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PROSPECT 7602

CSR LIMITED

MINERALS EXPLORATION AND DEVELOPMENT GROUP

FINAL REPORT - 1987

EXPLORATION LICENCE 15/76

DUNDAS, TASMANIA

EMR 85/87

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MINERALISATION

EL 15/76

MAGNETICS

SK55-03

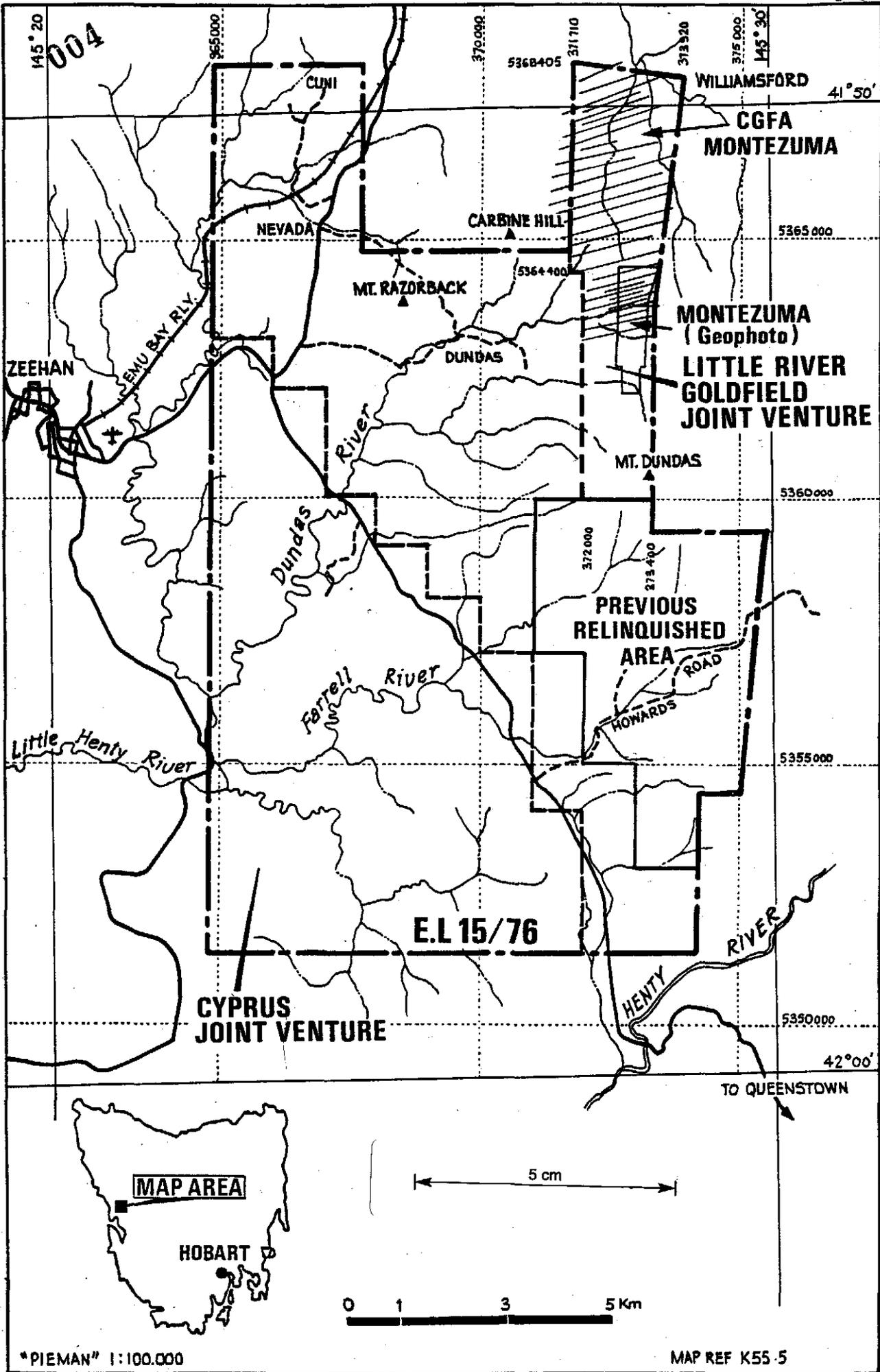
SOIL GEOCHEMISTRY

GEOLOGY

DUNDAS

JOINT VENTURE

REHABILITATION



*PIEMAN" 1:100,000

MAP REF K55.5

LOCATION PLAN, E.L 15/76 DUNDAS, TAS.
FIG.1

1. INTRODUCTION

Exploration Licence 15/76 (EL 15/76) was granted to CSR Limited on 2nd August, 1976. The Licence originally covered an area of 145 km² situated east of Zeehan on the west coast of Tasmania (Figure 1). It extends south from Melba Flats and Williamsford to the Henty River and west from Mt. Dundas to the Little Henty River.

This area contains small silver/lead/zinc deposits (Dundas), a small tin orebody (Mt. Razorback), small copper/nickel shows (Cuni/Lead Blocks), small complex lead/antimony-rich sulphides with minor Sn, Ag, Bi, W (Montezuma) and several minor lead/zinc/silver concentrations (Mariposa). There is also potential for silver/lead/zinc mineralisation with tin sulphides in the upper units of the Oonah Formation (Oonah-Mine type), copper/zinc/silver/tin associations in the acid volcanics of the Dundas Group, and Renison-style replacement tin deposits.

Prior to 1976, the area was intensely prospected by many companies and individuals, and was investigated by government researchers. Since 1976, CSR has undertaken exploration to evaluate the Licence. Recently, portions of the Licence were joint ventured to Amoco, now known as Cyprus Minerals, (west of the Murchison Highway) and EZI/Getty (northeast Montezuma area). This latter joint venture is now with EZI/Little River Goldfields after the Australian demise of Getty.

In August, 1984, the area of the Licence was reduced by 21.78 km² to comply with the Department of Mines revised Exploration Licence conditions.

On 2nd August, 1986, the reduced 124 km² area was renewed for a final 12 month period. This report summarises the investigations completed during this period to 2nd August, 1987.

The Licence has to be relinquished on 2nd August, 1987 unless economic or sub-economic mineralisation is located.

2. SUMMARY

Exploration of EL 15/76 by CSR Limited was completed during the 1986-87 period. No exploration was undertaken by the joint venture partners, Cyprus and EZI/Little River Goldfields, in this period. CSR undertook the ground follow-up exploration of the Misery Hill and Anomaly J aeromagnetic anomalies, and minor thin section follow-up work on the 1986 Cuni drill core. Results were received from the re-evaluation of the hydrocarbon analysis by Thermasearch.

All investigations gave disappointing results with no further follow-up work required.

Rehabilitation of access roads, drill pads and costeans is being completed.

3. GENERAL INFORMATION

The sealed Murchison Highway diagonally bisects the Licence area and a series of unsealed roads, tracks and old tramways give reasonable access to most parts of the area.

All but the northeast portion of the Licence is drained by tributaries of the westerly-flowing Little Henty-Henty River system. The northeast is drained by the headwaters of the Ring River which flows into the westerly-draining Pieman River system. Most of the streams are small and steep; typically "young" streams. The streams form swamps on the flat areas of the easily eroded Gordon Limestone (southwest).

