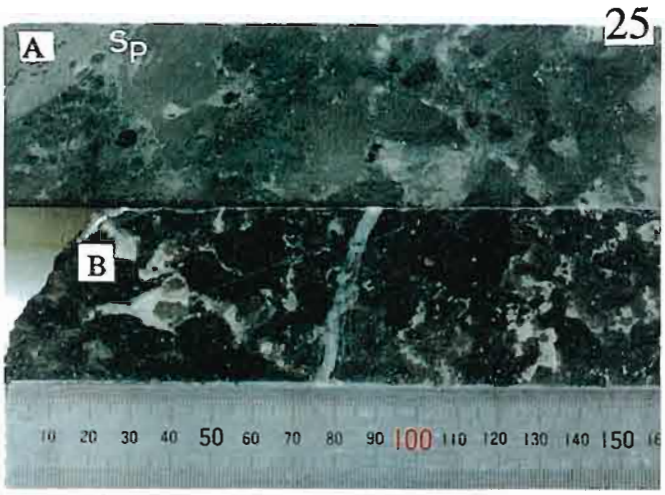
Plate 28: Coarse grained sphalerite in Devonian quartz-carbonate veins. The sphalerite is subhedral and coarser grained than the Cambrian sphalerite.

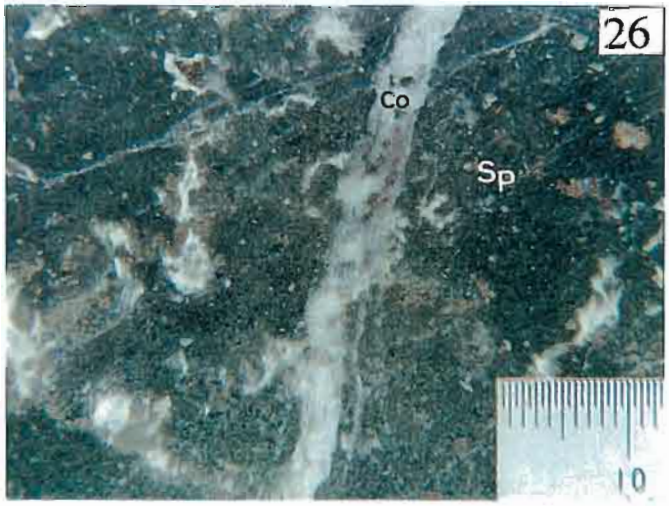
Plate 29: Reflected light view of the coarser grained sphalerite that displays chalcopyrite disease. Galena and minor pyrite are also associated with this form of sphalerite.

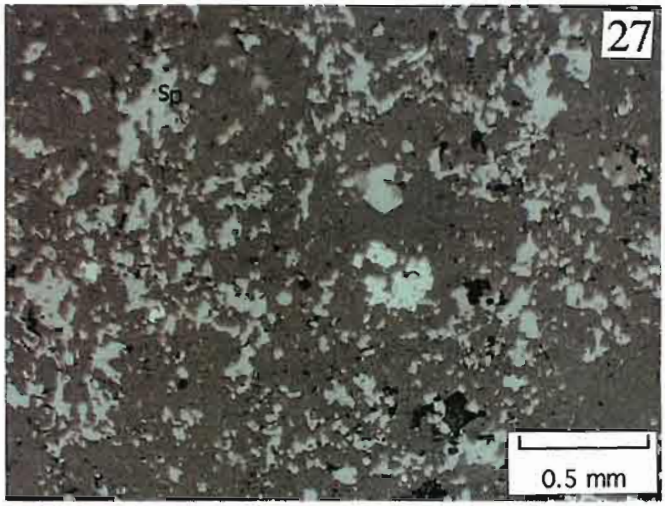
Plate 30: Chalcopyrite veins infilling tension gashes.

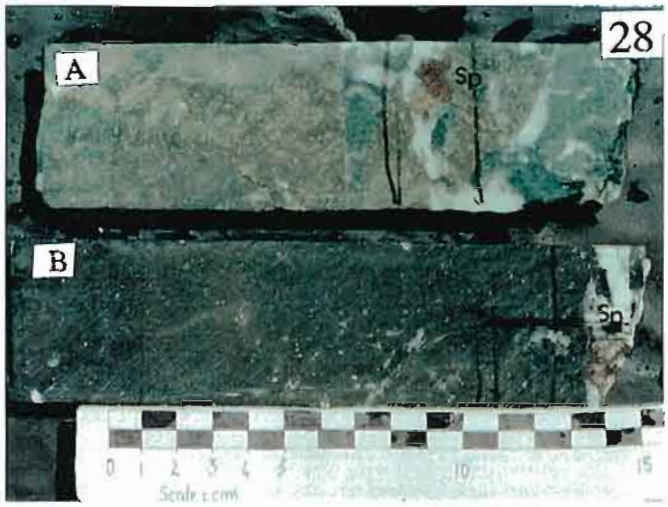
Plate 31: Reflected light view of the chalcopyrite tension gash infill. The chalcopyrite also has minor pyrrhotite and sphalerite (mag 25x).

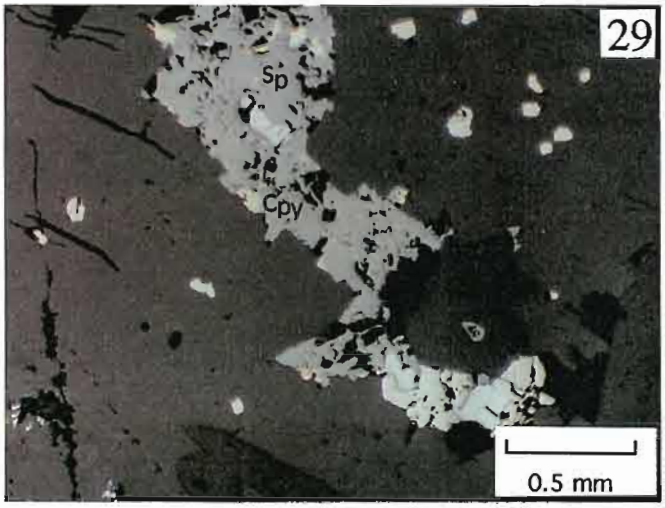
Plate 32: A/ (Top). Carbonate-pyrrhotite vein cross cutting through shale (Mac 27, 729m)(Po= pyrrhotite). B/ (Bottom). Interpillow pyrite at the margins of andesite and shale . Minor K-feldspar occur as the edges of the andesite clast.

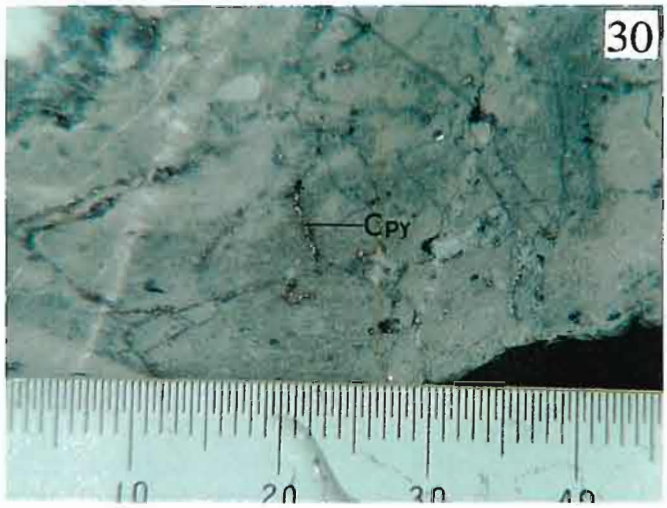

25
A
Sp
B
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

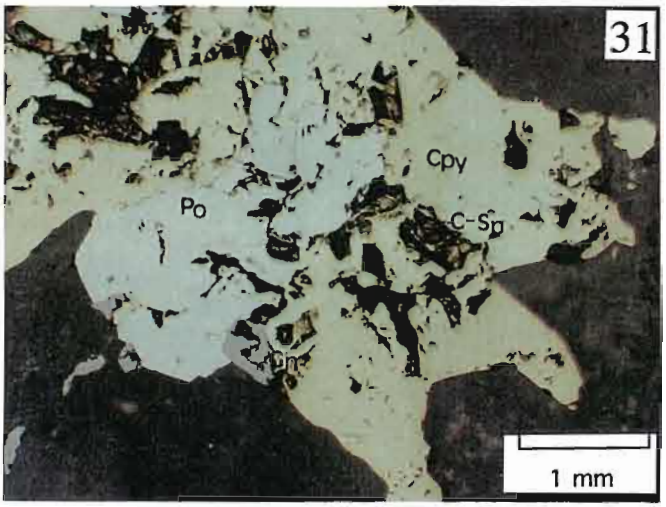

26
Co
Sp
10

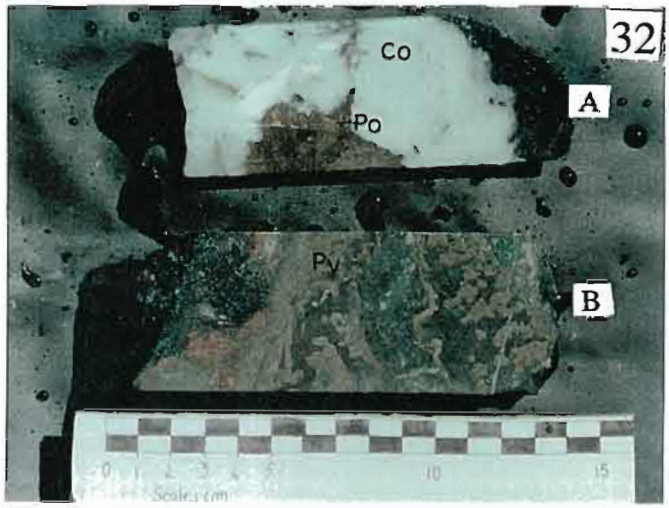

27
Sp
0.5 mm


28
A
Sp
B
Sp
0 1 2 3 4 5 10 15
Scale: cm


29
Sp
Cpy
0.5 mm


30
Cpy
10 20 30 40


31
Cpy
Po
C-Sp
Pn
1 mm


32
Co
Po
A
Py
B
0 1 2 3 4 5 10 15
Scale: cm

6.5 ZINC RATIO

The zinc ratio is a geochemical tool that allows the differentiation of different styles of lead-zinc mineralisation and is defined by Huston and Large (1987) as the ratio of 100xZn/(Zn+Pb). Zinc ratios are useful in western Tasmania to discriminate between Cambrian VHMS and other styles of mineralisation. Huston and Large (1987) defined the western Tasmanian VHMS deposits as having a mean Zn ratio of between 60 and 77 and a standard deviation of less than 15 (Fig. 6.3).

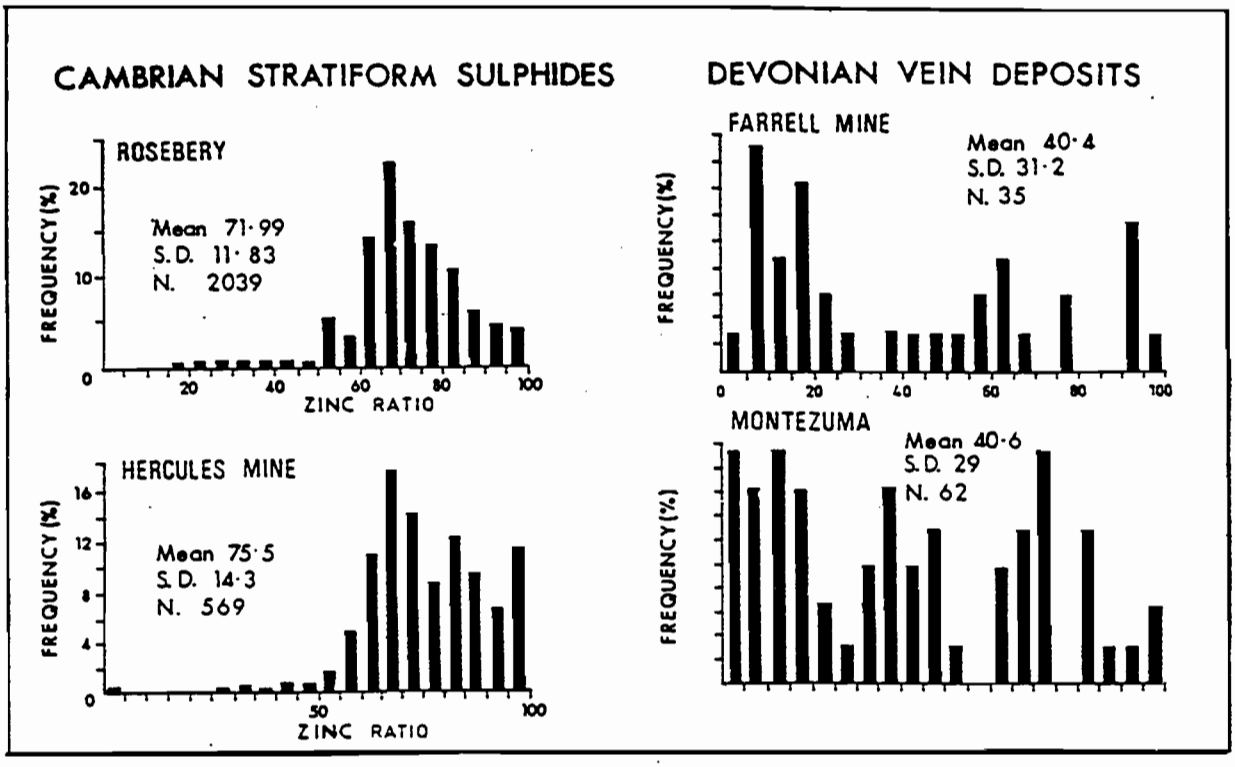


Figure 6.3: Zn ratios for various western Tasmania sulphide deposits (After Huston and Large 1987).

The ratios from the High Point mineralisation were calculated from the assay data obtained from the core fillet grinds during routine sampling. To reduce erroneous results only data that was above 100 ppm lead and 200 ppm zinc were used in the calculations as these are considered to be above background levels for the mafic host rocks. To aid in the interpretation

of the zinc numbers each hole was calculated separately and then all holes were combined to form an overall trend for the signature of the mineralisation.

The plots of Zn number versus cumulative frequency for the assay data for drill holes Mac 27, 33, 35 and MC 14 (Figs., 6.4, 6.5, 6.6, 6.7, 6.8) reveals a general trend. For each of the holes there are two main peaks with a third minor grouping. The first major peak occurs at values between the intervals of 60-65 and 70-75, the second peak is visible between 85-90 and 90-95. The two peaks are most pronounced in data from MC 14. If these two peaks are analysed separately, the mean for the first peak is near 70, compared to the mean for the second grouping that is approximately 91. The first of these peaks is characteristic of Cambrian VHMS mineralisation within the Que-Hellyer Volcanics (i.e., Que River or Hellyer; Huston and Large, 1987). An explanation for the second peak is that the mineralising fluids may have changed during the genesis of mineralisation. This could include changes in salinity, temperature and metal saturation levels (Huston and Large, 1987). Statistical data from each of the five drill holes plotted indicates that the ratios generally fall within those values assigned by Large (1989) i.e., between 60-77 with a standard deviation below 15. When data is combined from each of the holes the majority of the ratios are above 65-70 indicating that the overall mineralisation has a VHMS signature. The Zn ratio values below this signature are attributed to Devonian style sphalerite galena veins

6.6 METAL ZONATION

Zonation of metals within VHMS deposits has been recorded by many authors (e.g. Large, 1977; Eldridge *et al.*, 1983; Pisutha-Arnold and Ohmoto, 1983; Ruxton, 1987; McArthur and Dronseika, 1990 and Gemmell and Large, 1992). Deposits such as Hellyer display a classic zonation from central Fe-Cu rich core overlying the stringer system (Gemmell and Large, 1992) to an outer region enriched in Pb, Zn, Au, Ag, and As (McArthur, 1990). Metal grades from High Point were plotted against down hole depth to determine if any zonation of mineralisation is evident.

Figure 6.4: Zn Ratio Mac 33

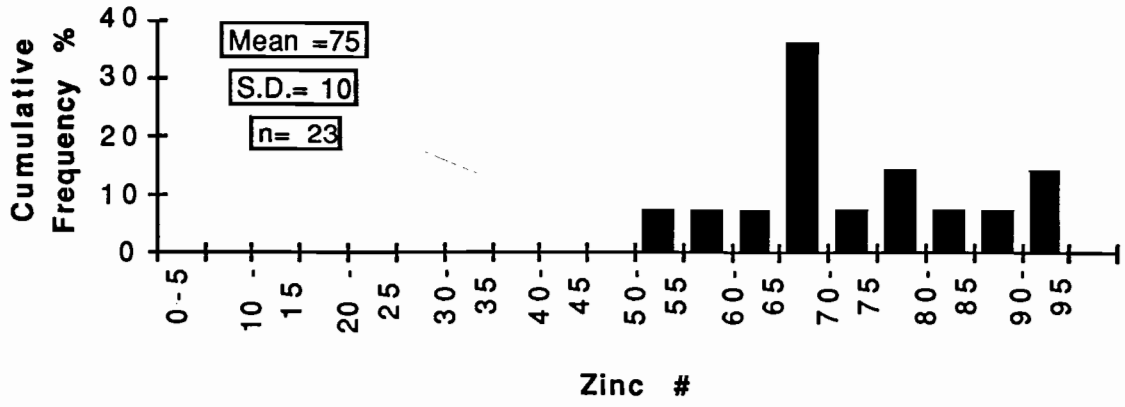


Figure 6.5: Zn ratio Mac 27

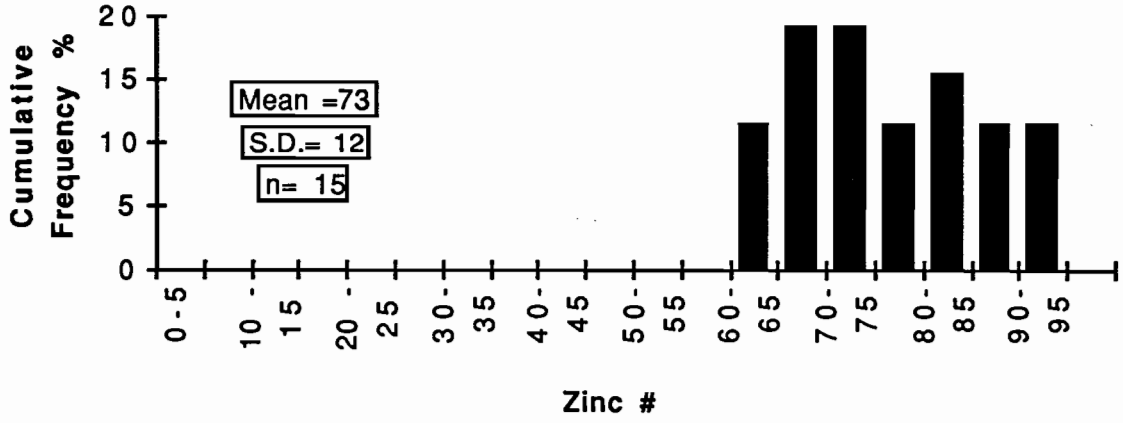


Figure 6.6: Zn Ratio Mac 35

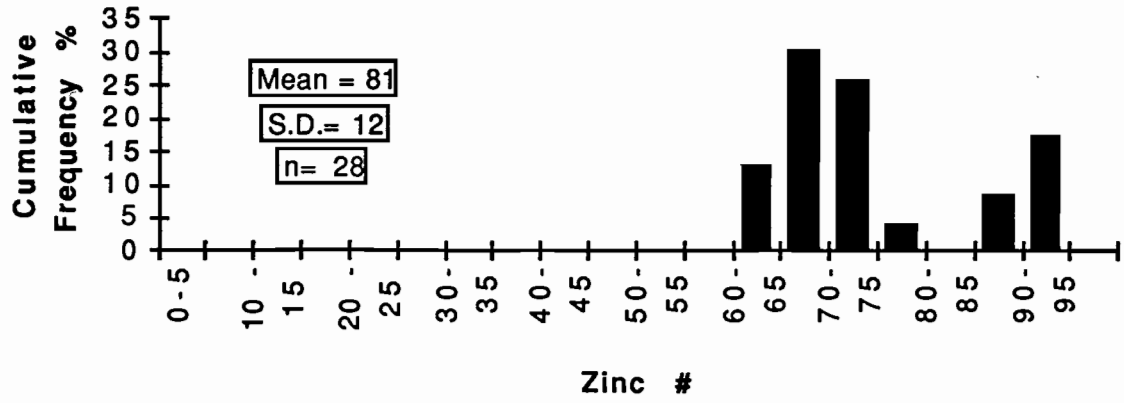


Figure 6.7: Zn Ratio MC 14

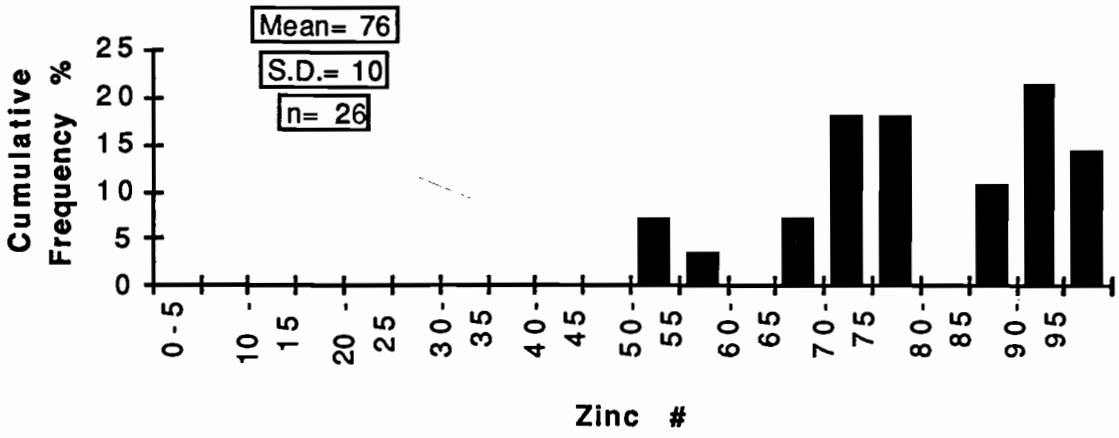
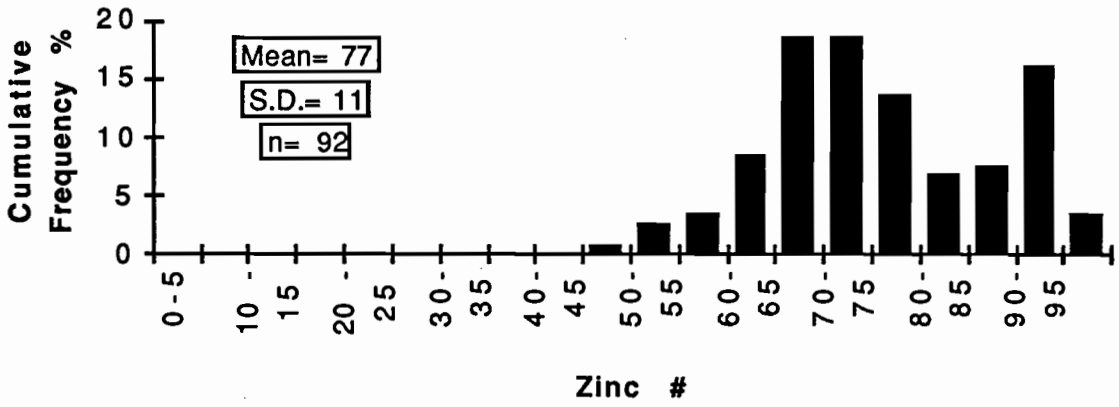


Figure 6.8: Zn Ratio all holes



6.6.1 Depth zonation

Down hole plots of Zn grade versus depth indicate a distinct position in which higher grades of Zn mineralisation occur. This zone occurs between 100m and 250 m below the current topographic surface (Figs. 6.9-6.10). The zone does not appear to be limited to one particular lithological unit however, it appears that the majority of the higher grades are located near or within the base of the Que River Shale. The higher grades of mineralisation also appear to be spatially associated with interpreted faults within the stratigraphy. These faults may have acted as conduits for the hydrothermal solutions, and dispersed the mineralisation over a wide area.

Figure 6.9: Down hole zonation of Zn grades for the N.E.-S.W cross section

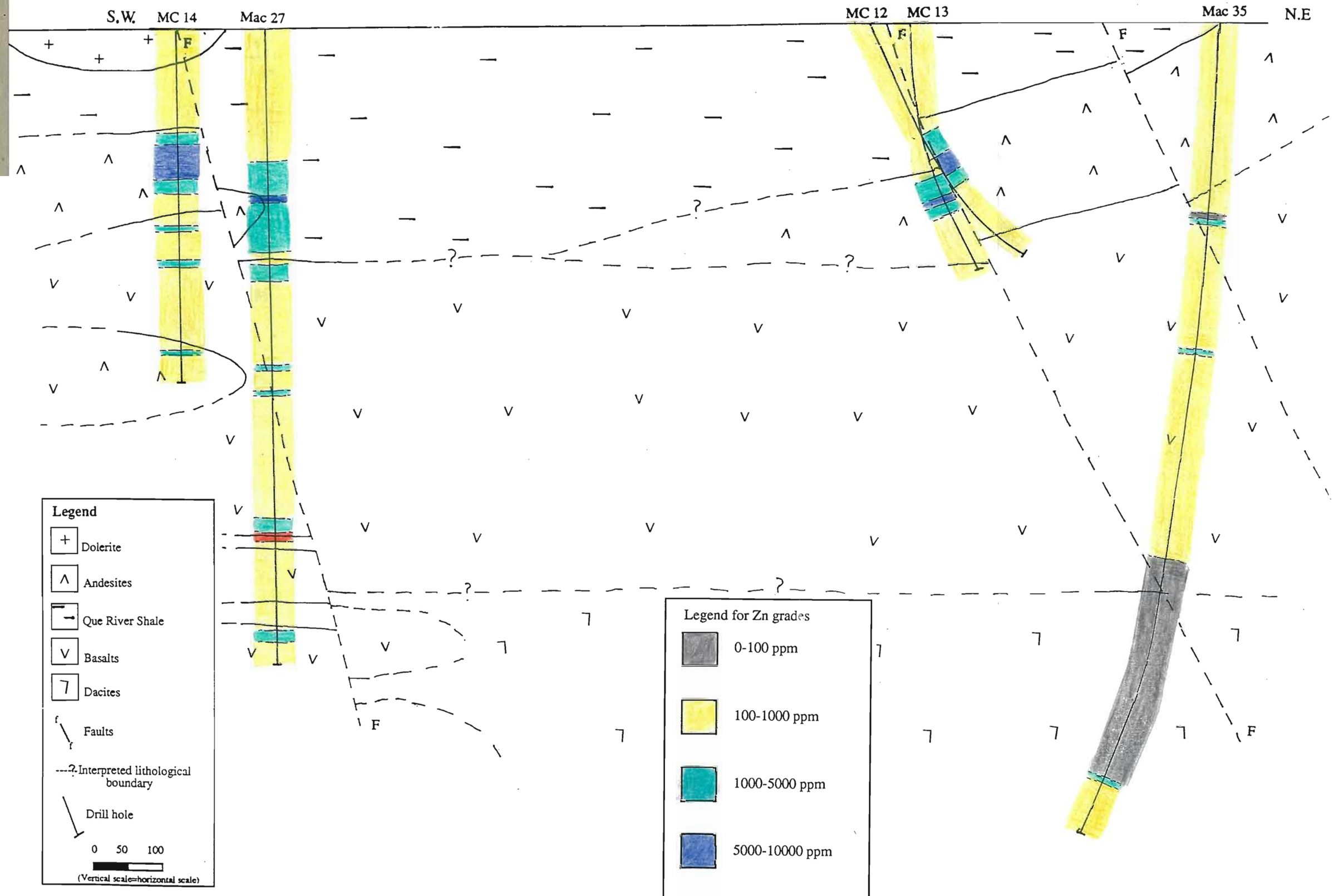
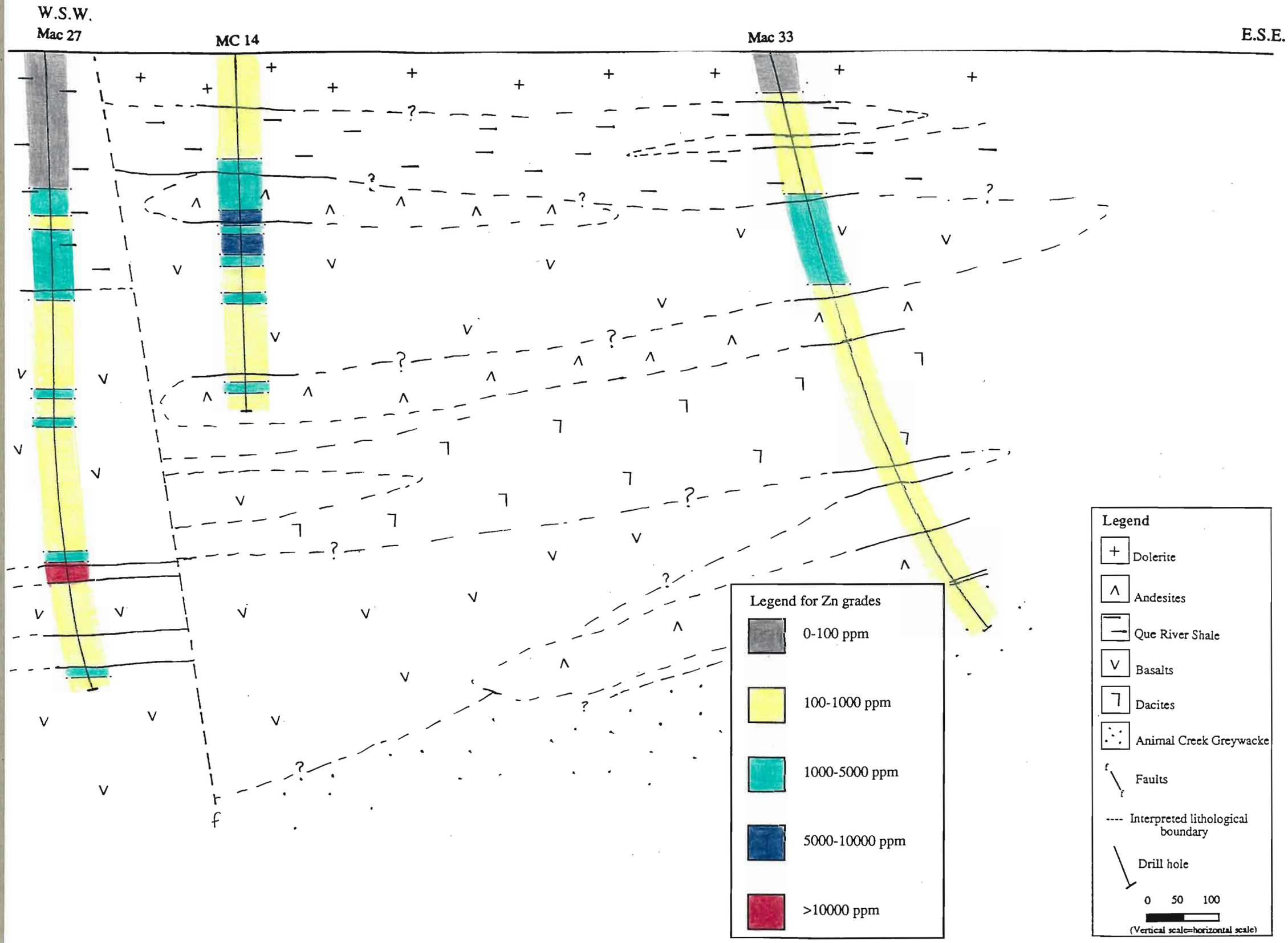


Figure 6.10: Down hole zonation of Zn grades for the N.W.-S.E cross section



6.6.2 Lateral zonation

Analysis of the lateral zonation of down hole composite averages for the zinc grades reveal an interesting pattern (Fig. 6.11). Based on mapping, drilling and assay data by Aberfoyle and B.H.P. geologists, an average composite grade for the top 500m of each drill hole was calculated. Directions of possible fluid flow of mineralising solutions were determined by contouring the variations in assay metal ratios using 100 ppm lines(Goodell and Peterson, 1974; Fig. 6.11). Figure 6.11 shows that there is an assay high centred around HP 4 that grades laterally into relative lows in drill holes HP 2, HP 3 and Mac 33. This pattern suggests that the mineralising event is centred somewhere in the location of HP 4 close to the Mount Charter Fault (Fig. 1.2).

