603001

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EXPLORATION LICENCE 43/85

BEULAH

TASMANIA

PROGRESS REPORT FOR THE YEAR

ENDED APRIL 29, 1989

89-2999

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Distribution

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1.0 Summary and Conclusions

Exploration by Aberfoyle within the Beulah exploration licence (E.L. 43/85) during 1988/89 has concentrated predominantly on the intermediate lavas of the Beulah Formation (after Jennings, 1979).

Gridding in the Lower Beulah area covers Beulah Formation intermediate volcanics and minor Gog Range sediments along the nothwesterly alteration trend from the Beulah Barite occurrence. The north eastern portion of the grid covers an area with strongly anomalous stream sediment geochemistry located by Austamax in 1983 and termed 'anomaly 1'.

A soil sampling programme over the grid outlined a north trending zone strongly anomalous in lead, zinc and copper. The zone occurs west of the 'anomaly 1' area, over hills not previously adequately mapped or sampled.

Mapping in the gridded area has located predominantly andesitic to basaltic lavas and lava breccias of the Beulah Formation. A conformable epiclastic horizon separates sediments of the Gog Range Greywacke from the Beulah Formation intermediate rocks. The Gog Range sediments have slightly elevated copper values when compared to the unaltered volcanic rocks, with the contact quite sharply defined on image processed soil geochemistry plots.

Hydrothermal alteration has variably affected rocks outcropping within the areas of strongly anomalous soil geochemistry. Alteration styles visible are, weak pervasive haematite alteration, weak calcite and pyrite alteration and a very intense epidote/quartz alteration.

A preliminary interpretation of the stratigraphy in the area is that the Beulah Formation intermediate volcanic rocks overly the Gog Range sediments. This interpretation differs from that of Jennings (1979) and has important regional implications for the potential of other Cambrian volcanic rocks within the licence.

2.0 Introduction

The Beulah licence covers 80 square kilometres to the southwest and southeast of Sheffield (plate BEUL 8).

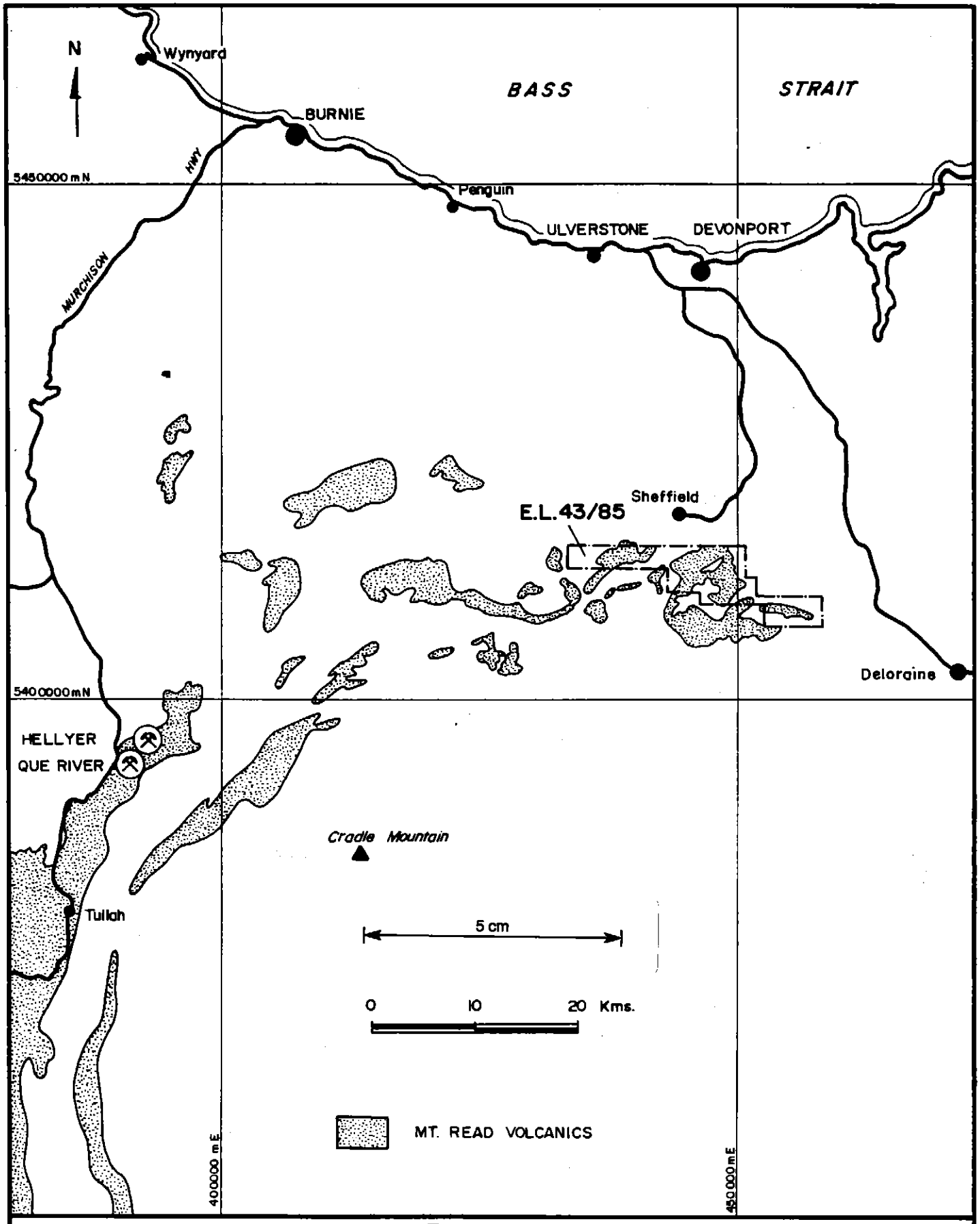
Exploration has centred on the Cambrian volcanic rocks which form part of the northeastern extension of the Mount Read volcanic arc and which cover nearly half the licence. The Cambrian rocks within the licence comprise three distinct packages referred to as, the Minnow Keratophyre, Gog Range Greywacke and the Beulah Formation (after Jennings, 1979) (refer to plate BEUL 24). The stratigraphic sequence has been interpreted by Jennings (1979) as Beulah Formation overlain by the Gog Range Greywacke which is in turn overlain by the Minnow Keratophyre.

The Beulah Formation rocks comprise predominantly intermediate lavas and lava breccias with minor subsidiary dacitic and volcaniclastic units and are interpreted by Jack (1988) to be correlates of the Que-Hellyer package. The Gog Range Greywacke comprises a mixture of greywackes and sediments with only a minor volcanic component. The Minnow Keratophyre rocks comprising predominantly acid volcanic rocks have been interpreted to be correlates of the Tyndall Group (Sise, 1987).

Aberfoyles primary target within the licence is volcanogenic massive sulphide accumulations. No known economic mineralisation has yet been discovered on the licence. Previous systematic exploration has been undertaken by Asarco in 1973-1976, Austamax 1983-1985 and Aberfoyle since 1986.

Work by Aberfoyle in 1988/89 comprised a joint programme in conjunction with work on the adjoining Gowrie Park licence. Work on the Beulah licence involved gridding in the Lower Beulah area and an extension of the Stonebridge grid near Paradise. A soil sampling programme was conducted at Lower Beulah, with 1:2,500 scale mapping undertaken on both grids.

603006



Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA

BEULAH E.L. 43/85

LOCATION PLAN

Scale : 1:500,000

Date : April, 1988

Compiled : RJE, DJJ

Drawn : RJE

Traced :

Checked :

Plate No. : BEUL. 8

1511

Aberfoyle Resources Limited

EXPLORATION DIVISION

E.L.43/85 BEULAH

SUMMARY OF EXPLORATION

NORTHERN TASMANIA

REVISIONS					
Init.	Date	Init.	Date		

Location Code : K55/3

Scale : As shown

Date : July, 1989

Compiled : SWR

Drawn : SWR

Traced : JLR

Checked :

Plate No. : BEUL.24

N

005

REGIONAL

1973 Asarco Stream Sediment Sampling 2 Samples Km²

1983 Austamax Follow-up Stream Sediment Programme

1984 Austamax Airborne Dighem

1987/88 Aberfoyle – Rock Chip Sampling
– Lead Isotope Analysis

SHEFFIELD

DEVONPORT

HOBART

RIVER

DASHER

Promised Land

Staverton

Claude Road

Paradise

Beulah

Weegena

MERSEY

RIVER

STONEBRIDGE 1988/89
– Gridding Extended from Gowrie Park E.L.11/88
– 1:2500 Mapping

ANOMALY I. AREA

1984 Austamax 'Anomaly I.' 1st Order Stream Sediment Anomaly Followed up by Rock Chip Sampling

1986 Aberfoyle Rock Chip Sampling

1987/88 Aberfoyle UTEM Survey

LOWER BEULAH AREA

1988/89 Aberfoyle – Gridding
– Soil Geochemistry
– 1:2500 Mapping

5410000N

Mt. Roland

Gowrie Park

Mt. Claude

0 4Km

5 cm

440000E

450000E

CAMBRIAN ROCKS

€mk Acid volcanics

€gg Greywacke & other sediments

€bf Basalts, andesites & minor dacites

603007

3.0 Previous Exploration

Exploration within the licence area is summarised in BEUL 24 and is discussed briefly below. A more detailed description of exploration up to April 1987 can be found in Sise (1987).

Initial systematic exploration within the licence was undertaken by Asarco in 1973 to 1976 when they conducted a regional stream sediment sampling programme (sample locations are shown on plate BEUL 3, Sise 1987). No anomalies were detected and the licence was relinquished.

Austamax (Amax) reinterpreted the Asarco data which when combined with a follow-up stream sediment sampling programme produced 5 anomalies worthy of further consideration. One of these, 'anomaly 1', is within the current E.L. boundary. Follow-up rock chip sampling in the 'anomaly 1' area by Austamax (refer to plate BEUL 16A for sample locations) failed to produce encouraging results and no detailed work was initiated in the area. A 1984 airborne EM survey over parts of the licence, flown for Austamax by DIGHEM Limited, produced 82 anomalies (Vivian, 1984). Follow-up work failed to generate any encouragement and the licence was relinquished in 1986.

Exploration by Aberfoyle, since attaining the licence on 29.4.1986 to the commencement of the period covered by this report, involved both regional work and detailed work in the 'anomaly 1' area.

Petrographic and geochemical characterisation of a suite of Beulah Formation rocks was undertaken by D. J. Jack (1988). He concluded that the Beulah Formation rocks are calc-alkaline Mount Read Volcanic rocks. In particular, he considered that the lavas and lava breccias at Beulah are similar to the Que-Hellyer andesites. Lead isotope analysis (Carr, 1987) confirmed that hydrothermal mineralisation observed at Beulah and other areas outside the licence could not be attributed to Devonian granite intrusions (Jack, 1988).

Detailed exploration by Aberfoyle to April 1988 concentrated on the 'anomaly 1' area, outlined by Austamax in 1983. Work involved both rock chip sampling (locations are shown on plate BEUL 7, Sise 1987, and plate BEUL 16A, this report) and UTEM surveying (loop locations are shown on plate BEUL 9, Jack, 1988). The rock chip sampling located some samples with slightly elevated Cu, Pb and Zn, but with no significant alteration (Sise, 1987). The UTEM survey failed to detect any massive sulphide conductors.

Despite the lack of encouraging results, Jack (1988) considered that the licence was under-explored and recommended that all the Cambrian rocks on the licence should be mapped with an expansion of the rock chip sampling programme. He also recommended that soil sampling be conducted onto the Beulah licence along the alteration trend from the Beulah barite.

4.0 1988/1989 Exploration

Exploration in 1988/89 comprised:

1. A programme to establish a grid over Beulah Formation rocks in the Lower Beulah area (northwest of the Beulah barite occurrence on the adjacent Gowrie Park licence (E.L. 11/88).

2. Soil sampling over the established grid.

3. Follow-up mapping and sampling at 1:2,500 scale with 1:10,000 interpretation.

4. Establishment of a small grid extension to the Stonebridge grid, from the Gowrie Park licence, combined with 1:2,500 scale mapping.

4.1 Lower Beulah Area

4.1.1 Gridding

In August 1988 a grid was established over the Lower Beulah area by marking points at 200m intervals along Dynans Bridge Road. The north-south gridlines were set-up at 000° AMG (348° mag). This was a combined gridding programme over parts of both the Beulah and Gowrie Park licences and is shown on plate GP 6a.

The grid was designed to cover predominantly Beulah Formation rocks (with minor Gog Range Greywackes), previously mapped in the area (Jennings, 1979).

As the grid covers mainly open farmland, the only line cutting required was in the western most areas immediately north of Dynans Bridge Road.

The control points on Dynans Bridge Road were accurately surveyed only after the gridding had commenced with the result that some of the established gridlines were not evenly spaced at 200m.

4.1.2 Soil Sampling

A soil sampling programme was conducted over the Lower Beulah/Gowrie Park grid from September to November 1988. Samples were taken at 25m intervals. Samples were collected with a power auger from 'c' horizon at depths of generally just less than 1m. Sample locations and results are included as Appendix 1. Samples were analysed for copper, lead, zinc, silver and arsenic.

Image processed plots of the sample analyses were completed in February 1989 and are included as plates BEUL 13A to 13E. Significant results include zones of anomalous lead, zinc and copper located over the Beulah basalts (between ~ 48200-49500E and 94000-11000N, max. 1050 ppm Pb, 920 ppm Zn and 165 ppm Cu). The anomalous zones lie along a northerly trend northwest of the northwesterly trend associated with the Beulah barite occurrence.

Significantly, these anomalies are centred on the hills to the west of the 'anomaly 1' area, and as such have not previously been adequately surface mapped.

The image processed plots also show a strong copper high near the eastern most edge of the grid. This zone has maximum values of 545 ppm copper but is only very weakly anomalous in lead (max. 330 ppm) and weakly anomalous in zinc (max. 365 ppm).

Apart from the anomalous copper over the Beulah area the copper plot (plate BEUL 13A) also shows general regions of slight highs in the south and west areas of the grid. These slight highs are associated with distinct lows in the lead and zinc geochemistry (plates BEUL 13B and BEUL 13C respt.). The copper high/Pb, Zn low is defined by a sharp cutoff which trends ~ grid north.

Silver and arsenic form mainly spot highs, with no significant trends apparent (plates BEUL 13D and BEUL 13E). Both silver and arsenic are anomalous in the immediate area of the Beulah barite (6.0 ppm Ag and 94 ppm As). In the Lower Beulah area weakly anomalous arsenic levels occur at 49600E, 9550N (98 ppm), at 447600E, 9425N (130 ppm), in the 'anomaly 1' area (110 ppm) and in the northwestern area (max. 110 ppm). Silver is weakly anomalous in the 'anomaly 1' area (max. 2.5 ppm), in the northwest area (max. 2.5 ppm) and around 49400E, 9700N (max. 2.0 ppm).

4.1.3 Geology

Following the establishment of the grid and the completion of the soil sampling programme a surface mapping programme was undertaken over the gridded area. Mapping was recorded at 1:2,500 scale (refer to plates BEUL 16A and GP 25A and Appendix 5 for a list of abbreviations used).

Rocks located in the Lower Beulah area comprise predominantly Beulah Formation intermediate lavas with only minor volcaniclastic rocks and some Gog Range sediments. A total of 29 rock chip samples were collected from the area for routine petrology and/or geochemical analysis (sample locations, petrological descriptions and geochemical results are included as Appendices 2, 3 and 4 respectively).

Outcrop within the area associated with the anomalous lead, zinc and copper indicates that the anomalies are all located over Beulah Formation intermediate rocks. Rocks in the zone comprise a mixture of variably altered massive basalts and andesites. These intermediate rocks comprise variably vesicular, aphyric and strongly feldspar porphyritic lavas and lava breccias. One sample of a massive magnetite/haematite rock (513427) was noted in the northwest area of the grid.

The only felsic lava in the area is a rhyolite, reported by Austamax (Vivian, 1984), in the 'anomaly 1' area (plate BEUL 16A).

Minor volcaniclastic rocks (samples 513423, 25, 29 and 515359) are found as float or limited outcrop in the west of the grid. These rocks have been described by the petrologist as medium-coarse grained epiclastic sandstones. They comprise a mixture of both felsic volcanic rocks and pelitic metamorphic rocks (including greywacke). The volcaniclastic rocks form a horizon striking north-south which separates Beulah Formation basalts and andesites from Gog Range sediments.

Mapping traverses in the southern and western areas of the grid, following processing of the soil geochemistry, has determined that the weak copper highs/lead, zinc lows are associated with the Gog Range sediments and that the lead, zinc geochemical cutoff coincides almost exactly with the Beulah Formation/Gog Range sediment contact.

4.1.3.1 Alteration

Alteration visible within the area comprises epidote/quartz, haematite, calcite and pyrite alteration.

Intense quartz/epidote alteration has affected some of the basalt samples predominantly associated with the main Pb, Zn anomaly. This alteration has almost completely obliterated the primary texture of the rocks. The petrologist Dr. A. Crawford, of the University of Tasmania, refers to these rocks as epidosites. Possibly similar rocks have been reported by Austamax in the area of 'anomaly 1' (Vivian, 1984 refer also to plate BEUL 16A).

Weak pervasive haematite alteration has affected the groundmass of some of the basalt/andesite samples in the southernmost gridded margin of the Beulah licence and also in the northwest corner of the gridded area.

Sample 513427, a massive magnetite/haematite rock was located within the northwest corner.

Calcite occurs both disseminated through the groundmass of some samples and as vesicle filling in some of the more vesicular units. Weak pyrite alteration occurs as minor disseminations through the groundmass of some of the samples.

4.1.3.2 Rock Chip Geochemistry

The most significant lead and zinc values obtained for the rock chip samples are 1530 ppm Zn and 710 ppm Pb for a pyrite/haematite/calcite altered basalt (515356) and 930 Pb, 920 ppm Zn for a similar sample (513341) from the southern end of the main lead-zinc soil anomalous zone. A strongly haematite altered basalt (515354) from the same area contained the only elevated copper value, with 860 ppm. Sample 515356 contained the only elevated silver value (2.5 ppm). No samples analysed for gold contained significantly elevated values.

A sample of the epiclastic sandstone (515359), from the southwest corner of the grid, contained the only anomalous barium value (2450 ppm). The weakly calcite altered basalts and andesites typically contain ~ 3.0 to 3.7% calcium.

4.2 Stonebridge Area

4.2.1 Gridding

Gridding at Stonebridge, near Paradise, was undertaken during January and February of 1989. The grid was designed to cover an area of Cambrian felsic and intermediate volcanic rocks which have had previously been gridded by CRA.

The grid was set up with 200m spaced east-west lines (90° AMG). The majority of the grid is on the adjacent Gowrie Park licence with only four lines on the Beulah licence (refer to plate GP 14a).

4.2.2 Geology

Only very brief mapping was undertaken on the Stonebridge grid extension in the Beulah licence. The work accurately established the position of the north trending Tertiary basalt/Cambrian volcanic rocks contact (refer to plate GP 14a). The Cambrian rocks located on the licence are a mica-ferromagnesian-quartz porphyry, thought to be an intrusive.

5.0 Interpretations and Discussion

A geological interpretation map at 1:25,000 scale covering the entire licence is shown in plate BEUL 5. This interpretation is based on Mines Department mapping (Jennings, 1979), which has been slightly modified in the Paradise and Lower Beulah areas after Aberfoyles 1:2,500 scale mapping. A more detailed interpretation of the 1:2,500 scale mapping in the Lower Beulah area is shown at 1:10,000 scale in plate BEUL 25.

Comparison of the soil geochemistry with the interpreted geology shows that as expected, the most significantly altered rocks occur within the area associated with the strongest soil anomalies. Alteration observed in the area is attributed to a hydrothermal system that is possibly more oxidising than those responsible for the massive sulphide deposits on the west coast. Pervasive haematite alteration occasionally with magnetite is a feature not normally observed in these deposits. The presence of intense quartz/epidote alteration is another feature distinctly different from the styles of hydrothermal alteration observed on the west coast.

The major change in interpretation of geology in the Lower Beulah area when compared to previous mapping is that the previously interpreted fault, separating Gog Range sediments from the intermediate lavas of the Beulah Formation, is now interpreted to be conformable contact. The epiclastic horizon appears to consistently follow the contact with no evidence of a faulted contact visible in mapping traverses over the area. The conformable nature of the contact was a feature also noted by Jack (1988).

The recognition and discrimination of some simple stratigraphy within the Beulah Formation is an important step towards a better understanding of the sequence in the area. The presence of the apparently conformable epiclastic horizon between the intermediate lavas of the Beulah Formation and the Gog Range sediments establishes an initial strike for the units.

Preliminary structural mapping in the area indicates that the Gog Range Greywackes are all strongly deformed with steeply dipping bedding (no flat or shallowly dipping units have been observed). The western contact strikes N-S and appears to be very steeply dipping, with conflicting dip directions indicated.

The particular petrology of the rocks provides some interesting possibilities with regional significance. The basalts and andesites within the area are all petrologically and geochemically similar to those of the Que-Hellyer package (Jack, 1988), suggesting a probable correlation. The previous interpretation of the regional stratigraphy would therefore suggest that the Gog Range sediments, immediately overlying the Beulah Formation rocks (Sise, 1986), are possible correlates of the Que River Shale. The Minnow Keratophyre suite of rocks, next in the sequence, are therefore possible correlates of volcanic rocks higher in the known Mount Read sequence (Southwell Sub-group, Tyndall Group).

Possible problems arise with this interpretation, however, when one considers the common presence of pelitic metamorphic fragments, quartz and mica flakes, described within the Gog Range sediments. It is possible that these particular rocks could in fact be correlates of the Animal Creek Greywacke and in that case, be underlying the Beulah Formation.

The nature of the epiclastic unit located in the Lower Beulah area provides possible evidence for this alternate hypothesis. The volcaniclastic unit (samples 5153423, 25 and 515359) is dominated by felsic volcanic fragments and lesser pelitic metamorphic fragments, with only minor intermediate volcanic fragments. Would one not expect the overlying sediment to reflect the underlying (intermediate volcanic) lithologies? The composition observed, however, strongly suggests derivation from Minnow Keratophyre and Gog Range sediment rocks, rather than the intermediate lavas of the Beulah Formation. The presence of a fragment of greywacke within sample 515359 provides further strong evidence that the Beulah Formation is later than the Gog and Minnow rocks.

This interpretation provides important regional implications in that the felsic volcanic rocks of the Minnow Keratophyre might therefore be correlates of the Central Sequence with possible economic potential.

Obviously one problem which must be addressed is the possibility that not all the felsic volcanic rocks grouped into the Minnow Keratophyre are the same units. Similarly, problems could exist for the general grouping of sediments into the Gog Range Greywacke and intermediate volcanics into the Beulah Formation.

6.0 Recommendations

The licence has been under-explored and the following exploration work is recommended:-

Regionally:

1. All the Cambrian volcanic rocks should be mapped and sampled. Emphasis should be placed on obtaining stratigraphic and structural information where possible.

2. A detailed, broad, geochemical and petrographic analysis of Cambrian rocks within the licence be undertaken in order to compare them with known Mount Read volcanic rocks and to determine possible correlations of these rocks within the established Mount Read volcanic sequence. Emphasis should also be placed on comparing similar rock units within the licence to establish the validity of the current three general groupings.
   Limited samples collected during the study by D. J. Jack should be supplemented by further samples collected from all of the Cambrian rocks.

3. Mapping at 1:10,000 scale be undertaken over the Beulah Formation and Gog Range rocks outcropping to the north and northwest of Mount Roland.

Prospect specific:

4. Further 1:2,500 scale mapping be undertaken in the Lower Beulah area to establish possible stratigraphic sequences.

5. The magnetic survey be extended from the Gowrie Park licence to cover the Lower Beulah area to assist as a mapping tool and to further outline the haematite/magnetite altered rocks.

6. A UTEM survey be carried out over the geochemically anomalous areas at Lower Beulah, south and east of the previous UTEM survey.