Vegetation in areas of Silurian, Devonian and Ordovician sedimentary rocks is generally button grass with local patches of dense ti-tree/sword grass/^{bawera} bowrah scrub. The remainder of the Licence is covered by temperate rainforest with patches of dense "horizontal" scrub. Small areas of open, cleared grassland are present near Dundas and Cuni.

In 1981, Amoco Minerals Australia Company expressed an interest in obtaining exploration rights to areas of Ordovician Gordon Limestone. A Joint Venture Agreement between CSR and Amoco was finalised in December, 1981 under which Amoco assumed responsibility for exploration of the portion of EL 15/76 to the southwest of the Murchison Highway (Figure 1). This Joint Venture continues although Amoco's interest was purchased by Cyprus Minerals.

In late 1981, EZI and Getty Oil Development Company Ltd. approached CSR with a view of joint venture exploration of the Montezuma area of EL 15/76. A Heads of Agreement was signed in early 1982 covering the old Geophoto Montezuma Grid and the CGFA Grid (Figure 1). With the Australian demise of Getty, all of Getty's interests were eventually purchased by Little River Goldfields. The Joint Venture is now between CSR, EZI and Little River Goldfields.

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4. PREVIOUS EXPLORATION

A brief resume of all available previous exploration and prospecting data for the EL 15/76 area plus details of 1982 exploration on EL 15/76 is given in MacNamara and Ellis (1983). This includes a summary of the 1976-1982 exploration by CSR which is given in detail in Macnamara (1979a, 1979b, 1980a, 1980b, 1981a, 1981b, 1981c, 1983a, 1983b, 1983c) and Peters and Fraser (1982). The 1983, 1984, 1985 and 1986 exploration is detailed in Ellis (1983), Ellis (1984), Ellis (1985) and Ellis (1986) respectively. These reports include summaries of the work by Amoco/Cyprus (Jones, 1982a, 1982b, 1982c, 1983, 1986; Kary, 1984, 1985 and Kary and Jones, 1983) and by EZI/Getty-Little River Goldfields (Sainty, 1982, 1983a, 1983b, 1984a, 1984b).

Since 1982, Amoco have established grids and completed geochemical drainage, soil and rock-chip sampling, magnetic, gravity, IP and EM surveys, costeaning and drilling over the Gordon Limestone (some only in reconnaissance form). Geophysical and/or geochemical anomalies have been located in most of the gridded areas. Anomalies at Blackjacks, Mariposa, Bannockburn and Sunny Corner have been drilled, generally with poor results.

EZI/Getty have re-cut and extended CGFA grids and completed soil geochemistry, geological mapping and magnetic, Dighem and Genie EM surveys, followed by drilling. The main anomalies are along the Montezuma Fault zone.

Since 1982, CSR has gridded areas of anomalous drainage geochemistry at Howards Road, Cuni, South Nevada and Nevada, and has completed soil geochemistry, geological mapping and magnetics and VLF-EM surveys.

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These investigations resulted in the drilling of 2 holes at Cuni/Lead Blocks in 1981 . Dighem anomalies have been gridded and EM traverses completed, and airborne magnetic anomalies have also been gridded and traversed by magnetics and VLF-EM. Further low-level, close-spaced aeromagnetics were flown over the Cuni/Razorback area in 1985. Ground follow-up by magnetics resulted in the drilling of 5 more holes in 1986. Lithochemical analyses and detailed geological mapping of the Licence have been completed.

5. GEOLOGY

The geology of the area was described by Blissett (1962). Brown (1982) has re-mapped and reviewed the geology of the northern half of the Licence while Corbett (1985) has re-mapped the southern half.

A brief summary of the geology of the area is included in MacNamara and Ellis (1983). More detailed geological descriptions of individual prospects are contained in Ellis (1982), and recent geological mapping is shown in Jones (1982a, 1982c, 1983), Kary and Jones (1983), Sainty (1982) and MacNamara (1983a, 1983b, 1983c).

Detailed geology of the northern half of the Licence is summarised in Ellis (1984).

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6. CURRENT EXPLORATION

Exploration of the Licence was completed by CSR during the August 1986-July 1987 period. This work was on the non-joint ventured portion comprising ground follow-up of the Misery Hill aeromagnetic anomaly, and a brief examination of some drill core thin sections from the 1986 drilling, and on the Cyprus joint venture area comprising ground follow-up of the aeromagnetic Anomaly J and the re-evaluation of the hydrocarbon analysis.