6.7 LEAD ISOTOPES

A study of lead isotopes has been conducted on mineralisation from the major VHMS deposits at Rosebery, Hercules, Que River and Hellyer, and Devonian related vein deposits such as Farrell (Gulson *et al.*, 1987). Devonian and Cambrian mineralisation display distinct Pb signatures (Gulson and Porritt, 1987 and Gulson *et al.*, 1987). The Que River and Hellyer deposits also display slightly different lead isotope signature. The Que River deposit has lower 207 Pb/ 204 Pb versus 206 Pb/ 204 Pb values in comparison with Hellyer.

Two samples were analysed from disseminated sphalerite mineralisation within the High Point area (J.B. Gemmell, pers. comm., 1995). One sample was taken from the drill hole Mac 27 (274m) and the second sample was from drill hole MC 14 (165.9); (Table 6.1). The low lead sample (From Mac 27) falls within the Que River target signature while the higher lead sample (From MC 14) plots slightly outside the target signature (Fig. 6.12). This data indicates that the High Point mineralisation is Cambrian and plots close to the Que River lead target signature.

Figure 6.11: Lateral Zonation of Zn grades
(Note: Grades decrease toward the N.E.)

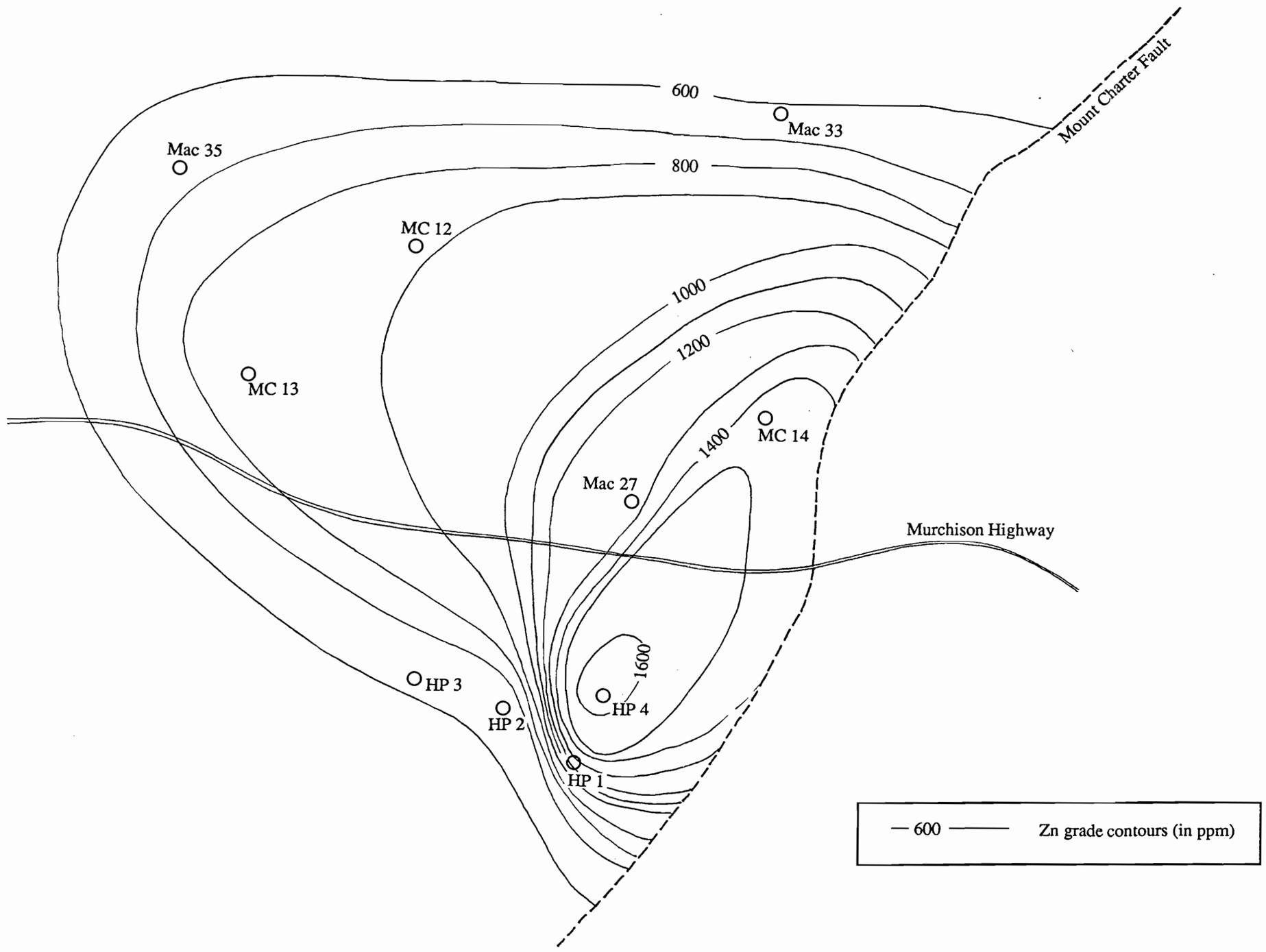


Table 6.1 Lead isotope data for High Point.

Sample	Location	Mineral	206/204	207/204	208/204	Pb(ppm)
Mac 27	274	Sphalerite	18.281	15.603	38.104	1710
MC 14	165.9	Sphalerite	18.303	15.590	38.136	103

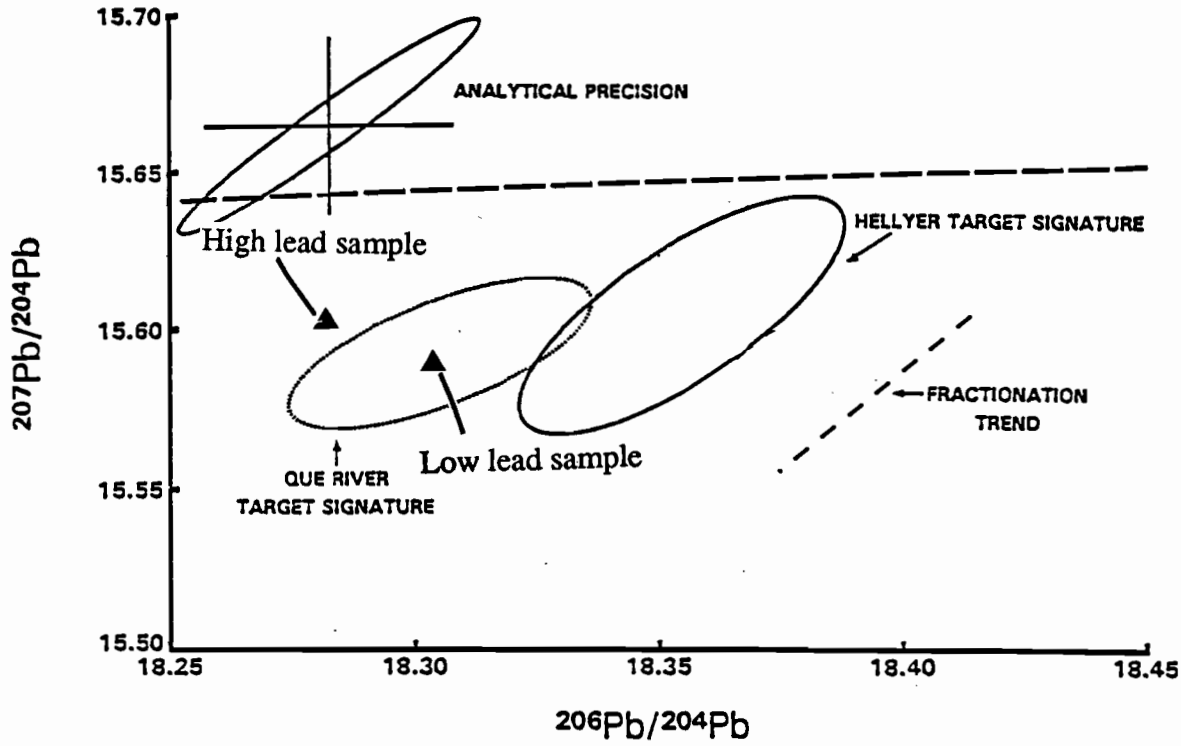
6.8 DISCUSSION

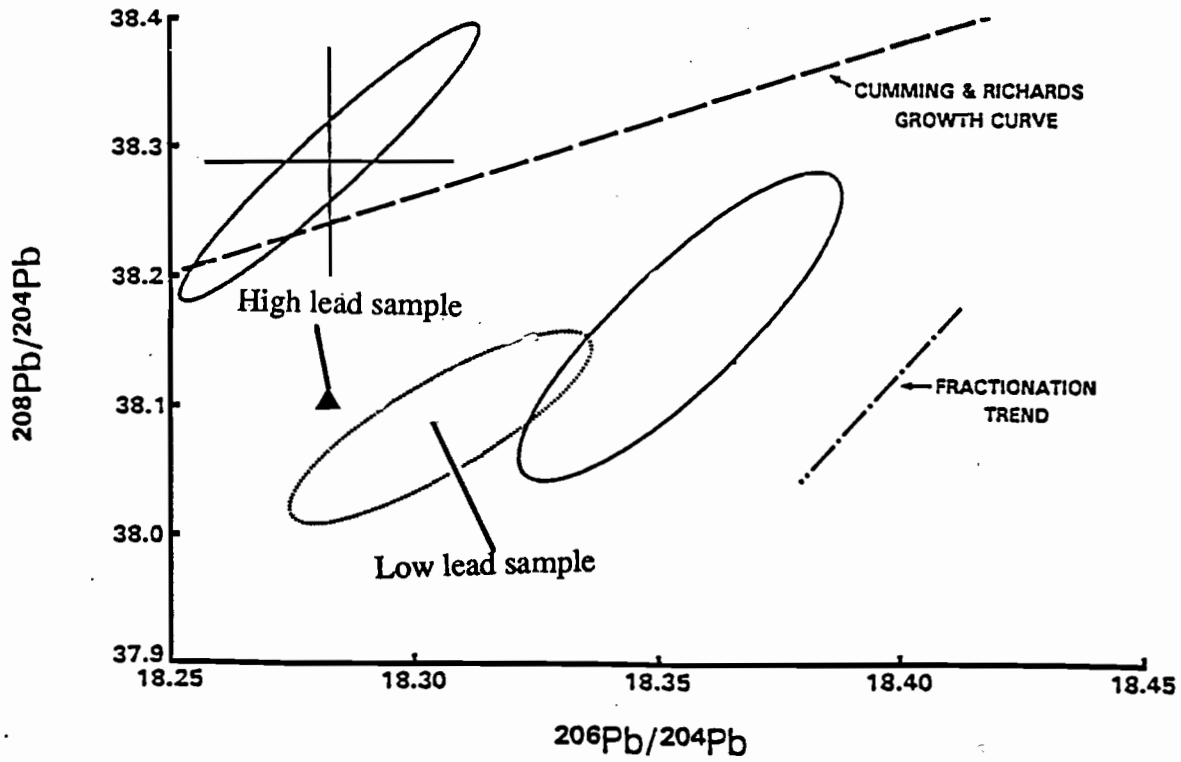
From the descriptions of the vein stages at High Point and the comparison with the vein stages at Hellyer it is possible to ascribe three stages of vein mineralisation to Cambrian processes, and five to probable Devonian processes. Type I, II and III vein stages are attributed to Cambrian processes and types IV-VIII to Devonian Processes.

The two forms of sphalerite described represent two different mineralising events in the High Point area. Using lead isotope data and the vein relationships, the earliest light orange sphalerite is interpreted to have been precipitated from Cambrian hydrothermal fluids. Secondary evidence for this interpretation, i.e., the Zn ratios suggests that the disseminated mineralisation is related to Cambrian VHMS styles of mineralisation. The deep red to brown vein sphalerite which cross-cuts the disseminated sphalerite is interpreted to be related to remobilised Cambrian sphalerite during the Devonian Tabberabberan Orogenic event. The variation in colour of the sphalerite represent differences in Fe-content (Deer *et al.*, 1992). This suggests that the deep red to brown sphalerite contains a much greater percentage of Fe within its crystal structure and the orange sphalerite contains less Fe. The significance of the clear sphalerite intergrowths is unknown however, it may suggest that the Devonian system became rapidly depleted in Fe during the final stages of cooling (Barwick, 1991).

Chalcopyrite disease in the coarse grained sphalerite is thought to form as a replacement product by later hydrothermal solutions after crystallisation of primary the Fe-poor sphalerite (Mariko, 1988; Barton, *et al.*, 1987; Eldrige *et al.*, 1983). The chalcopyrite disease indicates

Figure 6.12: Lead isotope plots for disseminated sphalerite





▲ — Sph

that chalcopyrite is paragenetically later than the sphalerite. This is consistent with field observations.

The exact origin of framboidal pyrite is unknown (Innes, 1993), however, they are indicative of relatively low temperature conditions (Sweeney and Kaplan, 1973). The euhedral pyrite associated with the framboidal pyrite may represent recrystallisation of framboidal pyrite in response to higher temperatures (Hekinian and Fouquet, 1985).

Pyrrhotite has not been reported from either of the two major VHMS deposits in the Que-Hellyer Volcanics and is more common of Archaean massive sulphide deposits. Canadian Archaean VHMS deposits have pyrrhotite within their stringer systems and lower sections of the ore bodies and is thought to reflect hotter more reduced ore forming fluids (Franklin, *et al.*, 1981). Within the Mount Read Volcanics pyrrhotite has been recorded at the Rosebery VHMS deposit and occurs as large metasomatic replacement bodies at the southern end of the orebody (Braithwaite, 1974; Green, 1984; Khin Zaw, 1991). Other deposits that contain pyrrhotite are the Devonian granite related tin deposits of Renison Bell and Mt Bischoff (Morland, 1989). The pyrrhotite in the High Point is paragenetically very late and is considered to be related to Devonian mineralisation.

The mineral textures described from High Point are comparable to several of those observed from Que River and Hellyer (Sections 2.5.1 and 2.5.2). The fine grained sphalerite, pyrite and galena at High Point is similar to featureless fine-grained pyrite-sphalerite-galena and/or chalcopyrite tensional veins from Hellyer (Section 2.5.1). The mineralisation associated with the silica-sericite alteration (Section 4.2.2) is akin to that described from Que River (Section 2.5.2)

From the study of metal zonation, the mineralisation is partially concentrated at the base of the Que River Shale. It is suggested that the shale is acting as a trap for the mineralising fluids, i.e., a chemical trap, where oxidised fluids contacted an anoxic barrier and precipitated sulphide minerals. The spatial association of higher grades of mineralisation with interpreted faults suggest that the faults have acted as possible conduits for the mineralising solutions and

have assisted dispersion of mineralisation over a wide area. Lateral zonation of Zn grades away from drill hole HP 4 is somehow related to the Mount Charter Fault zone (Fig. 6.10).

6.9 SUMMARY

The mineralisation at High Point consists of disseminated pyrite and sphalerite with minor galena, chalcopyrite, pyrrhotite and other gangue minerals such as calcite, quartz and barite. The mineralisation can be divided into Cambrian VHMS and Devonian mineralising systems. Evidence that discriminates the two types of mineralisation include lead isotope data, the habit of sphalerite and galena, the colour of the sphalerite, the paragenetic sequence of the minerals, the presence of minerals such as pyrrhotite, and associated mineral textures such as chalcopyrite disease. Secondary evidence that supports these conclusions include the zinc numbers. The higher grades of Zn appear to be associated with interpreted faults (Section 3.5) and basal sections of the Que River Shale. Down hole plots of Zn grades indicate that the basalts, andesites and the Que River Shale all contain some enrichment in Zn. It is postulated that the Que River Shale acted as a chemical and/or a physical trap for these mineralising fluids. The lateral zonation of Zn grades seems to suggest that the greater Zn concentrations are centred either around HP4 or between HP 4 and Mac 27.

Chapter 7

Genetic Models

Using the classification of the lithologies and the mineralisation a genetic model has been constructed that best explains most aspects of the High Point geology (Fig 7.1). The first recognised stage in the development of the High Point stratigraphy was characterised by the onset of Cambrian dacitic volcanism (Fig. 7.1B). The dacitic volcanic sequence include coherent feldspar-phyric lavas and lava breccias (hyaloclastites) that are genetically related to the lavas. Stage 2 of the model involves the intrusion and extrusion of amygdaloidal, augite $\pm$ olivine-phyric coherent basalt into and on top of the pre-existing dacite units (Fig. 7.1C). Limited sedimentation has occurred prior to the deposition of the basalts due to the minor basalt-mudstone peperites.

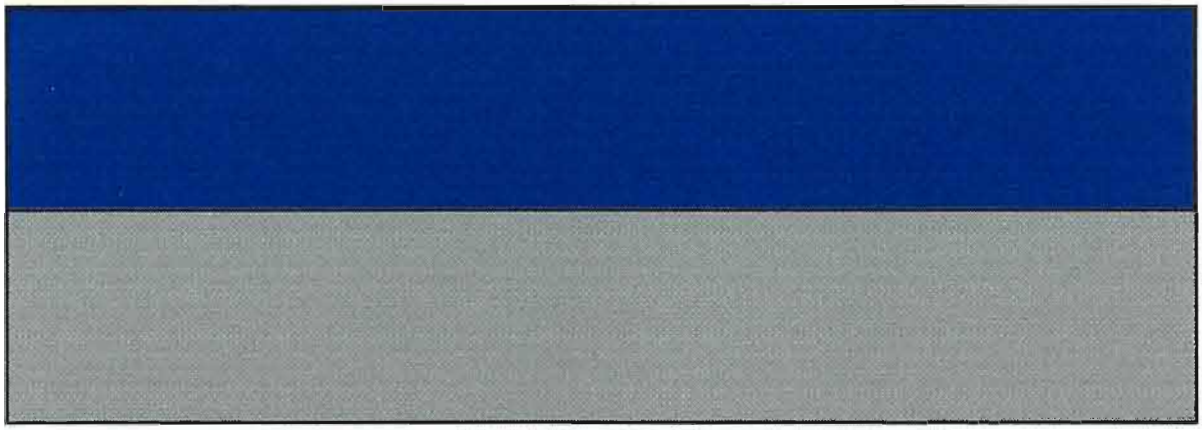
Stage 3 involves the deposition of up to 250 m of fine grained black sediments and felsic volcaniclastics in a quiet, deep marine, anoxic basin (Jago, 1973) (Fig. 7.1D). These fine grained sediments and volcaniclastics were later lithified to form the Que River shale. Prior to the lithification of the sediments a sequence of massive to feldspar-phyric coherent andesites sills and dykes were emplaced into the Que River Shale sediments (as indicated by the peperitic margins), and the basalt and dacite units (Fig. 7.1E). The Que River Shale was then intruded by a sub-ophitic dolerite as a Cambrian event (7.1F). The heat source driving the Cambrian mineralisation is interpreted to be related to the emplacement of the andesite dykes and sills. The emplacement of the andesite is the preferred explanation to the heat source due to the association between the higher grades of Zn and the margins of the andesite bodies and the basal sections of the Que River Shale. The source for the metals is unknown however, two possible sources are postulated. The most likely source for metals are the dacite and basalt that lie deeper within the High Point stratigraphy. The second possibility for metals is a Cambrian massive sulphide that

is hosted within the dacites. Evidence for this includes the known mineralisation of Hellyer and Que River that occur within the same stratigraphic sequence at Hellyer and Que River.

The final stage of the genetic model encompassed by this study is the deposition of the carbonate-pyrrhotite + chalcopyrite veins, quartz-carbonate-sphalerite-galena veins, carbonate veins and chlorite + carbonate veins (Fig. 7.1G). These veins are attributed to the Devonian Tabberabberan Orogeny (Drown and Downs, 1990). This orogenic event has also produced the N.E trending, shallowly plunging open symmetrical folds and the epidote alteration.

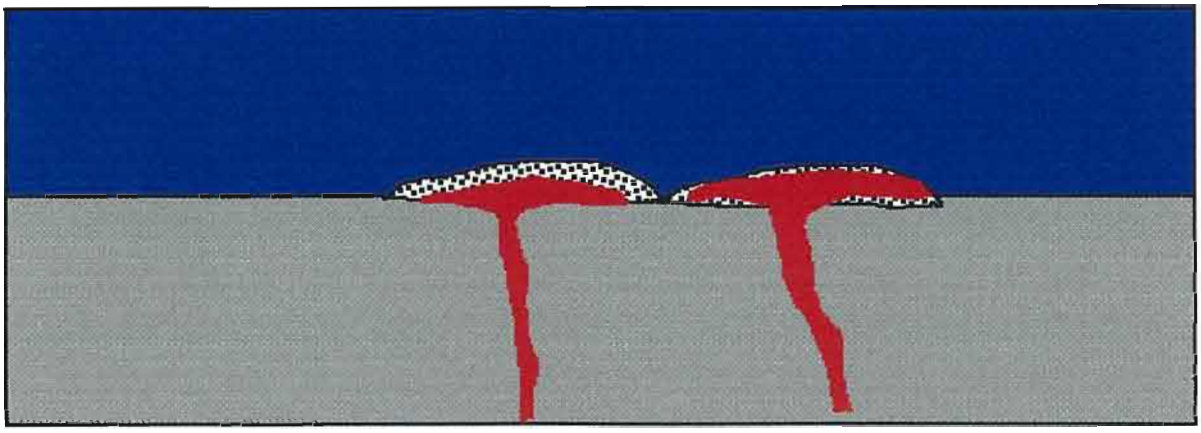
Figure 7.1: Genetic Model for the formation of the High Point Stratigraphy

A) Basement (Animal Creek Greywacke).



Basement (Animal Creek Greywacke)

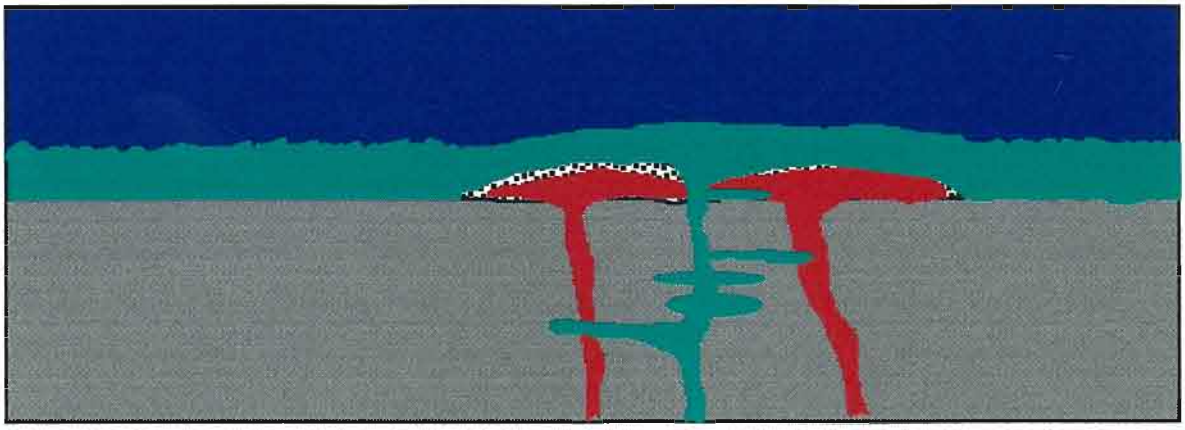
B) Emplacement of dacite lavas and hyaloclastites.



Coherent dacite lava

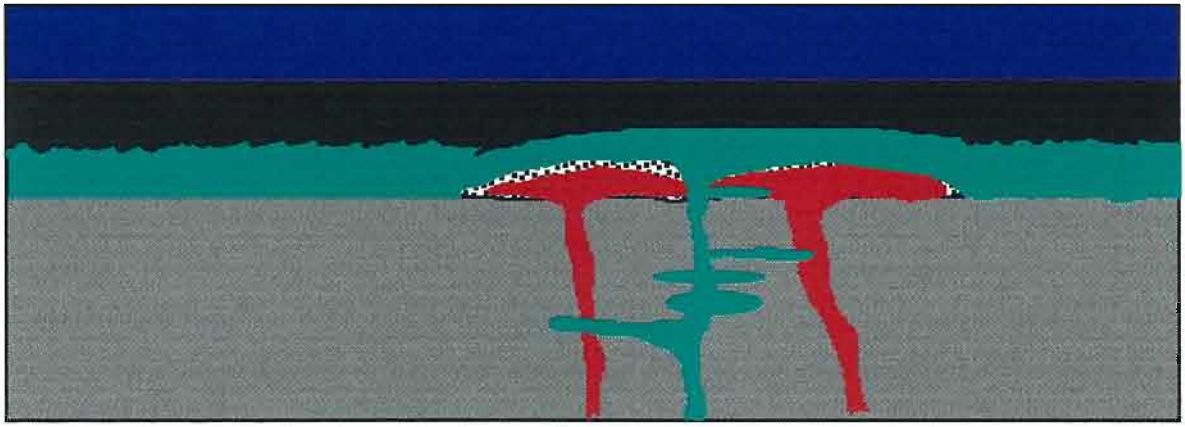
Dacite hyaloclastite

C) Intrusion and extrusion of coherent basalts and basalt breccias.



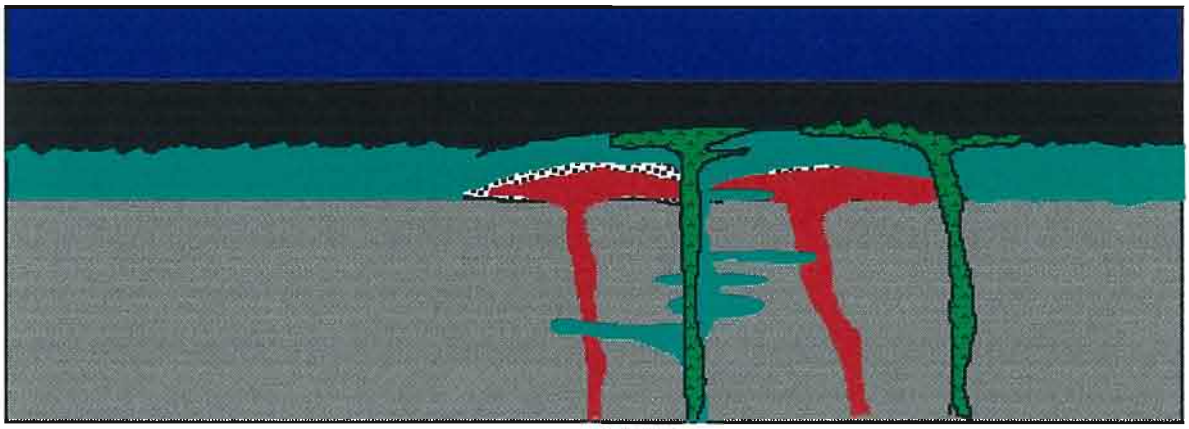
Coherent basalts and basalt breccias

D) Depositon of Que River Shale sediments.