7.0 References

Carr, G. R., 1987, Report to Aberfoyle Resources on a Pb Isotopic Study of the Beulah Area, Tasmania.

Jack, D. J., 1988, Exploration Licence 43/85 Beulah, Tasmania, Progress Report for the year ended April 29, 1988.

Jennings, I. B., 1979, Sheffield Sheet 37 Geological Survey of Tasmania Explanatory Report.

Sise, J. R., 1987, Exploration Licence 43/85 Beulah, Tasmania, Progress Report for the year ended April 29, 1987.

Vivian, R. M., 1984, Annual Report on Exploration Activities within E. L. 49/82 Beulah, North Tasmania, for the period 30/3/83 to 29/8/84.

APPENDIX 1

Soil sampling locations and geochemical results

(all results in ppm, 0.3 for Ag and 3 for Pb)
(indicates below detection limit).

(analysis by ANALABS)

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LINE	EAST	NORTH	SAMPLE	Cu	Pb	Zn	Ag	As
				(results in ppm)				
47600E	47600.0	9400.0	485034	35	10	75	0.3	10
47600E	47600.0	9425.0	485035	45	3	70	0.3	130
47600E	47600.0	9450.0	485036	40	5	105	0.3	55
47600E	47600.0	9475.0	485037	55	3	65	0.3	4
47600E	47600.0	9500.0	485038	45	10	100	0.3	4
47600E	47600.0	9525.0	485039	35	15	70	0.3	3
47600E	47600.0	9550.0	485040	40	15	70	0.3	2
47600E	47600.0	9575.0	485041	55	15	70	0.3	3
47600E	47600.0	9600.0	485042	15	15	65	0.3	3
47600E	47600.0	9625.0	485043	10	20	75	0.3	5
47600E	47600.0	9650.0	485044	25	25	80	0.3	6
47600E	47600.0	9675.0	485045	35	40	80	0.3	8
47600E	47600.0	9700.0	485046	40	40	75	0.3	8
47600E	47600.0	9725.0	485047	35	35	80	0.3	11
47600E	47600.0	9750.0	485048	40	40	85	0.3	8
47600E	47600.0	9775.0	485049	40	35	80	0.3	8
47600E	47600.0	9800.0	485050	40	40	85	0.3	8
47600E	47600.0	9825.0	485051	40	25	70	0.3	7
47600E	47600.0	9850.0	485052	45	20	65	0.3	8
47600E	47600.0	9875.0	485053	45	20	70	0.3	9
47600E	47600.0	9900.0	485054	50	30	70	0.3	9
47600E	47600.0	9925.0	485055	50	35	65	0.3	8
47600E	47600.0	9950.0	485056	50	40	70	0.3	8
47600E	47600.0	9975.0	485057	35	30	50	0.3	5
47600E	47600.0	10000.0	485058	50	45	70	0.3	10
47600E	47600.0	10025.0	485059	50	50	70	0.3	9
47600E	47600.0	10050.0	485060	55	45	75	0.3	11
47600E	47600.0	10075.0	485061	55	50	80	0.3	10
47600E	47600.0	10100.0	485062	55	45	75	0.3	9
47600E	47600.0	10125.0	485063	50	45	75	0.3	8
47600E	47600.0	10150.0	485064	55	50	80	0.3	10
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47600E	47600.0	10925.0	485095	35	45	85	0.3	8
47600E	47600.0	10975.0	485097	25	25	80	0.3	7
47600E	47600.0	11000.0	485098	20	30	60	0.3	6
47600E	47600.0	11025.0	485099	30	25	75	0.3	7
47600E	47600.0	11050.0	485100	30	30	75	0.3	9
47600E	47600.0	11075.0	485101	25	25	60	0.3	7
47600E	47600.0	11100.0	485102	30	30	80	0.3	9
47600E	47600.0	11125.0	485103	30	25	75	0.3	8
47600E	47600.0	11150.0	485104	20	40	65	0.3	6
47600E	47600.0	11175.0	485105	15	50	60	0.3	4
47600E	47600.0	11200.0	485106	10	25	50	0.3	5
47600E	47600.0	11225.0	485107	5	25	50	0.3	7
47600E	47600.0	11250.0	485108	5	45	95	0.3	4
47600E	47600.0	11275.0	485109	10	45	50	0.3	6
47600E	47600.0	11300.0	485110	10	30	55	0.3	8
47800E	47800.0	9400.0	485140	5	30	85	0.3	6
47800E	47800.0	9425.0	485141	45	20	85	0.3	7
47800E	47800.0	9450.0	485142	50	20	75	0.3	7
47800E	47800.0	9475.0	485143	45	20	75	0.3	7
47800E	47800.0	9500.0	485144	55	15	100	0.3	7
47800E	47800.0	9525.0	485145	60	10	110	0.3	6
47800E	47800.0	9550.0	485146	55	10	110	0.3	7
47800E	47800.0	9575.0	485147	65	20	110	0.3	9
47800E	47800.0	9600.0	485148	40	15	105	0.3	7
47800E	47800.0	9625.0	485149	75	20	140	0.3	12
47800E	47800.0	9650.0	485150	95	20	115	0.3	10
47800E	47800.0	9675.0	485151	85	10	70	0.3	14
47800E	47800.0	9700.0	485152	50	10	50	0.3	7
47800E	47800.0	9725.0	485153	40	25	60	0.3	6
47800E	47800.0	9750.0	485154	65	15	65	0.3	5
47800E	47800.0	9775.0	485155	60	15	50	0.3	5
47800E	47800.0	9800.0	485156	25	25	55	0.3	6
47800E	47800.0	9825.0	485157	55	20	65	0.3	8
47800E	47800.0	9850.0	485158	20	20	60	0.3	7
47800E	47800.0	9875.0	485159	30	35	75	0.3	8
47800E	47800.0	9900.0	485160	35	30	85	0.3	8
47800E	47800.0	9925.0	485161	40	25	65	0.3	7

47800E	47800.0	9950.0	485162	80	15	50	0.3	8
47800E	47800.0	9975.0	485163	105	15	55	0.3	11
47800E	47800.0	10025.0	485165	85	20	50	0.3	8
47800E	47800.0	10050.0	485166	115	20	50	0.3	12
47800E	47800.0	10075.0	485167	95	15	45	0.3	8
47800E	47800.0	10100.0	485168	25	10	35	0.3	6
47800E	47800.0	10125.0	485169	25	3	20	0.3	3
47800E	47800.0	10150.0	485170	55	10	45	0.3	10
47800E	47800.0	10175.0	485171	55	20	45	0.3	13
47800E	47800.0	10200.0	485172	10	3	30	0.3	2
47800E	47800.0	10225.0	485173	105	15	55	0.3	3
47800E	47800.0	10250.0	485174	75	30	55	0.3	22
47800E	47800.0	10275.0	485175	25	15	45	0.3	5
47800E	47800.0	10300.0	485176	15	15	45	0.3	5
47800E	47800.0	10325.0	485177	25	15	45	0.3	6
47800E	47800.0	10350.0	485178	10	25	50	0.3	5
47800E	47800.0	10375.0	485179	15	15	55	0.3	7
47800E	47800.0	10400.0	485180	10	15	45	0.3	5
47800E	47800.0	10425.0	485181	10	20	45	0.3	3
47800E	47800.0	10450.0	485182	15	20	50	0.3	3
47800E	47800.0	10475.0	485183	5	15	40	0.3	4
47800E	47800.0	10500.0	485184	25	20	50	0.3	4
47800E	47800.0	10525.0	485185	10	10	55	0.3	.5
47800E	47800.0	10550.0	485186	3	15	40	0.3	2
47800E	47800.0	10575.0	485187	10	15	45	0.3	3
47800E	47800.0	10600.0	485188	10	20	50	0.3	3
47800E	47800.0	10625.0	485189	15	20	50	0.3	5
47800E	47800.0	10650.0	485190	10	25	65	0.3	4
47800E	47800.0	10675.0	485191	30	20	60	0.3	2
47800E	47800.0	10700.0	485192	25	25	70	0.3	5
47800E	47800.0	10725.0	485193	45	25	75	0.3	4
47800E	47800.0	10750.0	485194	20	25	60	0.3	5
47800E	47800.0	10775.0	485195	20	15	60	0.3	3
47800E	47800.0	10800.0	485196	30	15	90	0.3	6
47800E	47800.0	10825.0	485197	30	20	80	0.3	6
47800E	47800.0	10850.0	485198	30	20	80	0.3	6
47800E	47800.0	10875.0	485199	30	20	85	0.3	5
47800E	47800.0	10900.0	485200	25	30	85	0.3	5
47800E	47800.0	10925.0	485201	25	25	70	0.3	8
47800E	47800.0	10950.0	485202	35	20	85	0.3	5
47800E	47800.0	10975.0	485203	35	45	105	0.3	7
47800E	47800.0	11000.0	485204	35	90	120	0.3	9
47800E	47800.0	11025.0	485205	30	75	125	0.3	9
47800E	47800.0	11075.0	485207	30	110	105	0.3	11
47800E	47800.0	11100.0	485208	30	70	110	0.3	10
47800E	47800.0	11125.0	485209	30	100	135	0.3	11
47800E	47800.0	11150.0	485210	30	140	140	0.3	12
47800E	47800.0	11175.0	485211	25	80	105	0.3	9
47800E	47800.0	11200.0	485212	25	45	90	0.3	7
47800E	47800.0	11225.0	485213	30	60	80	0.3	6
47800E	47800.0	11250.0	485214	30	50	80	0.3	7
47800E	47800.0	11275.0	485215	30	50	85	0.3	8
47800E	47800.0	11300.0	485216	30	65	90	0.3	9
48200E	48200.0	9400.0	485344	25	75	175	0.3	6
48200E	48200.0	9425.0	485345	45	15	100	0.3	6
48200E	48200.0	9450.0	485346	50	10	90	0.3	9
48200E	48200.0	9475.0	485347	55	15	115	0.3	7
48200E	48200.0	9500.0	485348	115	15	140	0.3	7
48200E	48200.0	9525.0	485349	140	20	80	0.3	11
48200E	48200.0	9550.0	485350	80	15	90	0.3	7
48200E	48200.0	9575.0	485351	90	15	70	0.3	12
48200E	48200.0	9600.0	485352	110	20	70	0.3	8
48200E	48200.0	9625.0	485353	75	80	100	0.3	6
48200E	48200.0	9650.0	485354	60	110	80	0.3	5
48200E	48200.0	9675.0	485355	50	25	55	0.3	5
48200E	48200.0	9700.0	485356	50	40	55	0.3	7
48200E	48200.0	9725.0	485357	45	25	55	0.3	7
48200E	48200.0	9750.0	485358	50	15	80	0.3	6
48200E	48200.0	9775.0	485359	45	55	110	0.3	7
48200E	48200.0	9800.0	485360	15	30	90	0.3	2
48200E	48200.0	9825.0	485361	40	25	170	0.3	6
48200E	48200.0	9850.0	485362	50	35	105	0.3	5
48200E	48200.0	9875.0	485363	45	65	80	0.3	3
48200E	48200.0	9900.0	485364	35	35	55	0.3	9
48200E	48200.0	9925.0	485365	35	45	90	0.3	7
48200E	48200.0	9950.0	485366	70	40	85	0.3	12
48200E	48200.0	9975.0	485367	65	25	65	0.3	10
48200E	48200.0	10000.0	485368	65	20	60	0.3	8
48200E	48200.0	10025.0	485369	60	20	55	0.3	6
48200E	48200.0	10050.0	485370	30	20	65	0.3	6
48200E	48200.0	10075.0	485371	40	55	130	0.3	8
48200E	48200.0	10100.0	485372	40	50	130	0.3	8
48200E	48200.0	10125.0	485373	35	25	115	0.3	8
48200E	48200.0	10150.0	485374	35	45	145	0.3	7
48200E	48200.0	10175.0	485375	40	45	155	0.3	8
48200E	48200.0	10200.0	485376	55	80	210	0.3	10
48200E	48200.0	10225.0	485377	40	50	130	0.3	11
48200E	48200.0	10250.0	485378	35	55	135	0.3	8
48200E	48200.0	10275.0	485379	30	60	145	0.3	9
48200E	48200.0	10300.0	485380	35	85	170	0.3	18
48200E	48200.0	10325.0	485381	35	120	220	0.3	9
48200E	48200.0	10350.0	485382	40	120	240	0.3	10
48200E	48200.0	10375.0	485383	50	125	235	0.3	14
48200E	48200.0	10400.0	485384	50	175	310	0.3	12
48200E	48200.0	10425.0	485385	40	135	270	0.3	11
48200E	48200.0	10450.0	485386	60	135	235	0.3	13
48200E	48200.0	10475.0	485387	55	135	255	0.3	14
48200E	48200.0	10500.0	485388	60	160	245	0.3	15

48200E	48200.0	10525.0	485389	70	155	245	0.3	12
48200E	48200.0	10550.0	485390	60	150	245	0.3	13
48200E	48200.0	10575.0	485391	70	120	225	0.3	13
48200E	48200.0	10600.0	485392	70	100	215	0.3	13
48200E	48200.0	10625.0	485393	60	185	260	0.3	15
48200E	48200.0	10650.0	485394	60	180	220	0.3	14
48200E	48200.0	10675.0	485395	35	150	165	0.3	15
48200E	48200.0	10700.0	485396	25	255	220	0.3	15
48200E	48200.0	10725.0	485397	25	290	230	0.3	16
48200E	48200.0	10750.0	485398	25	220	185	0.3	14
48200E	48200.0	10775.0	485399	25	305	240	0.3	18
48200E	48200.0	10800.0	485400	45	35	130	0.3	14
48200E	48200.0	10825.0	485401	50	15	70	0.3	8
48200E	48200.0	10850.0	485402	40	15	75	0.3	12
48200E	48200.0	10875.0	485403	50	10	60	0.3	12
48200E	48200.0	10900.0	485404	55	15	65	0.3	14
48200E	48200.0	10925.0	485405	20	35	55	0.3	12
48200E	48200.0	10950.0	485406	25	95	95	0.3	16
48200E	48200.0	10975.0	485407	30	120	160	0.3	16
48200E	48200.0	11000.0	485408	25	250	115	0.3	18
48200E	48200.0	11025.0	485409	25	445	155	0.3	22
48200E	48200.0	11050.0	485410	25	150	145	0.3	33
48200E	48200.0	11075.0	485411	35	165	105	0.3	140
48200E	48200.0	11100.0	485412	65	235	85	0.3	86
48200E	48200.0	11125.0	485413	60	205	120	0.3	75
48200E	48200.0	11150.0	485414	45	205	135	0.3	37
48200E	48200.0	11175.0	485415	25	205	130	0.3	20
48200E	48200.0	11200.0	485416	20	150	145	0.3	13
48200E	48200.0	11225.0	485417	25	145	185	0.3	17
48200E	48200.0	11250.0	485418	45	185	150	0.3	19
48200E	48200.0	11275.0	485419	25	140	120	0.3	17
48200E	48200.0	11300.0	485420	25	115	165	0.3	11
48600E	48600.0	9400.0	485554	15	40	175	0.3	5
48600E	48600.0	9425.0	485555	15	45	155	0.3	5
48600E	48600.0	9450.0	485556	5	35	110	0.3	3
48600E	48600.0	9475.0	485557	5	35	120	0.3	2
48600E	48600.0	9500.0	485558	15	40	145	0.3	5
48600E	48600.0	9525.0	485559	10	30	85	0.3	3
48600E	48600.0	9550.0	485560	5	3	60	0.3	2
48600E	48600.0	9575.0	485561	5	3	75	0.3	3
48600E	48600.0	9600.0	485562	15	25	125	0.3	5
48600E	48600.0	9625.0	485563	15	40	145	0.3	7
48600E	48600.0	9650.0	485564	15	50	160	0.3	6
48600E	48600.0	9675.0	485565	20	55	160	0.3	4
48600E	48600.0	9700.0	485566	20	55	165	0.3	3
48600E	48600.0	9725.0	485567	25	40	150	0.3	4
48600E	48600.0	9750.0	485568	20	190	260	0.3	4
48600E	48600.0	9775.0	485569	30	45	315	0.3	5
48600E	48600.0	9800.0	485570	15	15	335	0.3	2
48600E	48600.0	9825.0	485571	35	125	200	0.3	5
48600E	48600.0	9850.0	485572	25	60	220	0.3	4
48600E	48600.0	9875.0	485573	25	65	185	0.3	4
48600E	48600.0	9900.0	485574	25	40	370	0.3	2
48600E	48600.0	9925.0	485575	10	30	700	0.3	3
48600E	48600.0	9950.0	485576	15	60	250	0.3	1
48600E	48600.0	9975.0	485577	20	65	265	0.3	1
48600E	48600.0	10000.0	485578	35	95	375	0.3	3
48600E	48600.0	10025.0	485579	35	160	240	0.3	2
48600E	48600.0	10050.0	485580	50	25	310	0.3	3
48600E	48600.0	10075.0	485581	25	35	155	0.3	5
48600E	48600.0	10100.0	485582	20	25	145	0.3	3
48600E	48600.0	10125.0	485583	15	15	140	0.3	3
48600E	48600.0	10150.0	485584	10	10	250	0.3	3
48600E	48600.0	10175.0	485585	40	160	305	0.3	5
48600E	48600.0	10200.0	485586	40	70	370	0.3	5
48600E	48600.0	10225.0	485587	30	170	440	0.3	7
48600E	48600.0	10250.0	485588	30	35	205	0.3	7
48600E	48600.0	10275.0	485589	60	20	130	0.3	6
48600E	48600.0	10300.0	485590	30	3	200	0.3	2
48600E	48600.0	10325.0	485591	35	20	305	0.3	4
48600E	48600.0	10350.0	485592	35	20	350	0.3	1
48600E	48600.0	10375.0	485593	35	45	515	0.3	.5
48600E	48600.0	10400.0	485594	10	10	470	0.3	1
48600E	48600.0	10425.0	485595	40	35	315	0.3	2
48600E	48600.0	10450.0	485596	10	3	250	0.3	2
48600E	48600.0	10475.0	485597	20	10	190	0.3	2
48600E	48600.0	10500.0	485598	30	80	505	0.3	8
48600E	48600.0	10525.0	485599	35	160	565	0.3	7
48600E	48600.0	10550.0	485600	65	165	560	0.3	10
48600E	48600.0	10575.0	485601	25	40	440	0.3	3
48600E	48600.0	10600.0	485602	40	10	330	0.3	1
48600E	48600.0	10625.0	485603	50	10	305	0.3	2
48600E	48600.0	10650.0	485604	25	20	280	0.3	2
48600E	48600.0	10675.0	485605	25	60	380	0.3	4
48600E	48600.0	10700.0	485606	40	30	275	0.3	5
48600E	48600.0	10725.0	485607	75	45	235	0.3	3
48600E	48600.0	10750.0	485608	90	35	165	0.3	5
48600E	48600.0	10775.0	485609	70	45	170	0.3	2
48600E	48600.0	10800.0	485610	90	95	190	0.3	7
48600E	48600.0	10825.0	485611	70	40	175	0.3	7
48600E	48600.0	10850.0	485612	145	30	170	0.3	7
48600E	48600.0	10875.0	485613	65	75	235	0.3	15
48600E	48600.0	10900.0	485614	85	85	310	0.3	20
48600E	48600.0	10925.0	485615	145	725	315	0.3	11
48600E	48600.0	10950.0	485616	60	185	310	0.3	12
48600E	48600.0	10975.0	485617	55	80	250	0.3	13
48600E	48600.0	11000.0	485618	50	75	325	0.3	10
48600E	48600.0	11025.0	485619	70	75	215	0.3	16

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48600E	48600.0	11050.0	485620	90	170	380	0.3	15
48600E	48600.0	11075.0	485621	130	75	165	0.3	14
48600E	48600.0	11100.0	485622	110	75	200	0.3	7
48600E	48600.0	11125.0	485623	85	175	290	0.3	15
48600E	48600.0	11150.0	485624	105	90	285	0.3	12
48600E	48600.0	11175.0	485625	95	70	235	0.3	9
48600E	48600.0	11200.0	485626	150	45	185	0.3	5
48600E	48600.0	11225.0	485627	125	45	190	0.3	9
48600E	48600.0	11250.0	485628	100	140	240	0.3	11
48600E	48600.0	11275.0	485629	165	70	230	0.3	14
48600E	48600.0	11300.0	485630	110	55	195	0.3	10
48800E	48800.0	9400.0	485672	50	155	245	0.3	4
48800E	48800.0	9425.0	485673	50	65	260	0.3	6
48800E	48800.0	9450.0	485674	30	35	165	0.3	2
48800E	48800.0	9475.0	485675	50	105	245	0.3	7
48800E	48800.0	9500.0	485676	50	160	200	0.3	4
48800E	48800.0	9525.0	485677	45	65	170	0.3	4
48800E	48800.0	9550.0	485678	60	25	160	0.3	.5
48800E	48800.0	9575.0	485679	25	15	175	0.3	2
48800E	48800.0	9600.0	485680	30	15	165	0.3	2
48800E	48800.0	9625.0	485681	30	20	150	0.3	1
48800E	48800.0	9650.0	485682	30	40	155	0.3	2
48800E	48800.0	9675.0	485683	30	70	155	0.3	5
48800E	48800.0	9700.0	485684	30	100	175	0.3	3
48800E	48800.0	9725.0	485685	40	70	195	0.3	3
48800E	48800.0	9750.0	485686	50	35	160	0.3	3
48800E	48800.0	9775.0	485687	30	15	150	0.3	1
48800E	48800.0	9800.0	485688	20	50	130	0.3	4
48800E	48800.0	9825.0	485689	15	30	145	0.3	3
48800E	48800.0	9850.0	485690	20	45	90	0.3	2
48800E	48800.0	9875.0	485691	25	65	145	0.3	4
48800E	48800.0	9900.0	485692	25	70	180	0.3	4
48800E	48800.0	9925.0	485693	65	800	440	0.3	27
48800E	48800.0	9950.0	485694	50	295	500	0.3	15
48800E	48800.0	9975.0	485695	40	95	220	0.3	8
48800E	48800.0	10000.0	485696	75	60	305	0.3	7
48800E	48800.0	10025.0	485697	165	200	620	0.3	7
48800E	48800.0	10050.0	485698	45	65	665	0.3	12
48800E	48800.0	10075.0	485699	55	115	435	0.3	9
48800E	48800.0	10100.0	485700	45	60	240	0.3	10
48800E	48800.0	10125.0	485701	40	55	210	0.3	5
48800E	48800.0	10150.0	485702	50	55	205	0.3	6
48800E	48800.0	10175.0	485703	60	60	275	0.3	5
48800E	48800.0	10200.0	485704	30	115	380	0.3	6
48800E	48800.0	10225.0	485705	130	300	200	0.3	7
48800E	48800.0	10250.0	485706	70	50	260	0.3	5
48800E	48800.0	10275.0	485707	90	15	260	0.3	5
48800E	48800.0	10300.0	485708	105	20	205	0.3	3
48800E	48800.0	10325.0	485709	150	205	365	0.3	23
48800E	48800.0	10350.0	485710	70	45	220	0.3	4
48800E	48800.0	10375.0	485711	70	110	280	0.3	7
48800E	48800.0	10400.0	485712	70	195	345	0.3	5
48800E	48800.0	10425.0	485713	75	215	350	0.3	7
48800E	48800.0	10450.0	485714	70	170	270	0.3	4
48800E	48800.0	10475.0	485715	75	90	215	0.3	6
48800E	48800.0	10500.0	485716	65	45	155	0.3	4
48800E	48800.0	10525.0	485717	85	55	175	0.3	8
48800E	48800.0	10550.0	485718	70	75	185	0.3	8
48800E	48800.0	10575.0	485719	75	70	185	0.3	5
48800E	48800.0	10600.0	485720	75	60	170	0.3	6
48800E	48800.0	10625.0	485721	80	60	175	0.3	7
48800E	48800.0	10650.0	485722	75	65	185	0.3	5
48800E	48800.0	10675.0	485723	75	90	220	0.3	6
48800E	48800.0	10700.0	485724	145	70	165	0.3	5
48800E	48800.0	10725.0	485725	120	75	170	0.3	6
48800E	48800.0	10750.0	485726	110	80	170	0.3	4
48800E	48800.0	10775.0	485727	130	245	145	0.3	5
48800E	48800.0	10800.0	485728	140	45	145	0.3	1
48800E	48800.0	10825.0	485729	95	65	165	0.3	3
48800E	48800.0	10850.0	485730	95	55	120	0.3	2
48800E	48800.0	10875.0	485731	110	50	85	0.3	1
48800E	48800.0	10900.0	485732	90	55	90	0.3	1
48800E	48800.0	10925.0	485733	85	55	115	0.3	3
48800E	48800.0	10950.0	485734	85	75	140	0.3	3
48800E	48800.0	10975.0	485735	100	135	110	0.3	6
48800E	48800.0	11000.0	485736	50	55	95	0.3	3
48800E	48800.0	11025.0	485737	55	80	105	0.3	7
48800E	48800.0	11050.0	485738	95	115	200	0.3	12
48800E	48800.0	11075.0	485739	105	185	245	0.3	17
48800E	48800.0	11100.0	485740	85	135	195	0.3	12
48800E	48800.0	11125.0	485741	80	115	200	0.3	10
48800E	48800.0	11150.0	485742	90	255	255	0.3	13
48800E	48800.0	11175.0	485743	80	205	215	0.3	13
48800E	48800.0	11200.0	485744	90	200	240	0.3	12
48800E	48800.0	11225.0	485745	100	130	165	0.3	8
48800E	48800.0	11250.0	485746	90	110	170	0.3	6
48800E	48800.0	11275.0	485747	60	55	135	0.3	2
48800E	48800.0	11300.0	485748	70	105	155	0.3	6
49000E	49000.0	9400.0	485800	50	205	800	1.0	7
49000E	49000.0	9425.0	485801	35	115	235	0.3	10
49000E	49000.0	9450.0	485802	30	100	230	0.3	7
49000E	49000.0	9475.0	485803	15	30	155	0.3	6
49000E	49000.0	9500.0	485804	25	155	175	0.3	5
49000E	49000.0	9525.0	485805	15	180	170	0.3	7
49000E	49000.0	9550.0	485806	40	165	190	0.3	6
49000E	49000.0	9575.0	485807	60	70	130	0.3	5
49000E	49000.0	9600.0	485808	40	105	195	0.3	13
49000E	49000.0	9625.0	485809	25	335	145	0.3	7