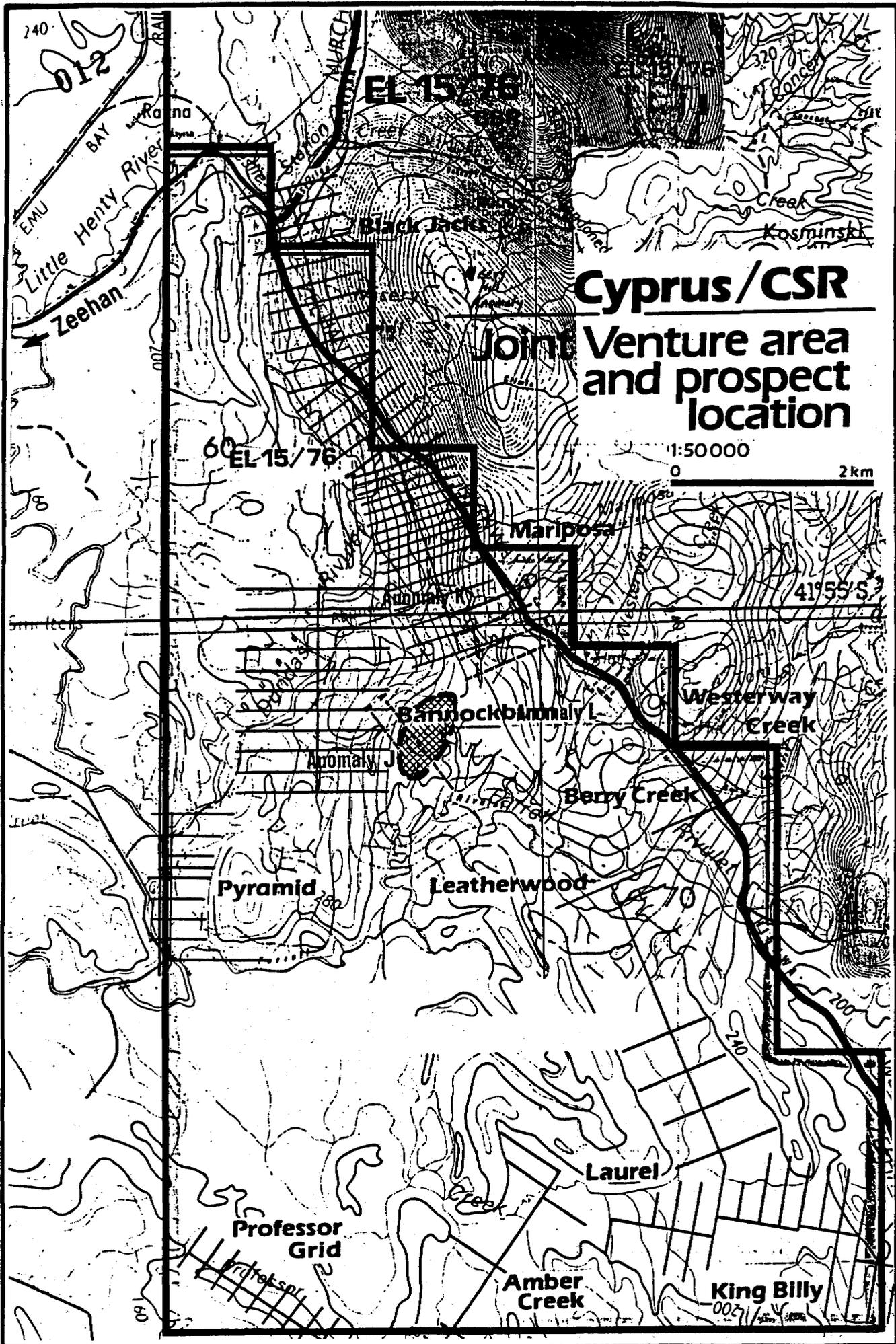
6.1 Hydrocarbon Analysis

The re-evaluation by Thermasearch of the hydrocarbon analysis of 29 rock samples of Crotty Quartzite outcrops and 10 drill core samples showed an error in the computer printout gas values. Correct values are shown in Appendix I.

Associated with the correction of the gas values was a re-interpretation of the results. This suggests that the mineralisation in the Oceana Mine area shows an enrichment in ethane and propane near the mineralisation and an increase of methane further away. Also, there may be a further anomaly in the vicinity of the Mariposa Mine (samples 169010, 169011) where samples show an enrichment in ethane and propane. This enrichment was much lower than that shown at the Oceana Mine.

These results suggest the technique appears to show ethane/propane enrichment near known mineralisation. However, the technique failed to show any new areas of possible mineralisation.

Previous soil, costean and drilling results at the Mariposa, Blackjacks and Bannockburn prospects as well as the hydrocarbon analysis results suggest that no further work is warranted in the area. Thus, no



CYPRUS-CSR JOINT VENTURE AREA & PROSPECT LOCATION
FIG. 2

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follow-up work was completed on the geochemical anomalous zones located by reconnaissance grid sampling on the Amber Creek, Leatherwood Pyramid grids (Amoco/Cyprus area) or the Razorback West grid (CSR area). Similarly, no follow-up of structurally favourable areas was undertaken as hydrocarbon analyses of samples from these areas showed no significant gas values.

6.2 Anomaly J (Aeromagnetic) Follow-up

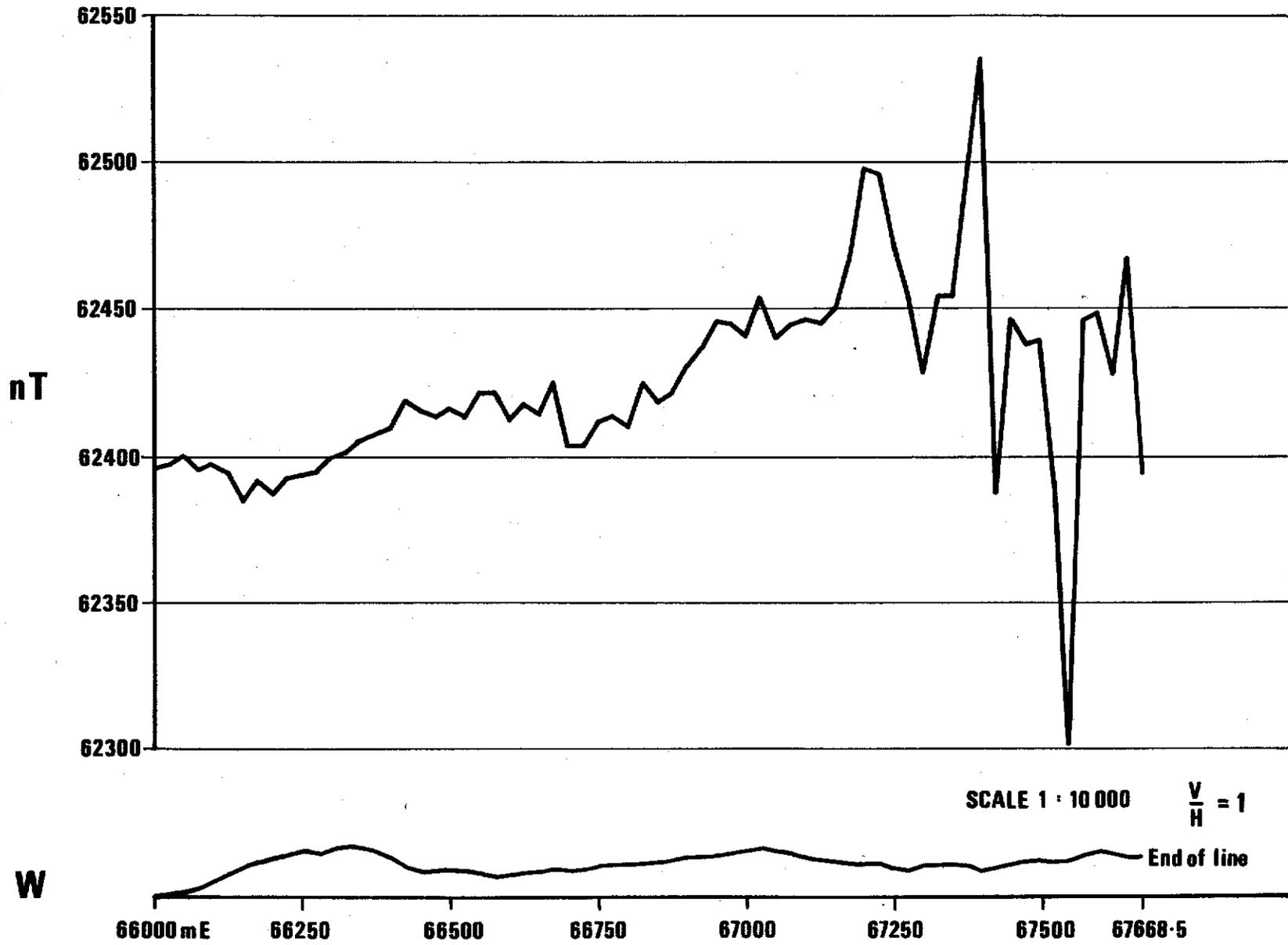
The 1981/82 Department of Mines aeromagnetic survey with infill 250 m(?) spaced lines showed a weak circular magnetic high feature to the east of the Amoco Bannockburn grid (Figure 2). Amoco refer to this feature as Anomaly J. Also, a regional drainage sampling programme showed anomalous Sn values in a stream draining this area.

During the 1986-87 period, CSR investigated this area briefly. Amoco's Bannockburn grid line 57200N was extended east to 67668.5 m from the 66000 m baseline. This line was traversed with a ground magnetic survey, brief geological mapping and some soil and drainage geochemistry.

The analysis of the soil and stream sediment samples (Appendix II) failed to show any anomalous values. No significant Sn soil values were indicated and the anomalous Sn values in the stream sediments were not repeated. Standard samples showed correct values.

The ground magnetic traverses (Appendix III) confirmed the aeromagnetic anomaly (Figure 3). However, a brief geological mapping traverse along the line showed the magnetic profile reflected the geology. West of 57125E, the flat magnetics were over areas of Ordovician sediments while the erratic magnetic

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FIG. 3 ANOMALY J, MAGNETIC PROFILE, LINE 57200N DUNDAS TAS.