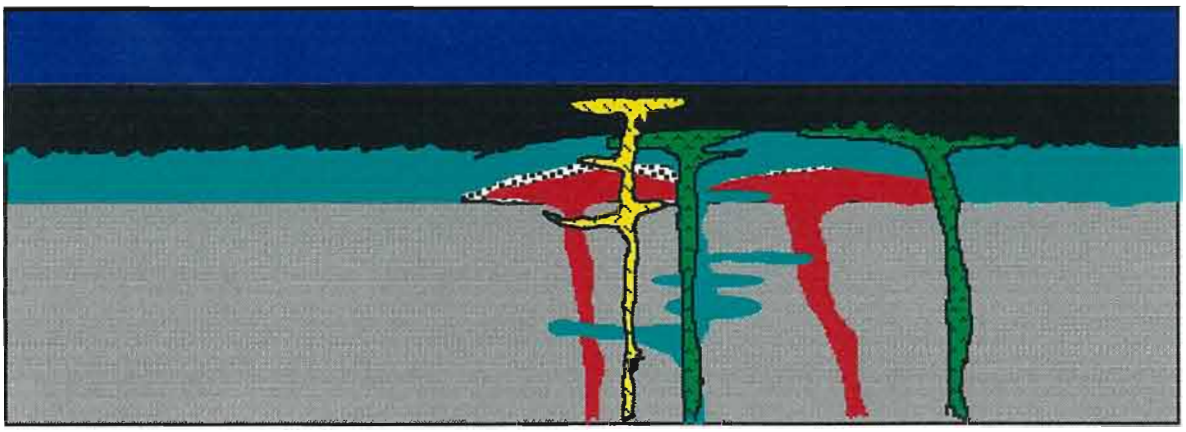
Que River Shale

E) Emplacement of andesite dykes and sills and possible Cambrian mineralisation.
(Note: Andesite emplacement possibly occurred soon after deposition of Que River Shale)



Andesite dykes and sills
(Mineralisation is distributed at the base of the shale and in the basalts and andesites)

F) Intrusion of Dolerite



Dolerite intrusion

G) Devonian metamorphism related to the Tabberabberan Orogeny and formation of epidote overprint. The event has also remobilised Cambrian sphalerite and galena with other minerals such as chalcopyrite, pyrrhotite and pyrite.

Distribution of Devonian veins (i.e throughout whole stratigraphy)

Chapter 8

Summary and Conclusions

The geology, mineralisation and genetic relationships noted within the High Point area have been described and interpreted based upon available data including; core logs, thin section studies, interpretative cross-sections, and analytical techniques such as X-ray fluorescence. In summary the main conclusions of this study are;

1. The High Point area geology consists of six main Cambrian volcanic and sedimentary units;

   (i) A sequence of grey, fine grained, interbedded sandstones and siltstones that form the basal member of the interpreted stratigraphy. This unit is identified as the Animal Creek Greywacke.

   (ii) Dacitic units which are composed of coherent and brecciated dacites. The coherent feldspar-phyric dacites are interpreted to be lavas that have erupted in a subaqueous environment. The dacites and their associated breccias are the equivalents of the Que-Hellyer mixed or mine sequence.

   (iii) Basaltic units which include coherent amygdaloidal, augite $\pm$ olivine-phyric basalts and associated basaltic breccias. The basalts may be both intrusive (deep or shallow) and extrusive.

   (iv) The Que River Shale, which in the High Point region is typically a massive, fine grained, pyritic black sediment, interbedded with minor volcaniclastic horizons that were deposited in a relatively quiet deeper water environment.

(v) Andesites which occur as massive to weakly feldspar-phyric, coherent and brecciated horizons and

(vi) A sub-ophitic dolerite that intrudes the Que River Shale.

2. The Que River Shale, basalt and dacite units are intruded by a series of andesite sills and dykes. The andesite has developed peperitic margins where it intrudes shale, and chilled margins when it is in contact with the basalt and dacite.

3. Hydrothermal alteration variably overprints the original lithologies at High Point. Up to five styles of Cambrian alteration are identified including; (i) silica, (ii) silica-albite, (iii) chlorite, (iv) sericite-fuchsite and (v) silica-sericite.

4. A Devonian aged alteration assemblage is thought to overprint the earlier assemblages and is characterised by epidote. This later alteration may be associated with remobilisation of fluids during the Tabberabberan Orogeny.

5. The structure of the area is dominated by N.E.-plunging synclines and by the Henty Fault zone to the east of the region, and the Mount Charter Fault immediately to the southwest of the study area.

6. Alteration is vertically zoned and lithologically controlled with the main associations being;

a) Silica-albite alteration in andesites,

b) chlorite, and sericite-fuchsite alteration in basaltic units,

c) silica alteration in shale sequences,

d) silica-sericite alteration predominantly in the dacite units (also as a minor phase in the basalts and andesite sequences resulting in a pseudo-fragmental appearance) and,

e) epidote alteration occurs throughout all units in the sequence with the exception of the Que River Shale.

7. The Cambrian alteration assemblages of the High Point lithologies are generally weak to moderate in intensity, with localised areas of strong to intense alteration occurring within brecciated units.

8. The five Cambrian alteration assemblages at High Point are similar to those observed in association with the Hellyer and Que River massive sulphide deposits but are less intense. The similarity between the alteration observed in these areas is supported by the low alteration indices that are equivalent to those of the unaltered andesites in the stringer envelope zone in the footwall alteration zone at Hellyer. Lower alteration intensities at High Point are probably due to lower fluid temperatures, or the lack of fluid focussing along major structures.

9. Based on ratios such as the Ti/Zr, P_2O_5/TiO_2 and CrP_2O_5, the three volcanic units noted in the High Point region (basalt, andesite and dacite) are correlateable to lithologies from the Mount Read Volcanics. Dacite units correlate with the suite I rocks of Crawford *et al.* (1992), whereas the basalt units correspond to suite III lithologies. The andesite dykes of High Point are considered to be the temporal equivalents of the suite II lithologies.

10. Geochemical evidence suggests that the High Point dolerite, previously mapped as a Devonian intrusive, is in fact a Cambrian intrusive that is broadly co-magmatic with the upper basalts of the Que-Hellyer Volcanics. Evidence supporting this correlation include similar P_2O_5, Ti/Zr and CrP_2O_5 ratios for both the upper basalts and the dolerites.

11. High Point mineralisation is characterised by eight main vein assemblages, these include;

(i) Sphalerite veins (Type I);

(ii) Sphalerite + galena $\pm$ pyrite veins (Type II);

(iii) Pyrite + barite veins (Type III);

(iv) Calcite + pyrrhotite $\pm$ chalcopyrite (Type IV);

(v) Quartz + calcite + sphalerite + galena + pyrite (Type V);

(vi) Calcite (Type VI);

(vii) Dolomite (Type VII); and

(viii) Chlorite $\pm$ calcite

12. Vein types I-III are similar to Cambrian VHMS style mineralisation observed within the stringer zone veins at Hellyer and are interpreted to be of a similar age. The remaining five vein stages are probably related to the Devonian Tabberabberan Orogeny .

13. Disseminated sphalerite occurs in two main forms; as small fine-grained anhedral masses, and as coarse grained subhedral crystals. The fine-grained sphalerite in type I veins have a Cambrian lead isotope signature similar to that noted in the Que River deposit, suggesting that the lead is related to Cambrian VHMS style mineralisation. Coarse grained, subhedral sphalerite is associated with type V veins that are observed to cross-cut type I veins. This indicates that these veins are associated with a latter stage of mineralisation.

14. The source of heat required to develop the Cambrian mineralisation and alteration may be attributed to either of the following;

(i) the emplacement of the andesite dykes and sills

(ii) or the dolerite intrusion.

Based on the close spatial association between the higher grades of mineralisation and the margins of andesites units and faults, the favoured model is that the mineralisation is associated with emplacement of andesite dykes and sills.

15. Lateral zonation of the zinc grades show a decrease in values towards the NE away from HP 4 and Mac 27. The higher zinc grades occur in close proximity to the Mount Charter Fault suggesting that it has acted as a conduit for mineralising fluids. Consequently the centre of

mineralisation in the High Point area may be located in the vicinity of drill holes HP 4 or Mac 27.

16. The relative enrichment of zinc below the Que River Shale in the High Point district is probably due to the shale behaving as a redox barrier.

17. The mineralisation is currently subeconomic however, potential exists for economic mineralisation deeper within the stratigraphic sequence.

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Appendix 1

Descriptive logs and explanation for symbols used

Appendix 1.1: Logging Codes Employed at Hellyer

Aberfoyle Resources Limited
HELLYER DIVISION
DIAMOND DRILL LOG VALID CODES

SHEET 1 OF 2

LITHOLOGY

STRATIGRAPHY

Upper Rhyolitic Sequence	URS
Que River Shale	QRS
Pillow Lava Sequence	PLS
Hanging Wall Volcaniclastic Sequence	HVS
Hellyer Mineralized Sequence	HMS
Feldspar Phyric Andesite Sequence	FPS
Lower Epiclastic Sequence	LES
Stringer Enveloper Zone	SEZ
Stringer Zone	STZ

ROCK TYPE

Composition Prefix

Barite	Ba
Basalt	B
Base Metal Sulphides	BMS
Chert	Ch
Dacite	D
Feldspar Phyric Andesite	FP
Glassy silica – colloform pyrite ore	GSP
Highly Altered (obliterating primary textures)	HA
Massive Chalcopyrite	MCPy
Massive Pyrite	MPy
Polymict	Y
Pumice	Pu
"Quellite"	Q
Rhyolite	R
Sandstone, Siltstone	Se
Shale	Sh

Volcanic Texture Suffix

Ash volcaniclastic (0–2mm)	av
Lapilli volcaniclastic (2–64mm)	lv
fine (2–8mm)	flv
medium (8–32mm)	mlv
coarse (32–64mm)	clv
Breccia volcaniclastic (>64mm)	bv
Lava	l
Pillow Lava	pl
Variolitic pillow lava	vp

COLOUR

PREFIX D = Dark
L = Light
B = Bright

Black	Bk
Brown	Br
Green	Gn
Grey	Gy
Orange	Or
Pink	Pk
Polychrome	Pc
Purple	Pp
Red	Rd
White	Wh
Yellow	Yw

VOLCANICLASTIC FRAGMENTS

Composition

As per rock type composition prefix codes

Sorting

Well sorted	W
Moderately sorted	M
Poorly sorted	P

Shape

Angular	A
Sub–angular	sA
Sub–rounded	sR
Rounded	R
Arcuate	Ar
Eutaxitic	X
Variable	V
Elongate	E

VOLCANICLASTIC MATRIX

Composition

Crystal	X
Glassy	G
Lithic	L
Vitric	V

or any standard mineralogy code

LOWER CONTACT

Gradation

Sharp but not faulted	S
Faulted	F
Gradational up to 1m	G1
1–10m	G2
over 10m	G3

Style

Conformable	C
Interfingering	F
Irregular	I

VESICLES

Concentration

Trace	1
Weak	2
Moderate	3
Strong	4
Extreme	5

Shape

Annular sub–vesicles	A
Elongate	E
Spherical	S
Variable	V

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HELLYER DIVISION
DIAMOND DRILL LOG VALID CODES

SHEET 2 OF 2

ALTERATION

Texture

Disseminated	D
Interpillow	IP
Nodular	N
Pervasive	P
Pillow Margins	PM
Pseudomorphous	M
Rim	R
Selected fragments	F
Stockwork	K
Structure controlled	S
Veins	V

Intensity

As per standard intensity coding	1
	2
	3
	4
	5

Mineralogy

Carbonate	CO
Chlorite	Cl
Epidote	Ep
Feldspar	Fd
Fuchsite	Fu
Illite	Il
K–Feldspar	Ab
Pyrite	Py
Sericite	Se
Silica	Si
Hematite	He
Tremolite	Tm

Code in order of predominance, use brackets for trace content.

VEINING

Intensity

As per standard intensity coding	1
	2
	3
	4
	5

Mineralogy

As per mineralogy codes used for alteration and mineralisation, e.g.	CO
	Si
	Cl
	Ep

MINERALISATION

Texture

Banded	Bn
Brecciated	Br
Colloform	Cm
Disseminated	Ds
Euhedral	Eu
Fragmental	Fr
Framboidal	Fb
Inter–pillow	IP
Joint Plane Coating	JP
Massive	Ma
Nodular	No
Pillow margin	Pm
Recrystallised	Rx
Reworked	Rk
Sheared	Sh
Shrinkage Shadows	Ss
Veins	Vn
Vein Selvedge	VS
Boxwork Veining	Bx
Fragment Rim	Rm

Mineralogy and Contents

Mineralogy prefix, percentage suffix (tr for trace), 1 for emphasis

Arsenopyrite	As
Barite	Ba
Chalcopyrite	Cp
Galena	Gn
Pyrite	Py
Sphalerite	Sp
Gangue	Ga

FAULTS

Gouge

Brecciated	Br
Cavernous	Cv
Puggy	Pu
Rehealed	Rh
Slickensided	Sl
Carbonate	CO
Chlorite	Cl
Mylonite	My
Quartz	Si
Rubble	Ru
Sericite	Se

FOLIATION

Type

Bedding	Bd
Clast Alignment	CA
Cleavage	Cl
Flow Banding	FB
Shearing	Sh
Sulphide Banding	SB
Vesicle Alignment	VA

WEATHERING

Type prefix, standard intensity coding suffix

Leached	L
Oxidised	O

Aberfoyle Resources Limited
EXPLORATION DIVISION

GEO. RD4

DATE 2/9/94

DIAMOND DRILL LOG

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION		WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX COMPOSITION	VOLUME %	LOWER CONTACT GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE					
50				Black Shale QRS?	BK											P	2	Si?	2	6	Co	Vn	Py?											50
60				QRS																														60
70																																		70
				Intrusion	Very dark	?	qtz	good	dry	Sp. Si	10%					!	?	?	None			None obvious												
100				Andesite lava breccia possibly cryptobreccia	?	Andesite	hbl	poor	Angular	Si, Si	5-10%					P	?	Si. with possible Alo or Fo	1	4	Co, Sp	Vn	Sp												100
																			1	10	Co	Ds	Sp, Cu											
																			1	3	Co, Sp	Vn	Sp											
																			1	3	Co, Mic	Vn	Sp, Cu											
				Clast															1	8	Co													
																Spot	?	Some very green	1	3	Co, Mic	Vn	Sp, Cu											

Fault contact.

Unit Right way up. Andesite. Need to look at cut sample.

Does not look like hyaloclastite. Some of andesite fragments appear to be brecciated. Sp is an orange brown colour. Vn to core edge. This may be vein related. Vein [illegible] 1mm in [illegible] down hole is ⊥ to core edge. Sp. Rare large blebs of up to 20 mm down hole width have occasional spot of Sp disseminated.

line colouring possibly Sp [illegible] Co veins throughout

log.01931.wor

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EXPLORATION DIVISION

GEO.

DATE

DIAMOND DRILL LOG

DRILLING			LITHOLOGY									VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS																											
						FRAGMENTS				MATRIX		LOWER CONTACT																					
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
150				Andesite lava possibly overlies ash	Greenish Grey		As	Above									P	2-3	Si	1	6	Sp, Gn	Vn	Sp Gn										
160																							Ds	Sp trace										
																							Ds	Gn										
										Si, Sp Abdt	2-5%						Fr	2	Si, Ab				Ds	Gn										
																							Ds Aus											
																				1	1	Sp	Vn	Sp										
																	LVn	2	Si, Ab	1	2	Cu, Sp	Ds	Sp Gn										
																							Vn	Sp										
				Andesite Ash bx		Ad		Poor	Angular	Co	10%						Fr	2 3	Si, Se & Si, Sp, Ab				Ds	Sp, Gn										
																	L	3	Si, Se of Ab				Ds	Gn										
																							Ds	Sp.										
																	P	3	Si, Se															
																							Ds	Sp, Gn										
170					is Above	Andesite	90	Poor	Ang	Si, Se	2%						Fr	3	Si, Ab?															
																	L	2	Pink Vein w/ Sp															
																	P	3	Si, Sp	1	150	Co, Cu												
																	Fr	2	Si, Ab				Ds	Gn										
																							Ds	Sp, Gn										
180																																		
190																																		

Andesite is weakly magnetic

Sp is a yellow colour in clusters of lok may be a sign indicator weathered pyrite

Rock becoming less brecciated that is the matrix component is decreasing

Sp is associated in a clast with a dark grey mineral which may be sphalerite

Sp is in small veinlets

Sp is both brown & yellow brown

Alteration appears to bring out in Ds Gn min gives rock a faded grey colour similar to the 33?

Flash are still veinlets in size from 0.5cm - 10cm in

Clast similar to that in the 33 but as bleached

The S Ab appears vein related in some places

Vein See mostly min in andesite, flash around it

matrix mostly bleached again in some places for 15 m

log.0193Lwr

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EXPLORATION DIVISION

HOLE No. 12

PAGE 3 OF 7

GEO. AZ

DATE

DIAMOND DRILL LOG

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				Andesitic lava breccia	Green-grey	Andesite	1:10	poor	angular	Si, Co	5%																								
														Patchy Vein Material Alteration Extends out from this																					

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. MAC [illegible]

PAGE 2 OF

GEO. [illegible]

DATE

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
					Basalt with	Gn									5	3	Elong	P	1	Si ?																
																					1	15	Epidote	Vn Ds	Sp											
																					1	3	Sp, Si, Sp	Vn	Sp Si											
																								Ds	sp											
																									Sp											
							Pos	10	Poor	Irregular Subrounded	Co	30%	Sharp		60	3mm	Elong							Vn	Sp										
															10.	3	Elong				2	10	Chert	Di	?											
																					1	4	Si, Sp													
																					3	10	Co, Chert													
																					1	3	Co, Sp, Si	Vn	Sp											
																					.	10	Co, Ther	Ds	Sp. Py [Ep]											
																					3	2.	Co	DS	Sp in Co, Si	→	Possible		Amygdale filling							
																					1	1-2	Co, Py ?	Vn	Py											
																								Vn	Sp											
																					3	2	Sp	Vn	Sp											
																					1	10	Si, Chert	Ds	Py											
																								Ds	Sp in Si, Si Co											
																								Ds	Py											
																								Ds	Sp in Si Si											
																								Ds	Sp,											
					Basalt			90	Poor	Irregular	Sheared Chert	20	G.	Irregular																						
					Rep																															
																									have occasional veinlets											

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. MAC

PAGE 1 OF

GEO.

DATE 21/12

DRILLING: DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	LITHOLOGY: STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANOCLASTICS FRAGMENTS: COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX: COMPOSITION	VOLUME %	LOWER CONTACT: GRADATION	STYLE	VESICLES: CONCENTRATION	MAX. SIZE (MM)	SHAPE	ALTERATION: TEXTURE	INTENSITY	MINERALOGY	VEINING: INTENSITY	MAX. WIDTH (MM)	MINERALOGY	MINERALISATION: TEXTURE	MINERALOGY & CONTENTS	FAULTS: POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	FOLIATION: TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				QRS	BK																													Barren		
				Fine ash tuff ~~[illegible]~~ pillow lava? prp.										1	2	Sloughy	P	1	Si	1	100	Co, Cl	Vn	Sp, Si										Basalt has intermixed dark cherty material possibly forming huge pillows with vesicles we very irregular Py is colloform, stage 2 vein small Sp veinlets w/ mm wide or 10cm long frag alteration only occurring within interchertly bits Prp? bits occur sporadically throughout the unit have veins of orange pinkish stuff + Co for at least 20mm down hole small Sp veinlets ⊥ to core Amount Py decreased	Bruce report
																	Fr	2	Si, Abor Se	2	15	Co, Si, Py	Vn	Sp, Py	Sphalerite is mainly in small veinlets by itself and in Si veins											
																				3	15	Co, Pink Stuff, calcite	Vn	Sp												
																	P	1?	Si (Very well altered many hart sorrell)	1	6	Si, Sp	Vn	Sp, Si												
				Silt 1m wide pp. tuff																		V														
				Cherty material very irregular																			Vn	Py 3-4 mm wide + is colloform interpillow												
														2	4	Sloughy							Vn	Sp												
																							Ds	Sp												
																	L	3	Si, Se				Vn/Ds	Sp ± Co possibly												
																				1	3	Co, Sp, Si	Vs	Sp												
																							Vs	Sp												
																	L	3	Si, Se				Vn	Sp												
																				1	2	Co	Vn	Sp												
								1	2	Si	Vn	Sp	— Si is a glassy colour blue																						
											Ds	Sp																								
																	L	3	Si, Se	1	2	Si, Sp, Py	Vn	Py												
																				1	2	Si, Sp	Vn	Sp												
											Ds	Sp																								
								1	2	Si, Sp	Vn	Sp																								
								1	1	Sp	Vn	Sp																								
											Ds	Sp																								
											Cs	Sp																								

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. [illegible]

PAGE 2 OF [illegible]

GEO. [illegible]

DATE

DRILLING			LITHOLOGY											VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
					VOLCANICLASTICS							LOWER CONTACT																							
					FRAGMENTS					MATRIX																									
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (CM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
280					Basalt																														280
290					Small																														290
300					Basalt																														300
310					Pep																														310

Big change

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. [illegible]

PAGE [illegible] OF

GEO.

DATE

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
					VOLCANICLASTICS						LOWER CONTACT																						
					FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION		WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE					DEPTH
370					Bas	Gn									23			P	1		1	3	Si, Fr												370
					Bx fluidal rep looking stuff. Bas again I think	Gn	Bas + Alt (Si, Se)	100	Poor	Fair	Chert	30%	G 2					L	4	Chl	2	4	Si	Ds	Sp Po											
					fluidal rep looking stuff			As Above							2	2	"	Fr	2	Si, Se																
375																					1	3	Si, Sp	Ds Vn	Po Gn. Sp Sp										375
					Bas Bx	Bn												P	3	Si, Alb	1	3	Si	Ds	Sp ± Pq										
					?		fluidal modified	As above appearance										Fr	3	Si, Se	1 1	2 3	Si, Se Si	Ds	Sp, Pb, Gn										
					modified basalt?																			"	"										
					fine ?		Bas	50	Poor	Ang	Si, Se	60%																							
380					fluidal modified basalt?	only	for 1 m +	above																											380
					Bx		Bas	150	Poor	Ang	Si, Se	10									1	3	Co												
					Bx																														
390					Bx		Bas	50	Poor	Ang	Si, Se								23	Chl	2	4	Co	Ds	Sp, Po										390

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION			FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																							
						FRAGMENTS				MATRIX																									
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH

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DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	FRAGMENTS MAX. SIZE (MM)	FRAGMENTS SORTING	FRAGMENTS SHAPE	MATRIX COMPOSITION	MATRIX VOLUME %	LOWER CONTACT GRADATION	LOWER CONTACT STYLE	VESICLES CONCENTRATION	VESICLES MAX. SIZE (MM)	VESICLES SHAPE	ALTERATION TEXTURE	ALTERATION INTENSITY	ALTERATION MINERALOGY	VEINING INTENSITY	VEINING MAX. WIDTH (MM)	VEINING MINERALOGY	MINERALISATION TEXTURE	MINERALISATION MINERALOGY & CONTENTS	FAULTS POSITION OF BASE	FAULTS DOWNHOLE WIDTH (CM)	FAULTS CORE AXIS ANGLE	FAULTS GOUGE	FOLIATION TYPE	FOLIATION CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
40					Cs Sliver		[illegible]																													44
50					Bas And	Dk Gn									5-8	3	Ag	P patty P	2 3 2	Si, Chl Si, Ab Si, Ab	2	4	Si, Chl	Ds	Very Rare Sp + Cb									Contact is curved & conform. [illegible]		4[illegible]
60					Bx [illegible]	Brown	Bas & [illegible]	4	poor	[illegible]	[illegible]	[illegible] 60 < 10						P	3	Si, Ab	2 1	7 6	Si, Cb, Sp Si, Cb	Vn Ds	Sp Very Rare - Sp + Cb [illegible]									most is [illegible] decrease in abundance downhole to contact only minor [illegible] is matrix bx		45[illegible]
70					[illegible] back into Bx																															470

Contact is curved & conform. [illegible]

most is [illegible] decrease in abundance downhole to contact

only minor [illegible] is matrix bx

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
					VOLCANICLASTICS							LOWER CONTACT																						
					FRAGMENTS				MATRIX																									
DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				Andesite																														
				Basalt - Andesite	mid grey									5	2	Ang	P	1	Si	2	8	Si ± Cb ± Sp											Sp in veins rare.		
																				1	13	Cb, Qz	Ds	(mild. Carb)										
																							Ds	Sp (Rare)										
																				3	4	Cb, Si												

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						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
30				Bus.	[illegible]															1 1	8 2	[illegible] Sp	Vn Vn	Cpy, Sp, Py, Pl Sp									[illegible]		
				Bx Lava?		[illegible]	800 to 150	[illegible]	Ang	Chert 10 +Sp						Spotty	S	Si, Sc?		2 1 2	250 12 120	[illegible] [illegible]/Sp Si, Qtz, Chl + Chl	Vn Vn Ds	Sp (Cbe) Sp									Trans [illegible] appearance Coarse xtal. Liquid [illegible] S.		
50				[illegible]		"	800	fair	"	[illegible]	15			"									"	?										53
60				Bus.	Pale GR		Same	as	Dark green bus. [illegible]																							As Before		54
70																																		55

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
					VOLCANICLASTICS						LOWER CONTACT																						
					FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
530					Bas																															
					?? possible hyalo Bas-And	Greenish	Bas-And	100	poor	Angular	Si, Se	5 >40						P	2	Si, Se	2 1	10 4	Co, Si Si±Co	Ds Vn Ds	Sp, Po Sp, Cp Sp+Si										The bx varies in appearance - some bits look insitu while others appear rosed (crisp are recrystallised Resection!)		
					Mass Bas ?? Lava and	Gy	Bas								2-3	3	Elong	P	2	Si, Sez Chl	"	"	"	Ds	Sp									? hyalo or Auto and insitu " " have sp in Si amygdale?		
570					Bx	Pink	Bas-And	150	poor	Ang	Si/Co Sez	10						P	2	Si, Se	3	4	Si, Co, Sez	!										Appears insitu tranche bx insitu		
					Mass lava	Gn		As	Above																											
					And-Bas bx possibly a pseudo bx	Gn Brown	Bas-And	80	poor	Angular	Si, Se	20%						"		"	2	10	Si, Co ± min	V Vn Ds	V Sp, Po, Cp Sp, Cp										Hard contact. could be auto bx or hyaloclastite Not much Ds Cp around Breccia is very irregular in nature not constant the matrix will change very quickly in amount Si, Se + other bits. Appearance of chert far at long distance		
											Chert ± Si, Se	40						FrL	4	Si, Ab (Bas)	2	12	Sp	Vn Ds	Sp Sp											58
											Si, Se	20						P	2	Si, Se																
																		FrL	4	Si, Se																
																																		Grad contact		
					Bas → And	Bn									2-3	6	Sph	P	2	Si, Ab	3	12	Si, Co	Ds Vn	Sp, Po Sp									A.H.? giving it brown colour Grad contact.		
590					Bx	Bn	Bas → Alt	100	poor	Ang	Chert	20%						?	2	Si, Se														See Rims Si, Se with moved Chert's Very similar to units at around 300 mm. Amount matrix varies from 5% at 593 to 20	591	
					Bas → And	Gn → Bn									2	10	Elong	P	1	Si, Ab				Ds	Sp ± Po									Is brown in some places. Sp appears to be infilling vesicles		

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					VOLCANICLASTICS						LOWER CONTACT																						
					FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
600				As		ABOVE																													600
				Bx	White in [illegible]	Bas-And	200	poor	Ang	Si 4 Si 1	50			1			?	?	?	None	Really		Ds	Sp, Po ± Cu									matrix is very white some places it is brown min decreases [illegible]		
				Bx	"	"	As			ABOVE																							Basalt relicts may have chl alt -		
610				Bas lava	Cu									3	8	[illegible]	P	2	Si, Sc				Ds	Sp, Po									"amygdaloid" with [illegible]	Cp	610
				Bx	As above	"	210			Si 8 Si, Sc	5 70%																						When matrix is minimal [illegible] loose white colour → brown		
				Bas-And lava	Cu			As			Above			"	"	"	"	"	"														Sp in vesicles		
				Bx	As Above															1	2	Si, [illegible]	Ds Vn	Sp, Po Sp ± Py									Possibly late stage vein		
620				Bas grad	Gy Cu									2 30 50 5	3 3 3 3	Ang " " "	P P FL L	3 1-2 2-3 4	Si, Ab Si, Ab Chl, Fu Si, Ab	1	5	Si, Sp	Vn Ds	Sp Sp ± Cu									Vesicles are networks near as large in [illegible] haul green patch may be vein related See dramatic changes in ~~feldspar~~ Vesicle [illegible] weakly feldspar phyric		620
				Bx				As		Above													Ds	Sp, Po									may be hyalo		
630				massive pillow lava basalt or andesite										1	1	Ang	P	2	Si, Ab	1-2 1	5 6	Si, Cb Si, Sp	Ds Vn	Po, Sp - Sp									Have occasional Sp, Si Veins Right throughout		630
																Ang	Fr L	3	Si, Sc, Chl Chl Fu				Ds Alt Ds Alt	Sp Sp, Cu								Si Sc more dominant than [illegible] The Chl [illegible] Fu have increased % of Min Min Ds within Alt Cu dominates [illegible]		
																	Fr L	4	Chlor Fu				Ds Alt	Cu Sp											

Basalt was [illegible] shifted back up [illegible] it will fit in here similar [illegible] one at 600.5 [illegible] if [illegible] at 600.5 a good [illegible] to 604