49000E	49000.0	9650.0	485810	25	145	165	0.3	7
49000E	49000.0	9675.0	485811	35	115	180	0.3	12
49000E	49000.0	9700.0	485812	5	45	130	0.3	7
49000E	49000.0	9725.0	485813	15	75	140	0.3	8
49000E	49000.0	9750.0	485814	25	130	160	0.3	10
49000E	49000.0	9775.0	485815	45	130	240	0.3	6
49000E	49000.0	9800.0	485816	30	50	145	0.3	4
49000E	49000.0	9825.0	485817	35	45	105	0.3	4
49000E	49000.0	9850.0	485818	25	50	195	0.3	4
49000E	49000.0	9875.0	485819	25	45	420	.5	7
49000E	49000.0	9900.0	485820	55	155	365	0.3	5
49000E	49000.0	9925.0	485821	60	120	280	0.3	7
49000E	49000.0	9950.0	485822	75	165	430	0.3	1
49000E	49000.0	9975.0	485823	80	135	560	0.3	7
49000E	49000.0	10000.0	485824	105	150	390	0.3	5
49000E	49000.0	10025.0	485825	95	150	380	0.3	4
49000E	49000.0	10050.0	485826	65	245	420	0.3	4
49000E	49000.0	10075.0	485827	30	300	345	0.3	10
49000E	49000.0	10100.0	485828	95	305	410	0.3	7
49000E	49000.0	10125.0	485829	95	405	425	0.3	7
49000E	49000.0	10150.0	485830	90	130	305	0.3	6
49000E	49000.0	10175.0	485831	105	125	270	0.3	2
49000E	49000.0	10200.0	485832	115	105	160	0.3	18
49000E	49000.0	10225.0	485833	90	145	215	0.3	2
49000E	49000.0	10250.0	485834	70	60	190	0.3	.5
49000E	49000.0	10275.0	485835	80	175	260	0.3	2
49000E	49000.0	10300.0	485836	90	225	290	0.3	.5
49000E	49000.0	10325.0	485837	110	230	305	0.3	5
49000E	49000.0	10350.0	485838	115	380	310	0.3	5
49000E	49000.0	10375.0	485839	110	335	300	0.3	3
49000E	49000.0	10400.0	485840	90	220	245	0.3	14
49000E	49000.0	10425.0	485841	90	175	225	0.3	12
49000E	49000.0	10450.0	485842	80	140	190	0.3	6
49000E	49000.0	10475.0	485843	80	170	210	0.3	11
49000E	49000.0	10500.0	485844	85	120	250	0.3	11
49000E	49000.0	10525.0	485845	60	35	260	0.3	7
49000E	49000.0	10550.0	485846	35	40	205	0.3	6
49000E	49000.0	10575.0	485847	60	75	175	0.3	6
49000E	49000.0	10600.0	485848	45	75	150	0.3	6
49000E	49000.0	10625.0	485849	50	60	145	0.3	7
49000E	49000.0	10650.0	485850	50	65	140	0.3	9
49000E	49000.0	10675.0	485851	60	65	135	0.3	7
49000E	49000.0	10700.0	485852	50	50	180	0.3	8
49000E	49000.0	10725.0	485853	60	60	170	0.3	3
49000E	49000.0	10750.0	485854	35	40	160	0.3	6
49000E	49000.0	10775.0	485855	50	60	225	0.3	6
49000E	49000.0	10800.0	485856	55	85	125	0.3	12
49000E	49000.0	10825.0	485857	65	60	120	0.3	5
49000E	49000.0	10850.0	485858	60	90	120	0.3	4
49000E	49000.0	10875.0	485859	60	110	145	0.3	3
49000E	49000.0	10900.0	485860	60	105	150	0.3	7
49000E	49000.0	10925.0	485861	70	90	145	0.3	7
49000E	49000.0	10950.0	485862	50	85	160	0.3	3
49000E	49000.0	10975.0	485863	50	105	150	0.3	5
49000E	49000.0	11000.0	485864	55	210	205	0.3	7
49000E	49000.0	11025.0	485865	50	120	155	0.3	5
49000E	49000.0	11050.0	485866	25	95	145	0.3	4
49000E	49000.0	11075.0	485867	45	325	120	0.3	3
49000E	49000.0	11100.0	485868	25	210	130	0.3	4
49000E	49000.0	11125.0	485869	55	95	130	0.3	3
49000E	49000.0	11150.0	485870	45	105	130	0.3	9
49000E	49000.0	11175.0	485871	40	165	120	0.3	11
49000E	49000.0	11200.0	485872	40	200	125	0.3	6
49000E	49000.0	11225.0	485873	40	220	125	0.3	6
49000E	49000.0	11250.0	485874	45	110	115	0.3	7
49000E	49000.0	11275.0	485875	45	95	130	0.3	7
49000E	49000.0	11300.0	485876	50	100	125	0.3	9
49200E	49200.0	9400.0	485942	35	155	520	0.3	8
49200E	49200.0	9425.0	485943	40	380	310	.5	13
49200E	49200.0	9450.0	485944	40	175	370	0.3	7
49200E	49200.0	9475.0	485945	40	110	345	0.3	7
49200E	49200.0	9500.0	485946	40	115	365	0.3	4
49200E	49200.0	9525.0	485947	45	80	160	0.3	4
49200E	49200.0	9550.0	485948	45	115	210	0.3	7
49200E	49200.0	9575.0	485949	55	175	275	0.3	7
49200E	49200.0	9600.0	485950	55	280	310	0.3	8
49200E	49200.0	9625.0	485951	60	335	285	0.3	7
49200E	49200.0	9650.0	485952	50	295	220	0.3	7
49200E	49200.0	9675.0	485953	50	125	190	0.3	7
49200E	49200.0	9700.0	485954	45	150	215	0.3	8
49200E	49200.0	9725.0	485955	50	160	200	0.3	7
49200E	49200.0	9750.0	485956	45	185	250	0.3	6
49200E	49200.0	9775.0	485957	35	110	230	0.3	12
49200E	49200.0	9800.0	485958	50	75	190	0.3	13
49200E	49200.0	9825.0	485959	85	320	500	0.3	15
49200E	49200.0	9850.0	485960	80	315	275	0.3	13
49200E	49200.0	9875.0	485961	110	160	325	0.3	20
49200E	49200.0	9900.0	485962	60	245	460	0.3	12
49200E	49200.0	9925.0	485963	80	160	405	0.3	13
49200E	49200.0	9950.0	485964	50	165	285	0.3	15
49200E	49200.0	9975.0	485965	50	155	325	0.3	18
49200E	49200.0	10000.0	485966	40	315	195	0.3	15
49200E	49200.0	10025.0	485967	70	45	130	0.3	11
49200E	49200.0	10050.0	485968	35	60	105	0.3	13
49200E	49200.0	10075.0	485969	60	40	80	0.3	9
49200E	49200.0	10100.0	485970	140	90	140	0.3	11
49200E	49200.0	10125.0	485971	125	95	105	0.3	10

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49200E	49200.0	10150.0	485972	120	95	105	0.3	9
49200E	49200.0	10175.0	485973	130	155	370	0.3	6
49200E	49200.0	10200.0	485974	130	290	180	0.3	11
49200E	49200.0	10225.0	485975	115	235	200	0.3	13
49200E	49200.0	10250.0	485976	95	150	190	0.3	3
49200E	49200.0	10275.0	485977	80	105	195	0.3	6
49200E	49200.0	10300.0	485978	75	95	200	0.3	7
49200E	49200.0	10325.0	485979	95	100	205	0.3	5
49200E	49200.0	10350.0	485980	90	125	220	0.3	7
49200E	49200.0	10375.0	485981	85	115	260	0.3	7
49200E	49200.0	10400.0	485982	75	180	270	0.3	8
49200E	49200.0	10425.0	485983	85	40	235	0.3	4
49200E	49200.0	10450.0	485984	80	85	210	0.3	4
49200E	49200.0	10475.0	485985	70	80	190	0.3	3
49200E	49200.0	10500.0	485986	45	70	170	0.3	5
49200E	49200.0	10525.0	485987	55	115	165	0.3	5
49200E	49200.0	10550.0	485988	60	115	165	0.3	6
49200E	49200.0	10575.0	485989	60	125	175	0.3	5
49200E	49200.0	10600.0	485990	50	125	165	0.3	4
49200E	49200.0	10625.0	485991	50	75	165	0.3	1
49200E	49200.0	10650.0	485992	55	105	165	0.3	4
49200E	49200.0	10675.0	485993	55	150	160	0.3	4
49200E	49200.0	10700.0	485994	55	155	155	0.3	5
49200E	49200.0	10725.0	485995	50	130	140	0.3	6
49200E	49200.0	10750.0	485996	45	250	115	0.3	5
49200E	49200.0	10775.0	485997	50	110	145	0.3	8
49200E	49200.0	10800.0	485998	50	210	200	.5	5
49200E	49200.0	10825.0	485999	50	125	140	0.3	7
49200E	49200.0	10850.0	486000	40	95	135	0.3	7
49200E	49200.0	10875.0	486001	40	75	140	0.3	9
49200E	49200.0	10900.0	486002	45	70	165	0.3	7
49200E	49200.0	10925.0	486003	35	105	165	.5	5
49200E	49200.0	10950.0	486004	25	20	130	0.3	3
49200E	49200.0	10975.0	486005	40	160	195	0.3	2
49200E	49200.0	11000.0	486006	10	25	155	0.3	4
49200E	49200.0	11025.0	486007	40	95	150	0.3	4
49200E	49200.0	11050.0	486008	35	10	95	0.3	4
49200E	49200.0	11075.0	486009	45	30	115	0.3	3
49200E	49200.0	11100.0	486010	65	10	110	0.3	.5
49200E	49200.0	11125.0	486011	50	10	95	0.3	.5
49200E	49200.0	11150.0	486012	50	15	90	0.3	5
49200E	49200.0	11175.0	486013	40	40	95	0.3	10
49200E	49200.0	11200.0	486014	40	70	125	0.3	8
49200E	49200.0	11225.0	486015	55	200	165	0.3	7
49200E	49200.0	11250.0	486016	30	95	150	0.3	6
49200E	49200.0	11275.0	486017	35	110	140	0.3	11
49200E	49200.0	11300.0	486018	60	5	45	0.3	8
49400E	49400.0	9400.0	486074	35	150	380	0.3	5
49400E	49400.0	9425.0	486075	40	230	190	0.3	10
49400E	49400.0	9450.0	486076	35	375	275	0.3	6
49400E	49400.0	9475.0	486077	45	355	270	0.3	6
49400E	49400.0	9500.0	486078	50	280	285	0.3	6
49400E	49400.0	9525.0	486079	55	265	340	0.3	5
49400E	49400.0	9550.0	486080	60	270	315	0.3	7
49400E	49400.0	9575.0	486081	50	185	235	0.3	4
49400E	49400.0	9600.0	486082	40	50	145	0.3	6
49400E	49400.0	9625.0	486083	45	95	190	0.3	6
49400E	49400.0	9650.0	486084	35	95	235	.5	3
49400E	49400.0	9675.0	486085	25	200	140	0.3	3
49400E	49400.0	9700.0	486086	105	70	275	.5	6
49400E	49400.0	9725.0	486087	140	1050	655	2.0	6
49400E	49400.0	9750.0	486088	45	230	315	1.5	6
49400E	49400.0	9775.0	486089	20	70	475	1.5	7
49400E	49400.0	9800.0	486090	20	30	145	0.3	3
49400E	49400.0	9825.0	486091	20	45	275	0.3	13
49400E	49400.0	9850.0	486092	40	140	400	0.3	11
49400E	49400.0	9875.0	486093	35	140	420	0.3	11
49400E	49400.0	9900.0	486094	45	100	420	0.3	11
49400E	49400.0	9925.0	486095	30	95	245	0.3	13
49400E	49400.0	9950.0	486096	30	105	215	0.3	11
49400E	49400.0	9975.0	486097	40	100	195	0.3	11
49400E	49400.0	10000.0	486098	30	95	190	0.3	11
49400E	49400.0	10025.0	486099	40	100	195	0.3	12
49400E	49400.0	10050.0	486100	25	95	140	0.3	14
49400E	49400.0	10075.0	486101	25	50	130	0.3	15
49400E	49400.0	10100.0	486102	30	60	100	0.3	10
49400E	49400.0	10125.0	486103	35	165	165	1.0	10
49400E	49400.0	10150.0	486104	35	75	150	.5	11
49400E	49400.0	10175.0	486105	35	85	165	1.0	11
49400E	49400.0	10200.0	486106	30	125	150	1.0	10
49400E	49400.0	10225.0	486107	30	115	140	.5	14
49400E	49400.0	10250.0	486108	30	35	125	.5	6
49400E	49400.0	10275.0	486109	45	10	110	0.3	8
49400E	49400.0	10300.0	486110	35	15	110	.5	5
49400E	49400.0	10325.0	486111	105	15	95	0.3	15
49400E	49400.0	10350.0	486112	60	20	95	0.3	11
49400E	49400.0	10375.0	486113	35	30	140	0.3	10
49400E	49400.0	10400.0	486114	40	10	125	0.3	6
49400E	49400.0	10425.0	486115	40	25	110	0.3	9
49400E	49400.0	10450.0	486116	60	50	160	0.3	6
49400E	49400.0	10525.0	486119	25	50	155	0.3	6
49400E	49400.0	10550.0	486120	55	100	220	.5	4
49400E	49400.0	10575.0	486121	35	85	200	0.3	8
49400E	49400.0	10600.0	486122	55	170	270	0.3	3
49400E	49400.0	10625.0	486123	90	660	155	0.3	9
49400E	49400.0	10650.0	486124	30	170	195	0.3	5
49400E	49400.0	10675.0	486125	30	100	195	0.3	9

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49400E	49400.0	10700.0	486126	15	5	175	0.3	17
49400E	49400.0	10725.0	486127	15	205	180	0.3	14
49400E	49400.0	10750.0	486128	25	110	110	0.3	14
49400E	49400.0	10775.0	486129	25	20	115	0.3	9
49400E	49400.0	10800.0	486130	25	60	105	0.3	6
49400E	49400.0	10825.0	486131	50	180	90	0.3	4
49400E	49400.0	10850.0	486132	30	100	150	0.3	8
49400E	49400.0	10875.0	486133	40	120	215	0.3	6
49400E	49400.0	10900.0	486134	25	50	195	0.3	11
49400E	49400.0	10925.0	486135	30	75	160	0.3	7
49400E	49400.0	10950.0	486136	30	30	135	0.3	6
49400E	49400.0	10975.0	486137	30	30	130	0.3	7
49400E	49400.0	11000.0	486138	25	10	110	0.3	3
49400E	49400.0	11025.0	486139	30	120	110	0.3	2
49400E	49400.0	11050.0	486140	25	50	130	0.3	5
49400E	49400.0	11075.0	486141	35	3	95	0.3	6
49400E	49400.0	11100.0	486142	35	3	105	0.3	10
49400E	49400.0	11125.0	486143	40	5	125	0.3	7
49400E	49400.0	11150.0	486144	40	10	115	0.3	10
49400E	49400.0	11175.0	486145	35	40	215	0.3	11
49400E	49400.0	11200.0	486146	45	80	165	2.0	10
49400E	49400.0	11225.0	486147	45	85	160	2.0	10
49400E	49400.0	11250.0	486148	35	150	140	1.5	10
49400E	49400.0	11275.0	486149	40	60	140	2.5	6
49400E	49400.0	11300.0	486150	35	45	185	2.0	6
49600E	49600.0	9400.0	486200	50	40	110	0.3	9
49600E	49600.0	9425.0	486201	50	65	135	0.3	8
49600E	49600.0	9450.0	486202	45	65	190	0.3	9
49600E	49600.0	9475.0	486203	40	65	170	0.3	9
49600E	49600.0	9500.0	486204	40	45	150	0.3	8
49600E	49600.0	9525.0	486205	40	45	130	0.3	10
49600E	49600.0	9550.0	486206	45	25	115	0.3	98
49600E	49600.0	9575.0	486207	100	40	110	0.3	10
49600E	49600.0	9600.0	486208	75	55	130	0.3	15
49600E	49600.0	9625.0	486209	40	35	100	0.3	13
49600E	49600.0	9650.0	486210	35	20	170	0.3	14
49600E	49600.0	9675.0	486211	40	45	115	0.3	7
49600E	49600.0	9700.0	486212	60	75	180	0.3	5
49600E	49600.0	9725.0	486213	30	90	200	0.3	.5
49600E	49600.0	9750.0	486214	30	220	235	0.3	3
49600E	49600.0	9775.0	486215	55	75	300	0.3	4
49600E	49600.0	9800.0	486216	40	80	275	0.3	10
49600E	49600.0	9825.0	486217	45	50	285	0.3	6
49600E	49600.0	9850.0	486218	30	65	275	0.3	9
49600E	49600.0	9875.0	486219	30	40	245	0.3	2
49600E	49600.0	9900.0	486220	20	25	170	0.3	3
49600E	49600.0	9925.0	486221	75	80	165	0.3	7
49600E	49600.0	9950.0	486222	30	45	190	0.3	13
49600E	49600.0	9975.0	486223	30	65	160	0.3	8
49600E	49600.0	10000.0	486224	40	40	185	0.3	.5
49600E	49600.0	10025.0	486225	50	120	230	0.3	7
49600E	49600.0	10050.0	486226	50	115	220	0.3	6
49600E	49600.0	10075.0	486227	50	70	190	0.3	12
49600E	49600.0	10100.0	486228	50	70	190	0.3	7
49600E	49600.0	10125.0	486229	50	95	170	0.3	7
49600E	49600.0	10150.0	486230	50	95	165	0.3	6
49600E	49600.0	10175.0	486231	50	75	170	0.3	4
49600E	49600.0	10200.0	486232	55	60	165	0.3	5
49600E	49600.0	10225.0	486233	55	70	170	0.3	5
49600E	49600.0	10250.0	486234	40	35	170	0.3	7
49600E	49600.0	10275.0	486235	45	65	165	0.3	8
49600E	49600.0	10300.0	486236	55	60	175	0.3	10
49600E	49600.0	10325.0	486237	55	115	160	0.3	11
49600E	49600.0	10350.0	486238	55	130	190	0.3	11
49600E	49600.0	10375.0	486239	45	130	265	0.3	10
49600E	49600.0	10400.0	486240	30	130	200	0.3	12
49600E	49600.0	10425.0	486241	45	125	190	0.3	10
49600E	49600.0	10450.0	486242	45	30	160	0.3	3
49600E	49600.0	10475.0	486243	35	50	145	0.3	9
49600E	49600.0	10500.0	486244	25	60	145	0.3	6
49600E	49600.0	10525.0	486245	30	445	165	0.3	9
49600E	49600.0	10550.0	486246	25	50	150	0.3	7
49600E	49600.0	10575.0	486247	20	25	215	0.3	5
49600E	49600.0	10600.0	486248	25	50	155	0.3	8
49600E	49600.0	10625.0	486249	20	25	180	0.3	8
49600E	49600.0	10650.0	486250	25	20	170	0.3	11
49600E	49600.0	10675.0	486251	45	45	160	0.3	6
49600E	49600.0	10700.0	486252	20	10	325	0.3	3
49600E	49600.0	10725.0	486253	20	15	135	0.3	3
49600E	49600.0	10750.0	486254	25	25	190	0.3	7
49600E	49600.0	10775.0	486255	40	35	185	.5	6
49600E	49600.0	10800.0	486256	65	40	270	0.3	6
49600E	49600.0	10825.0	486257	65	25	145	0.3	7
49600E	49600.0	10850.0	486258	50	25	150	0.3	7
49600E	49600.0	10875.0	486259	25	20	115	0.3	7
49600E	49600.0	10900.0	486260	30	25	135	.5	7
49600E	49600.0	10925.0	486261	30	25	135	.5	5
49600E	49600.0	10950.0	486262	25	25	145	0.3	5
49600E	49600.0	10975.0	486263	30	45	240	0.3	9
49600E	49600.0	11000.0	486264	40	60	190	0.3	110
49600E	49600.0	11025.0	486265	45	85	170	0.3	13
49600E	49600.0	11050.0	486266	45	85	170	.5	10
49600E	49600.0	11075.0	486267	40	30	135	0.3	8
49600E	49600.0	11100.0	486268	30	45	195	0.3	9
49600E	49600.0	11125.0	486269	80	600	265	.5	17
49600E	49600.0	11150.0	486270	75	235	230	0.3	19
49600E	49600.0	11175.0	486271	45	55	185	0.3	10