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fluctuations, east of 57125E, were over areas of Cambrian tuffs and sediments. Minor volcanics and/or ultramafics may occur. The change from the non-magnetic Ordovician sediments to the variably magnetic volcanoclastic materials of the Cambrian western sequence/Dundas Group rocks on a faulted contact (with possible ultramafic intrusions) explains the magnetic anomaly.

No further work is warranted on this area.

6.3 Misery Hill Magnetic Anomaly

The 1981/82 Department of Mines aeromagnetic survey with infill 250 m(?) spaced lines showed a strong, large magnetic high feature in the vicinity of Misery Hill, to the southeast of the Zeehan-Queenstown-Rosebery road intersection. This anomaly was in an area mapped as having only Dundas Group sediments which showed elevated, but generally stable magnetic values.

This anomaly was traversed with a ground magnetic survey along AMG Line 5361000mN from 300 m west of the Murchison Highway, eastwards to the vicinity of the Red Lead Mine, a distance of 3.5 km.

The ground magnetic traverse (Appendix IV) confirmed the aeromagnetic anomaly (DRG No. 7602-207). Modelling of this profile suggested the anomaly was caused by a magnetic body in the order of 500 m thick, dipping to the west. Such a body could be an ultramafic sheet similar to those known further to the northeast (in the Razorback and Serpentine Hill area).

No further work was considered warranted for this area.

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6.4 Cuni Drilling Follow-up

Initially, it was intended to make and examine thin and polished sections from each of the 5 drill holes completed in 1986 (Ellis, 1986). However, the lack of any anomalous Sn values significantly downgraded the importance of this work. Some 30 sections were finally cut and only examined briefly.

The thin sections of the conglomerate sequences in holes CG3 (Nevada) and CG6 (Dundas Road) showed the magnetic anomaly and higher magnetic susceptibility areas of core corresponded to an increase in the occurrence of green volcanic pebbles and an associated increase in the amount of fine opaques in the matrix. The volcanics and matrix in these areas is thought to contain more magnetite (of volcanic origin).

Thin sections of minor veining in CG4 (South Cuni) and CG5 (North Cuni) showed some pyrite and pyrrhotite with minor sphalerite, galena and chalcopyrite in some veins.

No further work is warranted.

7. REHABILITATION

The EL 15/76 area was inspected by D.J. Jennings in June, 1987. Several areas of further rehabilitation were noted.

This work is currently being undertaken using excavators. When completed, the areas will again be inspected.

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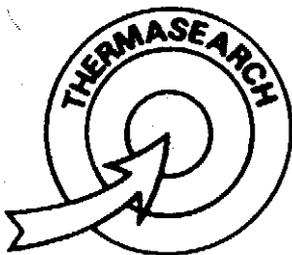
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APPENDIX I

AMENDED HYDROCARBON ANALYSIS REPORT BY THERMASEARCH

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THERMASEARCH LTD
Trinity House, The Triangle,
Ranelagh, Dublin 6,
Republic of Ireland.

Tel: (01) 976101/9767688
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31.86 RC/GH

4th July 1986

Mr. P. A. Jones
Cyprus Minerals Australia Company
PO Box 493
North Sydney
New South Wales 2060

Dear Mr. Jones,

Please find enclosed a copy of Carter's second report on your hydrocarbon results.

As I have already explained by telex, there was a bit of a mix-up with the first printout which had transposed some of the gas results. A reprinted copy is enclosed and should be correct. We apologize for the confusion this has caused.

Also enclosed are printout maps made from the data you supplied. The report should explain the details but there appears to be some potential in the area ENE of Oceana. However, from my memory of the area there are significant areas of no coverage and if you wish to continue with the programme you might consider trying to infill these to provide a more complete picture of the geochemistry of the area. Since the mineralization at Oceana does seem to give some response this might be as valid a way to test the area as any other.

I hope that Carter's report will make everything clear.

Yours sincerely,

R. W. A. CROWE

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LIGHT HYDROCARBON GAS ANALYSIS OF CYPRUS MINERALS/CSR
SAMPLES FROM TASMANIA - 2nd Report - July, 1986

Thirty-nine rock samples from Tasmania have been analysed for light (C1-C5) hydrocarbons to test whether a new mineral exploration technique being developed by Thermosearch may work in this geological environment.

A preliminary note on these results has already been submitted (Carter, May 1986). This report replies to comments on the first report and gives a further interpretation of the data in the light of further information on the location and geological setting of the samples.

1. Reply to Questions on 1st Report

Dr Phil Jones raises a number of questions about the first report.

- a) The most important concerns an inconsistency between the methane values quoted in the report and those shown on the accompanying print-out. This is the result of a computing error which caused the first three columns to be printed out incorrectly.

I apologize for not checking for this when the report was sent out and enclose a corrected print-out.

- b) As stated in the report, samples with greater than 10ppb C3=A can be considered anomalous relative to samples collected elsewhere in the World. This includes samples 169007, 169014, 169022, 169024, 150149 and (as correctly suggested by Dr Jones) 169005 and 169013.

There could be doubt about some samples, like 169014, which also released higher levels of 170 and might therefore be contaminated, but if the ratio of C3=A to 170 is high, I would still consider them to be interesting.

- c) Changes in the other hydrocarbons may also be significant though it is difficult to draw a firm line between anomalies and background.

Sample 169011 and 169029 seem to be enriched in propene (C3= not C4= as inferred by Dr Jones), along with samples 169010, 150148 and 150149.

025

There are also higher levels of the C4 gases in 169010 and 169013 (miss-typed as 169029 in the report) and a slight enrichment in C5+ in 169013.

In addition, as suggested by Dr Jones, there are borderline samples, like 169002, which released higher levels of the C4 hydrocarbons and only just exceed the 100ppb cut-off for 170, which could be anomalous.

2. Spatial Variations in Data

Some information has now been given on the locations of the samples and their relationship with mineralization, which makes possible some further interpretation of the results.

There is one problem in that the map of the surface locations, as recieved on the Fax machine showed only 20 locations (ie sites 21-29 were missing). To plot the maps described below, it has been assumed that the numbers on the map correspond to the last digit of the original sample number (ie site 1 = sample 169001 and site 20 = sample 169020).

2.1 Variations close to mineralization.

Borehole samples 150142-152799 represent a section across strike (hanging wall to foot wall) through the Ordovician Gordon Limestone, in which two mineralized zones have been intersected. There are variations between these samples though any patterns associated with mineralization would seem to be quite complex.

There is some enrichment in ethene (C2=), ethane (C2) and propene (C3=) below the ore zones (samples 150147, 150148 and 150149) and this may continue above the mineralization, for example in samples 150142 and 150143.

There is a slight enrichment in the C4 gases in samples 150147 and 150148, very close to mineral, and in 150149, 115 metres below.

From experience in other areas the higher levels of methane (500ppb) could be significant, though they do not seem to show any obvious pattern here.

026

There does not seem to be any relationship between cyclopropane (C3=A) and mineralization here, only one sample (150149) releasing any significant amounts.

2.2 Variations in the Surface Samples

The surface samples were all collected in the hanging wall Crotty Quartzite which overlies the Gordon Limestone.

A series of maps are enclosed which show the variations in the amounts of the main component hydrocarbons released by samples 169001-169020.

I have also plotted the results for the 10 borehole samples though the precise location of these is not shown.