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DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	FRAGMENTS MAX. SIZE (MM)	FRAGMENTS SORTING	FRAGMENTS SHAPE	MATRIX COMPOSITION	MATRIX VOLUME %	LOWER CONTACT GRADATION	LOWER CONTACT STYLE	VESICLES CONCENTRATION	VESICLES MAX. SIZE (MM)	VESICLES SHAPE	ALTERATION TEXTURE	ALTERATION INTENSITY	ALTERATION MINERALOGY	VEINING INTENSITY	VEINING MAX. WIDTH (MM)	VEINING MINERALOGY	MINERALISATION TEXTURE	MINERALISATION MINERALOGY & CONTENTS	FAULTS POSITION OF BASE	FAULTS DOWNHOLE WIDTH (CM)	FAULTS CORE AXIS ANGLE	FAULTS GOUGE	FOLIATION TYPE	FOLIATION CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
640					Basalt Pillow lava													P	2	Si Ab																640
															5	5	Sph	F.L	3	Chl	1	3	Cn, Si Sp	Ds Sm	Cn, Sp Cn, Sp									Cn dominates over Sp Seems to be alt° related. Basally Weak to mod Feldspar phyric		
650																																				650
																																		Faulted contact. looks like QRS.		
					Shale	Bk	?											Nil			3	2	Si, Sp	Bn	Py Sp									Faulted contact		
					Bas PLS	Cn									5	5	Sph	P	2	Si, Ab				Ds	Sp, Cn, Po											
					Basalt	Bn Cn Bn									2-5	5	Sph	P Fr P L Fr P Fr P	3 3 3 2 4 4 2 3 2	Si, Ab Fu ? Si, Ab Fu ? Si, Ab Si, Sp Si, Ab Chl Fu Si, Cn Chl (Bk)	1 2	5 3	Si Si, Po	Ds Ds Ds Bn Alt°	Sp, ± Cn (Po) Sp, Cn Po											660
						Bk																80	Si													660
					Shale	Bk														?	4 1 1 1	6 5 150 200	Co Co, Py Fo Si	Bn	Py / Po									Contact Regular and conformable. Po occurs as a clot. Si vein forms a bx		
670					Porphyritic Basalt → Andesite	Bn ish									5	5	Cn and Po Sph	Add P	2	Si	7	15	Chert + min	Ds Vn Ds	Po, Sp, Cn Po & Sp Cn Po, Sp, Cn									Faulted contact. "See black talcose grey chert within basalt. Basalt looks very altered. Po appears to be associated with chert veins. Chert bluish. Amygdules are infilled with Co & Chl		670
																					1	10	Chert min	Vn	Po											
																					1	10	Chert min	Ds Vn	Po, Sp Po											

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				VOLCANICLASTICS							LOWER CONTACT																							
				FRAGMENTS				MATRIX																										
DEPTH	DRILLING FLUIDS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE					
60																																		60
																	P	2	Si	2	100	Co, Si	Vn	Po										
																							Ds	Sp, Po										
69																							Ds	Po										69
				Zone of blanched white/cream rock around core possibly through Si, Sc																														
				Bas?	Cn																													
				Get photo										8	10	Round Sph																		70
70																																this is where chart cut		70

[illegible] seems to be in a brecciated zone, upto 20 cm wide down hole [illegible]

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
					VOLCANICLASTICS						LOWER CONTACT																							
					FRAGMENTS				MATRIX																									
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
720																																		72
730																																		73
740				Bus	Cr									2	12	Rar	P	2	Si	B 1	8 180	Co Si Chl. fy, Sp, Ch	Vn	Sp									The Rim [illegible]		74
																				1	180	Chert fy + Sp	Vn Very Rare Ds	Sp Sp								There is not much Sp at all the Ds is also [illegible]		
750																																		75
			3915																															

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DRILLING			LITHOLOGY									VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS																										
						FRAGMENTS				MATRIX		LOWER CONTACT																				
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
10.0					Shale																												Black Boring		
15					Pep Andesite																Not only in			None only	obvious Py										15
					Bx · And hydrotastite pep ???													P	B	Si															
16.0																																			
																					1	4	Co, Sp	Vn	Sp (Co)								First appearance of obvious Sphalerite. have Sp associated with Si/Co veins + Co veins		
																					1	3		Ds	Sp										
																								Vn	Sp										
17.0																																			
					And-L?																D	3		Vn	Sp (Reddish brown)								have Vein Sp which could be Sp or Ab but I think it is Sp. Sp - Reddish brown, rare and diff to pick up		
																								VnDs	Sp (Orange brown)										
																					2	8	Si, Co	Vn	Sp										
					And-L																1	3	Si Co												
					And-L																3	15	Si Co	Vn	Sp								Andesite is feldspar phyric		
																					1	3	Si Co	Ds	Sp = Ga (Tr)								Green Grey		
					And-L																												Have occasional Co/Si veins		

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Bx - Vein Bx ? Co, Si

Bx - Honey Co, Si

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DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS – FRAGMENTS – COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX – COMPOSITION	VOLUME %	LOWER CONTACT – GRADATION	STYLE	VESICLES – CONCENTRATION	MAX. SIZE (MM)	SHAPE	ALTERATION – TEXTURE	INTENSITY	MINERALOGY	VEINING – INTENSITY	MAX. WIDTH (MM)	MINERALOGY	MINERALISATION – TEXTURE	MINERALOGY & CONTENTS	FAULTS – POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	FOLIATION – TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
78.5m				And-Bx		And	[illegible]	Poor	Ang	Sil-Clay	0-10						P	2	Si Ab	2	?		Ds Vn Ds	sp+Si Sp Cr } both	In which appear to be And clasts								combination of 3x types appears to be going into more of an 1x2 Ox 1 Pre-dis bx. It appears to part of matrix in matrix of vein bx. Andesite clasts can be up to 80cm long (Down Core) Andesite clasts are mostly feldspar phyric.		100
				Lithic clast																																
				And-bx		"								3	2	Sp	I		Si					this min												
				And lithic																																
				And-bx																				Repeats itself about												
				And lithic																																
				And-bx																																120
																	F	2	Ab, Si																	
																	P	1-2	Si																	
				Lithic ?																																
				Bx													Fr	2	Ab, Si																	
																	P	1-2	Si																	
																	Fr	2	Ab, Si																	
				Bx																																
				Lithic																																
				Bx																																
				Clast																																
				Bx																																
				Clast																																
				Bx																																
				Lithic																																
																							Ds Vn	Sp+Si													
				Clast																																
				Clast																																

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DIAMOND DRILL LOG

DRILLING			LITHOLOGY									VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION		WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
DEPTH	DRILLING RUNS	CORE LOSS	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX COMPOSITION	VOLUME %	LOWER CONTACT GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE					
																							Ds	Sp ± Cn (trace)											
																																			23
																																	start of true Bx		
				Bx-Vein		Bas	300	Poor	Ang.	Co	40%	Gr					P	1	Si ?		Co		Ds	Sp, Cn, Py (trace)								Co Vein Breccia co inf. in		24
				Basalt Breccia	mottled	Bas	300	Poor	Sub Rounded	Silt	30%	Gr		5	3	Sph							Ds Vn	Sp Cn, Py Sp Cn, Py	? seems to be concentrated in Alt^n Zone of Ab Si							May be a Pseudo Bx? Min has got patchy appearance. Similar 272 m. 243.5		
			Co	Bx-Vein		Bas	500	Poor	Sub Rounded	Co	40%	Gr								1	4	Co	Dc Vn	Py. Sp, Cn (Tr)									not as much min in this Bx 246		
				Basalt													P Fr	2 3	Si Si Ab	r	5	Co, Si	Ds Vn	Sp, Cn, Sp, Cn (Tr) Very minor								has a mottled almost Bx appearance similar to Pseudo Bx. Disseminated min seems be associated with Si tin frey alt^n		25
																				2	5	Si	Min cuts out but have minor traces min mainly have also	Disseminated Right throughout sp, Cn Ev Py traces								See Small Zones of Vein Bx denoted by !!! Si Veins at Various angle to core.		

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DIAMOND DRILL LOG

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
230				Basalt																			Vn	Sp Py									Sp & Py appear to be in [illegible] pillow rim!		230
				Basalt Bx		60%	20	P	Rounded	Chert	50%	Sharp								[illegible]	100	Silica	Vn	Sp (Cu Fe?)									Chert grey matrix. Pseudo bx		
240				Basalt										5	4	Spl	P	2	Si	3	6	[illegible] 60	Vn	Py only small cored areas									have what appears to be interpillow chert from 267 → 269 m. Veins predominantly Si. Have sh chert frequently throughout this unit. Vn Py occurs at about 2 30% or less		240
250																																		250
260																																	292.2	260
∴ Vein bx ~ 20 cm wide				Bx	multi	Bas	350	Poor	Ang Rounded	Cg Chert	40%						P	?	Si	Some chaotic Si Veins			Js	Sp									Note: matrix changes. ? may be a hydrothermal site? Some clasts are rounded some angular. matrix has a high % of CO init in some parts with some chert by chert		
				!	1	Bas	200	Poor		Co														Sp is only very minor 1 spot every 1.5 m											
				Bx	multi	Bas	200	Poor matrix	Ang	Sj Chert	40%												also Cu	Very minor											

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				Basaltic Bx. hyaloclastite	Contrasting multihued	Bas	350	P	Angular subrounded	Carbonate Chert	Varies 10 - 50%						P	P	Si	2	6		Ds	Eu Py									The vein bx appears second to hyaloclastite = a Jasper vein bx that has formed in zones of weakness. See chert in a formation seems similar to interpedon chert always inter hyaloclastic chert.		310
				Inter Pillow																															
				Basalt	Gn.									1 5 10 60 8	2 2 2 2 2	Sp Sp Sp Sp Sp				1 3 1 4 1 1	60 5 6 5 60 3	Co Si + Co Co		none none none											Bitb. Co veins almost to core. Predominantly Si. Amygdules increase rapidly in intensity for ~ 20cm then drop to a 5-10%. Amygdules are more numerous but smaller in this basalt unit		320
				Basalt bx	Varies	Basalt	600	Poor	Some sub rounded some rounded	Chert, Co, Ab, Ep	Varies 2% - 50%	Sharp													Rubbly fault								This unit is highly variable and appears to be a basaltic hyaloclastite. Alteration may give rounded appearance to clasts. - Alt^n may enhance bx appearance.		330

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						VOLCANICLASTICS																										
						FRAGMENTS				MATRIX				LOWER CONTACT																		
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
340																	Fr	?	Ab, Si	4	5	Si, Co	Ds Vn Vn Ds	Sp Sp Sp Sn(tr)									Predominantly Si Sp occurs as inclusions Same as sample from 318.4 - 318.8 Sp has black appearance See veins black throughout Sp associated with Si veins by itself and possibly some alt?		3
				Box br. with Ab altered clasts														1	8	Chert															
350																	F	3	Ab, Si				V	V									See alot of Alt? of Clasts by Ab		3
																				1	10	Ab, Si, Co										Ab forms Rim or Selvedge around Co		
360																				1	5	Si, Sp, Co	Vn	Sp (Devonian min vein)								Co in vein is only min See zones of Si + Co veins with intensity 4 approx 20cm wide that occur sporadically		3
370																																			3

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DRILLING			LITHOLOGY									VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS																										
						FRAGMENTS				MATRIX		LOWER CONTACT																				
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
429																																			429
430				Bas-Bx																															430
431																																			431
				Bas-Lava								C2		2	2	SP	P	1-2	Si:Cl	1	5	Si	Ds	Sphn Very Rare									Many be part of a pillow lobe or a separate flow		
432				Bas-Bx	?	Bas	150	Poor	Ang	SiAb & Chert	10-50%						Fl	3	SiAb													Would have when time convincing this is a hyaloclastite		432

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DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	FRAGMENTS MAX. SIZE (MM)	FRAGMENTS SORTING	FRAGMENTS SHAPE	MATRIX COMPOSITION	MATRIX VOLUME %	LOWER CONTACT GRADATION	LOWER CONTACT STYLE	VESICLES CONCENTRATION	VESICLES MAX. SIZE (MM)	VESICLES SHAPE	ALTERATION TEXTURE	ALTERATION INTENSITY	ALTERATION MINERALOGY	VEINING INTENSITY	VEINING MAX. WIDTH (MM)	VEINING MINERALOGY	MINERALISATION TEXTURE	MINERALISATION MINERALOGY & CONTENTS	FAULTS POSITION OF BASE	FAULTS DOWNHOLE WIDTH (CM)	FAULTS CORE AXIS ANGLE	FAULTS GOUGE	FOLIATION TYPE	FOLIATION CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
460				Bas Bx																1	10	Ca, Sp												Calcite is pink sampled		
				Bas-lava	Gn							Gr		5	4	Sp				occasional Sp			Trace agm.											May be part of lobe again hard to see if a flow or lobe.		
470				Bas Bx	?	Bas?	80	Poor	Ang	Si, Ab, Chl 5-30%		Gr					fr	3	Si, Ab				Sp + qcc														470
																							Ds	Gn										Gn is quite visible		
480																									Fault Rubble											480
																																		Faulted contact?		
				Basalt lava	Gn, Bwn									5	8 ↑ Average 23	Sp	P	2	Si	3	4	Ca, Si	Ds	Sp, Gn										Amount Sp + Gn increases a fair bit in comparison to other parts since 218 m. Some of Sp is almost black.		
49.																																		Angular contact		49.
				Bas Bx	?	Bas	80	Poor	Ang	Si, Ab	5-20%	Gr											Ds Vn	Sp										Sp in veins as well as matrix. Dissem not mixed around Sp in Si veins occasion		

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						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
450					Bas Bx																															450
					Bas-lam	Cy Bn									6	6	Sp	P	2	Si Ab	1	5	Si, Ca	Ds	Sp, Gn									min may be related to Alt [illegible]			510
																																				520
																										huge fault										
																																		EOH		53

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
140					~~Basalt~~ ? Andesite		Py, Ak								1%	3mm	Angular (Sp)			Ab, Cl, Py/S			Py		Py (Vein)	low angle 1-2 mm calcite								Mottled texture (due to Ab). Veins Co - with Patchy Alt halo, Ab. pseudo clasts of Alt - (Ab -		140
																							Co, Si Vein 1cm wide			fault - brecciated										
																							Co Si - Vein 1cm wide													
150																								Ds	Cu - 0.05%											15
Sample #					~~Basalt~~ ?	Bro												P	3	Ab, Cl, Co, Si	1	4	Co	Ds	Cu									Mottled Co - Ab - Po. Dark area Ab - Dirty Pink Co - patches (Veins?) - Irregular Sp - honey brown Mottling - almost absent Ab - P clasts - associated with mottling absent.		Du Va
																		"	"	"	1	10	Co, Si	Vn	Cu, Sp, Py											
																		"	3	Si, Ab, Cl	1	2	Cu	Vn	Cu											
Sample #																		Local	1	Ab, Cl Co.	3	3	Cu, Sp, Py	Ds	Cu, Sp, Py (0.5%)											
																			2		1	10	Co, Sp, Cu	Ds	Cu (III), Py (!)		1.5	60°	-						
160																		P	4	Ab, Cl Si							filled Co							Mottling quite clear.		160
																		"	"	"	Co - Sp, Si, Ep, Ab 2x 10 mm 20 mm					Broken Rock 158.8										
Sample #																					1	30	Co, Cu, Sp, Si	Vn 165.5	Cu, Co, Sp, Cl, Py									Fe - Co - Sp, Cu, 165.7 # Dark brown weathering Fe leached => Py Se - Secondary		#
170																					1	2	Co, Sp	Vn	Co, Sp									honey Sp in Co. Si Ab - Alteration limited to small patches Sp - honey		170
																					1	5	Co, Sp, Cu	Vn	Co, Sp, Cu, Py											
Sample #					Bx ?																			Ds	Cu, Sp								Hydraulic Breccia matrix Co Mottled		
180					~~Basalt~~ Andesite																3	2	Co, Sp, Cu													
																					1	0	Co, Cl													

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
					VOLCANICLASTICS						LOWER CONTACT																						
					FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
50																																		Rock Breaks fr		
Sample																						5	Ca, Sp, Cl	→												
Sample																		Mas	4	Ab, Cl, Si, Co	1	20	Co, Cl	Ds + Vn	Sp + Cu									Zone - 10cm wide intense Ab, Si appears to a vein Replaced		
Sample																		P	2	Ab, Si, Co	1	150	Co, Si, Sp, Pb	Ds	Cu, Sp											
					type & with filling hydrolectite																1	8	Co, Ep	Vn	Sp	199.1	20cm	0-10°	Rubble						Vein Sp. 1mm wide to edge core		
																		P	3	Ab, Si	3	4	Co	Ds	Sp + Cu									Ep - many veinlets		
17.																																		% Ep increases down hole		
Sample #																		Vn	3	Co, Ab, Si	3	4	Co, Pb?	"	"									Creates % of small veins at various angles		
July #																		↓	1	↓	1	1	↓													
																		↓	↓	↓	↓	↓	↓													
																										199.3								Fault high angle to core 60°		
																		P	4	Ab, Si	1	8	Co, Sp	Vn Pb	xtal Sp + Co									mottling disappears Replaced by more Ab & little black spots		
															3	2	An				"	"	"													
															20	4	spar	PL	2	Ab, Si, Cl?	2	4	Co.	Ds	Sp, Cu, Py									Mottling Reappears Alteration		
																																		Rock fractured		
Vein 1cm wide sampled																		LV	3	Ab, Si						206.2	1000	"	—					Ab disappeared nearly		
																					1	2000	Co, Cl, Sp													
																		P	4	Ab, Si														Fe infill Mottling Reappears tight packs.		
#					Bx ?# Basalt													P	2	Ab, Si																
																		P	5	Ab Si	2	70	Co, Sp	Ds	Sp, Cu, Py									Mottling Disappears Intense Ab, 60cm		
#																		P	3	Ab Si, Cl														Mottling Reappears		
																								Vn	Cu, Cl (11 to core)											
					Bx 2													P	3	Ab, Si													216m	Zone intense Ab 10cm wide Cu Veln 2mm wide		
																								Ds	Cu, Sp.									Bx - may be Pseudo Bx		
																		↓	↓	↓	↓	↓	↓	↓	↓											

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DIAMOND DRILL LOG

DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	FRAGMENTS MAX. SIZE (MM)	FRAGMENTS SORTING	FRAGMENTS SHAPE	MATRIX COMPOSITION	MATRIX VOLUME %	LOWER CONTACT GRADATION	LOWER CONTACT STYLE	VESICLES CONCENTRATION	VESICLES MAX. SIZE (MM)	VESICLES SHAPE	ALTERATION TEXTURE	ALTERATION INTENSITY	ALTERATION MINERALOGY	VEINING INTENSITY	VEINING MAX. WIDTH (MM)	VEINING MINERALOGY	MINERALISATION TEXTURE	MINERALISATION MINERALOGY & CONTENTS	FAULTS POSITION OF BASE	FAULTS DOWNHOLE WIDTH (CM)	FAULTS CORE AXIS ANGLE	FAULTS GOUGE	FOLIATION TYPE	FOLIATION CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
																																	still mottled			
																	P	3	Ab,Si	1	20	Co,Cl,Si	Ds	Cn.									? No sphalerite in Vein		
																	FL	4	Ab,Si	2	50	Co,Si.											Vein has Ab clasts.		
																				2	50	Sp,Si											Alt^n occurs in small 4 mm wide spheres		
				Rx Bx																													40 cm wide Bx zone - infilling Co (237.2)		
																	P	4	Ab,Si																
																	P	3	Ab,Si																
																	P	4-5	Ab,Si	2-3	5	Co													
																	F	2	Ab,Si																
														Ab?	3	Sph																				
																	FL		KF,Si,Ab														K-feldspar localized in small spots		
																																	Locally massive Ab-Alt^n		
																	P	4-5	Si,Ab	2	3	Co											Co veins: right angle to core		
																				1	80	Co											Co vein has Ab-Rim		
																	Vn.?	4	Si,Ab	1	6	Co											Ab Alt^n appears related to Vein		
																	Vn.?	4	Sp,Si	1	15	Co,Si											Zone Sp,Si,Co,Ab,Alt^n		

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Note No Real definite Fu since 265.1

Fu may = Ep or Cl

Eg sample at 285 m

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DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX COMPOSITION	VOLUME %	LOWER CONTACT GRADATION	STYLE	VESICLES CONCENTRATION	MAX. SIZE (MM)	SHAPE	ALTERATION TEXTURE	INTENSITY	MINERALOGY	VEINING INTENSITY	MAX. WIDTH (MM)	MINERALOGY	MINERALISATION TEXTURE	MINERALOGY & CONTENTS	FAULTS POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	FOLIATION TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
239.6					Bx													P	1	Se, Si															End of Fault		
																		P	4	Ab, Si	1	100	Co, Ab											Ab zone 10 cm to vein		
					Co-Vein Bx													P	5	Se, Fu	1	20	Co											have fu spots in Se.		
					Basalt																1	2000	Co, Si, Sp		Py									contact		
															10	8	Sph				1	2	Py	Vn Ds.	Py. Sp.										Relatively unaltered		
															10	5	Sph	P	2	Si, Ab	1	5	Py		Py										hectic Sphalerite into amygdales		
																		L	2	Fu	3	20	Py											Sphalerite ~~[illegible]~~ Sph ~~[illegible]~~		
															40	10	Sp					100	Py, Cu		Py, Cu,									Basalt – Vesicularity decreases markedly		
250															40	12	Sp				1	150	Py, Fu, Cu, Sp	Vn	Py, Cu												
																			2	Se, Ab, Fu, Si	1	50	Co, Fu	Vn	Py, Cu, (30 cm)									Zone Amygdales		
																								Vn	Py									1% Py		
															10	10	Sph	L	3	Se, Fu, Cl, (30 cm)														Large Vesicles, patches Ab, Si Alt?		
																					1	50	Py, Cu	Vn	Py, Cu											
															40	40	Sph				1	200	Py, Se, Fu	Vn	Py ± Cu									infill with Si ± K-spar alt?		
															2	30	Sph																			
															5	10	Sph																			
															30	10	Sph																			
260															10	10	Sph																			
															20	30	Sph																	Zone intensense small amygdales		
Sample Fu, Si, Cu 1 vein															6	5	Sph	L	1	Ab, Se, Fu,				Vn	Py ± Sp, Cu											
															1	2	Sph																			
																		L	1	K-spar, Ab, Si	1	100	Co, Fu, Py	Vs	Py									Py localised around fu edges.		
Sampled															30	8	Sph	L	1	Ab, K, Si; Ab, Se, K, Si (pp test)	1	20	Co, Py												± K-spar alt of Amygdales.		
270																					3	50	Co											Zone more small amygdales		
															30	8	Sph																	Sample shows gradation of amygdales? Alt? 25 cm Zone		
															20	5	Sph																			
																		L	1	Se, Si					Sp, Py											

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DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS	CORE LOSS	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. 35
PAGE 6 OF
GEO. RDH
DATE 5/12/94

DRILLING: DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	LITHOLOGY: STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS FRAGMENTS: COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	MATRIX: COMPOSITION	VOLUME %	LOWER CONTACT: GRADATION	STYLE	VESICLES: CONCENTRATION	MAX. SIZE (MM)	SHAPE	ALTERATION: TEXTURE	INTENSITY	MINERALOGY	VEINING: INTENSITY	MAX. WIDTH (MM)	MINERALOGY	MINERALISATION: TEXTURE	MINERALOGY & CONTENTS	FAULTS: POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	FOLIATION: TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				Bx																			Vs	Sp.										Bx - Co, Cl matrix		
				Bas													P	2	Si, Ab, Se															Boring Hoo ray !		
				BX													P	?	Si, Ab.		Co	Vbrny	Ds Vn	Tr Py Tr Py ± Sp										Co, Cl, Ab overprint ± K spar in some gaps		
				Bas															Si, Ab a Co, Si patches	1	5	(Cl) Sp	Ds	Cu, Sp Tr										Cl spotting, patchy Si, Se Alt Some sp assoc with Co have patches creamy Si, Se		
				Ash unit ?													P L	2 4	Cl + Si Cl						high angle fault									1m wide zone of cream Cl alteration intense around fault occasional K-spar		
				BX or Pseudo BX													P	2	Cl, Se, Si Ab?					Cu,										Clasts diff alteration type		

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. [illegible]

PAGE 2 OF -

GEO. [illegible]

DATE

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION					
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	OCHRE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
					Andesite Br. possibly hyaloclastite	Gn ↓ Gy	Andesite altered	6-7 80	poor	Angular	Co matrix	5 ↓ 15						Fr PM	3 B	Si, Ab Co	4	i1	Co												Co matrix may be a secondary hydraulic action. Some clasts are totally altered whilst others are relatively unaltered which are weakly porphyritic		
					Andesite lava	Dark Gn												P Fr	3 2	Si, Ab?, Chl														Weakly porphyritic to massive andesite		
					Basalt lava breccia deep? crypt? hydrothermal? Adder	Gn Br->	Basalt	60	poor	Angular	Co matrix exception	2-78			2	4	Ang 80	PM	2	Co	Qz			Ds Py, Sp, Cp DSVn Py 3 Ds AlFe													

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EXPLORATION DIVISION

Hole 59

DIAMOND DRILL LOG

HOLE No. MAC 33

PAGE 1 OF

GEO.

DATE 7/12/94

DRILLING				LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION			FAULTS				FOLIATION						
							VOLCANICLASTICS						LOWER CONTACT																							
							FRAGMENTS				MATRIX																									
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
230																																				230
																		P	2	Si, Se	1	10	Co, Sp, Gn	Vn	Sp, Gn									Sp is dark brown, Co vein may be a secondary vein, ie Sphe is primary. Si alt^n gives appearance of zoned clasts. Sp, Gn, Py associated w. th Se, Si alt^n patches. Sp Dark brown. Py only trace in most alt^n.		
																		Fr	2	Si, Se																
																		Fr L	2	Si, Se + Sph				Ds	Py, Gn, Sp Tr											
					Y-B-bv																			(Localised in alt^n)	Py, Gn, Sp Tr											
																		P	2	Si				Ds	Py, Gn, Sp											
																									Py, Sp, Gn											
240					Y-B-bv																															240
																								Ds alt^n Vn	Sp Gn ± Py Tr	243.2											
																									large (last alt^n)											
	0.5m Wide																	P	1	Si, Se						80	110	10%	Cu							
																		Fr L	6	Si, Se ± Co	1	10	Co, Py, Sp			81	31	10°	Ro							
																										245.2										
																																		250 alteration is most intense to this point ⇒ most Sphe assoc. with alt^n		
250																		L	2	Si, Sp, Co	1	20	Si, Co	Ds alt^n	Si, Se. Bring											250
																									down to 261.5									This boundary needs to be taken down to 261.5		
																																		main alt^n only occurs as generally 5cm in diameter have occasional large b's but can range up to 8cm		
260																																				260
																																		main rock more highly disseminated in matrix I veins 2-3cm but are also more		
																					1	80	Si, Co, Sp	grid wave Sporadic Ds in Vn	Mass Si Alt^n Sp, Gn Gn, Py, Sp									Sp Gn is quite coarse grained		
																					2	60	Si, Co													

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. [illegible]

PAGE [illegible] OF [illegible]

GEO. [illegible]

DATE [illegible]

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
270					Bx ?			100								FrL P L P	3 2 4 2	Si, Si, [illegible] Si, Se, Co Si, Se, Co Si, Se, Co?	1 1 3	4 100 60	Cu, Si, Py Co, Si Si ± Co	Ds + Alt^n Vn Ds Vnds	Sp, Cu, Py Tr Sp, Cu Sp, Cu ± Py Tr Cu, Py, Sp										Hin Related to Alt^n and Si matrix Alt^n around veins Bx has Si matrix predominant Si Si, Se patchy alteration very specific now Cu main on fault plane.		270
280					Bx														3	20	Si, Se	Ds	Cu, Py, Sp			275	1	Co	Cu, Co							
																			3	3	Si, Sph Bo?	Vn	Cu + Sp + Cu													
																					Si Ep	??														
					Bx														4	2	Sp, Cu Si	Vn + Ds	Sp + Cu Py Tr													
					Bx											FrL	6	Si, Se																	
					Bx														1	15	Si															
					Bx														2	2	Si, Sp, Py	Vn Ds	Sp, Py, Cu Tr													
290					B-1 ?														3	100	Si, Py, Cu ± P	Vn Ds	Sp, Py, Cu Tr													290
					No Core		Navi Cut 292.5 - 297.5																													
																			3	10	Si, Sp, Py		+ Cpy at this mark													
300					Bx														1 1	3 10	Si, Co, Py Si, Co, Py	Vn + Ds Vn + Ds	Sp, Py, Cu Tr Sp, Py, Cu Tr													300
					B-1																			Ds	Sp, Py Tr											
					Bx																			Vn a Ds	Sp, Py Tr											
					B-1																															

thin zone

Hole unit ? or large clay [illegible] in bx

Sp - nearly all

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. MAC 33

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GEO.

DATE

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS	CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
					Bx													P	2	[illegible]	1	1	Sp	Ds	Sp									Sp - light brown, [illegible] sp veinlets: sp disseminated. Gn not readily present		
																					2	8	Ca, Cl	Vn	Sp									Not fractured AH		
																		L	4	Si, Sp																
320					B-1													P	1-2	Si														lower contact very irregular ie Bx Bas - feldspar phyric Sp - mined on ore zones in this area		320
					Hy																			Vn	Sp Gn									fault 6" Sp around core		
																								Ds	Sp Gn									Sp small veinlets & disseminates		330
					Bx																													Sp associated with predominately Si veins and amygdales or with Si clots? or by itself. Note: Si clots may be veins?		
340																																				340

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EXPLORATION DIVISION

HOLE No. MAC 3[illegible]

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GEO.