49600E	49600.0	11200.0	486272	60	200	225	0.3	13
49600E	49600.0	11225.0	486273	85	500	165	0.3	7
49600E	49600.0	11250.0	486274	35	95	140	0.3	6
49600E	49600.0	11275.0	486275	40	70	135	0.3	6
49600E	49600.0	11300.0	486276	35	65	145	0.3	5
49800E	49800.0	9400.0	486326	85	15	115	0.3	4
49800E	49800.0	9425.0	486327	50	10	65	0.3	4
49800E	49800.0	9450.0	486328	55	25	120	.5	7
49800E	49800.0	9475.0	486329	75	18	85	0.3	8
49800E	49800.0	9500.0	486330	55	45	90	0.3	4
49800E	49800.0	9525.0	486331	55	65	120	0.3	13
49800E	49800.0	9550.0	486332	55	40	165	0.3	15
49800E	49800.0	9575.0	486333	40	40	160	.5	15
49800E	49800.0	9600.0	486334	70	55	180	0.3	15
49800E	49800.0	9625.0	486335	80	30	230	0.3	15
49800E	49800.0	9650.0	486336	65	30	150	0.3	8
49800E	49800.0	9675.0	486337	25	20	105	0.3	8
49800E	49800.0	9700.0	486338	65	10	235	0.3	10
49800E	49800.0	9725.0	486339	105	15	100	0.3	7
49800E	49800.0	9750.0	486340	115	3	100	0.3	10
49800E	49800.0	9775.0	486341	175	25	140	1.0	10
49800E	49800.0	9800.0	486342	55	90	185	0.3	11
49800E	49800.0	9825.0	486343	35	40	190	0.3	9
49800E	49800.0	9850.0	486344	35	45	315	0.3	11
49800E	49800.0	9875.0	486345	20	20	135	0.3	6
49800E	49800.0	9900.0	486346	25	25	165	0.3	5
49800E	49800.0	9925.0	486347	30	45	145	0.3	15
49800E	49800.0	9950.0	486348	55	70	165	0.3	16
49800E	49800.0	9975.0	486349	35	300	100	0.3	13
49800E	49800.0	10000.0	486350	15	10	75	0.3	10
49800E	49800.0	10025.0	486351	20	15	80	0.3	11
49800E	49800.0	10050.0	486352	25	20	65	0.3	10
49800E	49800.0	10075.0	486353	25	20	130	0.3	9
49800E	49800.0	10100.0	486354	15	25	125	0.3	9
49800E	49800.0	10125.0	486355	10	10	120	.5	7
49800E	49800.0	10150.0	486356	20	35	130	0.3	8
49800E	49800.0	10175.0	486357	30	35	140	.5	8
49800E	49800.0	10200.0	486358	70	30	230	0.3	14
49800E	49800.0	10225.0	486359	85	10	200	0.3	12
49800E	49800.0	10250.0	486360	30	15	275	0.3	15
49800E	49800.0	10275.0	486361	30	50	205	0.3	11
49800E	49800.0	10300.0	486362	25	50	190	0.3	9
49800E	49800.0	10325.0	486363	15	3	220	0.3	7
49800E	49800.0	10350.0	486364	10	5	210	.5	12
49800E	49800.0	10375.0	486365	20	15	205	0.3	8
49800E	49800.0	10400.0	486366	30	35	130	.5	9
49800E	49800.0	10425.0	486367	20	25	140	0.3	10
49800E	49800.0	10450.0	486368	30	50	150	0.3	10
49800E	49800.0	10475.0	486369	25	45	160	0.3	11
49800E	49800.0	10500.0	486370	25	30	150	0.3	8
49800E	49800.0	10525.0	486371	135	765	190	0.3	8
49800E	49800.0	10550.0	486372	30	40	165	0.3	11
49800E	49800.0	10575.0	486373	60	250	150	0.3	17
49800E	49800.0	10600.0	486374	60	85	105	0.3	8
49800E	49800.0	10625.0	486375	30	20	110	0.3	8
49800E	49800.0	10650.0	486376	40	40	180	0.3	11
49800E	49800.0	10675.0	486377	15	10	290	0.3	5
49800E	49800.0	10700.0	486378	20	35	260	.5	9
49800E	49800.0	10725.0	486379	45	35	350	0.3	11
49800E	49800.0	10750.0	486380	20	15	150	0.3	.5
49800E	49800.0	10775.0	486381	45	155	170	0.3	4
49800E	49800.0	10800.0	486382	20	15	190	0.3	10
49800E	49800.0	10825.0	486383	55	35	140	.5	7
49800E	49800.0	10850.0	486384	85	190	160	0.3	9
49800E	49800.0	10875.0	486385	40	35	140	.5	7
49800E	49800.0	10900.0	486386	30	5	190	0.3	4
49800E	49800.0	10925.0	486387	25	3	170	0.3	5
49800E	49800.0	10950.0	486388	20	3	190	0.3	4
49800E	49800.0	10975.0	486389	90	5	205	0.3	3
49800E	49800.0	11000.0	486390	30	3	230	0.3	4
49800E	49800.0	11025.0	486391	60	60	265	0.3	5
49800E	49800.0	11050.0	486392	45	40	180	0.3	9
49800E	49800.0	11075.0	486393	40	30	180	1.0	8
49800E	49800.0	11100.0	486394	45	115	180	0.3	10
49800E	49800.0	11125.0	486395	40	185	190	0.3	8
49800E	49800.0	11150.0	486396	40	135	190	0.3	9
49800E	49800.0	11175.0	486397	40	95	175	0.3	8
49800E	49800.0	11200.0	486398	40	55	175	0.3	5
49800E	49800.0	11225.0	486399	40	55	185	0.3	6
49800E	49800.0	11250.0	486400	15	3	145	.5	5
49800E	49800.0	11275.0	486401	120	40	310	0.3	10
49800E	49800.0	11300.0	486402	20	3	150	0.3	3
50000E	50000.0	9400.0	486438	65	20	100	0.3	6
50000E	50000.0	9425.0	486439	75	25	85	.5	8
50000E	50000.0	9450.0	486440	180	20	90	0.3	9
50000E	50000.0	9475.0	486441	30	10	85	.5	4
50000E	50000.0	9500.0	486442	25	15	75	0.3	4
50000E	50000.0	9525.0	486443	55	40	115	0.3	6
50000E	50000.0	9550.0	486444	40	30	105	0.3	6
50000E	50000.0	9575.0	486445	25	40	140	0.3	2
50000E	50000.0	9600.0	486446	20	15	75	0.3	6
50000E	50000.0	9625.0	486447	30	10	85	0.3	6
50000E	50000.0	9650.0	486448	35	30	115	0.3	12
50000E	50000.0	9675.0	486449	60	25	140	0.3	5
50000E	50000.0	9700.0	486450	35	50	130	0.3	7
50000E	50000.0	9725.0	486451	25	25	140	0.3	1

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50000E	50000.0	9750.0	486452	40	5	190	0.3	2
50000E	50000.0	9775.0	486453	35	15	185	0.3	4
50000E	50000.0	9800.0	486454	40	10	165	0.3	3
50000E	50000.0	9825.0	486455	30	50	140	0.3	9
50000E	50000.0	9850.0	486456	25	25	155	0.3	4
50000E	50000.0	9875.0	486457	15	15	110	0.3	4
50000E	50000.0	9900.0	486458	15	30	135	0.3	2
50000E	50000.0	9925.0	486459	20	20	160	0.3	2
50000E	50000.0	9950.0	486460	35	50	140	0.3	6
50000E	50000.0	9975.0	486461	40	100	210	0.3	4
50000E	50000.0	10000.0	486462	40	115	245	0.3	5
50000E	50000.0	10025.0	486463	40	230	460	0.3	9
50000E	50000.0	10050.0	486464	45	315	245	0.3	4
50000E	50000.0	10075.0	486465	60	420	490	0.3	4
50000E	50000.0	10100.0	486466	40	90	110	.5	3
50000E	50000.0	10125.0	486467	90	45	165	0.3	6
50000E	50000.0	10150.0	486468	75	40	325	0.3	4
50000E	50000.0	10175.0	486469	45	65	380	0.3	5
50000E	50000.0	10200.0	486470	55	3	135	0.3	3
50000E	50000.0	10225.0	486471	35	3	140	0.3	7
50000E	50000.0	10250.0	486472	40	35	120	0.3	5
50000E	50000.0	10275.0	486473	90	20	145	0.3	16
50000E	50000.0	10300.0	486474	85	10	100	0.3	12
50000E	50000.0	10325.0	486475	70	30	110	0.3	10
50000E	50000.0	10350.0	486476	15	5	125	0.3	8
50000E	50000.0	10375.0	486477	25	50	160	0.3	9
50000E	50000.0	10400.0	486478	25	55	155	0.3	7
50000E	50000.0	10425.0	486479	20	50	165	0.3	9
50000E	50000.0	10450.0	486480	25	35	160	0.3	7
50000E	50000.0	10475.0	486481	15	60	160	0.3	6
50000E	50000.0	10500.0	486482	20	55	160	0.3	10
50000E	50000.0	10525.0	486483	20	45	135	0.3	7
50000E	50000.0	10550.0	486484	25	55	130	0.3	7
50000E	50000.0	10575.0	486485	20	50	135	0.3	9
50000E	50000.0	10600.0	486486	20	70	150	0.3	11
50000E	50000.0	10625.0	486487	25	120	235	0.3	7
50000E	50000.0	10650.0	486488	15	50	175	0.3	3
50000E	50000.0	10675.0	486489	85	100	290	0.3	3
50000E	50000.0	10700.0	486490	60	55	230	0.3	4
50000E	50000.0	10725.0	486491	50	55	165	0.3	.5
50000E	50000.0	10750.0	486492	35	145	240	0.3	5
50000E	50000.0	10775.0	486493	40	230	250	0.3	6
50000E	50000.0	10800.0	486494	35	465	220	0.3	5
50000E	50000.0	10825.0	486495	35	170	220	0.3	9
50000E	50000.0	10850.0	486496	35	85	205	0.3	6
50000E	50000.0	10875.0	486497	35	170	190	0.3	4
50000E	50000.0	10900.0	486498	40	75	190	0.3	9
50000E	50000.0	10925.0	486499	40	85	195	0.3	8
50000E	50000.0	10950.0	486500	35	60	195	0.3	8
50000E	50000.0	10975.0	486501	30	45	210	0.3	7
50000E	50000.0	11000.0	486502	35	85	190	0.3	10
50000E	50000.0	11025.0	486503	35	40	190	0.3	5
50000E	50000.0	11050.0	486504	35	35	195	0.3	7
50000E	50000.0	11075.0	486505	35	45	185	0.3	8
50000E	50000.0	11100.0	486506	35	55	180	0.3	6
50000E	50000.0	11125.0	486507	15	50	125	0.3	2
50000E	50000.0	11150.0	486508	5	35	85	0.3	.5
50000E	50000.0	11175.0	486509	35	3	115	0.3	1
50000E	50000.0	11200.0	486510	20	3	105	0.3	4
50000E	50000.0	11225.0	486511	15	35	135	0.3	5
50000E	50000.0	11250.0	486512	15	3	155	0.3	2
50000E	50000.0	11275.0	486513	25	5	175	0.3	3
50000E	50000.0	11300.0	486514	35	35	185	0.3	6
50200E	50200.0	9400.0	486548	60	20	110	0.3	6
50200E	50200.0	9425.0	486549	65	10	120	0.3	5
50200E	50200.0	9450.0	486550	40	20	165	0.3	6
50200E	50200.0	9475.0	486551	55	25	115	0.3	10
50200E	50200.0	9500.0	486552	40	20	95	0.3	7
50200E	50200.0	9525.0	486553	35	45	105	1.0	6
50200E	50200.0	9550.0	486554	30	65	130	1.0	9
50200E	50200.0	9575.0	486555	55	40	130	.5	6
50200E	50200.0	9600.0	486556	75	25	70	.5	10
50200E	50200.0	9625.0	486557	20	15	90	1.5	4
50200E	50200.0	9650.0	486558	35	35	110	1.0	7
50200E	50200.0	9675.0	486559	35	40	105	1.0	4
50200E	50200.0	9700.0	486560	35	40	115	1.0	9
50200E	50200.0	9725.0	486561	10	15	50	1.0	3
50200E	50200.0	9750.0	486562	10	10	35	.5	.5
50200E	50200.0	9775.0	486563	30	20	110	1.5	7
50200E	50200.0	9800.0	486564	25	20	85	1.5	11
50200E	50200.0	9825.0	486565	15	25	60	1.0	8
50200E	50200.0	9850.0	486566	15	30	75	.5	9
50200E	50200.0	9875.0	486567	15	25	75	1.0	10
50200E	50200.0	9900.0	486568	25	20	85	1.0	7
50200E	50200.0	9925.0	486569	15	10	70	.5	3
50200E	50200.0	9950.0	486570	15	10	60	0.3	4
50200E	50200.0	9975.0	486571	10	15	55	0.3	3
50200E	50200.0	10000.0	486572	35	55	110	.5	5
50200E	50200.0	10025.0	486573	10	15	40	1.0	5
50200E	50200.0	10050.0	486574	20	140	135	0.3	6
50200E	50200.0	10075.0	486575	20	25	65	1.0	6
50200E	50200.0	10100.0	486576	35	35	70	.5	7
50200E	50200.0	10125.0	486577	20	40	100	.5	6
50200E	50200.0	10150.0	486578	30	40	95	1.0	7
50200E	50200.0	10175.0	486579	20	45	90	.5	4
50200E	50200.0	10200.0	486580	10	30	85	1.0	6
50200E	50200.0	10225.0	486581	20	30	70	0.3	7

50200E	50200.0	10250.0	486582	25	20	80	0.3	7
50200E	50200.0	10275.0	486583	20	30	75	0.3	7
50200E	50200.0	10300.0	486584	30	35	85	0.3	6
50200E	50200.0	10325.0	486585	35	30	130	.5	8
50200E	50200.0	10350.0	486586	20	30	90	0.3	6
50200E	50200.0	10375.0	486587	95	30	115	1.0	9
50200E	50200.0	10400.0	486588	30	30	140	.5	4
50200E	50200.0	10425.0	486589	35	20	110	.5	5
50200E	50200.0	10450.0	486590	35	30	105	0.3	6
50200E	50200.0	10475.0	486591	45	15	125	1.0	5
50200E	50200.0	10500.0	486592	25	10	80	.5	6
50200E	50200.0	10525.0	486593	35	10	75	.5	4
50200E	50200.0	10550.0	486594	40	15	90	.5	3
50200E	50200.0	10575.0	486595	30	20	95	0.3	3
50200E	50200.0	10600.0	486596	20	25	95	0.3	6
50200E	50200.0	10625.0	486597	50	15	90	0.3	3
50200E	50200.0	10650.0	486598	30	30	120	0.3	.5
50200E	50200.0	10675.0	486599	25	25	120	1.5	1
50200E	50200.0	10700.0	486600	25	25	130	1.0	3
50200E	50200.0	10725.0	486601	20	25	120	1.0	.5
50200E	50200.0	10775.0	486603	35	90	150	0.3	12
50200E	50200.0	10800.0	486604	70	15	135	0.3	9
50200E	50200.0	10825.0	486605	45	5	110	0.3	8
50200E	50200.0	10850.0	486606	85	60	140	0.3	10
50200E	50200.0	10875.0	486607	50	40	115	0.3	8
50200E	50200.0	10900.0	486608	55	100	150	0.3	7
50200E	50200.0	10925.0	486609	55	30	155	0.3	10
50200E	50200.0	10950.0	486610	55	35	170	1.5	5
50200E	50200.0	10975.0	486611	70	20	165	1.0	4
50200E	50200.0	11000.0	486612	65	35	130	1.5	6
50200E	50200.0	11025.0	486613	45	40	320	1.5	3
50200E	50200.0	11050.0	486614	30	45	135	1.0	4
50200E	50200.0	11075.0	486615	20	50	125	1.0	3
50200E	50200.0	11100.0	486616	35	65	145	1.0	7
50200E	50200.0	11125.0	486617	40	75	100	1.5	8
50200E	50200.0	11150.0	486618	150	45	120	1.0	5
50200E	50200.0	11175.0	486619	55	55	105	1.5	9
50200E	50200.0	11200.0	486620	55	75	90	1.0	5
50200E	50200.0	11225.0	486621	60	220	145	1.0	5
50200E	50200.0	11250.0	486622	60	500	145	1.5	6
50200E	50200.0	11275.0	486623	45	40	85	1.0	4
50200E	50200.0	11300.0	486624	30	90	85	1.0	7
50400E	50400.0	9400.0	486658	55	40	80	1.0	.5
50400E	50400.0	9425.0	486659	20	35	165	1.0	.5
50400E	50400.0	9450.0	486660	35	25	120	1.0	1
50400E	50400.0	9475.0	486661	60	85	100	1.0	.5
50400E	50400.0	9500.0	486662	50	15	90	1.0	1
50400E	50400.0	9525.0	486663	25	15	85	1.0	.5
50400E	50400.0	9550.0	486664	25	10	90	1.5	2
50400E	50400.0	9575.0	486665	40	10	125	1.0	4
50400E	50400.0	9600.0	486666	75	60	175	1.0	3
50400E	50400.0	9625.0	486667	60	45	95	0.3	5
50400E	50400.0	9650.0	486668	60	30	95	0.3	6
50400E	50400.0	9675.0	486669	70	60	100	0.3	9
50400E	50400.0	9700.0	486670	25	30	70	0.3	7
50400E	50400.0	9725.0	486671	65	10	145	0.3	5
50400E	50400.0	9750.0	486672	135	30	115	0.3	6
50400E	50400.0	9775.0	486673	55	40	90	0.3	5
50400E	50400.0	9800.0	486674	30	65	90	0.3	5
50400E	50400.0	9825.0	486675	55	115	85	0.3	9
50400E	50400.0	9850.0	486676	35	65	75	0.3	4
50400E	50400.0	9875.0	486677	20	30	85	0.3	4
50400E	50400.0	9900.0	486678	5	30	45	0.3	5
50400E	50400.0	9925.0	486679	25	50	95	0.3	7
50400E	50400.0	9950.0	486680	100	50	90	0.3	6
50400E	50400.0	9975.0	486681	15	30	85	0.3	7
50400E	50400.0	10000.0	486682	35	35	85	0.3	5
50400E	50400.0	10025.0	486683	20	45	70	0.3	3
50400E	50400.0	10050.0	486684	10	40	70	0.3	4
50400E	50400.0	10075.0	486685	35	40	80	0.3	6
50400E	50400.0	10100.0	486686	60	55	90	0.3	6
50400E	50400.0	10125.0	486687	70	395	100	0.3	7
50400E	50400.0	10150.0	486688	150	70	150	0.3	7
50400E	50400.0	10175.0	486689	35	50	85	0.3	7
50400E	50400.0	10200.0	486690	40	30	85	0.3	6
50400E	50400.0	10225.0	486691	45	40	115	0.3	6
50400E	50400.0	10250.0	486692	65	75	130	0.3	5
50400E	50400.0	10275.0	486693	110	35	105	0.3	10
50400E	50400.0	10300.0	486694	40	35	105	0.3	5
50400E	50400.0	10325.0	486695	55	35	90	0.3	6
50400E	50400.0	10350.0	486696	90	30	75	0.3	5
50400E	50400.0	10375.0	486697	50	25	65	0.3	6
50400E	50400.0	10400.0	486698	30	30	70	0.3	5
50400E	50400.0	10425.0	486699	50	10	90	0.3	5
50400E	50400.0	10450.0	486700	45	35	85	0.3	8
50400E	50400.0	10475.0	486701	45	25	140	0.3	8
50400E	50400.0	10500.0	486702	35	25	110	0.3	7
50400E	50400.0	10525.0	486703	5	30	130	0.3	6
50400E	50400.0	10550.0	486704	40	40	130	0.3	5
50400E	50400.0	10575.0	486705	45	45	100	0.3	5
50400E	50400.0	10600.0	486706	40	40	95	0.3	8
50400E	50400.0	10625.0	486707	35	40	85	0.3	5
50400E	50400.0	10650.0	486708	30	35	90	0.3	6
50400E	50400.0	10675.0	486709	30	60	115	0.3	5
50400E	50400.0	10700.0	486710	25	60	130	0.3	5
50400E	50400.0	10725.0	486711	20	65	145	0.3	4
50400E	50400.0	10750.0	486712	25	60	150	0.3	5

50400E	50400.0	10775.0	486713	35	30	170	0.3	5
50400E	50400.0	10800.0	486714	10	10	85	0.3	2
50400E	50400.0	10825.0	486715	10	10	90	0.3	3
50400E	50400.0	10850.0	486716	15	5	135	0.3	5
50400E	50400.0	10875.0	486717	40	10	115	0.3	6
50400E	50400.0	10900.0	486718	40	5	120	0.3	6
50400E	50400.0	10925.0	486719	40	15	110	0.3	7
50400E	50400.0	10950.0	486720	40	70	110	0.3	7
50400E	50400.0	10975.0	486721	20	105	140	0.3	8
50400E	50400.0	11000.0	486722	45	90	115	0.3	7
50400E	50400.0	11025.0	486723	25	35	105	0.3	9
50400E	50400.0	11050.0	486724	20	3	100	0.3	9
50400E	50400.0	11075.0	486725	50	3	85	0.3	3
50400E	50400.0	11100.0	486726	5	3	190	0.3	8
50400E	50400.0	11125.0	486727	30	3	145	0.3	4
50400E	50400.0	11150.0	486728	80	20	180	0.3	5
50400E	50400.0	11175.0	486729	40	3	115	0.3	6
50400E	50400.0	11200.0	486730	30	100	125	0.3	7
50400E	50400.0	11225.0	486731	35	3	90	0.3	5
50400E	50400.0	11250.0	486732	30	10	100	0.3	8
50400E	50400.0	11275.0	486733	20	3	60	0.3	8
50400E	50400.0	11300.0	486734	50	125	160	0.3	11
50600E	50600.0	9400.0	486768	55	30	135	0.3	7
50600E	50600.0	9425.0	486769	50	35	110	0.3	8
50600E	50600.0	9450.0	486770	35	75	105	0.3	6
50600E	50600.0	9475.0	486771	40	20	60	0.3	3
50600E	50600.0	9500.0	486772	40	15	60	0.3	2
50600E	50600.0	9525.0	486773	40	15	70	0.3	6
50600E	50600.0	9550.0	486774	30	30	65	0.3	7
50600E	50600.0	9575.0	486775	35	35	70	0.3	10
50600E	50600.0	9600.0	486776	55	25	105	0.3	7
50600E	50600.0	9625.0	486777	40	30	100	0.3	8
50600E	50600.0	9650.0	486778	40	35	85	0.3	8
50600E	50600.0	9700.0	486780	35	30	95	0.3	5
50600E	50600.0	9725.0	486781	30	5	95	0.3	3
50600E	50600.0	9750.0	486782	45	5	85	0.3	6
50600E	50600.0	9775.0	486783	40	20	100	0.3	8
50600E	50600.0	9800.0	486784	15	20	55	0.3	8
50600E	50600.0	9825.0	486785	15	15	55	0.3	5
50600E	50600.0	9850.0	486786	15	25	45	0.3	7
50600E	50600.0	9875.0	486787	15	15	55	0.3	5
50600E	50600.0	9900.0	486788	35	35	75	0.3	6
50600E	50600.0	9925.0	486789	10	15	110	0.3	4
50600E	50600.0	9950.0	486790	20	25	60	0.3	6
50600E	50600.0	9975.0	486791	15	20	90	0.3	6
50600E	50600.0	10000.0	486792	40	25	75	0.3	4
50600E	50600.0	10025.0	486793	110	15	50	0.3	6
50600E	50600.0	10050.0	486794	75	3	50	0.3	6
50600E	50600.0	10075.0	486795	50	5	65	0.3	3
50600E	50600.0	10100.0	486796	165	130	115	0.3	6
50600E	50600.0	10125.0	486797	115	20	95	0.3	7
50600E	50600.0	10150.0	486798	190	30	110	0.3	3
50600E	50600.0	10175.0	486799	180	20	140	0.3	5
50600E	50600.0	10200.0	486800	240	10	105	0.3	4
50600E	50600.0	10225.0	486801	185	15	80	0.3	6
50600E	50600.0	10250.0	486802	160	30	60	0.3	17
50600E	50600.0	10275.0	486803	110	20	75	0.3	6
50600E	50600.0	10300.0	486804	110	20	90	0.3	8
50600E	50600.0	10325.0	486805	145	20	65	0.3	5
50600E	50600.0	10350.0	486806	75	30	90	0.3	6
50600E	50600.0	10375.0	486807	75	65	140	0.3	8
50600E	50600.0	10400.0	486808	55	45	120	0.3	9
50600E	50600.0	10425.0	486809	40	25	120	0.3	5
50600E	50600.0	10450.0	486810	45	35	135	0.3	6
50600E	50600.0	10475.0	486811	65	30	135	0.3	5
50600E	50600.0	10500.0	486812	25	30	110	0.3	4
50600E	50600.0	10525.0	486813	20	25	120	.5	4
50600E	50600.0	10550.0	486814	40	45	150	0.3	5
50600E	50600.0	10575.0	486815	65	55	170	.5	8
50600E	50600.0	10600.0	486816	40	50	160	0.3	7
50600E	50600.0	10625.0	486817	35	40	165	0.3	8
50600E	50600.0	10650.0	486818	25	30	140	0.3	6
50600E	50600.0	10675.0	486819	80	25	110	0.3	9
50600E	50600.0	10700.0	486820	35	25	110	0.3	8
50600E	50600.0	10725.0	486821	35	35	135	.5	7
50600E	50600.0	10750.0	486822	30	35	150	0.3	6
50600E	50600.0	10775.0	486823	25	35	150	.5	7
50600E	50600.0	10800.0	486824	20	30	145	0.3	6
50600E	50600.0	10825.0	486825	65	90	125	0.3	14
50600E	50600.0	10850.0	486826	75	90	110	.5	15
50600E	50600.0	10875.0	486827	65	75	110	.5	12
50600E	50600.0	10900.0	486828	55	50	105	0.3	13
50600E	50600.0	10925.0	486829	40	3	55	0.3	7
50600E	50600.0	10950.0	486830	20	15	70	0.3	9
50600E	50600.0	10975.0	486831	25	20	70	.5	8
50600E	50600.0	11000.0	486832	45	15	115	.5	7
50600E	50600.0	11025.0	486833	25	35	80	0.3	6
50600E	50600.0	11050.0	486834	35	25	70	0.3	6
50600E	50600.0	11075.0	486835	55	35	80	0.3	6
50600E	50600.0	11100.0	486836	155	45	75	0.3	4
50600E	50600.0	11125.0	486837	55	45	95	0.3	7
50600E	50600.0	11150.0	486838	45	35	100	0.3	8
50600E	50600.0	11175.0	486839	30	45	80	0.3	12
50600E	50600.0	11200.0	486840	45	55	95	0.3	15
50600E	50600.0	11225.0	486841	30	25	90	0.3	10
50600E	50600.0	11250.0	486842	35	35	85	0.3	8
50600E	50600.0	11275.0	486843	70	70	90	0.3	9