The pattern here is complicated by the possibility of contamination and I have therefore used the amounts of 170 as an indicator, plotting samples which released less than 100ppb 170 in bold type (**20**) and possibly contaminated samples which released greater than 100 ppb 170 in italics (*20*).

I would normally tend to ignore samples with greater than 100ppb 170, though as stated above there are some samples here which are on the borderline.

Examination of these maps shows some patterns, though there are not sufficient samples to be sure how these may be related to mineralization.

- 1) Samples 169005, near the mine; 169008, 169009 and 169010, to the north-east; and 169003 and 169001, to the south-east, all released very high amounts of methane (800ppb+). This could be related to mineralization, with either a single large anomaly surrounding the mine, or a smaller anomaly with secondary highs to the north-east and south-east.

There are also some very low methane values (<50ppb). These do not show any obvious pattern associated with mineralization, though three of the seven affected samples are clustered together in the east of the area. Such low values are very unusual and suggest that there has been some loss of gas from the rocks, perhaps during weathering.

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- 2) The enrichment in ethene and ethane (C2++C2) in the borehole samples can be seen to be anomalous in comparison with the surface samples, though the slightly higher levels of these gases in samples 169011 (18ppb) and 169003 (18ppb) suggest that there may be further activity to the east and south-east.
- 3) Propene and propane (C3++C3) also show an enrichment in two adjacent samples (169010 and 169011), to the ENE, which is comparable with that found in the borehole samples.
- 4) Cyclopropane (C3=A) shows little obvious pattern, though the high levels near the mine in sample 169005 and to the north-east in sample 169007, may be significant.
- 5) Changes in C3=B and 170 are likely to be influenced by organic contamination, though there could be some pattern, with most of the higher values occurring to the south-east
- 6) The C4 gases (butanes and butenes) show some possible enrichment near mineralization, though the only very high value (170ppb) occurs to the north-east in sample 169010.
- 7) The levels of the heaviest C5+ hydrocarbons are generally very low, though high amounts are found in borehole sample 150149 (72ppb) and in sample 169013 (130ppb) to the ESE.

3. Conclusions

The Cyprus Minerals/CSR samples all released significant amounts of light hydrocarbon and although the results are complicated by possible organic contamination and by the apparent loss of methane from some samples, there is evidence for some changes which may be related to mineralization.

These changes are not as distinct as those found around some other mineral deposits, but do show a similar pattern, with an enrichment in heavier C2 and C3 gases near to the mineralization and an increase in the amounts of methane, further away.

028

Any anomaly associated with the Oceana Mine must clearly be quite complex, though this is to be expected. The movement of gases away from mineralization would be very irregular and would be strongly controlled by local geology.

The pattern may also be further complicated by the presence of other mineral deposits. In particular, there could be another anomaly to the ENE near samples 169010 and 169011, where there is an enrichment in C2 and C3 gases similar to that found in the borehole samples. The similar, but weaker pattern, to the south-east, in samples 169001 and 169003, and the high levels of C3-A in sample 169007, to the north-east, may also be worth investigation.

Dr Jonathan Carter
Thermosearch Ltd.,
July, 1986

909031

CSR OUTCROP SAMPLES MAY 86

07-01-1986

Sample	C1	C2=	C2	C3=	C3	C3=A	C3=B	170	IC4	C4=	NC4	C5+	Code	Grd Ref	Comment
169001	824.5	9.8	0.6	19.7	0.0	5.7	5.2	33.4	0.0	0.0	11.0	10.7	AM/001	R535145	1 PROFESSOR
169002	39.1	11.6	7.8	16.8	0.0	19.8	0.0	166.7	0.0	64.2	3.8	144.9	AM/002	R495185	2 PROFESSOR
169002	28.8	7.5	4.0	9.4	0.0	23.3	47.8	102.4	0.0	61.0	0.0	202.8	AM/002	R495185	2 PROFESSOR
169003	1480.9	16.6	1.1	24.0	0.0	2.0	0.0	28.7	0.0	0.0	0.0	20.3	AM/003	R450200	3 PROFESSOR
169004	445.3	7.3	1.5	15.1	0.0	14.8	17.2	101.9	0.0	22.8	24.6	52.6	AM/004	R295565	4 OCEANA
169005	1106.9	15.3	0.7	0.8	7.4	35.6	0.0	41.6	0.0	0.0	0.0	17.3	AM/005	R257600	5 OCEANA
169006	33.1	6.8	1.9	10.3	0.0	23.4	0.0	127.2	0.0	41.3	1.9	64.5	AM/006	R230650	6 OCEANA
169006	38.5	8.3	2.6	11.0	0.0	38.7	41.1	166.0	0.0	53.0	0.0	123.8	AM/006	R230650	6 OCEANA
169007	639.9	11.8	0.8	25.5	0.0	36.1	0.0	46.3	0.0	3.9	17.2	38.0	AM/007	R506994	7 BLACK JACK
169008	1137.8	11.0	0.0	14.9	0.0	2.1	0.0	14.3	0.0	0.0	7.9	0.0	AM/008	R525923	8 BLACK JACK
169009	1127.7	13.5	0.6	13.2	0.0	3.7	0.0	12.3	6.7	0.0	5.7	10.3	AM/009	R561850	9 BLACK JACK
169010	804.4	14.4	0.4	67.5	0.0	8.2	9.4	40.6	0.0	24.3	145.5	28.0	AM/010	R600788	10 MARIPOSA
169011	433.3	16.2	2.2	46.9	0.0	2.7	12.5	36.4	0.0	0.0	12.4	32.5	AM/011	R621720	11 MARIPOSA
169012	13.4	7.1	1.0	8.8	0.0	33.9	89.1	154.0	0.0	52.8	0.0	148.2	AM/012	R713440	LEATHERMD
169012	26.7	30.9	2.0	30.7	0.0	49.2	238.2	434.3	0.0	95.7	0.0	315.0	AM/012	R713440	LEATHERMD
169013	14.6	9.0	1.7	10.2	0.0	13.5	30.3	94.9	0.0	20.5	0.0	94.2	AM/013	R740387	13 LEATHERMD
169013	13.8	3.6	0.1	5.3	0.0	9.6	31.0	62.9	0.0	56.4	0.0	166.4	AM/013	R740387	13 LEATHERMD
169014	22.4	8.2	0.5	10.5	0.0	21.1	36.6	152.8	0.0	26.0	0.0	79.0	AM/014	R765330	14 LEATHERMD
169014	16.4	3.3	0.2	5.2	0.0	20.9	21.7	53.9	0.0	17.6	0.0	47.3	AM/014	R765330	14 LEATHERMD
169015	426.5	5.4	0.2	19.0	0.0	2.2	0.0	28.2	0.0	0.0	6.5	11.0	AM/015	R792278	LEATHERMD
169016	216.6	14.5	1.6	35.3	0.0	12.1	0.0	178.2	0.0	0.0	6.5	95.6	AM/016	R748246	KING BILLY
169017	210.9	10.4	2.3	41.8	0.0	10.4	18.6	112.5	21.4	0.0	76.7	94.2	AM/017	R703274	KING BILLY
169018	16.2	13.3	1.9	11.3	0.0	100.5	55.3	189.0	0.0	12.2	0.0	99.2	AM/018	R671252	KING BILLY
169018	17.6	15.1	1.8	11.5	0.0	98.6	36.7	141.5	0.0	10.9	0.0	63.9	AM/018	R671252	KING BILLY
169019	348.3	13.8	0.4	35.3	0.0	18.1	0.0	141.9	0.0	0.0	8.8	55.6	AM/019	R626202	KING BILLY
169019	564.8	17.0	1.3	38.0	0.0	22.7	26.4	131.3	0.0	0.0	9.9	42.4	AM/019	R626202	KING BILLY
169020	35.1	17.0	2.7	27.1	0.0	116.2	50.8	172.4	0.0	39.3	6.4	172.3	AM/020	R606154	KING BILLY
169020	53.7	19.5	2.6	30.5	0.0	62.8	35.9	180.2	0.0	56.4	0.0	141.8	AM/020	R606154	KING BILLY
169021	9.7	1.6	0.3	0.0	0.0	2.9	2.1	15.0	0.0	9.4	0.0	0.0	AM/021		CSR006
169021	12.1	3.2	0.5	1.5	0.0	2.6	8.0	43.9	0.0	13.1	0.0	26.0	AM/021		CSR006
169022	880.9	12.3	0.7	17.7	0.0	11.2	4.7	22.3	6.1	0.0	17.6	0.0	AM/022		CSR007
169023	14.4	1.9	0.3	1.4	0.0	1.6	2.0	28.4	16.5	0.0	0.0	10.7	AM/023		CSR008
169023	40.7	3.0	0.0	1.6	0.0	2.7	5.0	25.8	18.9	0.0	0.0	19.1	AM/023		CSR008
169024	349.9	3.5	0.7	7.7	0.0	23.9	6.4	35.9	37.2	0.0	0.0	0.0	AM/024		CSR009
169025	377.1	6.5	0.0	0.0	0.0	0.0	0.0	52.9	0.0	17.1	4.9	0.0	AM/025		CSR010
169026	758.5	7.1	0.5	13.9	0.0	2.8	13.7	95.5	12.1	0.0	31.9	56.2	AM/026		CSR011
169027	323.8	23.9	0.0	41.9	0.0	49.6	46.2	362.3	0.0	19.0	12.1	261.3	AM/027		CSR012
169027	634.8	20.0	0.4	38.3	0.0	120.5	45.4	367.4	6.0	0.0	23.0	295.7	AM/027		CSR012
169028	710.2	18.5	7.3	34.7	0.0	41.6	28.6	238.1	10.1	0.0	26.8	71.6	AM/028		CSR013
169028	956.1	25.3	8.9	50.8	0.0	52.8	26.1	246.4	10.5	0.0	36.1	81.2	AM/028		CSR013
169029	1252.9	17.0	1.2	38.9	0.0	7.6	12.6	76.2	0.0	0.0	27.2	18.9	AM/029		CSR014