DATE

DIAMOND DRILL LOG

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
35																																	Sp min is less abundant. appears to be decreasing around this		35
36																																	faulted Contact		36
				B-1																													Sp mineralisation now become rare => change in nature of miner; only rare amounts of		
37				372.5																														37
				B-lv/fv																														
38																																		38
				B-1																			Ds	Ga.										
				YA-bv													P	8	Si, Ab				Ds	Ga, Sp, Py										

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EXPLORATION DIVISION

HOLE No. MCC 33

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GEO.

DATE

DIAMOND DRILL LOG

DEPTH	DRILLING RUNS / CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	VOLCANICLASTICS: FRAGMENTS: COMPOSITION	FRAGMENTS: MAX. SIZE (MM)	FRAGMENTS: SORTING	FRAGMENTS: SHAPE	MATRIX: COMPOSITION	MATRIX: VOLUME %	LOWER CONTACT: GRADATION	LOWER CONTACT: STYLE	VESICLES: CONCENTRATION	VESICLES: MAX. SIZE (MM)	VESICLES: SHAPE	ALTERATION: TEXTURE	ALTERATION: INTENSITY	ALTERATION: MINERALOGY	VEINING: INTENSITY	VEINING: MAX. WIDTH (MM)	VEINING: MINERALOGY	MINERALISATION: TEXTURE	MINERALISATION: MINERALOGY & CONTENTS	FAULTS: POSITION OF BASE	FAULTS: DOWNHOLE WIDTH (CM)	FAULTS: CORE AXIS ANGLE	FAULTS: GOUGE	FOLIATION: TYPE	FOLIATION: CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
390				YA-1x													L	3	Si	?			Vn Ds	Py Py/Sp, Sn									Area ↑ py 392-1		
				A-1v/bv													P LFr	2 2	Si, Ep Si, Se	1	1	Py	Ds Vn	Py, Gn, Sp Py (2)									have little bits of Si, Alb clasts? up to 1cm across Si, Se very localised Py veins extend along core		
																	P	2	Si, Ep	1	10	Py	Vn Ds	Py, (Gn, Sp, Tr)									Very minimal Sp + Gn intact is bloody rare amount Py has increased compared to previously in hole		
400																				11	5	Cl/Q spots	Vn	Gn, Sp	Min along fault											4
																				2	3	Si, Sp	Vn	Sp (rare)									Amount Py ↓ here Sp only in one of 6 small veins		
																				2	3	Si, Sp	Vn	Sp									More veins contain Sp here.		
41																								"									Si, Sp veins occur sporadically but usually within 15cm of one another but can be up to 40cm apart?		41
																				Some veins		Si, Sp	Gn in some										- hardly any disseminated Sp and usually only occurs as very rare flakes		
																	FrL	3	Ep? or Si, Se																
42																	P	2	Si, Ep														Sp - is remobilised		42
																	FrL	3	Ep? or Se Si																
				A-1													FrL	3	Ep or Se, Si														423 Feldspar porphyric No [illegible] Why?		

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EXPLORATION DIVISION

DIAMOND DRILL LOG

HOLE No. [illegible]

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GEO. [illegible]

DATE

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION		WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
						VOLCANICLASTICS						LOWER CONTACT																						
						FRAGMENTS				MATRIX																								
DEPTH	DRILLING RUNS	CORE LOSS	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE					SAMPLE NO.	DEPTH
				Basalt with fragmental intervals	Gr									5	3	Elong	P	1	Si ?																
			185																	1	15	Sp, Si, Sp	In Ds	Sp											
																				1	3	Sp, Si, Sp	Vn	Sp, Si											
																							Dx	Sp											
																							Ds	Sp											
						Pos	90	Poor	Fragments Subrounded	CO	50%	Sharp		60	Irregular																			
														10	3	Elong irregular				2	10	Chert	Vn	Sp											
																				1	1	Si, Sp	Ds	Sp											
																				3	10	Co, Chert													
																				1	3	Co, Sp, Si	In	Sp											
																				1	10	Co, Chert	Ds	Sp, Py [Cu]											
																				3	2	Co	CS	Sp in Co, Si	→	Possible		Amygdal	filling						
																				1	1-2	Co, Py ?	Vn	Py											
																							Vn	Sp											
																				3	2	Sp	Vn	Sp											
																				1	10	Si, Chert	Ds	Py											
																							Ds	Sp in Sp, Si, Co											
																							Ds	Py											
																							Ds	Sp in Sp, Si											
																							Ds	Sp											
				Basalt			90	Poor	Irregular	Siliceous clasts	20	Gr	Irregular																						

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EXPLORATION DIVISION

HOLE No. [illegible]

PAGE 1 OF

GEO.

DATE 21/1/2

DIAMOND DRILL LOG

DRILLING			LITHOLOGY										VESICLES			ALTERATION			VEINING			MINERALISATION		FAULTS				FOLIATION						
						VOLCANICLASTICS						LOWER CONTACT																					
						FRAGMENTS				MATRIX																							
DEPTH	DRILLING RUNS CORE LOSS	CORE TRAY NO.	STRATIGRAPHY	ROCK TYPE	COLOUR	COMPOSITION	MAX. SIZE (MM)	SORTING	SHAPE	COMPOSITION	VOLUME %	GRADATION	STYLE	CONCENTRATION	MAX. SIZE (MM)	SHAPE	TEXTURE	INTENSITY	MINERALOGY	INTENSITY	MAX. WIDTH (MM)	MINERALOGY	TEXTURE	MINERALOGY & CONTENTS	POSITION OF BASE	DOWNHOLE WIDTH (CM)	CORE AXIS ANGLE	GOUGE	TYPE	CORE AXIS ANGLE	WEATHERING	STANDARD COLOUR LOG	REMARKS	SAMPLE NO.	DEPTH
				OBS	BK																														
				Basalt lava ~~[illegible]~~ pillow lava pep.										1	2	Strong	P	1	Si	1	100	Co, Cl	Vn	Sp, Si									Basalt lava intermixed black. Chiefly amygdaloidal possibly fucking huge pillows [illegible] vesicles are very irregular Py is colloform stage 2? vein Small Sp veinlets 1-2mm wide ← 15cm long frag alteration only occurring within interclerty bits Prp? bits occur sporadically throughout the unit have veins of orange [illegible] stuff + Co for at least 20cm down hole small Sp veinlets ⊥ to core [illegible] Amount Py decreased		
																	Fr	2	Si, Abor Se	2	15	Co, Si, Py	Vn	Sp, Py											
																				3	15	Co, Pink Stuff (calcite)	Vn	Sp											
																	P	??	Si (Very fine altered may have sericite)	1	6	Si, Sp		with and without Si	Sp, Si										
																						V	Vn	Sp, Si											
				Silica pillow/prp. basalt																															
				(Clerty material) Very irregular in nature [illegible] sporadically										2	4	[illegible]																			
																	L	3	Si, Se																
																	L	3	Si, Se	1	3	Co, Sp, Si	Vs	Sp											
																							Vs	Sp											
																				1	2	Co	Vn	Sp											
																	L	3	Si, Se	1	2	Si	Vn	Sp											
																							Ds	Sp											
																				1	2	Si, Sp	Vn	Py											
																						Si, Sp, Co	Vn	Sp											
																							Ds	Sp											
																				1	2	Si, Sp	Vn	Sp											
																				1	1	Sp	Vn	Sp											
																							Ds	Sp											
																							Cs	Sp											

Sulphide is mainly in small veinlets by itself and in Si veins

Si is a glassy colour

Sp is secondary to Amin to veins

Si Se appears to be a secondary around black [illegible] material also appears to be forming a secondary to Si Se Alt

Py forms a [illegible] Rim around edge of clast (see book)

Sampled

Bauxite apparently

Appendix 2

Raw geochemical data from High Point

Geochemical data from Que-Hellyer Volcanics (Corbett and Komyshan, 1989)

Sample localities for data from (Corbett and Komyshan, 1989)

Geochemical data from the Mount Read Volcanics (Crawford *et al.*, 1992)

Appendix 2 : Whole Rock Geochemical data.

Analabs Reports.

Methods :-

GA101 & GA 102 - Perchloric acid digest, AAS finish.

GA104 - Perchloric, Nitric, Hydrochloric and Hydrofluoric acid digest, AAS finish.

GA140 - Aqua Regia/Perchloric acid digest, AAS finish.

GX401 - Pressed powder XRF.

OX408 - Glass fusion XRF.

OM615 - Loss on Ignition - gravimetric.

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.10736	13/03/95	7491	2 OF 3

	SAMPLE No.	Ti	Rb	Sr	Nb	Y	Al2O3	SiO2	TiO2	Fe2O3
METHOD		GX408	GX401	GX401	GX401	GX401	GX408	GX408	GX408	GX408
1	1000 12	3179	26	808	7	21	17.40	54.80	0.53	6.72
2	1001 12	2367	64	382	5	18	11.90	68.20	0.39	4.20
3	1002 35	2001	64	375	13	38	14.10	70.30	0.33	4.80
4	1003 27	3532	29	287	11	28	15.70	57.30	0.59	8.38
5	1004 13	4275	<5	471	10	28	13.00	46.20	0.71	8.24
6	1005 27	3475	22	316	8	18	12.50	52.30	0.58	9.42
7	1006 804	4364	10	528	11	25	14.10	47.70	0.73	6.91
8	1007 14	2556	79	394	7	22	14.20	59.20	0.43	4.08
9	1008 ~~35~~	3944	55	461	10	36	14.50	55.10	0.66	7.30
10	1009 35	3050	31	471	8	23	11.50	42.40	0.51	7.75
11	1010 ~~12~~	3387	68	619	9	29	18.20	57.80	0.56	6.92
12	1011 35	3146	31	393	10	21	12.20	42.20	0.52	8.06
13	1012 ~~27~~	2760	46	646	8	27	16.50	55.30	0.46	6.31
14	1013 ~~27~~	2661	137	502	8	22	13.70	60.90	0.44	5.52
15	1014 13	3675	51	787	10	26	15.40	48.10	0.61	10.02
16	1015 27	2330	40	286	4	15	13.60	54.50	0.39	7.63
17	1016 35	3346	39	419	9	24	12.50	49.00	0.56	9.01
18	1017 14	2416	34	707	4	14	13.60	55.40	0.40	7.65
19	1018 33	3954	72	431	10	21	14.20	59.80	0.66	6.84
20	1019 27	3159	46	673	7	24	14.30	60.30	0.53	6.44
21										
22										
23										
24	DETECTION	50	5	5	3	3	0.05	0.05	0.01	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	%	%	%	%

Analabs

Analabs Pty. L
A.C.N. 004 5

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.10736	13/03/95	7491	1 OF

	SAMPLE No.	Cu	Pb	Zn	Zn	Ag	Ni	Ba	Cr	
METHOD		GA101	GA101	GA101	GA104	GA101	GA101	GX401	GX401	GX4
1	1000 (12)	8	160	308	-	<2	41	1258	127	
2	1001 (12)	48	1083	937	-	<2	5	1300	6	
3	1002 35	46	108	568	-	<2	8	1483	6	
4	1003 27	8	<5	735	-	<2	9	707	323	
5	1004 13	35	8	60	-	<2	82	65	437	
6	1005 (27)	72	<5	74	-	<2	150	183	675	
7	1006 (804)	88	83	141	-	<2	81	601	238	
8	1007 (MC 14)	79	661	1026	-	<2	30	1960	67	
9	1008 14	34	94	-	1.220	<2	38	2934	81	
10	1009 35	179	83	139	-	<2	130	744	486	
11	1010 (12)	49	311	1001	-	<2	7	1406	10	
12	1011 35	111	5	180	-	<2	132	1763	483	
13	1012 (14)	132	390	1556	-	<2	33	1274	63	
14	1013 (27)	81	296	234	-	<2	37	3894	112	
15	1014 (MC 13)	137	26	100	-	<2	100	1732	364	
16	1015 (27)	64	1413	2404	-	<2	147	1407	427	
17	1016 (35)	206	<5	111	-	<2	137	2044	556	
18	1017 (14)	33	125	183	-	<2	112	741	364	
19	1018 (33)	25	94	2882	-	<2	13	1580	21	
20	1019 (27)	6	12	594	-	<2	9	1235	249	
21										
22										
23										
24	DETECTION	4	5	4	0.002	2	5	10	5	
25	UNITS	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	p

Results in ppm unless otherwise specified IS = Insufficient sample

Analabs

Analabs Pty. Ltd.
A.C.N. 004 501 004

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 100560.60.10736

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
BURNIE TAS 7320

ORDER No.: 7491
PROJECT:
DATE RECEIVED: 24/02/95
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	13/03/95	1	20

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
1000/1019	CD Prep : BP033 CHROME FREE BOWL	Cu,Pb,Zn,Ag,Ni/BA101 Ba,Cr,Zr,Nb,Y,Sr,Rb/BX401 WHOLE ROCK/BX408 Ti/BIB08

RESULTS TO:
Mr R de Bomford
Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
BURNIE TAS 7320

REMARKS

RESULTS TO:

RESULTS TO:

AUTHORISED OFFICER

Analabs

Analabs Pty. L
A.C.N. 004 5

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.10736	13/03/95	7491	3 OF

	SAMPLE No.	MnO	CaO	K2O	MgO	P2O5	S	Na2O	LOI	Tot
METHOD		OX408	OX408	OX408	OX408	OX408	OX408	OX408	OM615	OX4
1	1000	0.27	6.22	1.29	3.62	0.305	0.013	4.37	4.13	99
2	1001	0.15	3.24	2.23	1.30	0.274	0.752	3.19	3.19	100
3	1002	0.10	1.02	2.32	0.77	0.081	0.511	4.38	1.39	100
4	1003	0.38	2.30	0.90	5.24	0.184	0.095	4.21	4.10	99
5	1004	0.26	13.05	0.12	5.76	0.613	0.795	3.96	6.07	100
6	1005	0.18	10.20	0.44	9.57	0.145	0.009	1.20	3.09	99
7	1006	0.23	11.93	0.51	6.12	0.406	0.014	4.23	6.64	99
8	1007	0.18	6.08	2.92	2.25	0.288	0.732	4.12	4.09	99
9	1008	0.41	4.41	2.73	3.74	0.796	0.373	3.20	3.94	99
10	1009	0.27	16.80	1.14	6.52	0.536	0.568	2.16	8.20	99
11	1010	0.28	2.25	1.89	3.17	0.303	0.458	4.87	2.89	100
12	1011	0.48	15.08	1.21	6.86	0.541	0.600	2.95	7.99	99.
13	1012	0.26	6.17	1.77	3.91	0.299	0.356	3.90	4.30	100
14	1013	0.31	4.13	4.84	3.89	0.289	0.491	2.42	2.16	99.
15	1014	0.30	7.76	1.88	7.42	0.552	0.020	2.40	5.02	99
16	1015	0.41	5.72	1.75	5.79	0.105	0.299	2.85	6.02	99.
17	1016	0.47	11.12	1.47	8.02	0.583	0.022	2.31	4.84	100
18	1017	0.32	7.63	0.98	7.14	0.098	0.017	2.18	4.75	100.
19	1018	0.43	4.78	2.26	3.29	0.334	0.221	3.21	3.03	99.
20	1019	0.46	6.42	1.43	4.60	0.160	0.023	3.27	2.07	100.
21										
22										
23										
24	DETECTION	0.01	0.01	0.01	0.01	0.005	0.005	0.05	0.01	0.
25	UNITS	%	%	%	%	%	%	%	%	

Results in ppm unless otherwise specified
* = element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3247	9.9.85	9099	3 OF 4

TUBE No.	SAMPLE No.	Cr	Cu	Zn	Mn	Ag	Ba	Au	Pb	
1	333673	98	115	280	14	X	1150	–	35	0 - 20
2	333674	94	110	200	20	X	1020	–	25	20 - 40
3	333675	94	90	80	17	0.5	968	–	60	40 - 60
4	333676	88	120	150	24	X	1010	–	95	60 - 80
5	333677	80	95	100	16	0.5	1130	–	10	80 - 100
6	333678	91	80	135	11	X	1020	–	X	100 - 120
7	333679	84	95	580	13	X	1250	–	80	120 - 140
8	333680	69	55	140	6	X	1150	–	15	140 - 160
9	333681	77	80	165	15	X	1170	0.01	10	160 - 180
10	333682	89	95	70	16	X	724	0.01	X	180 - 200
11	333683	82	95	105	18	0.5	703	0.01	X	200 - 220
12	333684	79	100	265	20	0.5	729	0.01	70	220 - 240.2
13	333685	534	75	1050	2	X	770	X	180	242 - 252.4
14	333686	69	130	345	24	0.5	830	X	90	252.4 - 252.7
15	333687	97	380	1650	26	0.5	2220	X	335	252.7 - 254.5
16	333688	51	35	1850	14	X	2620	X	150	254.8 - 255.8
17	333689	45	80	370	16	X	1740	X	150	255.8 - 257.3
18	333690	52	35	1300	14	X	1260	X	440	257.3 - 269.0
19	333691	1060	125	2200	26	0.5	1070	X	215	STANDARD
20	333692	27	85	5400	12	X	884	X	960	269.0 - 288.3
21	333693	54	160	2200	22	X	673	X	140	288.3 - 298.4
22	333694	379	350	2200	X	X	499	X	1000	298.4 - 298.0
23	333695	315	120	2350	3	X	868	X	690	298.0 - 308.0
24	333696	303	150	330	23	X	1170	X	210	308.0 - 318.0
25	333697	343	200	410	X	X	926	X	215	318.0 - 328.0

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA925

ANALYTICAL REPORT No. 23.3 08 3247

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoyle Exploration Pty Ltd
PO Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
9099	AHM

DATE RECEIVED	RESULTS REQUIRED
2.9.85	ASAP

No. OF ANALYSES	DATE OF REPORT	No. OF PAGES	TOTAL No. OF SAMPLES
	9/9/85	3	30

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS		
REFER BELOW	SAMPLE NUMBERS							NONE		REFER TO ANALYSIS SECTION	PREPARATION
PU	333673-702							1	Cu Pb Zn Ag As Ba Cr Au(681-702 only)		

As Above

REMARKS

MC-13
CORE GRINDER
HATFIELD

DATA ENTERED
By RAS Date 27/9/85

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	A
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	X
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SP
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	C
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	C
pulp	PU	HF mixture	A6	ignition	IG	titration	TT
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	C
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	M
stream sediment	SS					fluorescence	FL
heavy mineral	HM					inductively coupled plasma	IC

AUTHORISED OFFICER

ANALABS

Analytical Laboratories (Australia) & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREP.	REPORT	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3247	9.9.85	9099	4 OF

TUBE No.	SAMPLE No.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Ba	Au	Pb	[illegible]
1	333698	302	120	150	5	X	834	X	155	3280
2	333699	298	115	125	6	X	760	X	20	3310
3	333700	331	145	210	7	X	676	X	15	3480
4	333701	401	125	120	3	X	1230	X	45	3580
5	333702	493	100	140	5	X	1830	X	15	3480
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	10	5	5	2	0.5	10	0.008	5	
24	DIGESTION									
25	METHOD	401	101	101	401	101	401	309	101	

Results in ppm unless [illegible]

T = element present but concentration [illegible]

X = element concentration [illegible]

— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	2 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622360	110	905	2090	<2	<0.008	-	1817	17	64
2	622361	115	41	1146	<2	<0.008	-	1915	7	44
3	622362	58	68	1815	<2	<0.008	-	2537	10	41
4	622363	220	935	4238	<2	<0.008	-	1358	2	38
5	622364	130	17	2728	<2	<0.008	-	1456	19	39
6	622365	115	490	3079	<2	<0.008	-	2038	8	33
7	622366	88	29	1450	<2	<0.008	-	1531	5	34
8	622367 *	135	193	2191	<2	<0.008	-	1120	18	1010
9	622368	83	83	706	<2	<0.008	-	1113	18	165
10	622369	140	52	216	<2	<0.008	-	1449	7	173
11	622370	130	25	188	<2	<0.008	-	1158	9	164
12	622371	145	1030	1723	<2	<0.008	<0.008	140	46	21
13	622372	180	770	807	<2	<0.008	-	1415	16	19
14	622373	265	765	1610	<2	<0.008	-	1812	13	15
15	622374	253	310	710	<2	<0.008	-	1702	12	20
16	622375	195	120	463	<2	<0.008	-	1700	13	14
[illegible]	622376	190	6	449	<2	<0.008	-	1574	11	15
18	622377	150	30	307	<2	<0.008	-	1757	3	14
19	622378	56	<5	143	<2	<0.008	-	414	4	17
20	622379	47	<5	123	<2	<0.008	-	803	2	16
21	622380	85	<5	104	<2	<0.008	-	1456	6	13
22	622381	46	<5	105	<2	<0.008	<0.008	1530	<2	12
23	622382	56	<5	83	<2	<0.008	-	1075	<2	11
24	622383	27	<5	132	<2	<0.008	-	845	7	19
25	622384	60	30	953	<2	<0.008	-	625	32	143

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	1 OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As
1	622335	55	8	95	<2	<0.008	-	476	2
2	622336	55	6	78	<2	<0.008	-	456	2
3	622337	44	<5	74	<2	<0.008	-	443	4
4	622338	41	<5	78	<2	<0.008	-	456	3
5	622339	50	5	88	<2	<0.008	-	417	<2
6	622340	94	41	166	<2	<0.008	-	-	-
7	622341	70	59	329	<2	<0.008	-	-	-
8	622342	105	44	145	<2	<0.008	-	-	-
9	622343	41	135	500	<2	<0.008	-	-	-
10	622344	77	37	153	<2	<0.008	-	-	-
11	622345	73	15	92	<2	<0.008	<0.008	-	-
12	622346	80	42	160	<2	<0.008	-	-	-
13	622347	115	33	200	<2	<0.008	-	-	-
14	622348	86	30	135	<2	<0.008	-	-	-
15	622349 *	125	200	2180	<2	0.014	-	1136	16
16	622350	47	9	99	<2	<0.008	-	529	<2
[illegible]	622351	71	34	148	<2	<0.008	-	-	-
18	622352	120	22	176	<2	<0.008	-	-	-
19	622353	80	17	137	<2	<0.008	-	-	-
20	622354	86	18	83	<2	<0.008	-	864	30
21	622355	63	57	323	<2	<0.008	-	1783	12
22	622356	84	1130	2178	<2	<0.008	<0.008	1770	5
23	622357	71	1050	1086	<2	<0.008	-	1382	13
24	622358	74	155	312	<2	<0.008	-	1469	20
25	622359	83	875	1246	<2	<0.008	-	1769	13

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	1 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622335	55	8	95	<2	<0.008	-	476	2	746
2	622336	55	6	78	<2	<0.008	-	456	2	766
3	622337	44	<5	74	<2	<0.008	-	443	4	762
4	622338	41	<5	78	<2	<0.008	-	456	3	789
5	622339	50	5	88	<2	<0.008	-	417	<2	840
6	622340	94	41	166	<2	<0.008	-	-	-	-
7	622341	70	59	329	<2	<0.008	-	-	-	-
8	622342	105	44	145	<2	<0.008	-	-	-	-
9	622343	41	135	500	<2	<0.008	-	-	-	-
10	622344	77	37	153	<2	<0.008	-	-	-	-
11	622345	73	15	92	<2	<0.008	<0.008	-	-	-
12	622346	80	42	160	<2	<0.008	-	-	-	-
13	622347	115	33	200	<2	<0.008	-	-	-	-
14	622348	86	30	135	<2	<0.008	-	-	-	-
15	622349	125	200	2180	<2	0.014	-	1136	18	951
16	622350	47	9	99	<2	<0.008	-	529	<2	709
17	622351	71	34	148	<2	<0.008	-	-	-	-
18	622352	120	22	176	<2	<0.008	-	-	-	-
19	622353	80	17	137	<2	<0.008	-	-	-	-
20	622354	86	18	83	<2	<0.008	-	864	30	131
21	622355	63	57	323	<2	<0.008	-	1783	12	109
22	622356	84	1130	2178	<2	<0.008	<0.008	1770	5	128
23	622357	71	1050	1086	<2	<0.008	-	1382	13	124
24	622358	74	155	312	<2	<0.008	-	1469	20	104
25	622359	83	875	1246	<2	<0.008	-	1769	13	67

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Testing Services (Australia) Pty Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	2 OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As
1	622360	110	905	2090	<2	<0.008	-	1817	17
2	622361	115	41	1146	<2	<0.008	-	1915	7
3	622362	58	68	1815	<2	<0.008	-	2537	10
4	622363	220	935	4238	<2	<0.008	-	1358	2
5	622364	130	17	2728	<2	<0.008	-	1456	19
6	622365	115	490	3079	<2	<0.008	-	2038	8
7	622366	88	29	1450	<2	<0.008	-	1531	5
8	622367	135	193	2191	<2	<0.008	-	1120	18
9	622368	83	83	706	<2	<0.008	-	1113	18
10	622369	140	52	216	<2	<0.008	-	1449	7
11	622370	130	25	188	<2	<0.008	-	1158	9
12	622371	145	1030	1723	<2	<0.008	<0.008	140	46
13	622372	180	770	807	<2	<0.008	-	1415	16
14	622373	265	765	1610	<2	<0.008	-	1812	13
15	622374	253	310	710	<2	<0.008	-	1702	12
16	622375	195	120	463	<2	<0.008	-	1700	13
17	622376	190	6	449	<2	<0.008	-	1574	11
18	622377	150	30	307	<2	<0.008	-	1757	3
19	622378	56	<5	143	<2	<0.008	-	414	4
20	622379	47	<5	123	<2	<0.008	-	803	2
21	622380	85	<5	104	<2	<0.008	-	1456	6
22	622381	46	<5	105	<2	<0.008	<0.008	1530	2
23	622382	56	<5	83	<2	<0.008	-	1075	2
24	622383	27	<5	132	<2	<0.008	-	845	7
25	622384	60	30	953	<2	<0.008	-	625	32

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

AUTHORISED OFFICER

[redacted]

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 581 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	[illegible] OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622410	46	<5	83	<2	<0.008	-	783	2	13
2	622411	77	41	423	<2	<0.008	-	1035	11	72
3	622412	91	<5	118	<2	<0.008	-	320	8	273
4	622413	90	<5	98	<2	<0.008	-	216	9	1068
5	622414	60	<5	85	<2	<0.008	-	180	15	394
6	622415	79	<5	94	<2	<0.008	-	165	4	870
7	622416	43	5	75	<2	<0.008	-	294	7	355
8	622417	32	<5	70	<2	<0.008	-	233	5	435
9	622418	25	7	92	<2	<0.008	-	369	7	399
10										
11										
12										
13										
14										
15										
16										
18										
19										
20										
21										
22										
23	DETECTION	4	5	4	2	0.008	0.008	10	2	5
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA101	GA101	GA101	GA101	GG309	GG309	GX401	GX401	GX401

Results in ppm unless otherwise specified

ANALABS

A Division of Inchcape Testing Services (Australia) Pty Ltd
A.C.N. 004 581 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	3 OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As
1	622385	72	155	404	<2	<0.008	-	220	28
2	622386	83	36	339	<2	<0.008	-	1137	14
3	622387	70	<5	118	<2	<0.008	-	1476	2
4	622388	158	<5	146	<2	<0.008	-	1673	5
5	622389	196	<5	216	<2	<0.008	-	2795	3
6	622390	67	<5	122	<2	<0.008	-	1102	3
7	622391	107	<5	116	<2	<0.008	-	1526	2
8	622392	48	<5	97	<2	<0.008	-	1359	<2
9	622393	94	7	97	<2	<0.008	-	1563	<2
10	622394	49	<5	123	<2	<0.008	-	1487	<2
11	622395	91	6	124	<2	<0.008	-	813	6
12	622396	81	247	918	<2	<0.008	<0.008	1564	10
13	622397	230	33	291	<2	<0.008	-	997	11
14	622398	221	<5	515	<2	<0.008	-	855	10
15	622399	205	<5	317	<2	<0.008	-	1386	10
16	622400	239	<5	225	<2	<0.008	-	1015	3
[illegible]	622401	214	<5	214	<2	<0.008	-	1058	<2
18	622402	265	<5	244	<2	<0.008	-	1067	2
19	622403	198	<5	195	<2	<0.008	-	819	<2
20	622404	194	5	199	<2	<0.008	-	965	<2
21	622405	245	<5	253	<2	<0.008	-	335	3
22	622406	128	189	2215	<2	<0.008	<0.008	1128	18
23	622407	144	<5	187	<2	<0.008	-	1174	9
24	622408	66	<5	126	<2	<0.008	-	934	<2
25	622409	64	<5	94	<2	<0.008	-	978	4

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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AUTHORISED OFFICER

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	6 OF 10

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O
1	622372	180	3410	15.98	60.10	0.57	7.17	0.28	4.05	2.25
2	622373	168	3180	15.91	60.80	0.53	6.97	0.29	4.88	2.49
3	622374	173	3200	15.71	60.70	0.53	7.40	0.29	4.62	2.60
4	622375	168	3190	15.65	61.80	0.53	6.57	0.24	4.59	2.36
5	622376	166	3120	15.26	60.70	0.52	7.16	0.22	5.32	2.41
6	622377	168	3120	15.23	61.20	0.52	6.97	0.22	4.59	2.60
7	622378	173	3170	15.86	60.30	0.53	8.03	0.18	1.89	1.61
8	622379	177	3180	15.52	60.80	0.53	8.17	0.21	2.27	2.19
9	622380	166	3080	15.50	60.80	0.51	6.43	0.18	3.62	2.42
10	622381	164	3130	15.36	59.20	0.52	8.08	0.22	3.03	2.52
11	622382	158	2820	14.39	66.90	0.47	4.27	0.13	2.48	1.70
12	622383	182	3170	16.40	58.70	0.53	8.91	0.22	1.29	1.54
13	622384	194	2670	16.12	59.90	0.45	6.70	0.18	1.58	0.77
14	622385	79	2170	10.62	41.90	0.36	6.41	0.33	15.57	0.25
15	622386	230	2280	14.95	66.10	0.38	5.18	0.13	1.35	2.52
16	622387	225	2300	14.55	66.50	0.38	5.56	0.15	2.39	2.27
17	622388	215	2270	14.47	66.60	0.38	5.39	0.13	2.36	2.94
18	622389	235	2330	15.07	65.80	0.39	6.19	0.13	1.30	4.59
19	622390	210	2260	14.40	68.10	0.38	3.98	0.10	1.98	2.36
20	622391	231	2040	14.09	71.50	0.34	2.17	0.05	1.39	3.91
21	622392	241	2240	15.41	65.40	0.37	6.56	0.16	1.31	3.23
22	622393	226	2100	14.40	71.10	0.35	2.33	0.05	1.30	4.46
23	622394	239	2200	15.27	65.30	0.37	6.94	0.16	1.37	2.62
24	622395	141	5870	15.05	50.80	0.98	9.64	0.31	8.27	1.13
25	622396	226	2750	14.31	65.40	0.46	5.64	0.23	3.56	2.29