50600E	50600.0	11300.0	486844	70	25	75	0.3	10
50800E	50800.0	9400.0	486878	75	10	65	0.3	7
50800E	50800.0	9425.0	486879	60	3	65	0.3	7
50800E	50800.0	9450.0	486880	80	10	75	0.3	6
50800E	50800.0	9475.0	486881	65	5	80	0.3	6
50800E	50800.0	9500.0	486882	35	10	85	0.3	3
50800E	50800.0	9525.0	486883	15	3	50	0.3	5
50800E	50800.0	9550.0	486884	10	3	60	0.3	5
50800E	50800.0	9575.0	486885	25	10	65	0.3	7
50800E	50800.0	9600.0	486886	20	20	55	0.3	6
50800E	50800.0	9625.0	486887	25	20	60	0.3	4
50800E	50800.0	9650.0	486888	15	20	70	0.3	9
50800E	50800.0	9675.0	486889	40	40	105	0.3	6
50800E	50800.0	9700.0	486890	40	40	110	0.3	9
50800E	50800.0	9725.0	486891	20	5	65	0.3	6
50800E	50800.0	9750.0	486892	20	35	65	0.3	7
50800E	50800.0	9775.0	486893	130	10	120	0.3	3
50800E	50800.0	9800.0	486894	95	10	115	.5	5
50800E	50800.0	9825.0	486895	100	20	105	0.3	6
50800E	50800.0	9850.0	486896	115	35	125	0.3	6
50800E	50800.0	9875.0	486897	45	20	85	0.3	5
50800E	50800.0	9900.0	486898	50	15	90	.5	3
50800E	50800.0	9925.0	486899	55	25	80	0.3	4
50800E	50800.0	9950.0	486900	35	15	55	0.3	6
50800E	50800.0	9975.0	486901	45	10	75	0.3	6
50800E	50800.0	10000.0	486902	60	20	110	0.3	7
50800E	50800.0	10025.0	486903	95	15	120	0.3	4
50800E	50800.0	10050.0	486904	85	15	180	0.3	4
50800E	50800.0	10075.0	486905	85	20	120	0.3	5
50800E	50800.0	10100.0	486906	100	35	130	0.3	7
50800E	50800.0	10125.0	486907	110	20	125	0.3	5
50800E	50800.0	10150.0	486908	75	15	105	.5	5
50800E	50800.0	10175.0	486909	85	10	115	.5	7
50800E	50800.0	10200.0	486910	65	10	140	0.3	8
50800E	50800.0	10225.0	486911	115	10	130	0.3	6
50800E	50800.0	10250.0	486912	60	10	105	0.3	3
50800E	50800.0	10275.0	486913	50	10	135	.5	5
50800E	50800.0	10300.0	486914	40	5	95	0.3	8
50800E	50800.0	10325.0	486915	65	15	90	0.3	7
50800E	50800.0	10350.0	486916	35	15	70	0.3	4
50800E	50800.0	10375.0	486917	25	10	70	0.3	.5
50800E	50800.0	10400.0	486918	30	35	140	0.3	2
50800E	50800.0	10425.0	486919	30	35	170	0.3	1
50800E	50800.0	10450.0	486920	35	35	175	0.3	.5
50800E	50800.0	10475.0	486921	230	85	165	0.3	3
50800E	50800.0	10500.0	486922	280	115	155	0.3	1
50800E	50800.0	10525.0	486923	545	330	190	0.3	2
50800E	50800.0	10550.0	486924	75	100	155	0.3	3
50800E	50800.0	10575.0	486925	55	60	140	0.3	3
50800E	50800.0	10600.0	486926	60	45	125	0.3	.5
50800E	50800.0	10625.0	486927	60	30	105	0.3	2
50800E	50800.0	10650.0	486928	75	50	100	0.3	2
50800E	50800.0	10675.0	486929	75	45	130	0.3	2
50800E	50800.0	10700.0	486930	75	65	115	0.3	5
50800E	50800.0	10725.0	486931	135	55	185	0.3	2
50800E	50800.0	10750.0	486932	50	30	120	0.3	1
50800E	50800.0	10775.0	486933	60	40	110	0.3	3
50800E	50800.0	10800.0	486934	15	30	85	0.3	1
50800E	50800.0	10825.0	486935	40	15	90	0.3	.5
50800E	50800.0	10850.0	486936	15	10	65	.5	.5
50800E	50800.0	10875.0	486937	10	15	40	0.3	.5
50800E	50800.0	10900.0	486938	35	35	70	0.3	.5
50800E	50800.0	10925.0	486939	55	45	85	0.3	9
50800E	50800.0	10950.0	486940	50	40	80	0.3	7
50800E	50800.0	10975.0	486941	65	45	85	0.3	9
50800E	50800.0	11000.0	486942	40	35	80	0.3	8
50800E	50800.0	11025.0	486943	35	60	130	.5	6
50800E	50800.0	11050.0	486944	140	255	365	0.3	15
50800E	50800.0	11075.0	486945	65	205	265	0.3	9
50800E	50800.0	11100.0	486946	60	210	130	0.3	8
50800E	50800.0	11125.0	486947	20	55	85	0.3	6
50800E	50800.0	11150.0	486948	30	50	85	0.3	8
50800E	50800.0	11175.0	486949	15	45	90	0.3	6
50800E	50800.0	11200.0	486950	40	95	130	0.3	6
50800E	50800.0	11225.0	486951	25	85	110	0.3	7
50800E	50800.0	11250.0	486952	20	110	110	0.3	11
50800E	50800.0	11275.0	486953	15	90	85	0.3	10
50800E	50800.0	11300.0	486954	10	55	65	0.3	12
51000E	51000.0	9400.0	483028	70	15	70	.5	6
51000E	51000.0	9425.0	483029	115	20	80	0.3	7
51000E	51000.0	9450.0	483030	65	20	95	0.3	5
51000E	51000.0	9475.0	483031	40	20	65	0.3	2
51000E	51000.0	9500.0	483032	20	40	55	0.3	6
51000E	51000.0	9525.0	483033	20	30	60	0.3	5
51000E	51000.0	9550.0	483034	15	45	50	0.3	5
51000E	51000.0	9575.0	483035	35	40	85	0.3	4
51000E	51000.0	9600.0	483036	120	25	175	0.3	3
51000E	51000.0	9625.0	483037	85	30	140	0.3	4
51000E	51000.0	9650.0	483038	45	30	120	0.3	4
51000E	51000.0	9675.0	483039	15	25	105	0.3	2
51000E	51000.0	9700.0	483040	55	50	110	.5	6
51000E	51000.0	9725.0	483041	50	40	100	0.3	5
51000E	51000.0	9750.0	483042	90	35	150	0.3	6
51000E	51000.0	9775.0	483043	110	30	110	0.3	6
51000E	51000.0	9800.0	483044	95	25	90	0.3	6
51000E	51000.0	9825.0	483045	120	25	75	0.3	1

51000E	51000.0	9850.0	483046	230	20	185	0.3	4
51000E	51000.0	9875.0	483047	105	25	115	.5	5
51000E	51000.0	9900.0	483048	130	20	115	.5	4
51000E	51000.0	9925.0	483049	250	15	105	1.0	6
51000E	51000.0	9950.0	483050	205	10	90	.5	3
51000E	51000.0	9975.0	483051	150	30	105	.5	5
51000E	51000.0	10000.0	483052	305	35	145	.5	6
51000E	51000.0	10025.0	483053	95	20	145	.5	5
51000E	51000.0	10050.0	483054	160	10	150	0.3	4
51000E	51000.0	10075.0	483055	315	10	175	.5	5
51000E	51000.0	10100.0	483056	235	10	130	0.3	8
51000E	51000.0	10125.0	483057	140	5	130	0.3	9
51000E	51000.0	10150.0	483058	25	30	115	.5	4
51000E	51000.0	10175.0	483059	20	20	115	.5	5
51000E	51000.0	10200.0	483060	20	10	95	0.3	6
51000E	51000.0	10225.0	483061	135	3	110	1.0	18
51000E	51000.0	10250.0	483062	245	10	170	.5	24
51000E	51000.0	10275.0	483063	50	10	90	.5	21
51000E	51000.0	10300.0	483064	35	15	125	1.0	21
51000E	51000.0	10325.0	483065	25	20	125	0.3	18
51000E	51000.0	10350.0	483066	20	20	115	.5	5
51000E	51000.0	10375.0	483067	15	15	110	.5	6
51000E	51000.0	10400.0	483068	20	25	125	.5	4
51000E	51000.0	10425.0	483069	15	15	110	.5	6
51000E	51000.0	10450.0	483070	15	15	105	0.3	6
51000E	51000.0	10475.0	483071	25	45	140	.5	1
51000E	51000.0	10500.0	483072	15	25	105	0.3	2
51000E	51000.0	10525.0	483073	25	45	125	0.3	3
51000E	51000.0	10550.0	483074	25	30	105	.5	4
51000E	51000.0	10575.0	483075	25	25	100	1.0	5
51000E	51000.0	10600.0	483076	45	30	135	1.0	14
51000E	51000.0	10625.0	483077	20	25	105	0.3	.5
51000E	51000.0	10675.0	483079	65	50	150	.5	11
51000E	51000.0	10700.0	483080	45	70	130	.5	9
51000E	51000.0	10725.0	483081	45	65	100	0.3	11
51000E	51000.0	10750.0	483082	45	35	105	.5	8
51000E	51000.0	10775.0	483083	55	105	110	0.3	13
51000E	51000.0	10800.0	483084	75	245	115	.5	38
51000E	51000.0	10825.0	483085	40	95	95	0.3	28
51000E	51000.0	10850.0	483086	50	150	110	.5	25
51000E	51000.0	10875.0	483087	15	40	55	.5	10
51000E	51000.0	10900.0	483088	15	30	50	.5	7
51000E	51000.0	10925.0	483089	5	5	25	0.3	5
51000E	51000.0	10950.0	483090	10	10	35	0.3	6
51000E	51000.0	10975.0	483091	5	10	25	0.3	4
51000E	51000.0	11000.0	483092	10	3	25	0.3	1
51000E	51000.0	11025.0	483093	3	10	20	0.3	2
51000E	51000.0	11050.0	483094	5	3	15	0.3	.5
51000E	51000.0	11075.0	483095	10	5	15	0.3	.5
51000E	51000.0	11100.0	483096	80	60	75	0.3	6
51000E	51000.0	11125.0	483097	10	10	25	0.3	1
51000E	51000.0	11150.0	483098	35	40	65	0.3	3
51000E	51000.0	11175.0	483099	20	20	45	0.3	1
51000E	51000.0	11200.0	483100	10	15	35	0.3	1
51000E	51000.0	11225.0	483101	10	10	25	0.3	.5
51000E	51000.0	11250.0	483102	15	30	50	0.3	1
51000E	51000.0	11275.0	483103	5	15	35	0.3	.5
51000E	51000.0	11300.0	483104	25	175	130	0.3	11
51200E	51200.0	9400.0	483146	30	30	125	0.3	5
51200E	51200.0	9425.0	483147	35	25	95	0.3	11
51200E	51200.0	9450.0	483148	15	10	40	0.3	7
51200E	51200.0	9475.0	483149	15	10	30	0.3	9
51200E	51200.0	9500.0	483150	30	35	65	0.3	8
51200E	51200.0	9525.0	483151	30	40	105	0.3	6
51200E	51200.0	9550.0	483152	60	30	85	0.3	8
51200E	51200.0	9575.0	483153	55	30	115	0.3	9
51200E	51200.0	9600.0	483154	70	35	115	0.3	10
51200E	51200.0	9625.0	483155	65	35	110	0.3	11
51200E	51200.0	9650.0	483156	80	35	130	0.3	11
51200E	51200.0	9675.0	483157	75	45	150	0.3	10
51200E	51200.0	9700.0	483158	125	50	150	0.3	10
51200E	51200.0	9725.0	483159	140	40	125	0.3	9
51200E	51200.0	9750.0	483160	100	40	115	0.3	8
51200E	51200.0	9775.0	483161	125	30	135	0.3	10
51200E	51200.0	9800.0	483162	130	30	115	0.3	8
51200E	51200.0	9825.0	483163	45	15	125	0.3	6
51200E	51200.0	9850.0	483164	60	15	130	0.3	7
51200E	51200.0	9875.0	483165	80	10	120	0.3	6
51200E	51200.0	9900.0	483166	105	30	115	0.3	9
51200E	51200.0	9925.0	483167	110	15	125	0.3	7
51200E	51200.0	9950.0	483168	165	10	120	0.3	7
51200E	51200.0	9975.0	483169	160	15	90	0.3	10
51200E	51200.0	10000.0	483170	140	20	100	0.3	11
51200E	51200.0	10025.0	483171	125	45	115	0.3	10
51200E	51200.0	10050.0	483172	30	15	100	0.3	6
51600E	51600.0	9400.0	483316	5	3	10	0.3	3
51600E	51600.0	9425.0	483317	20	25	35	0.3	6
51600E	51600.0	9450.0	483318	20	15	30	0.3	8
51600E	51600.0	9475.0	483319	10	3	10	0.3	4
51600E	51600.0	9500.0	483320	35	15	35	0.3	7
51600E	51600.0	9525.0	483321	15	15	20	0.3	5
51600E	51600.0	9550.0	483322	5	3	10	0.3	2
51600E	51600.0	9575.0	483323	5	3	30	0.3	3
51600E	51600.0	9600.0	483324	10	3	20	0.3	5
51600E	51600.0	9625.0	483325	10	3	15	0.3	3
51600E	51600.0	9650.0	483326	5	3	10	0.3	2

51600E	51600.0	9675.0	483327	10	3	15	0.3	5
51600E	51600.0	9700.0	483328	5	3	10	0.3	3
51800E	51800.0	9400.0	483404	5	3	10	0.3	.5
51800E	51800.0	9425.0	483405	10	5	10	0.3	.5
51800E	51800.0	9450.0	483406	3	3	5	0.3	.5
51800E	51800.0	9475.0	483407	3	10	5	0.3	.5
51800E	51800.0	9500.0	483408	3	5	5	0.3	.5
52000E	52000.0	9400.0	483484	3	5	5	0.3	.5
52000E	52000.0	9425.0	483485	3	3	5	0.3	.5
52000E	52000.0	9450.0	483486	5	10	10	0.3	.5
52000E	52000.0	9475.0	483487	3	10	10	0.3	.5
52000E	52000.0	9500.0	483488	3	3	5	0.3	.5
52200E	52200.0	9400.0	483564	25	30	45	0.3	7
52200E	52200.0	9425.0	483565	25	30	50	0.3	7
52200E	52200.0	9450.0	483566	55	25	105	0.3	5
52200E	52200.0	9475.0	483567	20	20	45	0.3	8
52200E	52200.0	9500.0	483568	25	30	45	0.3	6
52400E	52400.0	9400.0	483644	20	20	55	0.3	10
52400E	52400.0	9425.0	483645	3	10	30	0.3	4
52400E	52400.0	9450.0	483646	10	5	35	0.3	5
52400E	52400.0	9475.0	483647	15	10	55	0.3	9
52400E	52400.0	9500.0	483648	5	10	30	0.3	5

035

APPENDIX 2

Field descriptions and sample locations of rock chip samples submitted for petrological and geochemical analysis.

P indicates sample submitted for petrology

G indicates sample submitted for geochemical analysis

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Sample	Co-ordinates	Field Description
513420 P	448240E, 541075N	Bedded brown, orange and green siltstone.
513421 P	449100E, 5410200N	Altered basalt. Pb soil geochemical high.
513422 G	449100E, 5410200N	Altered basalt. Pb soil geochemical high.
513423 P	448350E, 5410890N	Basalt with angular dacite fragments. Accessory pyrite and magnetite (magnetic).
513424 P G	448900E, 5410250N	Altered basalt.
513425 P	448130E, 5411150N	Magnetic basaltic green lava breccia.
513426 P	448135E, 5411155N	Bedded shale.
513427 P G	448650E, 5410818N	Massive specular haematite, magnetite, quartz rock.
513429 P	448320E, 5410810N	Polymict lapilli volcaniclastic
513430 P G	448160E, 5411380N	Mottled pink, white and black rock.
513431 P G	448160E, 5411380N	Haematite altered basalt.
513432 P	448280E, 5411500N	Basalt (silicified?).
513453 G	448930E, 5410248N	Altered basalt. Pb soil anomaly eastern hill.
513454 G		Altered basalt, Pb anomaly.
515339 P G	449800E, 5409930N	Pale green, fine grained weakly vesicular lava with occasional fuchsite spotting.
515340 P G	449470E, 5409770N	Fresh, fine grained green basalt with very weak calcite alteration and rare haematite veinlets?/bands.

515341 P G	449200E, 5409800N	Maroon coloured, strongly haematite altered fine grained lava with vesicles filled with calcite and ?chlorite.
515342 P G	449070E, 5410030N	Green-brown medium grained, strongly feldspar porphyritic, weakly vesicular andesite or basalt lava with visible ?chlorite altered ?mafic phenocrysts.
515343 G	448650E, 5409740N	Massive, fine grained weakly feldspar phyric basalt with weak ?feldspar ?silica alteration.
515344 G	448420E, 5409900N	Massive green feldspar phyric andesite or basalt lava.
515345 P G	449050E, 5410130N	Massive blue-green strongly feldspar phyric, moderately calcite altered, weakly vesicular andesite or basalt lava with minor disseminated pyrite.
515346 P G	449980E, 5410000N	Dark brown, weakly vesicular ?basalt lava with minor ?quartz filling in some vesicles.
515354 G	449350E, 5409470N	Massive very fine grained purple-red haematite stained volcanic rock with occasional specular haematite.

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515355 G	449750E, 5409450N	Massive, dark green, very fine grained, weakly haematite altered, ?basalt with common calcite filled vesicles.
515356 P G	449315E, 5409485N	Dark green, weakly haematite and calcite altered? basalt with common feldspar and ?chlorite altered mafic phenocrysts and containing common disseminated **pyrite.**
515357 P G	448875E, 5409455N	Green fine to medium grained weakly calcite altered andesite or basalt lava with rare feldspar and occasional black ?mafic phenocrysts and containing disseminated **pyrite.**
515358 G	448865E, 5409455N	Minor float of yellow-orange fine grained ?dacite lava with occasional quartz and feldspar phenocrysts, containing minor ?quartz-haematite veinlets and traces of pyrite.
515359 P G	448330E, 5409560N	Medium grained volcaniclastic with quartz and feldspar ?phenocrysts and rounded ?dacitic fragments within a green matrix.

APPENDIX 3

Petrological descriptions of rock chip samples

(Descriptions provided by:

Dr. A. Crawford, University of Tasmania).

040

SAMPLE NUMBER: 513420

SUMMARY:

This is a very boring slightly ferruginized mudstone with a weak fracture cleavage.

HAND SPECIMEN:

This is a very fine-grained reddish-brown weakly bedded mudstone or tuffaceous mudstone.

THIN SECTION DESCRIPTION:

This rock is a very fine-grained sediment containing a very small component of detrital quartz grains less than 0.01mm across and occasional detrital muscovite flakes in a sericite-quartz microcrystalline groundmass spotted by tiny equidimensional grains of reddish brown, almost isotropic limonite or goethite.

The rock is pervaded by a meshwork of fine, subparallel wavy fractures that define a very weak fracture cleavage. It is not possible to determine whether this sample has a tuffaceous component. The detrital muscovite supports at least some of the detrital fraction coming from probable pelitic metamorphics.

SAMPLE NUMBER: 513421

SUMMARY:

This rock is an epidosite derived from an augite+ plagioclase-phyric andesite or basalt.

HAND SPECIMEN:

This is a massive mottled yellow-tan coloured fairly fine-grained metavolcanic almost identical in hand specimen to the previous sample.

THIN SECTION DESCRIPTION:

This rock is like the previous two samples in that it is composed entirely of epidote and subordinate quartz. However unlike the previous samples, it does retain in places textural evidence of the lava from which it was derived. The protolith of this sample was almost certainly a slightly vesicular highly porphyritic andesite or basalt with an exceptionally fine-grained vitrophyric groundmass. Former phenocrysts of plagioclase and augite, and also possibly olivine, are totally pseudomorphed by multi-crystalline aggregates of anhedral polygonal epidote grains. The devitrified groundmass is replaced by an almost isotropic mass composed dominantly of very fine-grained dirty epidote. Quartz is generally more coarse-grained than any epidote in the sample, and appears to form fracture fillings; however, very fine-grained cherty quartz is distributed throughout the rock, intergrown with epidote. No other minerals were observed in this saction.

SAMPLE NUMBER: 513422

SUMMARY:

This rock is an epidosite derived from a vesicular olivine+augite+plagioclase-phyric basaltic lava.

HAND SPECIMEN:

This is a massive mottled beige-coloured fine- to medium-grained metavolcanic almost identical in hand specimen to the two previous samples; vague evidence of a former porphyritic texture is preserved.

THIN SECTION DESCRIPTION:

This sample is very similar to the sample described above, but is even more informative as to the precursor rock type. It is now almost entirely composed of quartz and epidote. However, very clear evidence that the protolith was a quite vesicular, porphyritic basaltic lava is preserved. Former vesicles are undeformed, and up to 4mm across, but are filled by spherulitic to polygonal quartz aggregates. They make up about 10 modal% of the rock. Cores of some vesicles (amygdales) are filled by epidote and occasional well-crystallized sericite and weakly pleochroic biotite (or remarkably birefringent chlorite). Former phenocryst shapes are well preserved, although the phenocrysts are now replaced by polycrystalline epidote intergrowths. Most phenocrysts have unambiguous plagioclase crystal morphology, although both augite and olivine shapes are not uncommon. Former olivine crystal shapes, with distinctive terminations, are reasonably common, and strongly support an basaltic precursor for this rock; these are mainly replaced by very fine-grained cherty quartz intergrowths.

The groundmass of this basalt was very fine-grained, probably glassy, and is now replaced by almost isotropic dirty very fine-grained epidote, as in the previous sample. No opaque oxide or sulphide phases are left in this sample.