C1 - Methane
C3 - Propane
IC4 - i-Butane

C2= - Ethene
C3=A - Cyclopropane??
C4= - Butene

C2 - Ethane
C3=B - Formaldehyde/Methanol?
NC4 - n-Butane

C3= - Propene
170 - Acetaldehyde
C5+ - Pentanes and above

029

909032

CSR CDRE SAMPLES MAY 86

07-01-1986

Sample	C1	C2=	C2	C3=	C3	C3=A	C3=B	170	1C4	C4=	NC4	C5+	Code	Grd Ref	Comment
150142	802.3	17.4	1.0	22.9	0.0	1.1	9.0	8.2	0.0	0.0	0.0	9.4	CA/001	R200630	2T-80-5 15M
150142	967.4	22.3	1.9	27.3	0.0	2.7	9.0	9.8	6.3	0.0	6.1	0.0	CA/001	R200630	2T-80-5 15M
150143	335.9	21.9	1.8	24.8	2.5	0.0	0.0	4.7	0.0	0.0	0.0	0.0	CA/002	R200630	2T-80-5 124M
150144	731.8	10.6	1.5	22.3	0.0	1.8	16.1	7.9	4.2	0.0	12.1	0.0	CA/003	R200630	2T-80-5 230M
150144	684.2	11.1	1.6	21.6	0.0	1.8	13.9	5.0	0.0	8.6	14.7	0.0	CA/003	R200630	2T-80-5 230M
150145	287.1	6.9	0.9	11.1	4.5	0.0	3.4	4.8	11.2	0.0	0.0	0.0	CA/004	R200630	2T-80-5 327.5M
150146	718.7	12.4	1.1	22.4	0.0	0.0	19.3	13.4	20.0	0.0	9.4	17.3	CA/005	R200630	2T-80-5 410M
150147	431.0	21.6	4.3	37.3	0.0	0.0	4.3	10.4	16.8	0.0	24.3	10.6	CA/006	R200630	2T-80-4 275M
150148	379.5	17.1	2.6	41.9	0.8	0.0	4.6	5.3	0.0	0.0	0.0	0.0	CA/007	R200630	2T-80-4 325M
150149	535.9	18.7	3.4	55.8	4.3	15.0	0.0	58.3	59.8	0.0	1.3	70.7	CA/008	R200630	2T-80-7 50M
150149	717.3	22.6	2.6	43.3	0.0	9.7	34.7	85.9	49.0	0.0	5.0	73.1	CA/008	R200630	2T-80-7 50M
150150	305.4	6.9	0.6	12.1	1.1	0.0	0.0	3.0	2.5	0.0	0.0	0.0	CA/009	R200630	2T-80-7 16.5M
152799	721.8	9.6	0.8	11.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CA/010	R200630	2T-80-12 36.6M
152799	770.1	10.8	0.9	15.7	0.0	2.8	0.0	3.1	0.0	0.0	0.0	0.0	CA/010	R200630	2T-80-12 36.6