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AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	5 OF

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K
1	622335	84	3140	13.95	50.70	0.52	8.67	0.18	8.61	1
2	622336	89	3270	13.45	51.20	0.55	8.73	0.16	9.71	1
3	622337	84	3150	13.26	51.00	0.53	8.69	0.16	9.96	1
4	622338	74	2900	12.76	48.80	0.48	8.80	0.17	10.12	0
5	622339	76	2950	12.83	49.50	0.49	8.55	0.16	9.65	0
6	622349	84	2610	15.12	51.70	0.44	10.06	0.87	3.87	1
7	622350	80	3070	12.92	47.50	0.51	8.33	0.16	10.07	0
8	622354	179	4770	14.41	59.20	0.80	9.84	0.23	1.44	2
9	622355	195	4720	14.68	54.10	0.79	9.03	0.24	5.29	1
10	622356	190	4670	14.54	55.30	0.78	8.74	0.29	3.93	1
11	622357	193	4790	14.55	56.30	0.80	9.28	0.40	4.18	1
12	622358	182	4500	14.57	54.60	0.75	9.01	0.43	6.83	1
13	622359	175	4230	14.82	55.40	0.71	8.09	0.45	7.09	1
14	622360	187	4430	15.74	55.80	0.74	8.56	0.51	5.30	1
15	622361	171	4520	15.24	55.20	0.75	8.99	0.50	5.56	1
16	622362	182	4690	15.63	55.60	0.78	8.70	0.55	5.04	2
17	622363	178	4660	15.42	56.80	0.78	8.44	0.38	4.47	1
18	622364	174	4710	15.53	56.60	0.79	9.15	0.36	3.76	1
19	622365	180	4770	15.84	55.10	0.80	8.88	0.47	4.63	2
20	622366	185	4740	15.34	53.90	0.79	9.27	0.40	5.41	1
21	622367	82	2580	14.98	51.50	0.43	9.99	0.88	3.83	1
22	622368	163	4040	13.58	52.50	0.67	8.41	0.28	8.98	1
23	622369	166	4040	14.02	55.50	0.67	9.00	0.24	7.10	1
24	622370	173	3920	14.00	52.10	0.65	9.25	0.34	8.45	1
25	622371	178	3210	15.99	60.00	0.54	7.43	0.23	2.41	0

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	8 OF 10

TUBE No.	SAMPLE No.	MgO	P2O5	S	Na2O	LOI	TOTAL			
1	622335	9.71	0.134	0.020	1.52	4.61	99.62			
2	622336	10.55	0.129	0.010	1.67	2.98	100.20			
3	622337	10.75	0.129	0.010	1.53	3.20	100.27			
4	622338	11.30	0.125	0.040	1.61	4.50	99.55			
5	622339	10.99	0.106	0.050	1.07	5.55	99.65			
6	622349	7.53	0.192	0.050	3.38	5.60	100.04			
7	622350	9.95	0.117	0.040	1.34	8.55	99.94			
8	622354	3.58	0.291	2.360	1.71	5.74	101.81			
9	622355	4.78	0.310	0.750	2.81	5.47	99.61			
10	622356	5.22	0.288	0.590	3.19	5.35	99.51			
11	622357	4.97	0.308	0.260	3.59	3.66	99.58			
12	622358	4.63	0.315	0.430	3.01	3.76	99.96			
13	622359	3.93	0.288	0.270	2.75	4.13	99.60			
14	622360	4.10	0.319	0.250	3.14	3.67	99.66			
15	622361	3.96	0.306	0.110	2.84	4.31	99.64			
16	622362	3.76	0.332	0.100	2.55	4.30	99.70			
	622363	3.43	0.353	0.840	3.64	3.55	99.59			
18	622364	3.57	0.338	0.340	3.35	4.32	99.71			
19	622365	3.77	0.352	0.230	2.98	4.35	99.69			
20	622366	3.95	0.353	0.120	2.76	5.53	99.70			
21	622367	7.53	0.192	0.040	3.39	5.69	99.66			
22	622368	5.32	0.261	0.130	2.56	5.73	99.91			
23	622369	5.92	0.226	0.050	2.04	3.01	99.57			
24	622370	6.25	0.248	0.070	2.01	4.82	99.59			
25	622371	2.60	0.237	1.510	5.95	3.14	100.27			

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AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	7 OF

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K
1	622397	155	3010	12.38	54.80	0.50	7.54	0.27	9.20	1
2	622398	151	2820	12.63	53.40	0.47	7.49	0.34	10.22	1
3	622399	178	2500	13.63	60.80	0.42	5.81	0.22	5.39	1
4	622400	189	2480	14.69	65.90	0.41	4.53	0.12	2.77	2
5	622401	203	2660	14.95	65.60	0.44	5.45	0.15	2.23	2
6	622402	189	2580	14.33	66.20	0.43	3.94	0.12	3.29	2
7	622403	194	2490	14.30	64.70	0.42	3.84	0.12	4.13	2
8	622404	197	2510	14.59	64.70	0.42	4.52	0.13	3.27	3
9	622405	197	2550	14.28	63.00	0.43	5.62	0.15	3.63	1
10	622406	88	2730	15.13	51.50	0.45	10.03	0.88	3.79	1
11	622407	166	4050	15.06	59.10	0.68	9.51	0.22	2.14	2
12	622408	168	3760	15.27	60.80	0.63	7.42	0.19	3.23	1
13	622409	152	3450	13.72	62.70	0.58	4.49	0.15	5.90	2
14	622410	149	3040	14.20	62.90	0.51	4.82	0.16	4.81	2
15	622411	148	4790	15.09	56.40	0.80	8.13	0.19	3.70	2
16	622412	96	3170	13.62	51.40	0.53	8.34	0.16	6.27	2
	622413	33	1950	11.79	39.30	0.32	8.08	0.25	14.70	1
18	622414	144	1960	6.36	68.90	0.33	3.90	0.16	7.22	1
19	622415	47	1820	10.68	33.50	0.30	7.92	0.34	18.27	0
20	622416	188	2800	9.16	63.20	0.47	5.03	0.14	5.79	1
21	622417	167	2390	7.55	68.60	0.40	4.50	0.13	4.24	1
22	622418	181	2570	8.65	67.50	0.43	4.93	0.12	3.98	1
23	DETECTION	5	60	0.01	0.01	0.01	0.01	0.01	0.01	0
24	UNITS	ppm	ppm	%	%	%	%	%	%	
25	METHOD	GX401	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09357	20/04/93	2738	10 OF 10

TUBE No.	SAMPLE No.	MgO	P205	S	Na20	LOI	TOTAL			
1	622397	6.40	0.266	0.080	2.31	4.32	99.58			
2	622398	5.79	0.256	0.050	2.42	5.42	99.84			
3	622399	2.59	0.139	0.110	3.55	4.98	99.53			
4	622400	1.32	0.100	0.170	4.39	3.32	99.76			
5	622401	1.42	0.113	0.040	4.37	3.05	99.84			
6	622402	1.02	0.110	0.070	3.94	3.29	99.57			
7	622403	1.03	0.111	0.100	3.53	4.46	99.72			
8	622404	1.16	0.107	0.090	3.41	4.18	99.79			
9	622405	1.95	0.111	0.260	4.29	4.63	99.61			
10	622406	7.50	0.190	0.040	3.41	5.64	99.78			
11	622407	2.86	0.200	0.530	2.97	4.30	99.58			
12	622408	2.25	0.187	0.070	3.43	4.42	99.82			
13	622409	0.70	0.165	0.050	3.21	5.28	99.72			
14	622410	1.05	0.149	0.060	3.89	4.86	99.51			
15	622411	4.17	0.170	0.230	3.13	5.29	99.69			
16	622412	7.13	0.139	0.260	0.57	9.33	99.78			
17	622413	7.54	0.113	0.070	0.13	16.19	100.04			
18	622414	3.19	0.100	0.250	<0.05	8.25	99.86			
19	622415	8.17	0.105	0.150	0.67	18.93	99.69			
20	622416	5.33	0.114	0.200	0.14	8.49	99.80			
21	622417	5.22	0.092	0.100	0.23	7.18	99.50			
22	622418	5.37	0.115	0.160	0.34	6.77	99.96			
23	DETECTION	0.05	0.005	0.005	0.05	0.01	0.01			
24	UNITS	%	%	%	%	%	%			
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408			

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty. Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09357	20/04/93	2738	9 OF

TUBE No.	SAMPLE No.	MgO	P205	S	Na20	LOI	TOTAL			
1	622372	2.24	0.264	0.57[illegible]	3.58	2.55	99.60			
2	622373	1.99	0.268	0.33[illegible]	2.82	2.38	99.69			
3	622374	2.21	0.275	0.22[illegible]	2.62	2.44	99.64			
4	622375	1.97	0.276	0.10[illegible]	2.95	2.91	99.96			
5	622376	1.93	0.262	0.10[illegible]	2.85	2.99	99.70			
6	622377	1.92	0.272	0.03[illegible]	2.95	3.31	99.76			
7	622378	2.93	0.283	0.14[illegible]	3.47	4.38	99.61			
8	622379	2.56	0.286	0.09[illegible]	2.77	4.28	99.67			
9	622380	1.83	0.265	0.05[illegible]	3.99	4.05	99.71			
10	622381	2.42	0.275	0.05[illegible]	4.26	4.33	100.21			
11	622382	1.28	0.265	0.07[illegible]	4.92	3.22	100.06			
12	622383	3.79	0.295	0.12[illegible]	3.79	3.98	99.60			
13	622384	3.57	0.123	0.76[illegible]	5.38	4.17	99.73			
14	622385	5.87	0.130	0.32[illegible]	3.43	15.50	99.67			
15	622386	1.71	0.087	0.58[illegible]	3.96	2.79	99.71			
16	622387	1.04	0.083	0.03[illegible]	3.78	3.10	99.80			
17	622388	1.00	0.087	0.04[illegible]	3.60	2.83	99.88			
18	622389	1.27	0.087	0.02[illegible]	2.53	2.35	99.72			
19	622390	1.12	0.092	0.06[illegible]	4.37	2.79	99.73			
20	622391	0.38	0.079	0.02[illegible]	4.16	1.62	99.74			
21	622392	1.24	0.088	<0.00[illegible]	3.91	2.03	99.75			
22	622393	0.27	0.082	0.01[illegible]	4.18	1.33	99.87			
23	622394	1.58	0.087	0.03[illegible]	4.14	2.37	100.26			
24	622395	4.77	0.[illegible]	0.06[illegible]	3.26	5.02	99.63			
25	622396	2.12	0.175	0.08[illegible]	3.05	2.19	99.55			

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3122	18.6.85	9028	1 OF 3

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Au	As	Ba	Cr
1	333495	0 - 10	60	40	65	1.0	X	17	1270	98
2	333496	10 - 20	60	40	60	1.0	X	19	1190	92
3	333497	20 - 30	60	80	220	0.5	X	27	1200	93
4	333498	30 - 40	70	35	170	1.0	X	15	1290	82
5	333499	40 - 50	85	35	150	1.5	X	13	1370	74
6	333500	50 - 60	85	5	100	0.5	X	5	1300	89
7	333501	60 - 70	70	10	115	1.0	X	8	1200	90
	333502	70 - 80	65	15	125	0.5	X	5	1210	91
9	333503	80 - 90	80	25	200	1.0	X	X	1160	86
10	333504	90 - 100	80	20	135	0.5	X	7	1070	74
11	333505	100 - 110	55	20	120	0.5	0.02	22	931	71
12	333506	110 - 120	60	25	125	0.5	X	21	845	70
13	333507	120 - 130.5	75	45	145	0.5	0.02	19	791	67
14	333508	130.5 - 134.7	125	945	3400	0.5	X	8	1980	X
15	333509	134.7 - 145.0	70	1600	5000	1.0	X	15	1360	X
16	333510	145 - 155	40	815	1450	1.0	X	31	1050	X
17	333511	155 - 165	75	2650	5350	1.0	X	17	611	X
18	333512	165 - 175	40	1900	3500	1.0	X	8	1450	X
19	333513	175 - 185	35	815	1050	0.5	X	X	1290	X
20	333514	185 - 195	55	685	1750	1.0	X	X	1890	X
21	333515	195 - 205	60	640	2150	1.0	X	X	3860	X
22	333516	205 - 215	55	190	2300	0.5	X	X	1870	X
23	333517	215 - 225	30	390	1550	X	X	5	1330	X
24	333518	225 - 235	75	660	945	0.5	X	4	1760	X
25	333519	235 - 245	60	335	815	X	X	X	1330	X

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A division of MacDonald Hamilton & Co. Pty. Ltd.

one (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA925

ANALYTICAL REPORT No. 23.3 08 3122

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfoyle Exploration Pty Ltd
PO Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
9028	

DATE RECEIVED	RESULTS REQUIRE
7.6.85	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	40

STATE OF SAMPLES	PRE-TREATMENT									ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE		REFER TO ANALYSIS SECTION	PREPARATION	
Su	333495-333535 (333528 missing)				1					Cu Pb Zn Ag As Ba Cr Au		

RESULTS TO: As Above
Att. A.M. Hespe

RESULTS TO:

REMARKS

12

MC

DATA ENTERED
By Rob Date 27/9/85

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AA
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRI
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPE
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	CO
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHI
pulp	PU	HF mixture	A6	ignition	IG	titration	TIT
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHI
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MIS
stream sediment	SS					fluorescence	FLU
heavy mineral	HM					inductively coupled plasma	ICP

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3122	18.6.85	9028	3 OF 3

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Au	As	Ba	Cr
1	STD 3036		165	570	245	2.5				
2	RPT 333495		65	40	70	0.5				
3	RPT 333514		55	680	1650	1.0				
4										
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18										
19										
20										
21										
22										
23	DETECTION		5	5	5	0.5	0.008	2	10	5
24	DIGESTION									
25	METHOD		101	101	101	101	309	401	401	401

Results in ppm unless otherwise specified
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— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3 08 3122	18.6.85	9028	2 OF

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Ag	Au	As	Ba	Cr
1	333520	245-255	30	130	575	X	X	X	625	X
2	333521	255-265	30	20	365	0.5	X	3	1450	X
3	333522	265-275	55	5	230	X	X	X	1520	X
4	333523	275-285	30	X	175	X	X	X	1470	X
5	333524	285-295	155	25	845	X	X	14	1140	X
6	333525	295-305	85	10	520	0.5	X	22	1150	X
7	333526	305-315	120	X	135	X	X	X	1170	X
8	333527	315-325	140	50	1950	0.5	X	22	2380	X
9	333529	Sample lost 335-340.2	65	60	505	X	X	4	1420	185
10	333530	340.2-343.0	30	240	810	X	X	14	1700	616
11	333531	343.0-349.3	90	25	100	X	X	6	2070	998
12	333532	349.3-360.0	30	35	200	0.5	X	4	720	90
13	333533	360.0-370.0	10	X	85	X	X	3	754	X
14	333534	370-380	10	X	45	0.5	X	X	963	X
15	333535	380-389.7 (7.9)	140	X	180	1.0	X	X	555	X
16										
17										
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19										
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21										
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23										
24										
25										

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	2 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Zn	Ag	Au	AuChk	Ba	Ba
1	563655	40	5	200	–	<0.5	0.015	0.015	1420	–
2	563656	35	5	180	–	<0.5	0.015	–	786	–
3	563657	30	55	315	–	<0.5	0.015	–	2253	–
SA	563658 X	125	175	2350	–	<0.5	0.015	–	1053	–
5	563659	30	5	175	–	<0.5	0.020	–	1284	–
6	563660	65	<5	180		<0.5	0.015	–	1171	–
7	563661	85	15	200	–	<0.5	0.025	0.025	>2500	0.30
8	563662	35	20	900	–	<0.5	0.030	–	2250	–
9	563663	125	30	350	–	<0.5	0.030	–	1257	–
10	563664	75	35	500	–	<0.5	0.020	–	1260	–
11	563665	75	15	275	–	<0.5	0.025	–	1134	–
12	563666	60	160	1800	–	<0.5	0.035	–	1606	–
13	563667	25	5	1250	–	<0.5	0.030	–	1685	–
14	563668	25	<5	475	–	<0.5	0.020	–	259	–
15	563669	30	<5	450	–	<0.5	0.035	–	1048	–
16	563670	80	5	250	–	<0.5	0.040	–	901	–
[illegible]	563671	25	35	610	–	<0.5	0.040	–	1061	–
18	563672	65	10	880	–	<0.5	0.055	–	904	–
19	563673	30	10	1350	–	<0.5	0.025	–	1043	–
20	563674	25	5	630	–	<0.5	0.015	–	>2500	0.30
21	563675	20	15	695	–	<0.5	0.030	–	1768	–
22	563676	20	40	610	–	1.0	0.030	–	1537	–
23	563677	20	80	575	–	1.0	0.030	0.025	964	–
24	563678	35	340	625	–	1.0	0.030	–	1067	–
25	563679	30	180	445	–	<0.5	0.030	–	967	–

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	P
	23.3.08.07400	23/10/90	10085	1 O

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Zn	Ag	Au	AuChk	Ba
1	563630	50	730	3050	–	1.0	0.020	0.025	507
2	563631	50	295	1150	–	1.0	0.015	–	65
3	563632	85	500	860	–	<0.5	0.030	–	949
4	563633	35	400	2100	–	1.0	0.025		503
5	563634	65	1300	3750	–	1.0	0.040	–	665
6	563635	50	450	1850	–	1.0	0.025	–	363
7	563636	50	1350	4150	–	<0.5	0.020	–	821
8	563637	45	1050	7100	–	<0.5	0.025	–	1173
9	563638	85	1500	3400	–	<0.5	0.025	–	1191
10	563639	75	1450	2550	–	<0.5	0.020	–	1421
SA	563640 X	125	185	2300	–	<0.5	0.015	–	1058
12	563641	70	930	2100	–	<0.5	0.010	–	1092
13	563642	65	990	1700	–	<0.5	0.020	–	1836
14	563643	60	250	1800	–	<0.5	0.015	–	1741
15	563644	65	1025	2500	–	<0.5	0.020	–	1610
16	563645	65	500	925	–	<0.5	0.015	0.035	1924
[illegible]	563646	75	490	1250	–	<0.5	0.015	–	1896
18	563647	75	280	900	–	1.0	0.010	–	2358
19	563648	90	100	190	–	1.0	0.020	–	1474
20	563649	75	50	160	–	<0.5	0.020		1609
21	563650	80	180	345	–	<0.5	0.015		2411
22	563651	95	675	1800	–	<0.5	0.010		1286
23	563652	85	650	1400	–	<0.5	0.015	–	2500
24	563653	75	195	1650	–	<0.5	0.015	–	1280
25	563654	40	25	600	–	<0.5	0.025	–	997

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	4 OF 8

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Zn	Ag	Au	AuChk	Ba	Ba
1	563705	25	<5	375	–	<0.5	0.015	–	759	–
2	563706	40	10	60	–	<0.5	0.025	–	630	–
3	563707	340	10	95	–	<0.5	0.030	–	1255	–
4	563708	60	5	130	–	<0.5	0.015	–	465	–
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22										
23	DETECTION	5	5	5	0.01	0.5	0.008	0.008	10	0.01
24	UNITS	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
25	METHOD	101	101	101	105	101	309	309	401	403

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No	PA
	23.3.08.07400	23/10/90	10085	3 OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Zn	Ag	Au	AuChk	Ba
1	563680	100	190	605	–	<0.5	0.035	–	>2500
2	563681	30	180	650	–	<0.5	0.035	–	1134
3	563682	30	105	890	–	1.0	0.035	–	1185
4	563683	70	95	875	–	<0.5	0.015	–	736
5	563684	70	20	120	–	<0.5	0.015	–	417
6	563685	55	5	90	–	1.0	0.040	–	565
7	563686	65	<5	100	–	<0.5	0.025	–	386
8	563687	55	<5	80	–	<0.5	0.040	–	478
9	563688	75	<5	85	–	<0.5	0.020	–	298
10	563689	85	<5	85	–	<0.5	0.020	–	345
11	563690	80	30	320	–	<0.5	0.040	–	673
12	563691	70	10	3000	–	<0.5	0.025	–	84
13	563692 X	95	180	2400	–	<0.5	<0.008	–	1018
14	563693	120	25	>10000	1.23	<0.5	0.030	–	2413
15	563694	80	10	130	–	<0.5	0.030	–	1348
16	563695	85	575	4350	–	<0.5	0.015	–	1527
	563696	90	385	605	–	<0.5	0.030	–	1156
18	563697	90	145	395	–	<0.5	0.025	0.020	1121
19	563698	55	20	205	–	<0.5	0.010	–	95
20	563699	85	165	270	–	<0.5	0.020	–	473
21	563700	95	125	270	–	<0.5	0.015	–	495
22	563701	70	135	295	–	<0.5	0.025		594
23	563702	90	80	200	–	<0.5	0.025	–	673
24	563703	100	80	295	–	<0.5	0.025	–	726
25	563704	40	20	2700	–	<0.5	0.025	–	850

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	6 OF 8

TUBE No	SAMPLE No.	As	Cr	Zr	Ti	Ti:Zr				
1	563655	<2	51	137	2678	19.5				
2	563656	<2	54	139	2755	19.8				
3	563657	<2	55	129	2587	20.0				
4	563658	16	811	74	2311	31.2				
5	563659	<2	62	131	2485	19.0				
6	563660	<2	52	125	2411	19.3				
7	563661	<2	69	137	2680	19.6				
8	563662	3	56	135	2516	18.6				
9	563663	2	58	135	2515	18.6				
10	563664	3	53	133	2354	17.7				
11	563665	<2	62	140	2454	17.5				
12	563666	13	58	132	2495	18.9				
13	563667	7	177	122	2931	24.0				
14	563668	<2	293	119	3253	27.3				
15	563669	2	266	115	2949	25.6				
16	563670	2	286	121	3168	26.2				
	563671	<2	270	117	3048	26.0				
18	563672	5	254	113	3075	27.2				
19	563673	2	246	122	3074	25.2				
20	563674	<2	230	117	2888	24.7				
21	563675	8	235	121	3004	24.8				
22	563676	<2	217	116	2872	24.7				
23	563677	<2	224	120	2995	24.9				
24	563678	<2	231	114	2896	25.4				
25	563679	3	210	107	2760	25.8				

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	5 OF 8

TUBE No.	SAMPLE No.	As	Cr	Zr	Ti	Ti:Zr				
1	563630	30	100	120	3091	25.7				
2	563631	77	1106	56	2358	42.1				
3	563632	14	105	118	3299	27.9				
4	563633	15	105	112	3309	29.5				
5	563634	15	98	116	3143	27.1				
6	563635	30	477	52	2245	43.2				
7	563636	18	517	60	2476	41.3				
8	563637	<2	487	64	2437	38.1				
9	563638	9	438	56	2149	38.4				
10	563639	22	420	59	2218	37.6				
11	563640	12	850	74	2300	31.1				
12	563641	<2	400	58	2194	39.9				
13	563642	6	455	66	2279	34.5				
14	563643	4	174	119	2528	21.2				
15	563644	15	126	137	2593	18.9				
16	563645	11	107	137	2535	18.5				
	563646	<2	101	135	2560	19.0				
18	563647	5	91	133	2432	18.3				
19	563648	4	83	128	2403	18.8				
20	563649	6	88	126	2349	18.6				
21	563650	2	65	129	2432	18.8				
22	563651	<2	68	136	2524	18.5				
23	563652	10	56	137	2477	18.1				
24	563653	<2	59	135	2507	18.6				
25	563654	<2	60	130	2702	20.8				

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	8 OF 8

TUBE No.	SAMPLE No.	As	Cr	Zr	Ti	Ti:Zr				
1	563705	12	<5	179	1688	9.4				
2	563706	7	<5	177	1725	9.7				
3	563707	9	67	161	1878	11.7				
4	563708	2	601	63	2913	46.2				
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20										
21										
22										
23	DETECTION	2	5	5	50	0.1				
24	UNITS	ppm	ppm	ppm	ppm	%				
25	METHOD	401	401	401	401	9825				

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.07400	23/10/90	10085	7 OF

TUBE No.	SAMPLE No.	As	Cr	Zr	Ti	Ti:Zr				
1	563680	<2	65	195	2118	22.3				
2	563681	15	94	129	3530	27.4				
3	563682	20	94	141	2557	18.1				
4	563683	8	600	69	3110	45.1				
5	563684	6	581	72	3074	42.7				
6	563685	2	532	63	2898	46.0				
7	563686	3	546	59	2882	48.8				
8	563687	2	525	60	2788	46.5				
9	563688	<2	584	61	2919	47.8				
10	563689	2	571	67	2992	44.6				
11	563690	5	588	60	3029	50.5				
12	563691	4	642	52	2976	57.2				
13	563692	17	824	72	2287	31.8				
14	563693	29	70	130	2632	20.2				
15	563694	13	27	140	1649	11.8				
16	563695	35	244	93	1974	21.2				
	563696	10	327	50	2233	44.7				
18	563697	2	323	56	2276	40.6				
19	563698	4	364	58	2421	41.7				
20	563699	<2	274	43	2009	46.7				
21	563700	<2	286	44	2025	46.0				
22	563701	4	324	40	2198	54.9				
23	563702	5	338	50	2306	46.1				
24	563703	6	326	43	2179	50.7				
25	563704	19	<5	173	1715	9.9				

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03959	03/12/86	1433	[redacted] OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	392026 253.5-263.5	35	45	290	<0.5	100	22	280	210	170
2	392027 263.5-269.0	53	675	1950	<0.5	145	22	1650	420	75
3	392028 269.0-279.0	50	275	290	<0.5	125	8	1200	340	85
4	392029 279.0-292.8	55	390	1150	<0.5	130	3	1050	340	85
5	392030 292.8-302.8	65	130	415	<0.5	150	5	790	400	75
6	392031 302.8-312.8	60	65	350	<0.5	150	4	520	400	75
7	392032 312.8-322.8	95	15	95	<0.5	155	4	760	410	80
8	392033 322.8-332.8	80	150	480	<0.5	95	20	1300	220	140
9	392034 332.8-342.8	60	50	270	<0.5	55	17	1550	130	170
10	392035 342.8-352.8	55	185	1100	<0.5	55	23	1050	140	170
11	392036 352.8-362.8	75	60	310	<0.5	60	24	1750	130	160
12	392037 362.8-372.8	60	220	275	<0.5	60	22	1650	130	170
13	392038 372.8-382.8	110	255	1800	<0.5	55	22	1500	120	160
14	392039 382.8-392.8	45	135	320	<0.5	60	38	1150	130	170
15	392040 392.8-402.8	50	190	585	<0.5	60	20	1050	130	130
16	392041 402.8-412.8	55	125	275	1.0	65	23	1750	140	170
17	392042 412.8-422.8	55	15	115	0.5	55	13	870	120	140
18	392043 422.8-433.8	40	25	150	<0.5	60	13	510	150	130
19	392044 433.8-442.8	70	20	90	0.5	55	15	1250	120	160
20	392045 442.8-452.8	75	30	115	<0.5	60	13	1450	120	160
21	392046 452.8-465.6	90	25	80	<0.5	45	21	1200	45	170
22	392047 465.8-482.1	65	125	415	0.5	45	[illegible]	1700	40	[illegible]
23	392048 482.1-494.3	95	600	1250	0.5	45	13	1100	25	140
24	392049 494.3-510.0	60	215	810	0.5	45	11	1350	30	160
25	392050 510.0-520.0	85	385	460	<0.5	40	6	780	45	150

Results in ppm unless otherwise specified

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03959	03/12/86	1433	[redacted] OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	392001 19.3-29.3	50	10	120	<0.5	125	1	400	540	
2	392002 29.3-39.3	35	<5	95	<0.5	135	4	340	700	
3	392003 39.3-49.3	45	20	140	<0.5	150	3	450	530	
4	392004 49.3-59.6	50	<5	110	<0.5	150	2	400	650	
5	392005 59.6-73.6	50	50	320	<0.5	65	12	660	85	
6	392006 73.6-75.2 SPLIT LOST	35	55	450	<0.5	20	26	1150	33	[illegible]
7	392007 75.2-80.1	65	45	100	<0.5	60	29	410	75	1
8	392008 80.1-81.5 SPLIT LOST	60	5	325	<0.5	25	2	1250	15	1
9	392009 81.5-92.5	60	170	1300	<0.5	65	13	880	45	
10	392010 92.5-93.0 SPLIT LOST	55	20	200	<0.5	30	100	1550	25	1
11	392011 93.0-110.0	65	30	120	<0.5	70	20	690	100	[illegible]
12	392012 110.0-130.0	90	110	1550	<0.5	65	21	540	[illegible]	1
13	392013 130.0-148.9	80	75	295	<0.5	65	29	670	[illegible]	
14	392014 148.9-156.5	75	1650	4100	<0.5	53	35	570	[illegible]	[illegible]
15	392015 156.5-163.5	100	1250	3450	0.5	55	[illegible]	560	[illegible]	[illegible]
16	392016 163.5-173.5	100	50	9350	<0.5	60	15	1400	[illegible]	
17	392017 173.5-183.5	135	720	8050	<0.5	15	3	2200	[illegible]	
18	392018 183.5-193.5	150	260	8500	<0.5	60	5	2700	[illegible]	
19	392019 193.5-203.5	160	135	4250	0	60	[illegible]	1950	[illegible]	
20	392020 203.5-213.5	55	410	6450	<0.5	50	6	3400	[illegible]	
21	392021 213.5-223.5	150	175	4850	<0.5	50	4	1600	[illegible]	
22	392022 * STD	2 115	205	2100	<0.5	170	20	[illegible]	[illegible]	
23	392023 223.5-233.5	110	210	2100	<0.5	55	10	170	73	
24	392024 233.5-243.5	100	260	3650	<0.5	55	7	1130	41	[illegible]
25	392025 243.5-253.5	60	30	670	<0.5	55	4	[illegible]	[illegible]	

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03959	03/12/86	1433	[redacted] OF 6

TUBE No.	SAMPLE No.	Ti	Au							
1	392001	2650	<0.008							
2	392002	2400	<0.008							
3	392003	2150	<0.008							
4	392004	2350	0.008							
5	392005	2250	<0.008							
6	392006	2450	<0.008							
7	392007	2150	<0.008							
8	392008	1650	<0.008							
9	392009	2500	<0.008							
10	392010	2150	<0.008							
11	392011	2650	0.017							
12	392012	2650	<0.008							
13	392013	2750	<0.008							
14	392014	3250	<0.008							
15	392015	3500	0.008							
16	392016	3700	<0.008							
[illegible]	392017	3350	<0.006							
18	392018	3650	<0.008							
19	392019	3550	<0.008							
20	392020	3550	<0.008							
21	392021	3650	<0.008							
22	392022 *STD	2 2350	0.017							
23	392023	3750	<0.008							
24	392024	3550	<0.006							
25	392025	3600	<0.008							

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.06.03959	03/12/86	1433	[illegible] OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Ni	As	Ba	Cr	Zr
1	392051 520.0-528.7	85	25	205	<0.5	50	10	350	[illegible]	
2	392052 528.7-529.7	280	15	415	0.5	[illegible]	5	130	[illegible]	
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
[illegible]										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	[illegible]	2	1	[illegible]	2	
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	[illegible]	
25	METHOD	101	101	101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Results in ppm unless otherwise specified

Are you sure this was the page you wanted? - have sent you all pages in case it wasn't.