SAMPLE NUMBER: 513425 and 513423

SUMMARY:

These are virtually identical epiclastic sandstones dominated by felsic volcanic rock fragments and volcanic quartz, feldspar and minor augite grains.

HAND SPECIMEN:

These are dark grey fairly coarse-grained epiclastic sandstones with fine-grained volcanic lithic clasts to about 12mm across, but generally much smaller, and abundant small detrital quartz and feldspar grains.

THIN SECTION DESCRIPTION:

In thin section, these samples are seen to be essentially identical volcanogenic sandstones, with more than 80 modal% of the rock being composed of rounded to subrounded lithic fragments or monomineralic clasts of felspar, quartz or augite. The dominant clast population is represented by sericitized blocky albite phenocrysts to 2mm across that are generally euhedral or subhedral, and show little or no rounding. They are typical of feldspar phenocrysts occurring in felsic Mount Read Volcanics. Volcanic quartz grains are also present, forming perhaps 5 modal% of both samples; these are resorbed euhedra often containing chloritized round melt inclusions. Fractured subhedral augite phenocrysts to about 1mm long form about 1 modal% of 425, and probably twic this amount in 423; they are partially to totally replaced by calcite and green chlorite. Sample 513423 contains also a few small pleochroic green primary hornblende phenocryst fragments. Finally, at least 3 modal% of both rocks is made up of large, leucoxenized equidimensional FeTi oxide phenocrysts.

The lithic clast population in both sandstones is varied in texture, but is dominated by feldspar- or feldspar+quartz-phyric dacitic to rhyolitic lavas. Their textures are a function of the inter-relationships between cooling rate and extent of devitrification of former glass. Sample 423 contains several andesitic fragments with abundant augite and plagioclase phenocrysts. Only two or three grains of probably sedimentary or pelitic metamorphic provenance were noted, and these are

quartz sandstone or quartzite. One interesting fact about the volcanic clasts is that two or three dacitic to rhyolitic fragments in this sample show extensive calcite alteration, whereas all the others are calcite-free; I take this to indicate that the carbonate-alteration of these fragments occurred pre-erosion and transportation, and is therefore a Cambrian alteration event.

The groundmass of both samples is a felsic silty ash that probably erupted simultaneously with the abundant unrounded feldspar phenocrysts, and was redeposited as mass flow units that picked up their diverse volcanic components during slumping off the sides of volcanoes. Patches and fracture fillings of green chlorite are abundant through the groundmass.

SAMPLE NUMBER: 513424

SUMMARY:

This rock was probably originally a basalt or andesite, but it has been totally replaced by epidote and quartz to form an epidosite.

HAND SPECIMEN:

This is a massive yellowish brown fairly fine-grained meta-volcanic containing abundant epidote.

THIN SECTION DESCRIPTION:

This sample is also an epidosite, being composed virtually entirely of well-crystallized epidote and quartz. The primary texture of the rock is destroyed, and the only evidence of the former nature of the rock is a few relic crystal outlines of grains now replaced by very fine-grained quartz intergrowths. These shapes are most similar to augite crystals, and probably represent former phenocrysts.

The epidote that dominates this rock forms dense masses of intergrown, fractured and inclusion-filled anhedral dirty yellow crystals intergrown with quartz. The latter mineral makes up considerably less of this rock than the previous sample, and no altered FeTi oxides or possible sulphides are left either. It is impossible to determine from this rock what its precursor lithology was, but based on previous experience and a literature review, basaltic or andesitic protoliths seem most likely.

SAMPLE NUMBER: 513426

SUMMARY:

This rock is a shale derived from pelitic metamorphics, but containing several elliptical to flattened concretions that appear to be volcanic lapilli.

HAND SPECIMEN:

This is a weakly cleaved olive green-brown shale with several small flattened elliptical to augen-shaped concretionary structures about 5mm long and 2mm thick parallel to bedding.

THIN SECTION DESCRIPTION:

In thin section, this sample is seen to be a very fine-grained sedimentary rock with a weak fracture cleavage. Framework grains make up about 1-2 modal% of the sample and are dominantly angular quartz and detrital muscovite, both less than 0.05mm maximum grainsize. The detrital muscovite flakes define bedding that is parallel to a weak fracture cleavage that forms a network of subparallel fractures cutting the rock. These fractures are sites of strong Fe-staining of sericitic or clayey material that forms the irresolvable matrix of this sample. The abundant detrital muscovite flakes suggest that this sample may have been mainly derived from pelitic metamorphics.

The two concretions are difficult to interpret. They are both sites of strong limonite(?) alteration of clayey material, but both also contain several subrounded quartz grains and one contains what looks very like two small sericitized feldspar phenocrysts. Although this assignment is far from definitive, I think these may be small formerly glassy volcanic clasts or lapilli deposited simultaneously with the shale, but becoming sites of preferential sericitization and limonite replacement.

SAMPLE NUMBER: 513427

SUMMARY:

This rock is a magnetite-hematite ± K-feldspar assemblage resulting from intense hydrothermal alteration and veining of an uncertain precursor. No sulphide minerals were observed.

THIN-SECTION DESCRIPTION:

The section consists of ~85 modal % opaque oxides, and ~15 % silicates. The oxides comprise ~65% magnetite, and 35% hematite. Silicates comprise ~90% K-feldspar, 10 % quartz, with accessory hematitised relicts after chlorite. K-feldspar is weakly to moderately seriticised. No sulphide minerals, or sulphide alteration/weathering products were observed.

In detail the paragenetically earliest phase is medium-grained (av. 0.1 mm), disseminated, moderately-sericitised K-feldspar, forming 0.2 - 0.5 mm clots throughout the slide, which have commonly been plucked during the section-making process. These are embayed by coarse anhedral magnetite.

Magnetite is mainly massive, but in several areas forms distinctive blocky lathes not normally characteristic of magnetite growth. They are identified as pseudomorphs after coarse hematite. Their long axes are randomly orientated.

Specular hematite variably alters grain boudaries and cleavages within magnetite. This alteration is most intense around small (1-5 mm) K-feldspar-quartz ± chlorite veins, where hematite forms a mesh of thin randomly orientated blades and lathes.

The paragenetically latest event is the development of fine (1 -2 mm wide) K-feldspar veins, weakly seriticised, with a fiber growth form transverse to the fracture walls.

Overall there is no sign of a sedimentary layering or compositional banding which might identify this rock as a seafloor precipitate. The random orientation of early and late hematite lathes is more characteristic of sub-surface hydrothermal alteration. There is little evidence of structural deformation at a thin-section scale.

Summary Paragenetic Sequence:

(1)Low-grade feldspar alteration of an unknown precursor.
(2)Hematite growth.
(3)Magnetite alteration of hematite, and magnetite growth.
(4)Partial hematite alteration of magnetite, feldspar veining,

sericitisation.
(5)Minor cross-cutting feldspar veining.

Additional Comments: Magnetite and hematite in hydrothermal alteration can occur in skarn, shear-related, sub-volcanic and seafloor settings. Copper mineralisation is most commonly associated with it ± Au, Co, Ba, W and Sn.

049

SAMPLE NUMBER: 513429

SUMMARY:

This is a coarse epiclastic mass flow sandstone derived mainly from rhyolitic to dacitic volcanics, but containing a significant lithic fraction derived from pelitic metamorphics.

HAND SPECIMEN:

This is a dark grey-green coarse grained epiclastic sandstone with rounded grains of fine-grained metavolcanic rocks to almost 1cm across.

THIN SECTION DESCRIPTION:

In thin section, this rock is seen to be composed of detritus from two dominant sources, a Precambrian pelitic metamorphic terrain and a felsic volcanic terrain. The latter is dominant, and is represented by abundant detrital feldspar grains that are barely rounded but totally sericitized blocky phenocrysts. Volcanic quartz grains are also common, and generally retain some crystal faces; most are less than 1mm across. Subrounded lithic fragments of felsic lavas with small phenocrysts of quartz and feldspar are also well represented, and discrete large, detrital leucoxenized FeTi oxide crystals are common.

Pelitic metamorphic-derived rock fragments range up to 6mm across, and range from fairly coarse-grained quartzite with no mica, through quartz sandstone with a small detrital mica component, to highly micaceous sandstones.

The matrix of this sample is fairly uniform textured and very fine-grained and has a particularly 'volcanic' look about it. It is essentially a quartz-albite ± sericite intergrowth that seems to host the feldspar grains almost as a lava entrains phenocrysts. I suggest that this sample is a mass flow deposit resulting from explosive eruption and reworking of a feldspar-phyric dacitic to rhyolitic ash.

SAMPLE NUMBER: 513430

SUMMARY:

This rock is a thoroughly epidotized mafic or intermediate lava (epidosite).

HAND SPECIMEN:

This is a mottled dark grey rock with an almost holocrystalline texture defined by patches of pinkish quartz or feldspar and darker masses of chlorite or fine-grained epidote.

THIN SECTION DESCRIPTION:

In thin section, this sample is seen to be composed almost entirely of quartz and epidote. The rock has a patchy texture defined by two mineralogical domains, that are reflected as lighter and darker areas in the mottled handspecimen. The darker areas in thin section are dominated by dense intergrowths of anhedral, slightly prismatic very pale yellow epidote grains mainly less than 0.01mm long. Progressive decrease in the modal abundance of epidote and a concomitant increase in modal quartz leads to lighter coloured patches, that are essentially a quartz matrix peppered to varying extents by tiny epidote grains. The original texture of the protolith has been totally obliterated, and only a few small albitized plagioclase phenocrysts remain from the primary mineralogy.

Occasional augen-shaped fracture fillings of almost ribbon quartz host much larger epidote crystals, up to 0.8mm long, that grow randomly orientated in the quartz. The only other mineral in this rock is altered FeTi oxide grains, that are now leucoxenized. Dark brown manganiferous(?) staining occurs as localized vains in which the epidote and quartz is coated and eventually replaced by isotropic brown material. Small opaque grains lacking the fuzzy outlines that characterize leucoxenized FeTi oxides may be a sulphide phase, but are quite sparse.

This sample is clearly an epidotized intermediate or mafic lava, with little clues remaining as to the original mineralogy and texture. A discussion of epidosites is appended to this report.

051

SAMPLE NUMBER: 513431

SUMMARY:

This rock is a highly porphyritic and strongly sericitized plagioclase+augite+olivine-phyric basaltic lava.

HAND SPECIMEN:

This sample on a freshly cut face is a dark grey, altered fine-grained porphyritic volcanic

THIN SECTION DESCRIPTION:

This sample is a highly altered strongly porphyritic basalt. Former plagioclase phenocrysts range in size from about 0.05 to 1mm and are totally sericitized; they constitute at least 45-50 modal% of this sample, and have elongate shapes characteristic of plagioclases in basalts and andesites. Former mafic phenocrysts constitute around 5 modal% of the sample and are pseudomorphed by green pleochroic chlorite or chlorite plus sericite containing spherical blebs and intergrowths of secondary quartz. Larger former mafic phenocrysts are around 1mm across, and are slightly resorbed and fractured looking dominantly chlorite-quartz-sericite intergrowths; these are probably altered augite phenocrysts. Of more definite origin are the euhedral, small former olivine phenocrysts that are replaced by strongly pleochroic green chlorite with narrow opacite rims.

The groundmass of this sample probably constitutes less than 50 modal% of the sample, and is dominated by sericitized feldspar microlites and stubby chloritized augite plates in a dark, strongly ferruginized (hematitized?) matrix responsible for the dark colour of the rock. This sample was clearly a highly porphyritic basalt.

SAMPLE NUMBER: 513432

SUMMARY:

This rock is an epidosite with no textural evidence of the protolith preserved.

HAND SPECIMEN:

This is a light green-pale grey massive epidosite with prominent dendritic bands of manganiferous oxides on fractures, and also pervading areas of the rock.

THIN SECTION DESCRIPTION:

This rock is an epidosite texturally close to sample 513430, but rather finer-grained. It consists of a matrix or 'background' of quartz crystals up to several mm across with ragged and complexly intergrown boundaries against other quartz grains, which host massed to dispersed very small subhedral prisms of colourless epidote rarely longer than 0.1mm. The overall texture of the rock falls broadly into two domains, a light coloured domain in which epidote is more scattered, and a darker one in which epidote crystals formed felted and dense masses. Tiny equigranular leucoxenized FeTi oxide grains are quite common. Scattered patches and fracture linings of very dark brown manganiferous(?) oxides are common in parts of the rock. No textural evidence of the original rock remains, but I suggest that it was a non-vesicular sparsely porphyritic meta-basalt or meta-andesite.

SAMPLE NUMBER: 515339

SUMMARY:

This sample is a crystal vitric tuff with a small lithic component. The presence of former augite phenocrysts suggests that it may have been andesitic rather than highly felsic. The alteration is sericite-dominated.

HAND SPECIMEN:

This is a pale grey feldspar-phyric crystal tuff containing small white feldspar phenocrysts and several darker fine-grained lithic clasts less than 5mm long.

THIN SECTION DESCRIPTION:

As for the previous sample (515350), this rock is texturally highly altered, with only traces of the former phenocrysts in a thoroughly altered groundmass. Around 2 modal% of the sample is composed of small sparsely feldspar-phyric felsic volcanic lithic fragments with small euhedral plagioclase phenocrysts in a dark, ultra fine-grained formerly glassy matrix. The phenocrysts dispersed throughout the remainded of the sample include what were clearly former plagioclase feldspar phenocrysts, up to about 1mm long and entirely replaced by sericite, A second type of former phenocryst phase is represented by sericite-chlorite-quartz pseudomorphs after a mafic phase that has crystal shapes most reminiscent of augite. These are often dominated by rusty-red stained sericite, and make up about 2-5 modal % of the sample.

The groundmass of this sample is highly altered and of uncertain primary texture. It consists of a fine-grained intergrowth of quartz and sericite separated by small streaks and patches of quartz-free sericite, all peppered by tiny FeTI oxide grains. I suggest that this groundmass was formerly largely glassy to vitrophyric, that it devitrified to a quartz-albite mixture, and that it was then variably sericitized. The sample is essentially calcite-free.

SAMPLE NUMBER: 515341

SUMMARY:

This sample is a former plagioclase+augite+olivine -phyric vesicular basalt that has suffered a strong hematite-alteration of the vitrophyric groundmass.

HAND SPECIMEN:

This is a maroon vesicular andesitic lava with calcite and chlorite filling vesicles that are mainly less than 2mm across; altered mafic phenocrysts are quite abundant set in a very fine-grained and altered red groundmass.

THIN SECTION DESCRIPTION:

The textural preservation of this sample is excellent. The most striking feature of the sample is the large slightly irregular shaped vesicles that are filled by bright green chlorite often with a narrow rim of quartz, and less commonly with a core of coarsely crystalline calcite and minor fan-shaped bundles of prehnite.

The sample is strongly porphyritic, with approximately 20 modal% of elongate plagioclase euhedra up to 1.5mm long . These are all albitized and flecked by sericite and small globular masses of bright green pumpellyite, but have preserved internal features such as sieve textures and rows of former melt inclusions. Former augite phenocrysts are mainly altered to calcite, although several of the larger crystals (to 3mm long) have cores of fresh augite preserved within the calcite. These probably make up about 3 modal% of the sample. Former olivine phenocrysts, slightly less abundant than the augite, are also easily identifiable by their crystal shapes and opacite rims; they are rarely larger than 0.5mm, and are replaced by quartz and chlorite.

The groundmass of this sample was vitrophyric, with tiny plagioclase laths set in a glassy matrix. The latter has devitrified and been strongly hematite-altered, producing the intense red colour notable in the hand specimen.

603056

055

SAMPLE NUMBER: 515342

SUMMARY:

This is a well-preserved plagioclase+augite-phyric andesitic to dacitic lava with an alteration assemblage typical of the upper prehnite-pumpellyite facies (albite-chlorite-epidote-calcite-quartz).

HAND SPECIMEN:

This rock is a dark brown, well-preserved porphyritic andesite lava with phenocrysts of altered plagioclase and chloritized mafics in a very fine-grained groundmass.

THIN-SECTION DESCRIPTION:

This sample is a well-preserved strongly porphyritic andesite lava with abundant phenocrysts of plagioclase and less abundant former mafic phenocrysts in a fine-grained but crystalline groundmass. The plagioclase phenocrysts are elongate to blocky euhedra and generally occur in glomeroporphyritic clots composed of up to 5 crystals, and sometimes more, that may be up to 5mm across. This crystal shape and mode of occurrence is characteristic of the transition from andesitic to dacitic magma. All former calcic plagioclase phenocrysts have been albitized, and they are only very slightly flecked by sericitization. These glomeroclots of albitized plagioclase constitute around 30 modal% of this sample. Former mafic phenocrysts make up perhaps 5 modal% of this lava, and were most likely augite. Former slightly rounded euhedral outlines of augite crystals are well-preserved, but the augite has invariably been pseudomorphed by a relatively coarse-grained intergrowth of secondary quartz and subhedral to euhedral very pale coloured epidote (almost clinozoisite). Former FeTi oxide phenocrysts and microphenocrysts constitute less than 1 modal% of this sample, but are relatively well-preserved (ie. not obviously altered to leucoxene).

The groundmass of this sample is a fine-grained but clearly holocrystalline intergrowth of plagioclase microlites (albitized), FeTi oxide granules and chloritized augite plates and former mesostasis. Abundant highly irregular and angular fractures in the rock are lined by, or filled by green chlorite in which euhedral crystals of yellowish epidote are growing. The core regions of some of these fractures are filled by calcite.

603057

056

SAMPLE NUMBER: 515345

SUMMARY:

This is a very well-preserved plagioclase+augite-phyric basaltic lava, containing pumpellyite as a minor alteration phase.

HAND SPECIMEN:

This is a very fresh-looking dark grey highly porphyritic andesitic to basaltic lava.

THIN SECTION DESCRIPTION:

This sample is a very well-preserved highly porphyritic basaltic lava composed of abundant phenocrysts of plagioclase and augite in an almost isotropic devitrified glassy groundmass. Plagioclase phenocrysts make up around 30 modal% of this sample and are elongate prisms of albite rarely more than 1mm long, flecked by sericite and containing common tiny fluffy bright green pumpellyite aggregates. Augite phenocrysts are frequently equidimensional euhedra up to 4mm across that are remarkably fresh, and sometimes contain small euhedral inclusions of plagioclase and chloritized olivine. They make up about 7-10 modal% of this sample, and sometimes occur in multicrystalline monomineralic clinopyroxenite clots, or with plagioclase in gabbroic clots. FeTi oxide phenocrysts and microphenocrysts are conspicuously absent.

The groundmass of this sample is almost isotropic, being composed of devitrified glass containing abundant poorly crystalline murky epidote, tiny plagioclase microlites, tiny leucoxene and Fe oxide granules, scattered patches of calcite and small fractures filled by bright green chlorite.

COMMENT:

This sample also would be very good for analysis if you have a bit more of it.

057

603058

SAMPLE NUMBER: 515346

SUMMARY:

This is a former hornblende+plagioclase-phyric andesite that is too phenocryst-rich, and has a groundmass too coarse to have been a lava; it probably represent a volcanic neck or plug, or some shallow intrusive feature. It is highly altered, showing a strong sericite-chlorite alteration assemblage.

HAND SPECIMEN:

This is a weathered brown intermediate lava or shallow intrusive with 5-10 modal% of ferruginized former mafic phenocrysts in a highly altered groundmass.

THIN SECTION DESCRIPTION:

This rock in thin section is seen to be composed of at least 60 modal% of altered plagioclase phenocrysts and around 7-10 modal% of oxidized and altered former mafic phenocrysts set in a highly altered red-brown formerly crystalline groundmass. The feldspar phenocrysts are fairly elongate prisms rarely more than 2mm long and averaging around 1mm. They are notably different in form from the equidimensional blocky feldspar phenocrysts that characterize the dacitic to rhyolitic lavas and shallow intrusives in the Mount Read Volcanics. All feldspar has been totally sericitized, although former trains of melt inclusions defining growth planes, now replaced by oxidized chlorite, are well preserved and abundant. Two generations of sericite appear to be replacing the feldspar. More abundant is extremely fine-grained sericite replacing entire crystals evenly, whereas coarser-grained sericite replacing only parts of former feldspar prisms may be due to surficial weathering and recrystallization of the fine-grained sericite near-surface. Former mafic crystals are generally euhedra up to 3mm long, and frequently have shapes indicative of a hornblende precursor. These hornblende phenocrysts were totally replaced by slightly pleochroic olive-green chlorite, which in turn, has been replaced by a dirty red-brown fine-grained oxychlorite or ferruginized clay-chlorite mixture, leaving only a few very small areas of chlorite unaltered.

The groundmass of this sample is notable for four reasons:

1. It is volumetrically insignificant, probably forming less than 30 modal% of the sample,

2. It is totally replaced by a fine-grained mixture of sericite, chlorite that has altered to the same red-brown material that replaces hornblende phenocrysts, and minor secondary quartz,
3. where it is best preserved in the section, the groundmass retains a crystalline texture, albeit fairly fine-grained, and is clearly not formerly glassy, and
4. about 5 modal% of the rock consist of small vuggy fracture-fillings composed of a fine-grained mosaic of secondary quartz.

This sample contains too many phenocrysts to have been a lava. This, and the crystalline groundmass suggest that this rock formed in a volcanic neck or plug that choked with phenocrysts accumulating in a hornblende andesite magma.

SAMPLE NUMBER: 515354

SUMMARY:

This sample is a very strongly hematite-chlorite-quartz altered andesitic lava breccia.

HAND SPECIMEN:

This is a lava breccia that has been extensively replaced by red jasper-like(?) material and hematite, and thoroughly silicified. Lava fragments are up to at least 1cm across.

THIN SECTION DESCRIPTION:

The lava fragments that make up this sample have been strongly and variably altered, but retain clear evidence that they were originally andesitic and dacitic lava fragments. Plagioclase phenocrysts vary up to 2mm long and are elongate euhedra that make up around 10-15 modal% of most fragments. They are replaced in some fragments by very fine-grained yellowish oxidized chlorite. Former augite phenocrysts in the same fragments are less abundant but identifiable by their crystal shapes, and are replaced by an intergrowth of polygonal quartz and the same yellow chlorite that replaces plagioclase, as well as a more coarsely crystalline brighter green chlorite. The fragments that are more red in hand specimen show less chlorite alteration and the feldspar phenocrysts are replaced by very fine-grained quartz-sericite material. Augite phenocrysts are also evident in these fragments, and several phenocrysts reminiscent of olivine are replaced by quartz with a narrow rim of hematite. The groundmass of these fragments is pervaded by very fine-grained spots of hematite, that are responsible for the brick red colour of these fragments in hand specimen. It is likely that all the lava fragments in this sample are from the same lava unit, and it is therefore best classified as a lava breccia.

This sample is cut by a well-developed network of fractures many of which contain dilation assmblages of fairly coarsely crystalline quartz-chlorite veins in which the chlorite is a quite intense bright green relative to most chlorite seen in Mt Read Volcanics. Many of these veins contain cores of massive hematite, and one large patch of massive hematite with concentric growth rings faintly visible is also present. No trace of sulphides are evident in the unpolished thin section.

069

SAMPLE NUMBER: 515356

SUMMARY:

This is a strongly augite+plagioclase-phyric glassy mafic andesite containing abundant pumpellyite as an alteration phase in former feldspars and the formerly glassy groundmass. It almost certainly comes from a flow margin.

HAND SPECIMEN:

This sample is a well-preserved dark grey porphyritic andesitic or basaltic lava with abundant augite phenocrysts.

THIN SECTION DESCRIPTION:

This is a strongly chloritized, vesicular basaltic lava with abundant large augite phenocrysts and less abundant plagioclase phenocrysts. The augite phenocrysts, that make up about 20 modal% of the sample, are euhedral to subhedral and up to 3mm long, and are still fresh, although many are partly replaced by chlorite and albite along fractures and cleavages. Plagioclase phenocrysts are elongate euhedral prisms to about 1mm long, that are replaced by granular apple geren pumpellyite, minor olive green chlorite and minor secondary albite and quartz. They form about 10 modal% of this sample. A feature of this sample in thin section is the presence of highly irregular vesicles and vuggy fractures that are decorated around their margins with small globular quartz blebs, and filled with olive green chlorite in which epidote crystals are embedded. Many of these contain quite large pyrite euhedra.