C1 - Methane
C3 - Propane
1C4 - i-Butane

C2= - Ethene
C3=A - Cyclopropane??
C4= - Butene

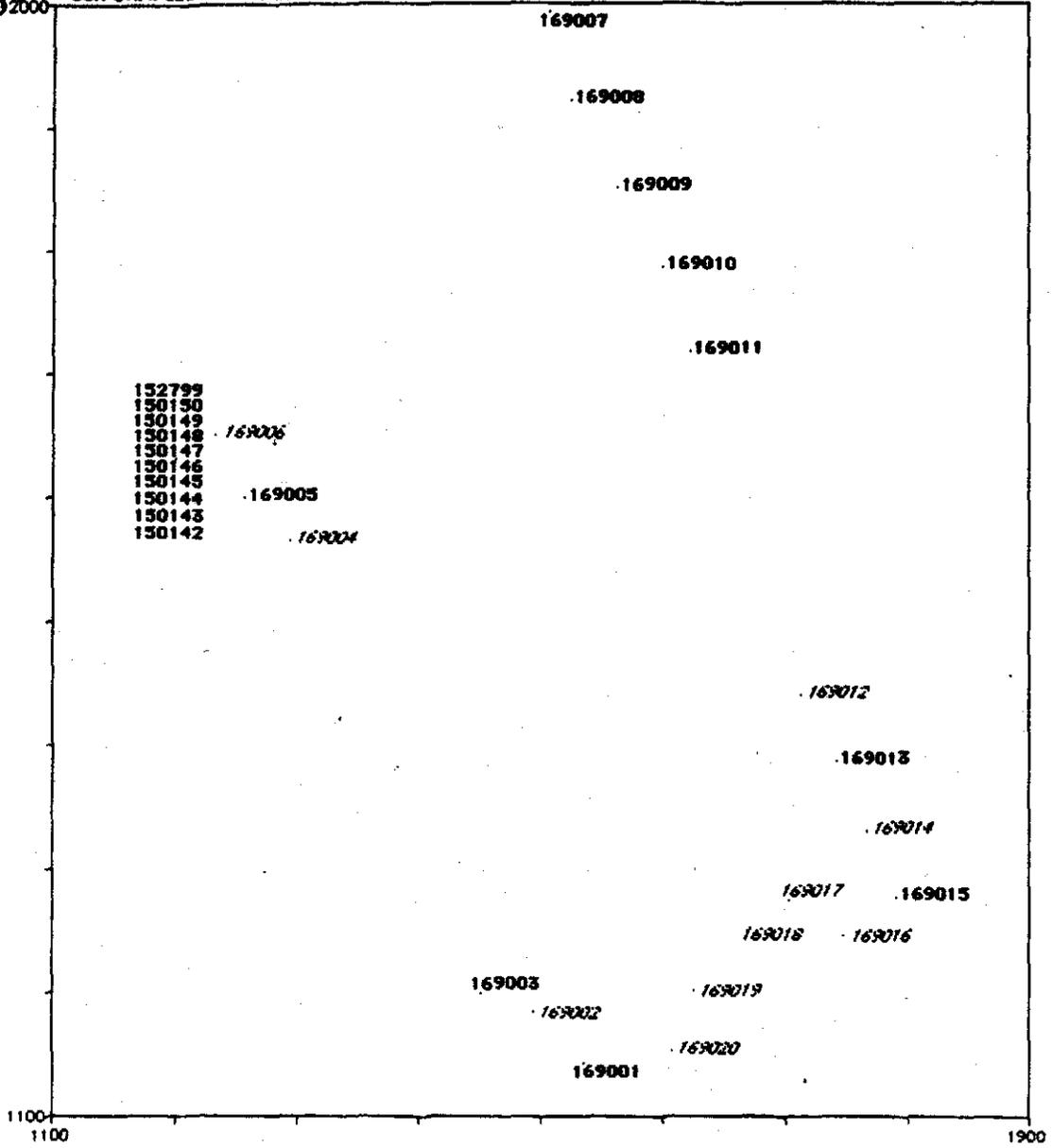
C2 - Ethane
C3=B - Formaldehyde/Methanol?
NC4 - n-Butane