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03959	03/12/86	1433	[redacted] OF 6

TUBE No.	SAMPLE No.	Ti	Au							
1	392051	2550	<0.008							
2	392052	3150	<0.008							
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	50	0.008							
24	UNITS	PPM	PPM							
25	METHOD	401	309							

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.03959	03/12/86	1433	[redacted] OF

TUBE No.	SAMPLE No.	Ti	Au							
1	392026	3350	<0.008							
2	392027	2050	0.017							
3	392028	1900	<0.008							
4	392029	2000	<0.008							
5	392030	1800	<0.008							
6	392031	1850	<0.008							
7	392032	1800	<0.008							
8	392033	2350	<0.008							
9	392034	2450	<0.008							
10	392035	2700	<0.008							
11	392036	2450	<0.008							
12	392037	2650	<0.008							
13	392038	2600	<0.008							
14	392039	2700	<0.008							
15	392040	2900	0.008							
16	392041	2950	<0.008							
17	392042	2500	0.008							
18	392043	3000	<0.008							
19	392044	2350	<0.008							
20	392045	2450	<0.008							
21	392046	2150	<0.008							
22	392047	2450	<0.008							
23	392048	2050	<0.008							
24	392049	2500	<0.008							
25	392050	2150	0.017							

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	2 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622510	92	35	257	<2	<0.008	-	797	6	26
2	622511	81	37	208	<2	0.010	-	565	44	57
3	622512	82	861	4921	2	0.089	-	354	505	248
4	622513	201	933	1625	3	<0.008	-	1139	90	597
5	622514	186	108	240	<2	<0.008	-	2167	15	634
6	622515	199	187	548	<2	<0.008	-	1036	13	619
7	622516	166	85	256	<2	<0.008	-	798	6	591
8	622517	145	194	473	<2	<0.008	-	578	6	604
9	622518	135	212	410	<2	<0.008	-	1343	6	651
10	622519	123	83	191	<2	<0.008	-	1158	3	647
11	622520	161	125	332	<2	<0.008	-	1917	5	964
12	622521	110	76	156	<2	<0.008	<0.008	776	4	566
13	622522	177	189	329	<2	<0.008	-	1154	7	553
14	622523	167	117	271	<2	<0.008	-	1469	3	371
15	622524	125	72	288	<2	<0.008	-	1013	6	365
16	622525	139	52	231	<2	<0.008	-	2521	<2	338
	622526	149	25	140	<2	<0.008	-	966	2	258
18	622527	220	47	236	<2	<0.008	-	2204	3	327
19	622528	213	40	199	<2	<0.008	-	1210	2	306
20	622529	135	41	140	<2	0.010	-	944	6	321
21	622530	193	40	159	<2	0.008	-	1131	3	317
22	622531	125	201	2219	<2	0.008	0.009	1120	16	979
23	622532	205	30	178	<2	<0.008	-	1088	2	396
24	622533	243	31	212	<2	<0.008	-	1447	3	359
25	622534	307	37	278	<2	<0.008	-	747	6	290

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09379	16/04/93	2752	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	C
1	622485	42	32	133	<2	<0.008	-	732	13	
2	622486	39	35	122	<2	<0.008	-	857	8	
3	622487	41	99	159	<2	<0.008	-	888	12	
4	622488	55	53	142	<2	<0.008	-	739	10	
5	622489	102	65	217	<2	<0.008	-	1247	7	
6	622490	106	63	204	<2	<0.008	-	867	4	
7	622491	82	37	221	<2	<0.008	-	423	6	
8	622492	93	50	188	<2	<0.008	-	406	8	
9	622493	91	96	300	<2	<0.008	-	730	7	
10	622494	132	262	412	<2	<0.008	-	904	5	
11	622495	116	25	167	<2	<0.008	-	758	4	
12	622496	162	38	194	<2	<0.008	<0.008	769	11	
13	622497	145	23	157	<2	<0.008	-	685	3	
14	622498	151	171	420	<2	<0.008	-	1091	4	
15	622499	105	1099	2471	<2	<0.008	-	1191	<2	
16	622500	116	791	2115	<2	<0.008	-	1876	2	
	622501	124	1575	2906	<2	<0.008	-	2571	<2	
18	622502	222	1088	2255	<2	<0.008	-	2186	12	
19	622503	106	649	1319	<2	<0.008	-	2144	3	
20	622504	70	609	1194	<2	<0.008	-	1026	<2	
21	622505	126	205	2236	<2	<0.008	-	1128	15	1
22	622506	84	120	1257	<2	<0.008	<0.008	917	6	
23	622507	93	16	345	<2	<0.008	-	698	5	
24	622508	116	61	293	<2	<0.008	-	873	<2	
25	622509	145	112	282	<2	<0.008	-	556	<2	

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	4 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622560	29	10	212	<2	<0.008	-	508	3	57
2	622561	26	16	80	<2	<0.008	-	541	2	8
3	622562	23	38	98	<2	<0.008	-	769	4	17
4	622563	70	54	467	<2	<0.008	-	604	<2	81
5	622564	32	12	63	<2	<0.008	-	506	<2	8
6	622565	100	29	58	<2	<0.008	-	751	2	9
7	622566	81	17	98	<2	<0.008	-	925	<2	13
8	622567	21	51	67	<2	<0.008	-	735	<2	13
9	622568	39	24	71	<2	<0.008	-	667	<2	18
10	622569	42	52	103	<2	<0.008	-	701	<2	24
11	622570	78	28	98	<2	<0.008	-	1382	6	18
12	622571	34	17	59	<2	<0.008	<0.008	652	6	13
13	622572	41	6	94	<2	<0.008	-	548	3	31
14	622573	17	<5	59	<2	<0.008	-	660	2	8
15	622574	31	33	84	<2	<0.008	-	586	<2	26
16	622575	36	32	73	<2	<0.008	-	584	4	9
	622576	22	11	41	<2	<0.008	-	604	4	<5
18	622577	30	21	87	<2	<0.008	-	372	6	28
19	622578	25	25	49	<2	<0.008	-	470	9	40
20	622579	20	19	38	<2	<0.008	-	542	3	15
21	622580	13	16	87	<2	<0.008	-	349	2	21
22	622581	31	6	91	<2	<0.008	<0.008	654	2	17
23	622582	17	13	70	<2	<0.008	-	544	<2	17
24	622583	19	44	71	<2	<0.008	-	615	3	18
25	622584	21	23	81	<2	<0.008	-	426	3	50

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	3 OF 15

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As	Cr
1	622535	269	45	252	<2	<0.008	-	631	4	27
2	622536	347	44	320	<2	<0.008	-	799	3	2[illegible]
3	622537	325	98	324	<2	<0.008	-	577	<2	2[illegible]
4	622538	239	62	267	<2	<0.008	-	515	2	2[illegible]
5	622539	223	33	260	<2	<0.008	-	1217	<2	2[illegible]
6	622540	165	86	538	6	<0.008	-	376	<2	2[illegible]
7	622541	135	25	366	<2	<0.008	-	841	4	2[illegible]
8	622542	263	38	459	<2	<0.008	-	1269	2	2[illegible]
9	622543	282	32	810	2	<0.008	-	544	4	2[illegible]
10	622544	220	24	449	<2	<0.008	-	1467	<2	1[illegible]
11	622545	105	59	469	<2	<0.008	-	480	<2	1[illegible]
12	622546	90	21	346	<2	<0.008	<0.008	427	<2	1[illegible]
13	622547	91	19	145	<2	<0.008	-	580	<2	
14	622548	120	13	144	<2	<0.008	-	699	4	
15	622549	94	69	248	<2	<0.008	-	815	<2	
16	622550	126	47	274	<2	<0.008	-	931	<2	
	622551	129	38	308	<2	<0.008	-	606	2	
18	622552	152	33	343	<2	<0.008	-	1184	<2	
19	622553	96	33	168	<2	<0.008	-	781	2	
20	622554	63	20	209	<2	<0.008	-	535	<2	
21	622555	52	30	189	<2	<0.008	-	530	<2	
22	622556	54	17	174	<2	<0.008	<0.008	441	<2	
23	622557	73	30	157	<2	<0.008	-	1766	<2	
24	622558	17	5	88	<2	<0.008	-	556	<2	
25	622559	21	13	72	<2	<0.008	-	413	2	

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	6 OF 15

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O
1	622485	204	3751	20.87	53.20	0.63	8.00	0.29	1.73	1.47
2	622486	190	3571	17.80	58.60	0.60	7.55	0.14	2.38	1.84
3	622487	173	3247	16.63	59.60	0.54	7.51	0.15	1.28	2.16
4	622488	176	3317	16.50	60.60	0.55	7.41	0.16	2.72	1.15
5	622489	175	3177	16.98	58.90	0.53	7.05	0.14	3.20	1.89
6	622490	180	3305	16.12	58.80	0.55	7.55	0.14	2.82	1.53
7	622491	171	3200	16.19	57.30	0.53	7.34	0.15	2.99	1.12
8	622492	177	3217	15.89	56.60	0.54	7.16	0.23	3.70	1.43
9	622493	180	3142	16.34	56.80	0.52	6.55	0.23	3.53	2.37
10	622494	171	3026	15.56	61.00	0.50	6.30	0.18	2.81	1.22
11	622495	157	2781	14.21	55.00	0.46	6.04	0.16	7.11	1.61
12	622496	177	3094	15.77	59.30	0.52	6.00	0.12	5.53	1.36
13	622497	178	2972	15.19	60.10	0.50	5.91	0.13	4.57	1.57
14	622498	175	3021	15.18	61.20	0.50	5.92	0.17	4.54	1.80
15	622499	166	2869	14.99	58.50	0.48	6.10	0.30	4.64	1.80
16	622500	168	2872	15.20	58.60	0.48	5.98	0.33	4.48	1.98
	622501	167	2878	15.10	59.90	0.48	5.66	0.41	4.07	2.15
18	622502	164	2909	14.88	60.60	0.49	5.78	0.40	4.28	1.84
19	622503	179	3004	15.46	59.70	0.50	6.00	0.27	4.64	2.06
20	622504	169	3024	15.17	59.40	0.50	6.26	0.22	4.36	2.33
21	622505 (S1)	84	2675	15.12	51.40	0.45	9.97	0.90	3.85	1.15
22	622506	154	2762	14.14	56.70	0.46	6.13	0.23	6.43	2.10
23	622507	167	2758	14.95	60.90	0.46	7.80	0.21	2.18	1.62
24	622508	167	2872	14.56	60.30	0.48	5.94	0.22	5.11	1.90
25	622509	161	2826	14.33	63.10	0.47	4.92	0.19	3.87	1.48

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09379	16/04/93	2752	5 OF

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Au(R)	Ba	As
1	622585	23	13	74	<2	<0.008	–	710	<2
2	622586	23	12	70	<2	<0.008	–	898	2
3	622587	17	17	97	<2	<0.008	–	1084	<2
4	622588	36	22	90	<2	<0.008	–	474	2
5	622589	28	35	90	<2	<0.008	–	849	<2
6	622590 STD	129	203	2254	<2	0.009	–	1102	16
7	622591	88	8	118	<2	<0.008	–	1515	3
8	622592	24	29	120	<2	<0.008	–	1192	4
9	622593	33	14	103	<2	<0.008	–	2498	5
10	622594	76	16	125	<2	<0.008	–	2124	6
11	622595	36	21	105	<2	<0.008	–	1015	<2
12	622596	21	36	101	<2	<0.008	<0.008	1032	2
13	622597	121	23	144	<2	<0.008	–	1307	<2
14	622598	13	29	139	<2	<0.008	–	462	<2
15	622599	10	43	109	<2	<0.008	–	513	<2
16	622600	18	17	63	<2	<0.008	–	1211	2
	622601	98	16	123	<2	<0.008	–	943	6
18									
19									
20									
21									
22									
23	DETECTION	4	5	4	2	0.008	0.008	10	2
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA101	GA101	GA101	GA101	GG309	GG309	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	8 OF 15

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O
1	622535	66	2643	13.93	53.20	0.44	8.78	0.18	8.51	0.72
2	622536	74	2727	14.08	53.70	0.45	8.76	0.18	9.01	1.20
3	622537	66	2708	13.47	53.90	0.45	8.40	0.18	9.07	0.91
4	622538	70	2625	13.13	49.50	0.44	8.36	0.24	10.98	0.78
5	622539	69	2601	13.55	49.80	0.43	8.97	0.23	9.62	0.65
6	622540	85	2688	13.98	50.70	0.45	9.22	0.37	6.52	0.41
7	622541	66	2733	14.26	53.20	0.46	9.31	0.51	8.26	0.82
8	622542	72	2717	14.01	52.30	0.45	9.03	0.46	8.87	0.98
9	622543	77	2691	13.59	53.40	0.45	9.18	0.55	8.29	0.39
10	622544	82	2644	14.86	52.40	0.44	9.58	0.53	5.76	1.18
11	622545	82	2701	14.36	50.90	0.45	11.04	0.48	5.34	0.77
12	622546	82	2858	14.47	50.60	0.48	9.94	0.37	6.97	1.02
13	622547	87	2530	14.09	49.60	0.42	9.57	0.35	8.69	2.06
14	622548	75	2760	14.64	51.80	0.46	7.91	0.27	9.06	1.45
15	622549	81	2709	14.97	53.70	0.45	8.67	0.25	7.07	1.42
16	622550	75	2976	15.69	55.20	0.50	9.33	0.27	4.27	1.18
[illegible]	622551	80	2856	15.45	55.20	0.48	7.69	0.27	7.42	1.13
18	622552	66	2856	15.62	54.50	0.48	7.32	0.24	8.59	1.06
19	622553	68	2910	15.59	56.00	0.49	8.17	0.20	7.78	1.39
20	622554	61	2777	15.42	53.60	0.46	8.59	0.28	6.08	1.00
21	622555	153	2867	15.23	54.30	0.48	8.04	0.30	6.19	0.95
22	622556	172	2837	15.18	52.90	0.47	7.94	0.26	8.79	0.96
23	622557	89	2877	14.90	51.40	0.48	7.67	0.25	9.10	1.41
24	622558	293	2561	13.57	46.80	0.43	6.60	0.25	12.29	1.71
25	622559	271	2570	13.77	48.40	0.43	7.59	0.26	11.49	1.61

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	7 OF

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K
1	622510	173	2878	15.05	61.10	0.48	6.39	0.22	3.58	1
2	622511	189	3055	16.04	56.40	0.51	6.54	0.20	4.97	3
3	622512	99	2098	9.29	32.40	0.35	9.50	0.64	19.28	2
4	622513	135	3016	10.31	41.30	0.50	11.58	0.40	12.45	0
5	622514	142	3110	11.02	43.00	0.52	8.14	0.38	16.35	1
6	622515	142	3188	10.93	44.20	0.53	7.48	0.30	16.80	0
7	622516	139	3005	10.87	46.40	0.50	7.47	0.27	15.46	0
8	622517	138	2964	11.24	44.60	0.49	8.20	0.28	13.90	0
9	622518	118	2715	9.51	39.10	0.45	7.28	0.33	20.42	1
10	622519	111	2471	8.67	35.40	0.41	6.25	0.28	24.72	1
11	622520	158	3337	12.26	51.50	0.56	8.71	0.33	10.22	2
12	622521	104	2410	8.35	33.80	0.40	5.89	0.27	25.78	1
13	622522	115	3009	12.70	52.10	0.50	8.93	0.28	9.78	1
14	622523	95	2927	12.75	51.10	0.49	9.20	0.23	7.56	1
15	622524	92	2836	12.91	50.60	0.47	9.55	0.23	9.08	1
16	622525	85	2737	12.88	52.40	0.46	8.87	0.20	9.04	1
[illegible]	622526	85	2435	10.98	45.70	0.41	7.59	0.20	15.87	0
18	622527	83	2781	12.73	53.40	0.46	8.76	0.18	8.51	2
19	622528	72	2737	12.97	52.20	0.46	8.95	0.17	9.68	1
20	622529	77	2988	13.54	52.60	0.50	9.54	0.15	8.62	1
21	622530	77	2599	12.45	51.50	0.45	8.72	0.17	10.56	1
22	622531	74	2726	15.11	51.50	0.45	9.97	0.89	3.84	1
23	622532	77	2887	13.10	53.60	0.45	8.99	0.18	8.89	1
24	622533	75	2500	12.34	51.30	0.42	8.57	0.20	10.79	1
25	622534	72	2729	13.83	54.40	0.46	8.81	0.17	8.44	0

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	10 OF 15

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O
1	622585	182	2380	14.10	63.90	0.40	4.97	0.14	3.90	3.01
2	622586	190	2380	13.88	64.70	0.40	3.98	0.11	4.52	2.53
3	622587	168	2454	14.35	64.70	0.41	5.36	0.10	2.55	1.87
4	622588	196	2414	14.41	64.80	0.40	6.64	0.13	2.63	1.95
5	622589	174	2367	13.94	65.10	0.39	4.59	0.13	4.21	2.18
6	622590 STD	81	2720	15.07	51.60	0.45	10.01	0.89	3.82	1.14
7	622591	192	2500	14.30	65.70	0.42	5.42	0.12	2.27	3.06
8	622592	191	2350	13.53	63.70	0.39	4.71	0.13	4.48	2.68
9	622593	186	2386	14.38	65.00	0.40	5.38	0.13	2.73	3.05
10	622594	189	2410	14.52	63.60	0.40	5.96	0.16	3.59	3.40
11	622595	176	2356	13.91	61.70	0.39	5.60	0.17	5.03	2.51
12	622596	181	2395	13.87	61.40	0.40	4.38	0.14	5.11	2.49
13	622597	181	2526	14.36	50.70	0.42	7.22	0.15	2.57	1.43
14	622598	187	2568	14.47	62.80	0.43	7.22	0.12	1.68	1.25
15	622599	179	2369	13.58	61.00	0.40	7.13	0.17	4.63	1.55
16	622600	203	2020	13.07	62.70	0.34	3.23	0.13	6.77	3.75
17	622601	130	2461	12.94	52.80	0.41	7.65	0.24	9.42	1.88
18										
19										
20										
21										
22										
23	DETECTION	5	100	0.01	0.01	0.01	0.01	0.01	0.01	0.01
24	UNITS	ppm	ppm	%	%	%	%	%	%	%
25	METHOD	GX401	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09379	16/04/93	2752	9 OF

TUBE No.	SAMPLE No.	Zr	Ti	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K
1	622560	307	2667	14.55	49.90	0.44	13.14	0.34	5.40	1
2	622561	248	2631	14.57	63.30	0.44	6.47	0.17	3.16	2
3	622562	285	2732	15.07	61.80	0.46	6.59	0.17	3.36	2
4	622563	284	2692	14.65	54.70	0.45	8.41	0.29	6.10	0
5	622564	210	2630	14.68	66.40	0.44	4.25	0.13	2.67	1
6	622565	230	2446	14.70	64.30	0.41	5.01	0.18	3.44	2
7	622566	46	2143	14.36	65.50	0.36	4.35	0.16	3.48	3
8	622567	214	1900	14.03	68.60	0.32	3.89	0.10	2.76	2
9	622568	35	1930	14.41	67.80	0.32	3.90	0.11	2.31	2
10	622569	76	1905	14.00	68.40	0.32	4.08	0.12	2.12	1
11	622570	76	1871	13.93	68.20	0.31	4.25	0.12	2.17	3
12	622571	62	1743	14.02	67.00	0.29	3.91	0.14	3.38	2
13	622572	97	2623	15.76	48.90	0.44	11.01	0.29	7.13	2
14	622573	85	1642	13.43	66.20	0.27	5.29	0.18	3.40	3
15	622574	112	2456	14.96	49.30	0.41	11.87	0.31	6.52	2
16	622575	206	1790	13.66	63.80	0.30	2.60	0.21	5.80	3
	622576	205	1640	13.87	61.20	0.27	3.79	0.23	6.55	4
18	622577	44	2186	13.86	45.20	0.36	11.63	0.33	8.21	2
19	622578	195	2055	13.41	61.90	0.34	4.60	0.19	5.93	3
20	622579	203	1871	13.19	63.80	0.31	2.48	0.19	6.38	4
21	622580	191	2436	14.41	64.50	0.41	5.93	0.10	2.57	2
22	622581	200	2517	14.96	64.60	0.42	6.42	0.09	1.53	1
23	622582	201	2478	14.81	65.60	0.41	6.34	0.09	1.48	2
24	622583	202	2389	14.34	65.50	0.40	5.45	0.13	2.57	2
25	622584	186	2411	14.36	63.60	0.40	5.98	0.14	3.20	1

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty Ltd
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16.04.93	2752	12 OF 15

TUBE No.	SAMPLE No.	MgO	P2O5	S	Na2O	LOI	TOTAL			
1	622510	2.42	0.246	0.203	3.25	4.75	99.60			
2	622511	2.58	0.247	0.688	1.10	7.11	99.66			
3	622512	1.94	0.337	4.770	0.23	18.48	99.81			
4	622513	5.04	0.537	4.700	2.26	11.28	100.35			
5	622514	6.14	0.542	1.478	2.13	8.73	99.71			
6	622515	5.64	0.533	1.320	2.34	8.65	99.63			
7	622516	6.31	0.496	0.436	1.71	8.75	99.54			
8	622517	7.59	0.508	0.482	1.71	11.03	99.65			
9	622518	5.97	0.459	0.487	1.72	10.43	99.55			
10	622519	5.01	0.421	0.207	1.25	15.87	99.69			
11	622520	6.96	0.511	0.131	1.20	4.48	99.61			
12	622521	4.81	0.418	0.110	1.33	17.48	99.64			
13	622522	7.41	0.369	0.089	1.83	4.23	99.65			
14	622523	9.21	0.285	0.091	2.01	5.50	99.72			
15	622524	7.91	0.291	0.045	2.34	5.28	99.61			
16	622525	7.58	0.292	0.022	1.97	4.15	99.65			
	622526	6.36	0.285	0.023	2.60	5.21	100.11			
18	622527	7.43	0.277	0.023	2.06	7.58	99.55			
19	622528	7.56	0.292	0.026	2.38	7.58	99.67			
20	622529	7.82	0.295	0.084	2.29	7.21	99.90			
21	622530	7.20	0.282	0.029	2.34	4.58	99.76			
22 X	622531	7.52	0.191	0.039	3.42	5.21	99.64			
23	622532	7.47	0.248	0.014	2.44	7.11	99.80			
24	622533	7.09	0.240	0.020	2.07	4.78	99.57			
25	622534	6.84	0.187	0.032	2.78	7.71	99.60			

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty Ltd
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAG
	100560.60.09379	16/04/93	2752	11 OF

TUBE No.	SAMPLE No.	MgO	P2O5	S	Na2O	LOI	TOTAL			
1	622485	2.15	0.397	0.034	0.66	10.41	99.87			
2	622486	2.41	0.328	0.029	2.43	5.71	99.76			
3	622487	3.16	0.312	0.427	3.68	4.13	99.59			
4	622488	2.47	0.304	0.376	4.69	3.10	100.01			
5	622489	2.70	0.295	0.477	3.87	3.48	99.51			
6	622490	3.94	0.288	0.508	3.72	4.51	100.44			
7	622491	4.04	0.285	0.562	4.26	5.27	100.02			
8	622492	4.13	0.281	0.694	3.60	5.69	99.97			
9	622493	3.47	0.267	0.896	2.90	6.53	100.40			
10	622494	3.67	0.247	0.663	4.32	4.00	100.46			
11	622495	3.30	0.234	0.644	3.12	7.86	99.80			
12	622496	2.37	0.253	0.406	4.04	4.39	100.05			
13	622497	3.04	0.248	0.488	3.59	4.62	99.98			
14	622498	2.43	0.254	0.406	3.24	4.26	99.86			
15	622499	2.52	0.256	0.919	3.55	5.41	99.50			
16	622500	2.02	0.248	0.880	3.86	5.60	99.64			
	622501	2.02	0.250	0.940	3.85	4.83	99.62			
18	622502	2.25	0.244	0.728	4.04	4.05	99.57			
19	622503	2.02	0.249	0.522	3.77	4.42	99.65			
20	622504	2.38	0.251	0.722	2.73	5.66	99.94			
21 X	622505	7.48	0.187	0.089	3.48	5.55	99.66			
22	622506	2.61	0.239	1.218	2.40	6.88	99.58			
23	622507	3.50	0.244	0.256	3.17	4.38	99.67			
24	622508	2.18	0.241	0.170	3.12	5.44	99.68			
25	622509	1.94	0.244	0.192	4.00	4.80	99.58			

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	100560.60.09379	16/04/93	2752	14 OF 15

TUBE No.	SAMPLE No.	MgO	P2O5	S	Na2O	LOI	TOTAL			
1	622560	4.90	0.131	0.161	2.18	8.04	100.44			
2	622561	1.85	0.146	0.114	2.48	4.87	99.82			
3	622562	1.90	0.135	0.174	3.02	5.07	99.84			
4	622563	3.61	0.138	0.072	3.55	7.42	100.34			
5	622564	1.10	0.104	0.045	4.35	3.91	99.71			
6	622565	1.22	0.092	0.075	2.41	5.06	99.74			
7	622566	1.04	0.081	0.124	1.12	5.39	99.58			
8	622567	0.81	0.069	0.066	2.85	4.11	100.18			
9	622568	0.76	0.069	0.049	3.61	3.90	99.50			
10	622569	0.69	0.066	0.098	4.29	3.46	99.57			
11	622570	0.79	0.063	0.152	3.15	3.44	99.65			
12	622571	0.87	0.063	0.157	2.17	4.81	99.64			
13	622572	3.17	0.107	0.179	1.49	9.52	100.21			
14	622573	1.31	0.052	0.045	0.94	5.20	99.53			
15	622574	3.31	0.100	0.149	0.99	9.27	99.73			
16	622575	0.83	0.070	0.137	0.87	7.52	99.60			
	622576	1.16	0.053	0.176	0.12	8.55	100.25			
18	622577	3.78	0.089	0.240	1.11	13.17	100.34			
19	622578	1.59	0.097	0.281	0.76	7.66	100.19			
20	622579	0.99	0.093	0.154	0.33	7.62	99.55			
21	622580	2.60	0.101	0.102	1.58	5.04	99.57			
22	622581	2.59	0.106	0.098	3.10	3.99	99.91			
23	622582	2.02	0.106	0.062	2.77	3.80	99.67			
24	622583	1.09	0.102	0.075	2.05	5.09	99.56			
25	622584	1.26	0.100	0.026	3.32	5.64	99.59			

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	100560.60.09379	16/04/93	2752	13 OF