The groundmass of this sample was glassy and is texturally perfectly preserved, although replaced entirely by olive green chlorite and brighter green pumpellyite, with tiny globules of leucoxene or poorly crystalline epidote scattered abundantly through the matrix. Small augite and plagioclase grains are embedded in the former glass. The chlorite is oxidized to a more rusty red-green mixture along fractures. I would like to analyze this sample, and have kept a piece of the sample for this purpose.

603062

061

SAMPLE NUMBER: 515357

SUMMARY:

This is a relatively well-preserved former plagioclase+ augite-phyric andesite in which the augite is still fresh, but the former glassy groundmass has altered to abundant epidote and minor chlorite. The amount of epidote in this sample is certainly more than would be expected of 'normal' burial metamorphism of a rock such as this.

HAND SPECIMEN:

This is a well-preserved dark grey-brown, finely-porphyritic andesite lava with dark chloritic spots representing former mafic phenocrysts of chlorite-filled fractures.

THIN SECTION DESCRIPTION:

This sample is a well-preserved highly porphyritic andesitic lava composed of around 40 modal% plagioclase phenocrysts and around 3-5 modal% augite phenocrysts in a fine-grained highly recrystallized groundmass. The plagioclase phenocrysts are generally single crystals with elongate to equidimensional often slightly rounded euhedral shapes. They have been thoroughly albitized, and are flecked by sericite, and contain relatively abundant and coarse-grained flakes of olive green chlorite, and minor granular epidote. The augite phenocrysts are fractured but well-preserved, with only minor alteration to red-brown limonite (?) adjacent to fracture and cleavage planes. Patches of chlorite also occur occasionally in the augite crystals. Well-formed FeTi oxide phenocrysts and microphenocrysts are not uncommon in the sample, and commonly occur in association with augite phenocrysts. They occasionally show minor marginal alteration to leucoxene.

The groundmass of this sample is marked by relatively large (to 4mm long) dilation fractures filled by green chlorite and lined by secondary quartz and epidote. Minor spherical aggregates of leucoxene sometimes occur embedded in the chlorite. The remainder of the groundmass is composed of a fine-grained intergrowth of epidote and chlorite probably after glass. There is no trace of former plagioclase or augite microlites preserved in the epidote-rich groundmass.

603063

062

SAMPLE NUMBER: 515359

SUMMARY:

This sample is an epiclastic coarse sandstone dominated by quartz+feldspar-phyric felsic volcanic fragments, including both tuff and lava fragments, and also a fragment with clear evidence of input from a Precambrian metamorphic source.

HAND SPECIMEN:

This is a dark green-grey fairly coarse-grained epiclastic sediment composed of abundant clear quartz and white feldspar crystals and lithic fragments to 1cm long in a dark green chloritic groundmass.

THIN SECTION DESCRIPTION:

This sample is largely composed of petrographically identical lithic fragments of quartz-feldspar-phyric rhyolites and crystal tuffs. The quartz crystals are usuallu strongly resorbed and rounded, and contain abundant chloritized melt inclusions. Some crystals are angular and broken, suggesting that their host fragments are crystal tuffs rather than rhyolitic lavas. The feldspar crystals show the same shape variation as the quartz crystals, from euhedral and slightly rounded, to broken angular crystals, with the same implications. The only factor variable among most of the fragments is the degree of recrystallization (effectively grainsize) of the formerly glassy groundmasses of these lithic fragments. A few subhedral chlorite-rich sites probably represent former biotite (or less likely perhaps, augite) crystals. The amount of matrix discernible between lithic fragments is very small, and is probably composed of felsic ash identical in composition and mineralogy to the lithic clasts.

A single 1 cm long rounded clast of greywacke contains a detrital assemblage indicating derivation from a mixed felsic volcanic and Precambrian metamorphic source. It contains abundant volcanic feldspar and chloritized vitric ash fragments, and abundant crystalline muscovite, deformed polycrystalline metamorphic quartz and minor accessory tourmaline.

APPENDIX 4

Geochemical results for rock chip samples.

ANALABS

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Bevon
603065

ANALYTICAL REPORT No. 23.3.08.06173

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ORDER No.	PROJECT
7540	

DATE RECEIVED	RESULTS REQUIRED

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2		1	15

STATE OF SAMPLES		PRE-TREATMENT							ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	RC	Prep: 009,012,013,016						Cu,Pb,Zn,Ag/101,As/114		
	Various	RC							Ba/401,Au/309		
	513454,513422,513430,513419	RC							Zr,Ti,Cr,Y/401		
	Various	RC							Ba/403		

RESULTS TO

Aberfoyle Resources Exp. Division
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RESULTS TO

REMARKS

STATE OF SAMPLES			
whole core	WC	fi	
split core	SC		
cutting	CU		
rock	Ro		
soil	SO		
pulp	PU		
water	WA		
tissue	TI		
stream sediment	SS		
heavy mineral	HM		

ANALYSIS — PREPARATION			
perchloric acid	A1	cold acid	CA
hydrochloric acid	A2	specific sulphide	SS
nitric acid	A3	other mixed acids	Mx
aqua regia	A4	alkaline attack	AA
nitric-perchloric	A5	volatilization	VO
HF mixture	A6	ignition	IG
HF under pressure	A7	pressed powder (XRF)	PP
fusion	A8	glass fusion (XRF)	GF

ANALYSIS — METHOD	
atomic absorption	AAS
x-ray fluorescence	XRF
spectrophotometry	SPEC
colorimetry	COL
chromatography	CHR
titration	TTN
other chemicals means	CHEM
miscellaneous	MISC
fluorescence	FLUOR
inductively coupled plasma	ICP

AUTHORISED OFFICER

065

603066

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX | REPORT NUMBER | REPORT DATE | CLIENT ORDER No. | PAGE

		23.3.08.06173				7540				OF 1 2
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	Ba	As	Cr
1										
2										
3										
4										
5										
6	513422	10	65	70	1.0	<0.008	<10	-	6	35
7	513424	30	50	50	0.5	<0.008	<10	-	4	-
8	513427	<5	10	50	1.0	0.010	20	-	15	-
9										
10	513430	10	150	245	0.5	<0.008	260	-	20	25
11	513431	10	<5	310	0.5	<0.008	520	-	6	-
12									6	-
13	513453	65	10	165	1.0	<0.008	290	-	8	-
14	513454	45	<5	200	0.5	0.008	320	-	4	40
15	513463	10	10	70	0.5	0.034	85	-	10	-
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	0.008	10	0.01	1	5
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM
25	METHOD	101	101	101	101	309	401	403	114	401

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ANALYTICAL DATA

SAMPLE PREFIX | REPORT NUMBER | REPORT DATE | CLIENT ORDER No. | PAGE

23.3.08.06173 | 7540 | 2 OF 2

TUBE No.	SAMPLE No.	Zr	Ti	Y						
1										
2										
3										
4										
5										
6	513422	30	3850	25						
7	513424	-	-	-						
8	513427	-	-	-						
9										
10	513430	180	2550	60						
11	513431	-	-	-						
12										
13	513453	-	-	-						
14	513454	65	4250	25						
15	513463	-	-	-						
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	50	5						
24	UNITS	PPM	PPM	PPM						
25	METHOD	401	401	401						

067

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ANALYTICAL REPORT No. 23.3.08.06279

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2		1	27

SAMPLE NUMBERS	PRE-TREATMENT		ANALYSIS
Various	RC	Prep: 016	Cu,Pb,Zn,Co/101,Ca/104
Various	PU		Ag/101
Various	PU		As/114
Various	PU		Ti,Cr,Zr,Ba/401
Various	PU		Rb/401

RESULTS TO

Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

603068

STATE OF SAMPLES — ANALYSIS — PREPARATION — ANALYSIS — METHOD

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX | REPORT NUMBER 23.3.08.06279 | REPORT DATE | CLIENT ORDER No. 7853 | PAGE

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Au	Ba	As	Cr	Zr
1										
2										
3										
4	515339	20	<5	65	-	-	280	-	100	150
5	515340	10	<5	160	-	-	930	-	50	120
6	515341	5	930	920	<0.5	<0.008	580	-	100	95
7	515342	35	45	310	-	-	1600	-	15	100
8	515343	10	15	225	-	-	570	-	85	110
9	515344	5	20	360	-	-	1650	-	55	120
10	515346	5	40	270	-	-	1100	-	70	140
11										
12										
13										
14										
15										
16										
17										
18	515354	860	<5	130	-	-	20	-	70	90
19	515355	35	80	130	-	-	680	-	55	180
20	515356	70	710	1530	2.5	-	560	9	130	130
21	515357	20	310	480	<0.5	-	820	4	35	140
22	515358	45	160	135	-	-	35	-	60	140
23	515359	<5	10	165	-	-	2450	-	<5	300
24										
25										

069

603070

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX | REPORT NUMBER | REPORT DATE | CLIENT ORDER No. | PAGE

		23.3.08.06279				7853				
TUBE No.	SAMPLE No.	Ti	Co	Ca	Rb	Sn	W			
1										
2										
3										
4	515339	4300	25	600	–	–	–			
5	515340	3900	40	37400	85	–	–			
6	515341	3850	45	34000	–	4	<20			
7	515342	6500	55	8100	–	–	–			
8	515343	4800	40	33400	75	–	–			
9	515344	3700	30	30100	85	–	–			
10	515346	5850	35	1050	–	–	–			
11										
12										
13										
14										
15										
16										
17										
18	515354	3400	25	850	–	–	–			
19	515355	3900	30	33000	–	–	–			
20	515356	4100	50	35000	55	<3	<20			
21	515357	4150	30	33900	100	<3	<20			
22	515358	5350	20	30100	–	–	–			
23	515359	2700	15	1700	–	–	–			
24										
25										

APPENDIX 5

List of abbreviations used in Geological Mapping.

GEOLOGICAL MAPPING – LIST OF ABBREVIATIONS

Abundant	abn
Adularia	Adl
Agglomerate	agg
Albite	Ab
Alkali feldspar	Afd
Altered	alt
Amphibole	Amb
Amygdaloidal	amg
Andesite	A
Angular	ang
Aplite	Ap
Approximate	apx
Arcuate	ar
Arenaceous	arn
Argillaceous	arg
Argillite	Arg
Arkose	Ak
Arkosic	ak
Arsenopyrite	Ap
Ash volcaniclastic	av
Autobrecciated	aub
Average	ave
Banded	bnd
Barite	Ba
Basalt	B
Bedded	bd
Black	bk
Black shale	Bsh
Blue	bl
Boulder	bld
Breccia	b
Breccia volcaniclastic	bv
Bright	brt
Brown	br
Calcareous	cc
Calcite	Cc
Carbonaceous	g
Carbonate	Co
Cavernous	cav
Chalcopyrite	Cp
Chert	Ch
Chlorite	Cl
Chromite	Cr
Chromitiferous	cr
Clay	cy
Coarse	c
Coarse grained	cg
Colour	col
Common	com
Conglomerate	Cg
Conglomeratic	cg
Crystal	x
Crystal volcaniclastic	xv
Dacite	D
Dark	dk
Dense	dns
Devitrification	dv
Diorite	Di
Disseminated	dis
Dolerite	Dol
Dolomite	Dm
Dyke	dy
Elongated	el
Emphasised	emp
Epiclastic (adj.)	e
Epiclastic (noun)	E
Epidote	Ep
Euhedral	euh
Eutaxitic	eux
Fabric	fab
Fault	F
Fault zone	FZ
Feldspar	Fd
Feldspar phyric	fp
Felspathic	fel
Ferruginous	fer
Fibrous	fb
Fine	f
Fine grained	fg
Fissile	fis
Flowbanded	fbn
Fragments	fr
Fuchsite	Fu
Galena	Gn
Glass	Gl
Glassy	gl
Granular	glr
Graphite	Gt
Graphitic	gt
Green	gn
Grey	gy
Greywacke	Gw
Haematite	Hmt
Hornblende	Hb
Ignimbrite	Ig
Illite	Ill
Interbedded	ibd
Intercalated	icl
Intrusive	int
Jurassic	Ju
K-Feldspar	Kfd
Khaki	kh
Laminated	lm
Lapilli volcaniclastic	lv
Lava	l
Lava breccia	lb
Leached	lch
Limonitic	Lim
Light	lgt
Limestone	Lst
Lithic	lh
Magnetite	Mt
Massive	mas
Matrix	mtx
Matrix dominated	md
Medium	med
Medium grained	mg
Metamorphosed	meta
Mica	Mic
Micaceous	mic
Minor	mnr
Mixed	mxd
Mottled	mtl
Mudstone	Mst
Nodule	nd
Off white	ow
Olivine	Ol
Orange	or
Ordovician	O
Oxidised	ox
Patchy	pat
Peperitic	pep
Perlitic	prl
Pervasive	per
Phenocrysts	phn
Phyllite	phyl
Phyric	p
Picrite	Pic
Pillow lava	pl
Pink	pk
Polymict	Y
Porphyritic	por
Pumice	Pu
Pumiceous	pu
Purple	pp
Pyrite	Py
Pyritic	py
Pyroxene	Px
Quartz	Q
Quartzite	Qtz
Quellite	Qll
Questionable	?
Recrystallised	rx
Red	rd
Rehealed	rhd
Reworked	rw
Rhyodacite	RD
Rhyolite	R
Ripple marks	rmk
Round	rnd
Rubble	rbb
Sandstone	Ss
Schist	Sch
Schistose	sch
Sediment	sed
Selected fragments	sfr
Sericite	Se
Serpentine	Srp
Shale	Sh
Sheared	shd
Siderite	Sid
Silica	Si
Siliceous	sil
Siltstone	Slt
Slickenside	slk
Sphalerite	Sp
Spotted	spt
Spotty	spt
Stockwork	stw
Strong	str
Structure controlled	stc
Talc	Tc
Tertiary	T
Trace	tr
Trachyte	Tr
Tuff	Tf
Tuffaceous	tf
Variolitic	vr
Vein	vn
Vein concordant to bedd	cV
Vein discordant to bedd	dV
Very	v
Vesicular	ves
Vitric	vtr
Volcanic	vlc
Volcaniclastic	vlcl
Weak	wk
Weathered	wth
White	wh
Yellow	yw

8358

603073

8358

89-2999

Aberfoyle Resources Limited
EXPLORATION DIVISION

NORTH WEST TASMANIA

BEULAH - GOWRIE PARK AREA
GARDEN OF EDEN GRID

REVISIONS			
Init.	Date	Init.	Date

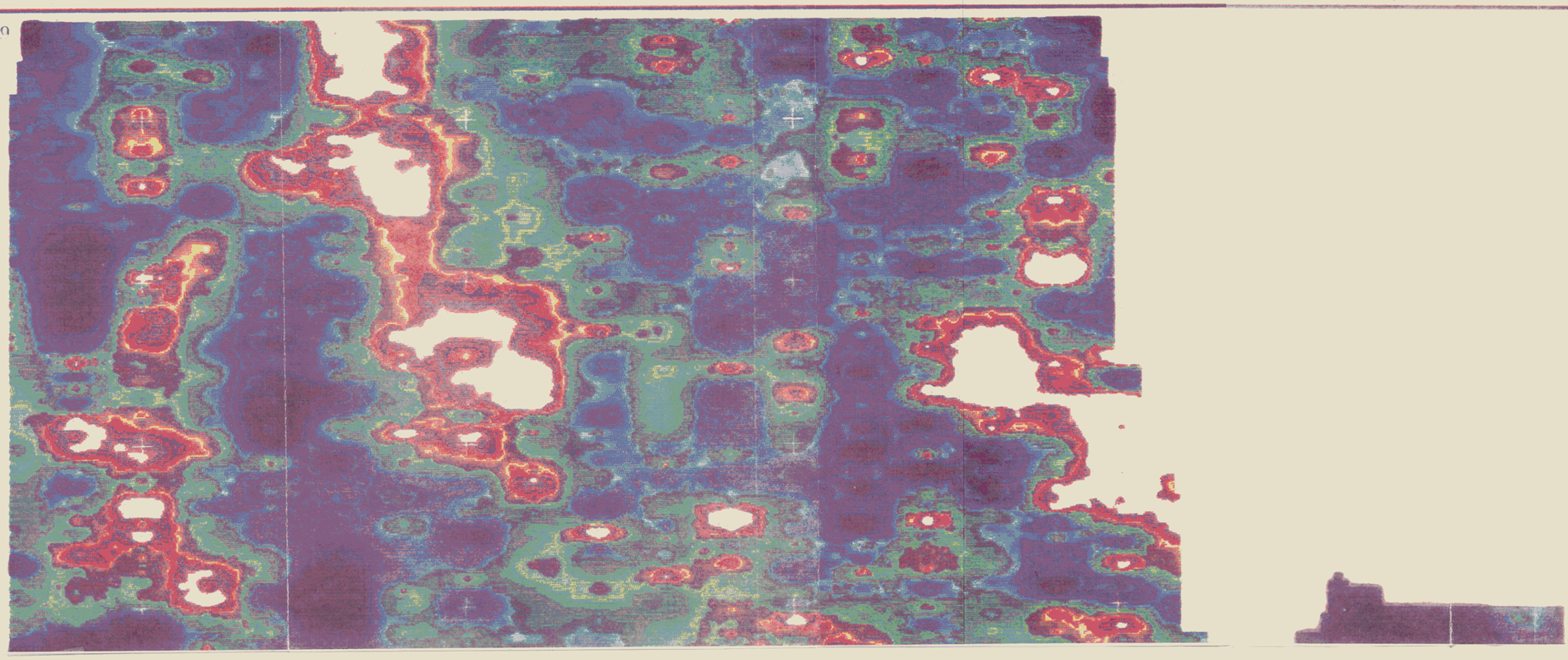
Location Code :

Scale : 1:10000

Date : December, 1988

Compiled :
Drawn : JLR
Traced :
Checked :
Plate No : GP 6a

8359



11000N

10500N

10000N

9500N

MAX. 750.0
100.0

78.00

56.00

34.00

12.00

MIN. 1.66

units = PPM

603078

4800mE 4900mE 5000mE 5100mE 5200mE

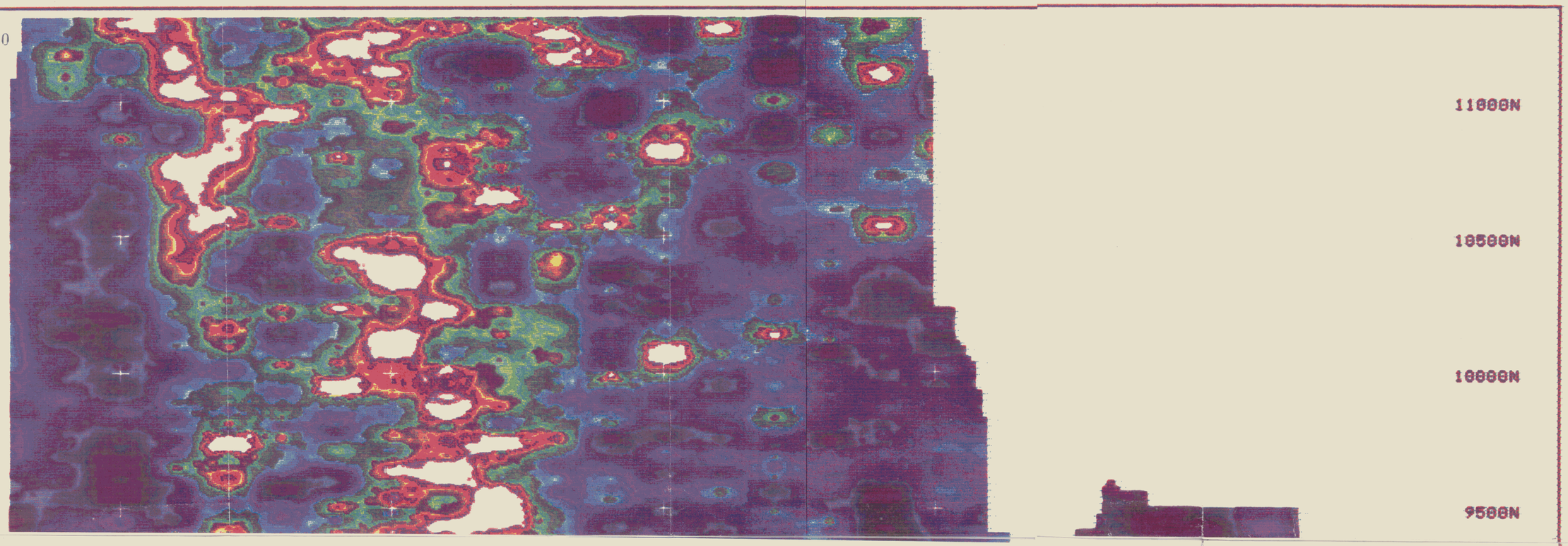
5 cm

Beulah (Cu)
Date: 22-1-89 Drawn: RGP
Scale: 1-10000

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS				NORTH WEST TASMANIA	Compiled : RGP
Init.	Date	Init.	Date	BEULAH E.L. 42/85	Drawn :
				GEOCHEMISTRY (Cu)	Traced : JLR
					Checked :
Location Code :				Scale : 1:10000 / Date : January, 1989	Plate No. : BEUL 13A

8260



MAX. 990.00
200.00
150.00
100.00
50.00
0.00
MIN. 0.65
units = PPM

603077

480000E
490000E
500000E
510000E
520000E

5 cm

Beulah (Pb)
Date: 22-1-89 Drawn: RGP
Scale: 1-10000

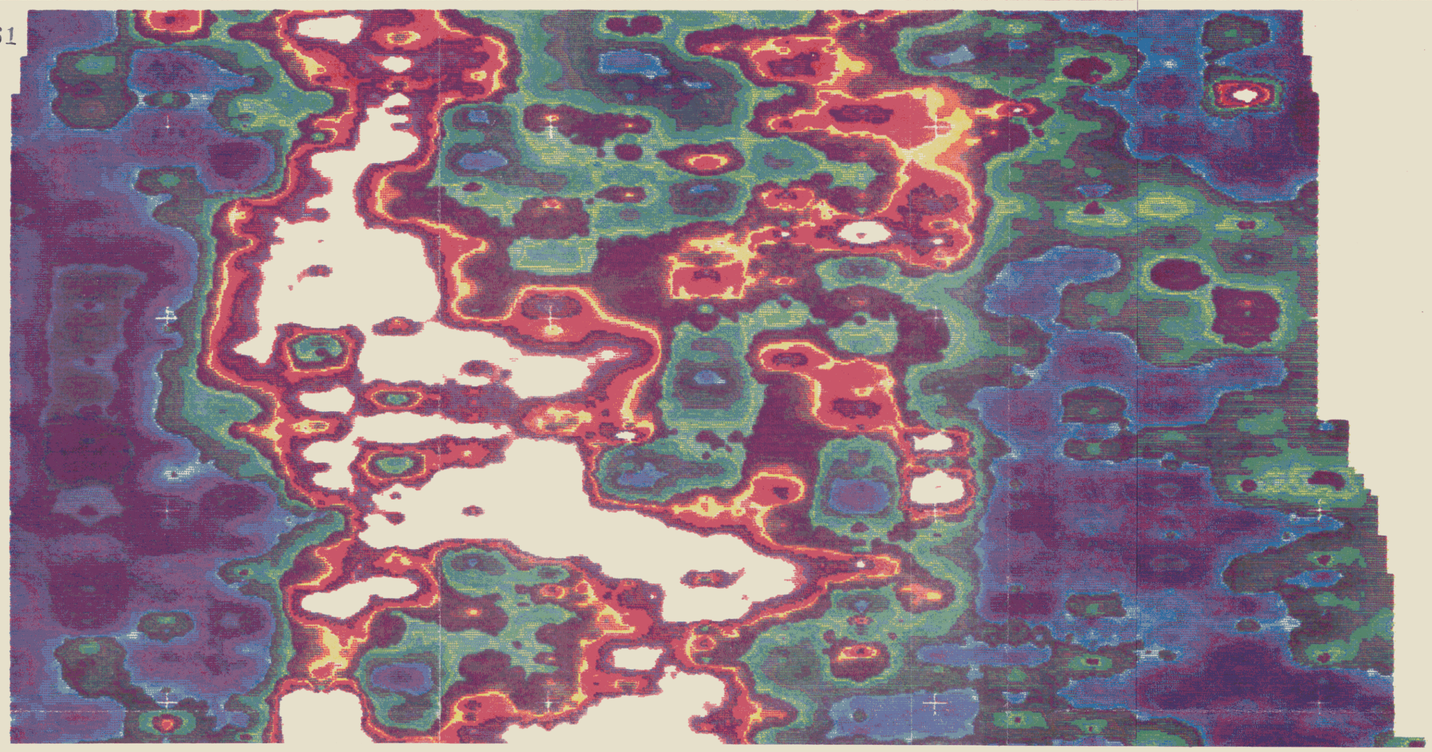
Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