TUBE No.	SAMPLE No.	MgO	P2O5	S	Na2O	LOI	TOTAL			
1	622535	6.93	0.189	0.083	2.43	4.20	99.62			
2	622536	6.71	0.188	0.074	2.17	3.56	100.07			
3	622537	6.56	0.184	0.068	2.34	4.71	100.22			
4	622538	6.97	0.184	0.072	2.19	7.25	100.07			
5	622539	7.80	0.180	0.111	2.19	6.70	100.22			
6	622540	8.26	0.170	0.099	2.32	7.42	99.88			
7	622541	6.51	0.166	0.018	2.30	4.47	100.24			
8	622542	6.54	0.160	0.021	2.29	4.40	99.51			
9	622543	6.26	0.149	0.034	2.55	5.01	99.83			
10	622544	7.10	0.133	0.024	2.22	5.94	100.18			
11	622545	6.00	0.127	0.124	1.97	7.96	99.55			
12	622546	5.00	0.210	0.030	2.38	8.44	99.88			
13	622547	3.54	0.142	0.090	1.30	9.72	99.57			
14	622548	2.53	0.144	0.096	3.35	8.62	100.39			
15	622549	3.11	0.141	0.056	2.70	7.45	100.00			
16	622550	4.03	0.152	0.061	3.41	5.41	99.53			
	622551	3.15	0.147	0.052	3.38	5.49	99.83			
18	622552	2.93	0.153	0.037	3.16	5.70	99.77			
19	622553	3.51	0.147	0.018	2.07	4.96	100.27			
20	622554	4.98	0.146	0.273	2.64	6.20	99.72			
21	622555	4.04	0.151	0.085	3.39	6.32	99.51			
22	622556	3.36	0.152	0.019	2.97	6.63	99.61			
23	622557	3.48	0.185	0.044	2.48	8.15	99.54			
24	622558	3.05	0.142	0.036	2.43	12.20	99.52			
25	622559	2.26	0.149	0.095	2.98	10.89	99.91			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

TABLE 3. Representative Whole-Rock Analyses, Recalculated Volatile-Free, of Suite III Rocks from the Mount Read Volcanics

	Lynch Creek basalts				Howard's Plains area				Que-Hellyer hanging-wall sequence				Sock Creek	
	Yolande River sequence								Mount Charter Group					
Sample no.	482080	482074	C9	C8	Z627	Y408	Z102	Z96	334161	Z7251	334162	MR437	Z7250	Z7247
Locality[1]	796336	796336	790363	788364	781423	790469	790423	791424	HL6 200.lm	HP2 392m	HL6 208.4	913959	SCS3 82m	SCS2 69m
(Wt %)														
SiO_2	52.1	52.6	57	57.2	49.5	51.8	54.6	57.3	49.9	52.9	55.6	56.2	50.9	52.2
TiO_2	0.57	0.81	0.55	0.47	0.32	0.41	0.38	0.47	0.85	0.52	0.77	0.60	0.41	0.44
Al_2O_3	17.5	18.1	17.6	15.9	8.9	12.5	12.1	13.8	14.1	13.6	18.6	13.1	14.5	15.9
FeO_{total}	12.50	9.53	7.79	7.95	10.50	10.00	8.24	8.02	9.77	8.51	10.5	9.02	8.78	9.2
MnO	0.15	0.11	0.17	0.14	0.20	0.18	0.14	0.17	0.16	0.14	0.23	0.18	0.24	0.26
MgO	6.16	4.18	5.05	6.26	16.40	11.40	9.89	6.98	11.6	15.2	4.60	8.20	9.22	8.66
CaO	4.53	7.38	5.99	5.73	11.90	9.48	9.25	6.62	8.83	6.50	3.08	7.96	12.10	11.2
Na_2O	4.28	4.85	3.99	3.41	1.35	2.02	2.93	3.26	1.22	1.53	4.12	3.06	3.53	1.66
K_2O	1.83	1.36	1.68	2.61	0.70	1.66	2.22	3.14	3.07	0.99	1.93	1.31	0.29	0.34
P_2O_5	0.36	1.00	0.24	0.28	0.17	0.48	0.28	0.24	0.43	0.12	0.57	0.41	0.07	0.06
L.O.I.	3.41	3.53	4.28	3.87	3.28	4.07	2.87	2.59	3.29	5.37	3.99	2.64	5.38	3.34
Trace elements (ppm)														
Ni	70	34	42	57	303	130	115	67		380	17	87	137	120
Cr	85	47	85	152	819	580	640	280		1,133	5	370	497	370
V	294	305	217	227	221	240	240	195		223	302	282	263	271
Sc	33	36	19	21	49	39	42	31		28	31	32	39	43
Zr	168	254	114	137	53	105	76	105	195	75	187	131	28	30
Nb	9	10	9	<5	4	4	<3	<3	13	5	11	8	3	3
Y	22	35	20	24	34	32	17	22	32	16	32	21	12	15
Sr	372	1,025	372	636	182	420	185	220	404	183	595	612	307	374
Rb	41	31	35	34	155	41	45	72	50	27	46	24	9	8
Ba	1,052	1,352	825	1,650	382	1,300	1,750	1,150		13,337	3,407	1,114	323	328
Ti/Zr	20.3	19.1	28.9	20.6	36.2	23.4	30	26.8	25.2	41.6	24.7	27.5	87.8	87.9
P_2O_5/TiO_2	0.632	1.235	0.436	0.596	0.531	1.171	0.737	0.511	0.512	0.231	0.740	0.683	0.171	0.136
Rare earth elements (ppm)														
La	84.0	126.0	40.1	60.1		112.5	54.3	63.3	58.6	21.3	93.5	50.5	9.0	8.2
Ce	186.0	270.0	82.5	124.0		209.0	99.9	117.1	137.0	42.1	193.8	105.0	19.8	18.5
Pr	20.50	31.40	8.64	13.50		26.20	11.40	12.85	15.60	4.71	21.40	11.70	2.29	2.22
Nd	71.7	121.0	33.5	50.0		103.4	43.6	47.8	59.3	18.2	84.1	44.5	9.8	9.3
Sm	12.30	20.60	5.69	8.17		18.80	7.65	8.18	10.50	3.49	15.10	7.33	2.10	1.80
Eu	3.03	5.38	0.93	2.16		4.49	1.96	1.69	2.59	1.02	3.80	1.97	0.50	0.36
Gd	7.58	13.90	4.32	5.79		13.20	6.09	6.03	7.18	3.17	10.70	5.58	2.21	1.91
Dy	4.52	7.96	3.68	4.33		7.51	3.84	4.41	5.79	2.77	6.93	3.94	2.41	2.16
Er	2.15	3.41	2.43	2.67		3.67	2.18	2.75	3.00	1.77	3.32	1.97	1.55	1.28
Yb	1.61	2.44	2.10	2.16		2.87	1.78	2.14	2.03	1.67	2.93	1.62	1.50	1.23
$(La/Yb)_N$	34.46	34.11	12.61	18.38		25.89	20.14	19.53	19.07	8.44	21.08	20.59	3.96	4.42

Samples 334161 and 33416 are from Aberfoyle drill hole HL6; sample Z7251 is from Broken Hill Pty. drill hole High Point 2; samples Z7247 and Z7240 are from Broken Hill Pty. drill holes Sock Creek South

L.O.I. = loss on ignition

[1] Australian metric grid reference for sheet prefixed CP

TABLE 3. Representative Whole-Rock Analyses, Recalculated Volatile-Free, of Suite III Rocks from the Mount Read Volcanics

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	Yolande River sequence								Mount Charter Group					
Sample no.	482080	482074	C9	C8	Z627	Y408	Z102	Z96	334161	Z7251	334162	MR437	Z7250	Z7247
Locality[1]	796336	796336	790363	788364	781423	790469	790423	791424	HL6 200.lm	HP2 392m	HL6 208.4	913959	SCS3 82m	SCS2 69m
(Wt %)														
SiO_2	52.1	52.6	57	57.2	49.5	51.8	54.6	57.3	49.9	52.9	55.6	56.2	50.9	52.2
TiO_2	0.57	0.81	0.55	0.47	0.32	0.41	0.38	0.47	0.85	0.52	0.77	0.60	0.41	0.44
Al_2O_3	17.5	18.1	17.6	15.9	8.9	12.5	12.1	13.8	14.1	13.6	18.6	13.1	14.5	15.9
FeO_{total}	12.50	9.53	7.79	7.95	10.50	10.00	8.24	8.02	9.77	8.51	10.5	9.02	8.78	9.2
MnO	0.15	0.11	0.17	0.14	0.20	0.18	0.14	0.17	0.16	0.14	0.23	0.18	0.24	0.26
MgO	6.16	4.18	5.05	6.26	16.40	11.40	9.89	6.98	11.6	15.2	4.60	8.20	9.22	8.66
CaO	4.53	7.38	5.99	5.73	11.90	9.48	9.25	6.62	8.83	6.50	3.08	7.96	12.10	11.2
Na_2O	4.28	4.85	3.99	3.41	1.35	2.02	2.93	3.26	1.22	1.53	4.12	3.06	3.53	1.66
K_2O	1.83	1.36	1.68	2.61	0.70	1.66	2.22	3.14	3.07	0.99	1.93	1.31	0.29	0.34
P_2O_5	0.36	1.00	0.24	0.28	0.17	0.48	0.28	0.24	0.43	0.12	0.57	0.41	0.07	0.06
L.O.I.	3.41	3.53	4.28	3.87	3.28	4.07	2.87	2.59	3.29	5.37	3.99	2.64	5.38	3.34
Trace elements (ppm)														
Ni	70	34	42	57	303	130	115	67		380	17	87	137	120
Cr	85	47	85	152	819	580	640	280		1,133	5	370	497	370
V	294	305	217	227	221	240	240	195		223	302	282	263	271
Sc	33	36	19	21	49	39	42	31		28	31	32	39	43
Zr	168	254	114	137	53	105	76	105	195	75	187	131	28	30
Nb	9	10	9	<5	4	4	<3	<3	13	5	11	8	3	3
Y	22	35	20	24	34	32	17	22	32	16	32	21	12	15
Sr	372	1,025	372	636	182	420	185	220	404	183	595	612	307	374
Rb	41	31	35	34	155	41	45	72	50	27	46	24	9	8
Ba	1,052	1,352	825	1,650	382	1,300	1,750	1,150		13,337	3,407	1,114	323	328
Ti/Zr	20.3	19.1	28.9	20.6	36.2	23.4	30	26.8	25.2	41.6	24.7	27.5	87.8	87.9
P_2O_5/TiO_2	0.632	1.235	0.436	0.596	0.531	1.171	0.737	0.511	0.512	0.231	0.740	0.683	0.171	0.136
Rare earth elements (ppm)														
La	84.0	126.0	40.1	60.1		112.5	54.3	63.3	58.6	21.3	93.5	50.5	9.0	8.2
Ce	186.0	270.0	82.5	124.0		209.0	99.9	117.1	137.0	42.1	193.8	105.0	19.8	18.5
Pr	20.50	31.40	8.64	13.50		26.20	11.40	12.85	15.60	4.71	21.40	11.70	2.29	2.22
Nd	71.7	121.0	33.5	50.0		103.4	43.6	47.8	59.3	18.2	84.1	44.5	9.8	9.3
Sm	12.30	20.60	5.69	8.17		18.80	7.65	8.18	10.50	3.49	15.10	7.33	2.10	1.80
Eu	3.03	5.38	0.93	2.16		4.49	1.96	1.69	2.59	1.02	3.80	1.97	0.50	0.36
Gd	7.58	13.90	4.32	5.79		13.20	6.09	6.03	7.18	3.17	10.70	5.58	2.21	1.91
Dy	4.52	7.96	3.68	4.33		7.51	3.84	4.41	5.79	2.77	6.93	3.94	2.41	2.16
Er	2.15	3.41	2.43	2.67		3.67	2.18	2.75	3.00	1.77	3.32	1.97	1.55	1.28
Yb	1.61	2.44	2.10	2.16		2.87	1.78	2.14	2.03	1.67	2.93	1.62	1.50	1.23
$(La/Yb)_N$	34.46	34.11	12.61	18.38		25.89	20.14	19.53	19.07	8.44	21.08	20.59	3.96	4.42

Samples 334161 and 33416 are from Aberfoyle drill hole HL6; sample Z7251 is from Broken Hill Pty. drill hole High Point 2; samples Z7247 and Z7240 are from Broken Hill Pty. drill holes Sock Creek South

L.O.I. = loss on ignition

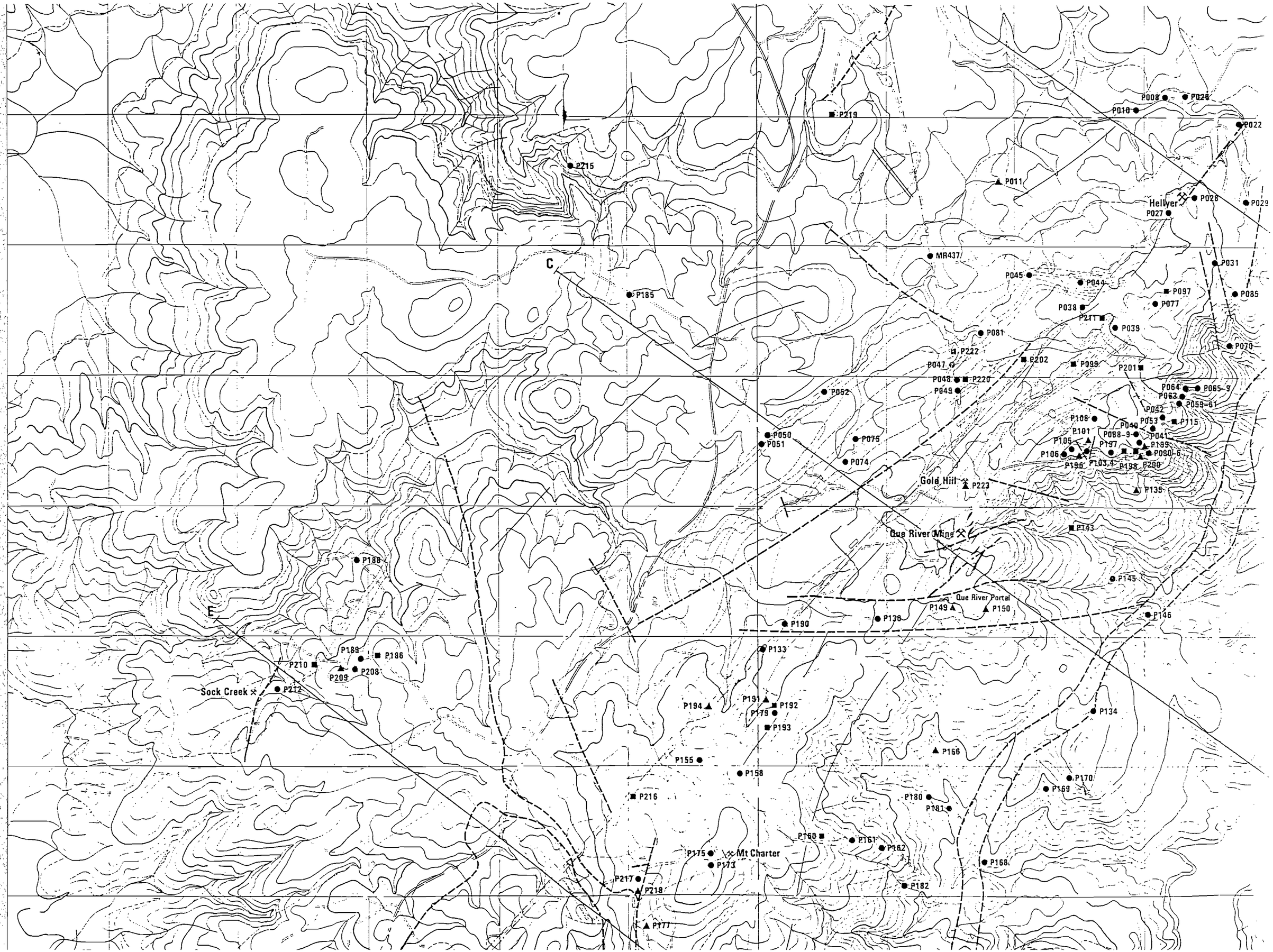
[1] Australian metric grid reference for sheet prefixed CP

Table 1 (continued)

WHOLE-ROCK CHEMICAL ANALYSES OF 44 ROCKS FROM THE HELLYER–MT CHARTER AREA

	QUE–HELLYER VOLCANICS																						
	MIXED SEQUENCE DACITES													UPPER BASALTS AND ANDESITES								SOCK CREEK	
	MC2A/C	P200	MC1/C	P088	P202	P191	P192	P220	P199	P211	P198	P222	Average values	MC1/B	MR437	P116	P177	P218	P097	P115	Average values	P186	P209
SiO_2	68.35	70.90	71.11	72.18	72.09	73.43	73.76	75.27	76.55	77.51	78.61	80.38	74.18	48.07	56.41	59.87	58.55	60.84	61.87	64.97	58.65	72.65	74.51
TiO_2	0.38	0.32	0.39	0.27	0.62	0.28	0.26	0.41	0.26	0.29	0.31	0.28	0.34	0.59	0.56	0.75	0.50	0.36	0.63	0.32	0.53	0.61	0.62
Al_2O_3	16.23	16.17	14.94	13.98	20.82	14.80	14.45	16.14	13.52	15.90	15.00	13.99	15.50	17.96	12.99	17.23	14.46	19.07	16.71	14.43	16.12	15.62	14.32
Fe_2O_3	1.25	0.98	4.76*	3.07	0.30	2.10	2.01	2.32	0.66	1.41	0.86	0.87	1.44	11.28*	0.81	2.58	1.08	1.44	10.99	1.13	3.01	1.43	0.18
FeO	4.07	2.45	-	2.93	0.37	0.79	1.86	1.17	1.09	0.37	0.43	0.67	1.47	-	8.25	4.34	5.35	7.07	3.43	8.63	6.18	0.96	1.34
MnO	0.12	0.11	0.09	0.39	0.01	0.04	0.05	0.13	0.10	0.01	0.01	0.01	0.09	0.28	0.20	0.07	0.76	0.22	0.04	0.49	0.29	0.04	0.04
MgO	1.52	1.24	0.94	0.80	0.19	0.05	0.31	0.40	0.41	0.15	0.03	0.03	0.51	8.96	8.29	5.08	6.07	3.64	3.02	6.73	5.97	0.55	0.27
CaO	0.69	2.99	0.68	2.51	0.02	0.35	0.24	0.14	2.74	0.04	0.08	0.03	0.88	8.12	8.05	6.23	6.63	0.56	0.15	0.37	4.30	0.19	0.31
Na_2O	4.83	1.18	5.10	1.41	0.41	5.35	2.57	0.52	1.90	0.19	1.30	0.34	2.09	2.80	2.84	0.53	4.12	5.24	0.49	2.43	2.64	6.00	7.34
K_2O	2.49	3.57	2.20	2.37	5.14	2.74	4.45	3.37	2.73	4.10	3.30	3.37	3.32	1.39	1.24	2.91	2.35	1.45	2.49	0.43	1.75	1.84	0.94
P_2O_5	0.07	0.09	0.08	0.09	0.03	0.07	0.04	0.13	0.08	0.03	0.07	0.03	0.07	0.55	0.36	0.41	0.13	0.11	0.18	0.07	0.26	0.11	0.13
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-	100.00	100.00
LOI	1.71	5.63	2.04	5.27	3.28	1.64	2.35	3.82	4.64	2.86	2.63	2.97	-	3.59	4.16	9.71	3.60	4.26	7.65	5.73	-	2.16	0.89
Ba	1300	730	-	550	630	1800	2300	1650	500	420	670	640	1017	-	1130	670	1550	1050	6900	260	1927	880	250
Rb	92	150	72	82	125	81	135	140	99	145	115	115	113	33	32	93	85	73	93	32	63	65	105
Sr	200	26	187	53	66	260	210	42	135	11	39	32	105	768	610	120	280	240	34	98	307	145	7
Y	30	19	36	25	21	28	26	28	17	21	26	23	25	29	17	23	54	16	31	16	27	32	30
Nb	15	8	14	8	9	7	6	7	8	9	8	11	9	10	6	11	5	7	9	4	7	10	12
Zr	230	140	223	140	170	165	175	135	150	160	170	185	162	137	150	160	95	200	170	85	142	750	135
Co	7	5	-	8	11	8	7	11	6	<4	<4	7	7	-	36	34	23	9	33	35	28	7	4
Ni	14	5	-	5	<3	4	<3	11	4	3	3	6	5	-	85	45	55	24	150	125	81	<3	3
Cr	64	125	-	46	74	82	47	110	82	39	42	82	72	-	430	420	410	31	770	680	457	40	62
V	19	260	-	20	30	31	28	66	26	39	31	23	52	-	310	280	230	91	280	195	231	41	6
Sc	<10	35	-	14	11	15	14	17	11	12	12	<10	13	-	32	39	33	15	40	28	31	15	<10
Cu	10	12	6	11	10	9	20	8	9	12	8	10	10	85	110	39	8	8	99	68	60	7	10
Pb	<4	26	4	6	9	8	9	5	7	7	8	12	9	5	7	32	8	<4	11	9	11	5	6
Zn	33	11	46	28	26	37	150	37	17	16	26	26	38	84	75	92	760	74	140	160	198	59	11
Ti/Zr	10	14	10	12	22	9	9	18	10	11	11	9	13	26	22	28	32	11	22	23	22	5	28
Cr/Y	2	7	-	2	3	3	2	4	5	2	2	4	3	-	25	18	8	2	25	43	20	1	2
Co/Ni	0.5	1.0	-	1.6	-	2.0	-	1.0	1.5	-	-	1.2	1.3	-	0.4	0.07	0.4	0.4	0.2	0.3	0.4	-	1.3

* Total Fe expressed as Fe_2O_3.
Major element values have been re-calculated volatile-free. Analyses MC1/C and MC1/B kindly supplied by A. J. Stolz (University of Tasmania, Geology Department), all others by Department of Mines, Launceston Laboratories.


C
E
Hellyer
Gold Hill
Que River Mine
Que River Portal
Sock Creek
Mt Charter
P008
P026
P010
P022
P219
P215
P011
P028
P029
P027
MR437
P031
P045
P044
P097
P085
P077
P185
P038
P211
P039
P081
P070
P222
P202
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P047
P048
P220
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P063
P059-61
P042
P053
P115
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P040
P088-9
P041
P101
P105
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P199
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P090-6
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P177

Catalog #	Rock name	Rock description	AMG east	AMG north	DDH	Depth	Formation	Member	Preparations
130833	dacite	silica-sericite altered, feldspar phyric dacite	389580	5392935	Mac 35	910	Que-Hellyer Volcanics	upper dacite	R
130834	dacite	silica-sericite altered, feldspar phyric dacite	389300	5391520	Mac 33	504	Que-Hellyer Volcanics	upper dacite	R
130835	dacite	silica-sericite altered, feldspar phyric dacite	389580	5392935	Mac 35	910	Que-Hellyer Volcanics	upper dacite	TS
130836	basalt	amygdaloidal basalt lava	389580	5392935	Mac 35	630	Que-Hellyer Volcanics	upper basalt	R
130837	basalt	amygdaloidal basalt lava	389580	5392935	Mac 35	299.5	Que-Hellyer Volcanics	upper basalt	R
130838	basalt	amygdaloidal basalt lava, augite olivine-phyric	389580	5392935	Mac 35	299.5	Que-Hellyer Volcanics	upper basalt	TS
130839	basalt	amygdaloidal basalt lava, augite olivine-phyric	389300	5391520	Mac 33	320.8	Que-Hellyer Volcanics	upper basalt	TS
130840	basalt	amygdaloidal basalt lava, augite olivine-phyric	389580	5392935	Mac 35	320	Que-Hellyer Volcanics	upper basalt	R
130841	basalt breccia	monomict augite + olivine phyric basalt lava breccia	389300	5391520	Mac 33	252	Que-Hellyer Volcanics	upper basalt	R
130842	hyaloclastite	dacite hyaloclastite, clasts of feldspar phyric dacite	389300	5391520	Mac 33	652.5	Que-Hellyer Volcanics	upper dacite	R
130843	black shale	black, massive pyritic shale	388340	5392460	Mac 27	644.9	Que-Hellyer Volcanics	Que River Shale	R
130844	black shale	black, finely laminated	389110	5392870	MC 13	260.1	Que-Hellyer Volcanics	Que River Shale	R
130845	black shale	black, fine-grained, pyritic	388340	5392460	Mac 27	644.9	Que-Hellyer Volcanics	Que River Shale	TS
130846	volcaniclastic	volcaniclastic, andesite ash layer	389110	5392870	MC 13	252.7	Que-Hellyer Volcanics		R
130847	siltstone	laminated siltstone, with pyrite clasts	389110	5392870	MC 13	255.4	Que-Hellyer Volcanics		R
130848	siltstone	laminated siltstone, with pyrite clasts	389110	5392870	MC 13	255.4	Que-Hellyer Volcanics		TS
130849	andesite	chlorite altered, feldspar phyric andesite	389300	5391520	Mac 33	676	Que-Hellyer Volcanics	upper andesite	R
130850	andesite	massive andesite lava,					Que-Hellyer Volcanics	upper andesite	R
130851	andesite	chlorite altered, feldspar phyric andesite	389300	5391520	Mac 33	676	Que-Hellyer Volcanics	upper andesite	TS
130852	andesite	hydrofractured, aphyric andesite	389580	5392935	Mac 35	780	Que-Hellyer Volcanics	upper andesite	R
130853	andesite	perlitically cracked massive andesite	389300	5391520	Mac 33	524	Que-Hellyer Volcanics	upper andesite	R
130854	breccia	monomict andesite breccia, silica-sericite	388500	5391780	MC 14	345	Que-Hellyer Volcanics	upper andesite	R
130855	breccia	hydrofractured, weakly feldspar phyric andes.	389580	5392935	Mac 35	234.4	Que-Hellyer Volcanics	upper andesite	R
130856	peperite	silica-sericite altered, mudstone-andesite.	388340	5392460	Mac 27	367.5	Que-Hellyer Volcanics	upper andesite	R
130857	peperite	sericite-chlorite altered basalt peperite	389580	5392935	Mac 35	323.6	Que-Hellyer Volcanics	upper basalt	R
130858	andesite	massive, silica vein cross cutting	389580	5392935	Mac 35	382.75	Que-Hellyer Volcanics	upper andesite	R
130859	andesite	massive, pseudofragmental silica-sericite	388340	5392460	Mac 27	260.1	Que-Hellyer Volcanics	upper andesite	R
130860	basalt?	pervasive silica-sericite-pyrite altn	389580	5392935	Mac 35	263	Que-Hellyer Volcanics	upper basalt	R
130861	peperite	chlorite altn of igneous clasts	389580	5392935	Mac 35	262.6	Que-Hellyer Volcanics	upper basalt	R
130862	basalt?	sericite-fuchsite-calcite altn of bas	388340	5392460	Mac 27	690.2	Que-Hellyer Volcanics	upper basalt	R
130863	basalt	massive fuchsite alteration of basalt	388340	5392460	Mac 27	637.3	Que-Hellyer Volcanics	upper basalt	R
130864	basalt	massive basalt	389110	5392870	MC 13	286.2	Que-Hellyer Volcanics	upper basalt	R
130865	andesite	silica-albite altn with haematite	389300	5391520	Mac 33	364-366	Que-Hellyer Volcanics	upper andesite	R
130866	basalt	K-feldspar altn of amygdales	389580	5392935	Mac 35	288.4	Que-Hellyer Volcanics	upper basalt	R
130867	breccia	carbonate vein breccia	389580	5392935	Mac 35	207	Que-Hellyer Volcanics	upper basalt	R
130868	peperite	complex Si-Se-Chl-Ep-Ab altn of pep.	389580	5392935	Mac 35	295.5	Que-Hellyer Volcanics	upper basalt	R
130869	basalt	K-feldspar altn of amygdales	389110	5392870	MC 13	310	Que-Hellyer Volcanics	upper basalt	R

Catalog #	Rock name	Minerals	Sample form	Min. Relations	Stage	AMG east	AMG north	DDH	Depth	Preparations
111728	Basalt	sph-gn	disseminated		early	389300	5391520	Mac 33	254	R
111729	Basalt	sph-gn	disseminated		early	388500	5391780	MC 14	171	R
111730	Basalt	sph-gn	disseminated		early	388500	5391780	MC 14	171	R
111731	Basalt	sph-gn-py	disseminated		early	388500	5391780	MC 14	171	PS
111732	Basalt	sph-qz-co	veins	overprint	late	388340	5392460	Mac 27	268.2	R
111733	Basalt	sph-qz-co	veins	overprint	late	388340	5392460	Mac 27	390	R
111734	Basalt	sph-gn-py-cpy	veins	overprint	late	388340	5392460	Mac 27	529.1	PS
111735	Basalt	cpy-co	veins	overprint	late	388340	5392460	Mac 27	529.1	R
111736	Basalt	sp-py-gn-po-cp	veins	overprint	late	388340	5392460	Mac 27	729.1	PS
111737	Basalt	po-co	veins	overprint	very late	388340	5392460	Mac 27	729	R

Catalog #	Rock name	Minerals	Sample form	Min. Relation	Stage	AMG east	AMG north	DDH	Depth	Preparations
111728	Basalt	sph-gn	disseminated		early	389300	5391520	Mac 33	254	R
111729	Basalt	sph-gn	disseminated		early	388500	5391780	MC 14	171	R
111730	Basalt	sph-gn	disseminated		early	388500	5391780	MC 14	171	R
111731	Basalt	sph-gn-py	disseminated		early	388500	5391780	MC 14	171	PS
111732	Basalt	sph-qz-co	veins	overprint	late	388340	5392460	Mac 27	268.2	R
111733	Basalt	sph-qz-co	veins	overprint	late	388340	5392460	Mac 27	390	R
111734	Basalt	sph-gn-py-cpy	veins	overprint	late	388340	5392460	Mac 27	529.1	PS
111735	Basalt	cpy-co	veins	overprint	late	388340	5392460	Mac 27	529.1	R
111736	Basalt	sp-py-gn-po-cp	veins	overprint	late	388340	5392460	Mac 27	729.1	PS
111737	Basalt	po-co	veins	overprint	very late	388340	5392460	Mac 27	729	R