NORTH WEST TASMANIA
BEULAH E.L. 42/85
GEOCHEMISTRY (Pb)

Location Code :
Scale : 1:10000
Date : January, 1989
Compiled : RGP
Drawn :
Traced : JLR
Checked :
Plate No. : BEUL 13B

8361



11000N

10500N

10000N

9500N

MAX. 928.00
275.00
215.00
155.00
95.00
35.00
MIN. 2.09
units = PPM

480000E
490000E
500000E
510000E
520000E

5 cm

603076

Beulah (Zn)
Date: 22-1-89 Drawn: RGP
Scale: 1-10000

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date
Location Code :			

NORTH WEST TASMANIA
BEULAH E.L. 42/85
GEOCHEMISTRY (Zn)

Scale : 1:10000 | Date : January, 1989

Compiled : RGP
Drawn :
Traced : JLR
Checked :
Plate No. : BEUL 13C

5362

11000N

10500N

10000N

9500N

MAX. 5.95
3.00
2.27
1.53
0.80
0.06
MIN. 0.23
units = PPM

480000E
490000E
500000E
510000E
520000E

5 cm

603075

Beulah (Ag)
Date: 22-1-89 Drawn: RGP
Scale: 1-10000

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

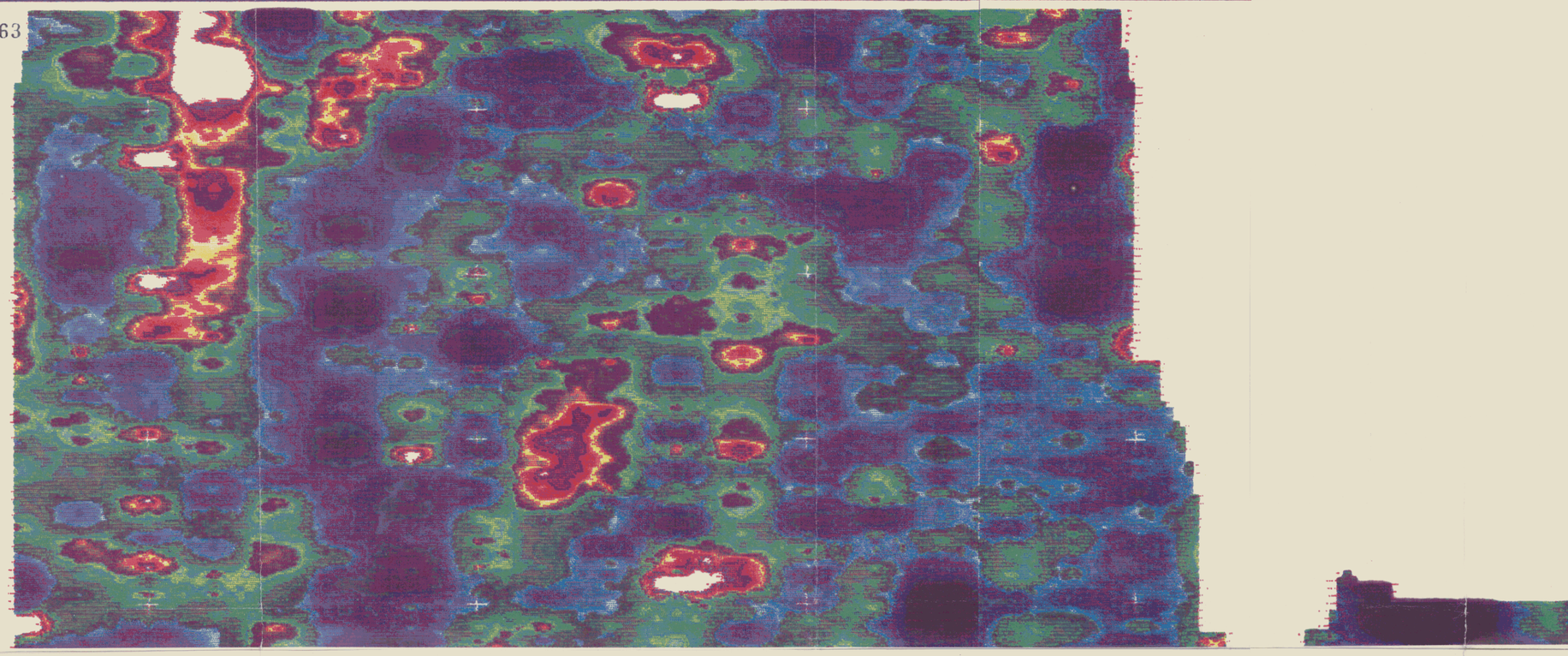
Location Code :

NORTH WEST TASMANIA
BEULAH E.L. 42/85
GEOCHEMISTRY (Ag)

Scale : 1:10000 | Date : January, 1989

Compiled : RGP
Drawn :
Traced : JLR
Checked :
Plate No. : BEUL 13D

8363



11000N

10500N

10000N

9500N

MAX. 144.68
18.60
14.28
9.95
5.63
1.30
MIN. 0.22
units = PPM

480000E
490000E
500000E
510000E
520000E

5 cm

Beulah (As)
Date: 22-1-89 Drawn: RGP
Scale: 1-10000

Aberfoyle Resources Limited 603674
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

Location Code :

NORTH WEST TASMANIA
BEULAH E.L.42/85
GEOCHEMISTRY (As)

Scale : 1:10000 | Date : January, 1989

Compiled : RGP
Drawn :
Traced : JLR
Checked :
Plate No. : BEUL 13E

8364

Index to sheets

A	B
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C	D

Beulah 16

Gowrie Park 25

SAMPLES A6401-6414 Reported in Austamax Resources Limited
A6558-6585 83/84 Annual Report

333312G – 333329G Geochem. samples collected by JRS reported on BEUL. 7 in Aberfoyle Annual Report 29-4-87

271709 – 271711, 334714 – 334730 Petrology & geochemistry samples collected by DJJ., reported on BEUL 5 in Aberfoyle Annual Report 29-4-88

449000 m E

450000 m E

BEULAH PLANTATION

Lower Beulah Road

513431G heam. alt B

513430 P.G. mfl. dk.gy holoxstalline Ep + Q alt B or A.I. & dk Ep rich + lt. Q rich pat. Epidote

aphyric B.I.

bd. Slt

513425 P mas. dk gy. cg. bd? vicl (minor Mt, Py) D.R eSs

B. lb. highly fp blocks in aphyric mtx.

mas. ves. gn. B

c fp. Dr. pu fr. in complex B mtx.

541 1000 m N

513423 P dk. gy. cg. vicl (mnr. Mt, Py) D.R eSs

513429 dk.gy.gn. cgt. Y.lv. B.b (eSs?) tr. Py

R.DeSs & lithic fr.

513427 mas. Mt / spec. heam. Q

513423 P spec. / heam. / Mt D.R. eSs

27° / 335° m ?

bd. Slt

513424 P.G. mas. y-br. fg. ep + Q alt B? or A? Epidosite

513453 G alt B

513421, 22 P.G. mas. mfl. y-br fg. ep + Q alt. A or B.I. Epidosite

513435 P mas. bl-gn. str. fp. wk. ves. B. I & mnr. dissem. Py + Cc

449000 m E

334718 PG rd-br. phen. rich A.lb (identical to 334717.)

333314G

333315G

x A6562 f.g. dk. bl-gy por.l. & bk. Aug. phn. in Hmtr/Cl alt. fd. mtx.

333316G

333317G

334724G B

334723G B

334722G B

334717 PG dk. phen. r.ich A.lb & mnr. ves. lt. Ep

334725 G B

x A6563 gn Cl. alt. Aug / fd. phn. A.l & fd. mtx.

334726 G B

334728G B

334729G B

334727 G B

333318 G. B

x A6564 gn-gy crystal tuff (lava)/Co lim fractures rare disem. Py

x A 6407

x A6406 Py basic volcanic

333313 G

333312 G

271748 G Hm. Marg. alt B & wk. Sl

333319 G

x A644

333320 G

334730G

333322G

333321G

x A6458 – A6460 Qtz. med. Andesite

333324G

333323 G

x A6408 – 6411 workings; bn Andesite & Q/lim. vn.

271711 P wk Ep Se alt mnr. Mt

271710 a/b P.G wk Ep Se alt A int? mnr. Mt

x A6461 clvd. Fe Andesite

333325G

334718 PG dk str. por ves A or B.I.

x A4612-13

A6565 gn-bn fg. Ep rock & mnr. Ep. veinlets

A6566 highly alt. yw-bn fg. rock & Q/Ep. veinlets

A6567 Alt. rock & abn. ep. aggregates (Epidosites ?)

A6570 – A6585 rock chip samples accross Rhyolite

333328 G

333329G

333327G

x A6405 Rhyolite o/c. Py basic vic ?

271709 P.G. Ep Se lim. alt B.I. to lb mnr Cc.

x A6403 dk gn. Andesite

A6404 Basic vic & dissem. Py

RIVER MINNOW

Sharman's Road

x A6401 B

333326G

334715 G.P dk. v wk alt wk ves A

334716 G.P as above but with mnr. Ep

x A 6402

334714 P.G. rd str. Se wk Cl Ep alt str. fp. A.l

200

5 cm

603079

Aberfoyle Resources Limited
EXPLORATION DIVISION

NORTHERN TASMANIA

BEULAH E.L. 43/85

GARDEN OF EDEN GRID

OUTCROP GEOLOGY & SAMPLE LOCATIONS

REVISIONS			
Init.	Date	Init.	Date
Location Code :			

Scale : 1 : 2500 | Date : June, 1989

Compiled : SWR
Drawn :
Traced : RJE
Checked : SWR
Plate No : BEUL 16 A

8365

5410 000m N

5410000 m N

449000mE

450000mE

mas. gn. br. clay after 'B'?

515344 G
mas. gn. fp. A. B.I.

com. wth. B.I. float

515343 G
mas. fg. gn. wk. fp. B.I. wk. fd. /Sl alt ?

O fg. fp. B? I wk Cc

515342 P.G.
mg. gn. br. str. fp + Px phn. wk. ves. A. B.I. wk. Ep/Cc alt.

m-cg. fp + Cl. alt. Px phn. ves. A. B.I. & mnr. Cc

515341 P.G. str. Hmt. alt. ves. B.I. & Cc+Cl? in filling

ves. B.I.

515340 P. G.
mas. fg. gn. B?I. v. v wk. Cc. alt. x. mnr. rd. & e. Hm. vns ?

515346 P.G.
dk. br. Hb. + fd. phn. rich A. f. int. plug ? & str. ser/ chl. alt.

some sections strongly cleaved vertical /045°m (Hem. alt.)

mas. dk. br. fg. alt. B?I

515339 P.G.
fg. pale gn. alt. D?I ? occ. fu. spt. mnr. or. wth. ves.?

200

Dawkins Road

RIVER

GOZA

or. Gw

or. sed

com. or. Gw & v. mnr. str. Hmt / fp. vlc.

fp. vlcl & com. pk. rded. fd. and mnr. rded. Q

515359 P.G.
mg. vlcl & Q + fd. phn. frogs & mnr. D. I. frags in gn. fg. mtx. + Gw frag & vlc. + met input.

or. bd. Sh. & Gw

cg. vlcl.

or-br-gn wth. B.I.

fg. vlcl. & mnr. fd + Q phn. (sl. rded.) & in a gn. mtx.

f-mg. vlcl ?& com. fd. phn. mnr. D.I. frags ? in gn. mtx. & occ. str. Hmt. alt.

mg. str. fp. br. vlc. B ? & mod. pot. Hmt. alt. mtx.

515358 G
mnr. float & yor. f-mg. D ?) & occ. Q + fd. phn. & mnr. Q + Hmt. vn. + tr. Py ? (v. similar to 515352)

515357 P.G.
gn. ?-mg. A. - B.I. & bk. matic alt. ? fore. fp. wk. Cc. alt. + /tr. dissem. Py. com. Cl + Ep / Q

Hmt. alt. wk. fp. B.I.

v. fg. wk. matic phn. str. fp. (wth. surface) B?I. & mod. perv. Hmt. alt. wk. + mod. Cc (similar to 515341)

vfg. bl. gn. mas. B? & mnr. Hmt. alt. mtx.

fg. matic phn? B.I. + fp. A.B.I.

str. fp. mg. dk. gn. A.B.I. v. wk. Hmt. mtx.

vfg. alt. B.I. Fe rich Py? + mnr. y-or. alt. B?I. & Q + com. bk. spt. Cl? ves.? Epid.?

vfg. alt. B.I. & wk. - mod. pot. Hmt. alt. mtx.

mas. B.I. & abn. matic. phn? no obv. fd. mnr. Q + Cc. in ves.

515356 P.G.
dk. gn. B.I. ? & com. fd. phn. com. Cl. alt. matic. phn. com. dissem. Py & mnr. ds.? Hmt. mnr. Cc. alt

515355 P.G.
mas. wk. Hmt. alt. v. fg. dk. gn. rock & com. Cc. ves.? B?I ?

float pred. B.I.

int. Fe (Hmt ?) str. ves. B.I.

E.L. 43/85

E.L. 11/88

MINNOW

ST 29
49200E

ST 28
49000E

ST 12 D

ST 11

ST 10

ST 13

482000E

48400E

ST 12

48600E

48800E

ST 12 A

49400E

ST 12 E

49600E

STAR

ST 12 F

49800E

Lower Dynans Bridge Road

ST 2

50400E

50200E

ST 1

50000E

"LOWER BEULAH"

5409000mN

5409000 m N

200

Gregory's Road

Index to sheets

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A	B
C	D

Beaulah 16

Gowrie Park 25

5cm

Aberfoyle Resources Limited 603080
EXPLORATION DIVISION

NORTHERN TASMANIA

GOWRIE PARK E.L. 11/88 - BEULAH E.L. 43/85

GARDEN OF EDEN GRID

OUTCROP GEOLOGY & SAMPLE LOCATIONS

REVISIONS			
Init.	Date	Init.	Date

Location Code :

Scale : 1 : 2500

Date : June, 1989

Compiled : DJJ / SWR

Drawn :

Traced : RJE

Checked : SWR

Plate No : GP 25 A

8366

441000 m E
442000 m E
443000 m E
5414000 m N
5413000 m N
RIVER
DASHER
200
Paradise
Road
13600 N
13400 N
13200 N
12800 N
12600 N
42592 E
T.B.
'CLYDEBANKS'
Q 'granite - like' por.
TB
(Tertiary Basalt)
soil por.?
Q 'granite - like' por.
€
(Mica Ferromagnesium Quartz Porphyry (Int?)
E.L. 43/85 Beulah
E.L. 11/88 Gowrie Park
5 cm
603081

Aberfoyle Resources Limited
EXPLORATION DIVISION

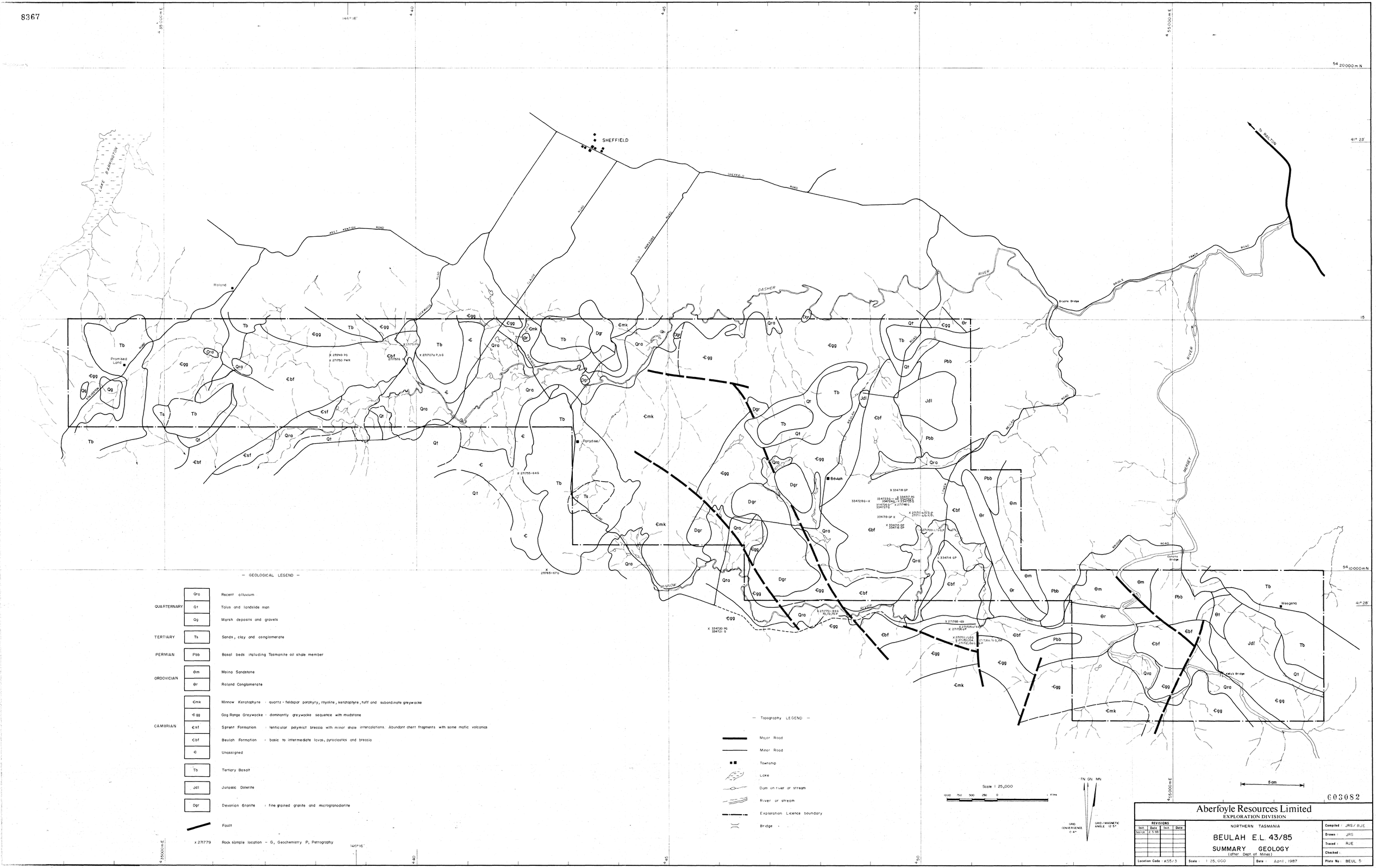
REVISIONS			
Init	Date	Init	Date
Location Code :			

NORTHERN TASMANIA
GOWRIE PARK E.L.11/88 - BEULAH E.L.43/85
STONEBRIDGE GRID
INTERPRETIVE GEOLOGY

Scale : 1:2500 | Date : February, 1989

Compiled : DJJ
Drawn : RJE
Traced : RJE
Checked : DJJ
Plate No : GP14-0

8367



— GEOLOGICAL LEGEND —

QUARTERNARY	Qra	Recent alluvium
	Qt	Talus and landslide man
	Qg	Marsh deposits and gravels
TERTIARY	Ts	Sands, clay and conglomerate
PERMIAN	Pbb	Basal beds including Tasmanite oil shale member
ORDOVICIAN	Θm	Moina Sandstone
	Θr	Roland Conglomerate
CAMBRIAN	€mk	Minnow Keratophyre : quartz - feldspar porphyry, rhyolite, keratophyre, tuff and subordinate greywacke
	€gg	Gog Range Greywacke : dominantly greywacke sequence with mudstone
	€sf	Sprent Formation : lenticular polymict breccia with minor shale intercalations. Abundant chert fragments with some matic volcanics
	€bf	Beulah Formation : basic to intermediate lavas, pyroclastics and breccia
	€	Unassigned
	Tb	Tertiary Basalt
	Jdl	Jurassic Dolerite
	Dgr	Devonian Granite : fine grained granite and microgranodiorite
		Fault
	x 27779	Rock sample location – G, Geochemistry P, Petrography

— Topography LEGEND —

- Major Road
- Minor Road
- Township
- Lake
- Dam on river or stream
- River or stream
- Exploration Licence boundary
- Bridge

Aberfoyle Resources Limited
EXPLORATION DIVISION

NORTHERN TASMANIA

BEULAH E.L. 43/85

SUMMARY GEOLOGY
(after Dept. of Mines)

REVISIONS			
Init.	Date	Init.	Date
DJ/RJR	2.5.88		

Location Code : K55/3

Compiled : JRS / RJE
Drawn : JRS
Traced : RJE
Checked :
Scale : 1 25,000
Date : April, 1987
Plate No : BEUL. 5

603082

8368

443000mE 44 45 46 47 48 49 50 451000mE

5415000mN

5412850m N

5412000m N

5410000mN

5409400m N

448500mE 47 46 49 50 51 452000mE

— GEOLOGICAL LEGEND —

QUARTERNARY
- Qrc — Recent alluvium
- Qt — Talus & landslide man
- Qg — Marsh deposits & gravels

TERTIARY
- Ts — Sands, clay & conglomerate

PERMIAN
- Pbb — Basal beds including Tasmanite oil shale member

ORDOVICIAN
- Om — Maina Sandstone
- Or — Roland Conglomerate

CAMBRIAN
- €mk — Minnow Keratophyre : quartz-feldspar porphyry, rhyolite, keratophyre, tuff & subordinate greywacke
- €gg — Gog Range Greywacke : dominantly greywacke sequence & mudstone
- €sf — Sorrent Formation : lenticular polymict breccia & minor shale interbeddings. Abundant chert frags. & some mafic volcanics
- €bf — Beulah Formation : basic to intermediate lavas, pyroclastics & breccia
- € — Unassigned

TB — Tertiary Basalt

Jdl — Jurassic Dolerite

Dgr — Devonian Granite : fine grained granite & microgranodiorite

LOWER BEULAH AREA - BEULAH FORMATION ROCKS
- €bf — Variably vesicular aphyric to strongly porphyritic andesitic & basaltic lavas & lava breccias
- €bh — Hornblende + plagioclase porphyritic andesite (Sub-volcanic intrusive)
- €br — Rhyolite lava
- €ba — Epiclastic sandstone derived from felsic volcanics & pelitic metamorphics (including greywacke)

ALTERATION
- E — Intense epidote/quartz alteration (epidosites)
- H — Pervasive haematite alteration throughout matrix of rock
- PyCc — Weak pyrite calcite & haematite development

Index to Sheets: A, B, C

0 500 1000 metres

TASMANIA

BURNIE, DEVONPORT, LAUNCESTON, Beulah E.L.43/85, QUEENSTOWN, HOBART

0 100 Km

603083

5 cm

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date

NORTHERN TASMANIA
BEULAH E.L.43/85
INTERPRETED GEOLOGY
(modified after Jennings 1979)

Location Code :

Scale : 1:10 000 | Date : July, 1989

Compiled : SWR
Drawn : RJE
Traced : J.L.R
Checked :
Plate No : BEUL. 25