C3= - Propene
170 - Acetaldehyde
C5+ - Pentanes and above

030

031
2000

CSR SAMPLES - OCEANA MINE



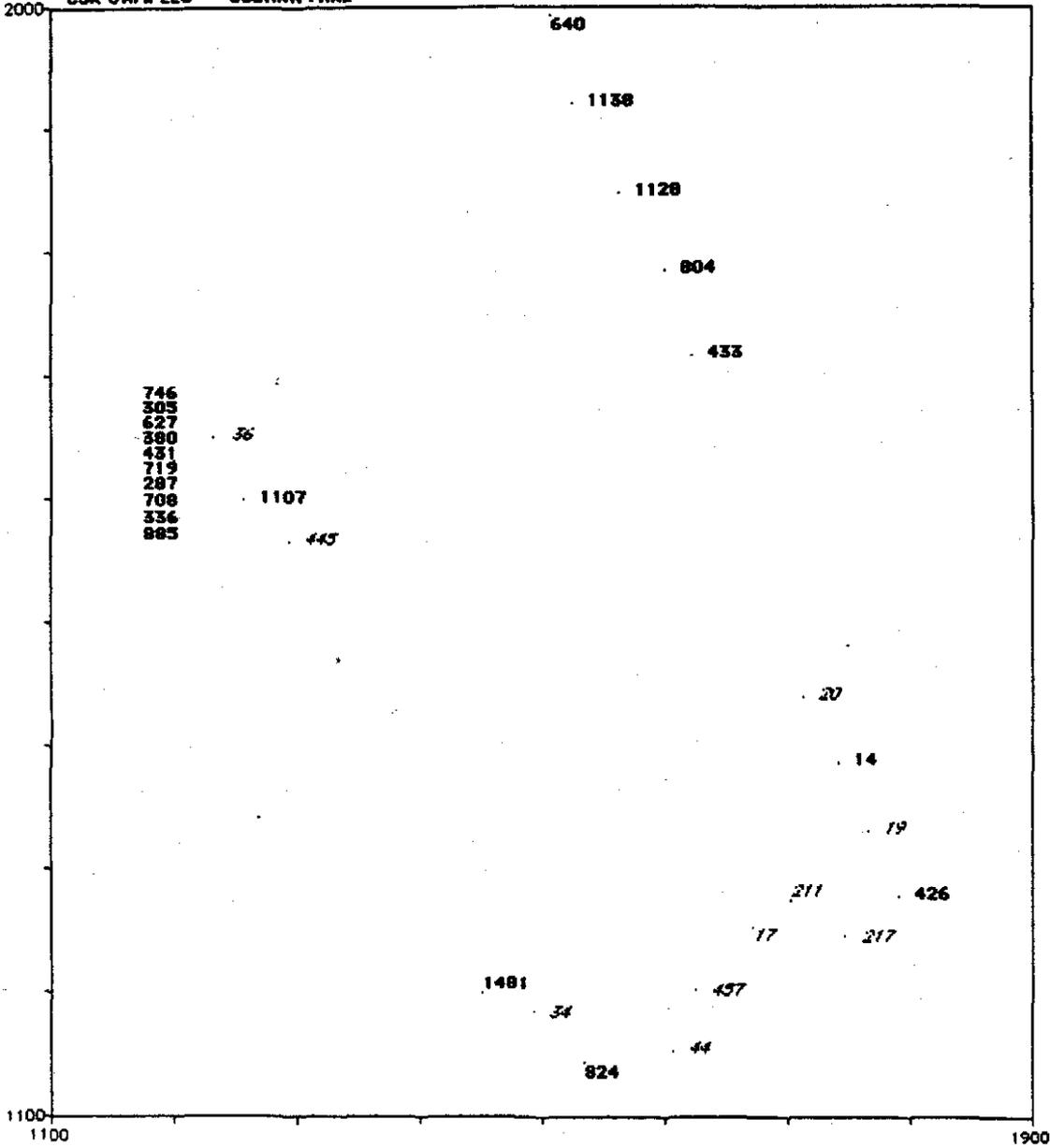
Lithology = ALL

170 < 100

07-01-1996

032

CSR SAMPLES - OCEANA MINE



ppb C1 x 1

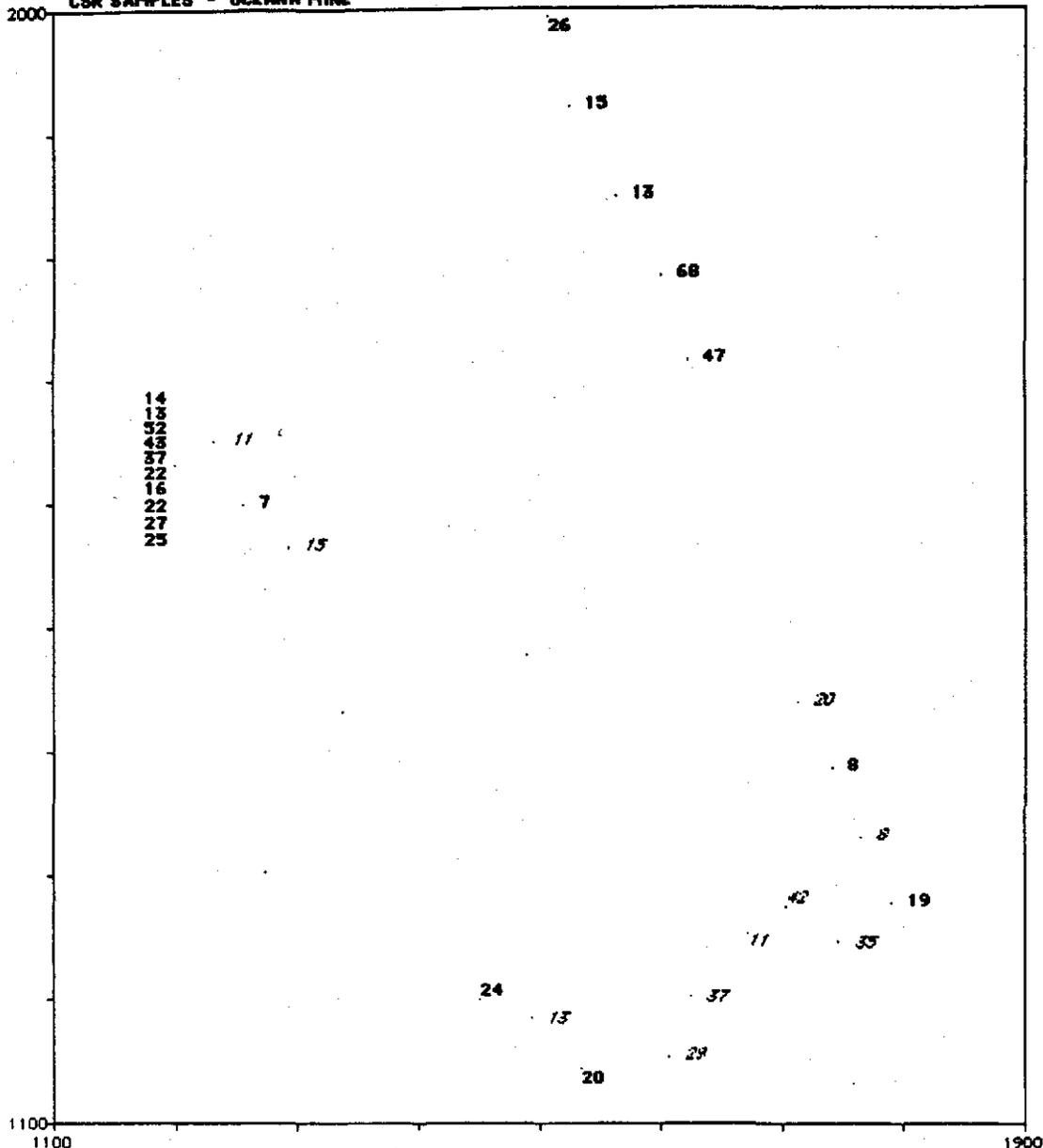
Lithology = ALL

170 < 100

07-01-1986

033

CSR SAMPLES - OCEANA MINE



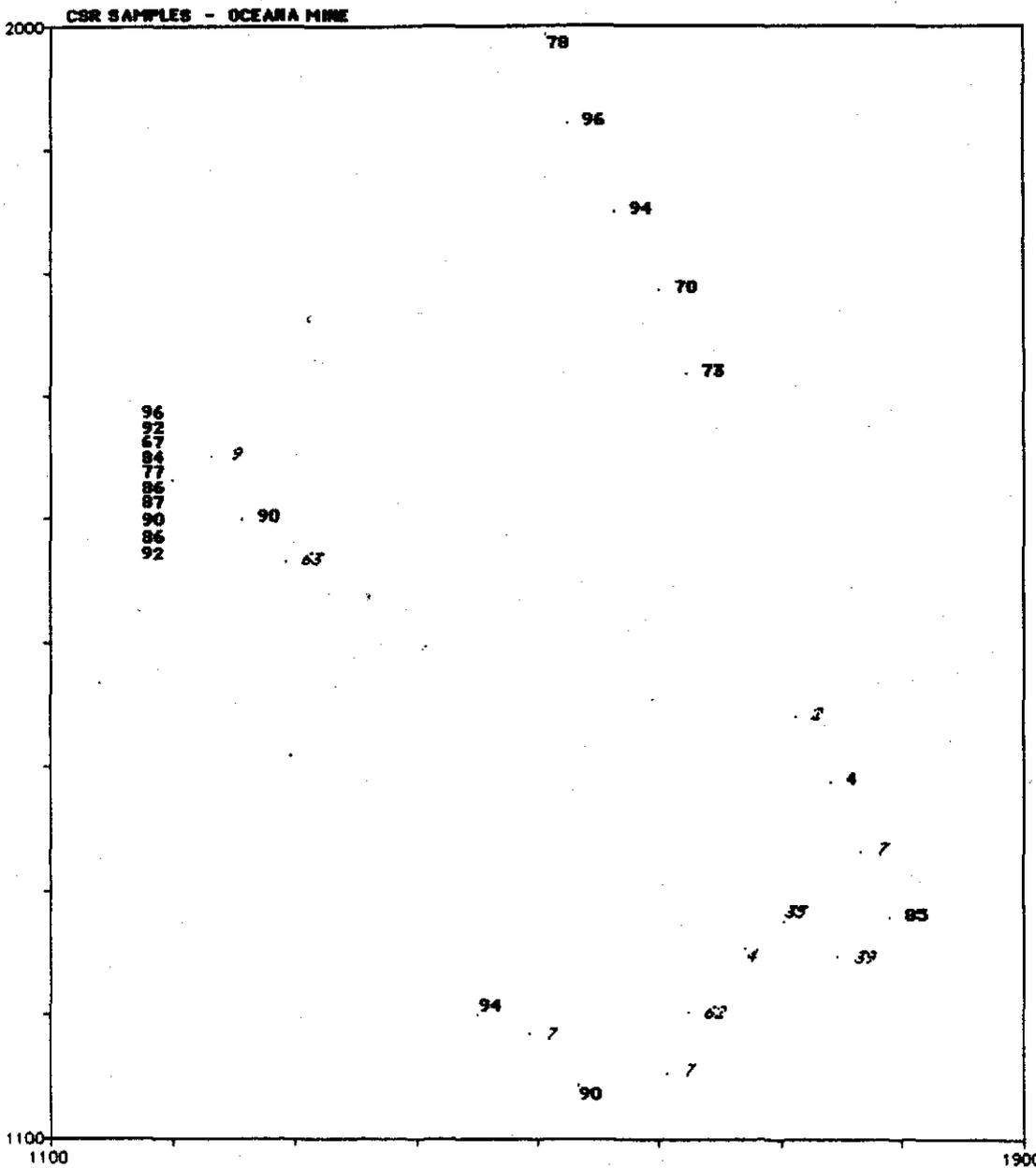
ppb C3= + C3 x 1

Lithology = ALL

170 < 100

07-01-1986

034



C1 / TOTAL HC x 100

Lithology = ALL

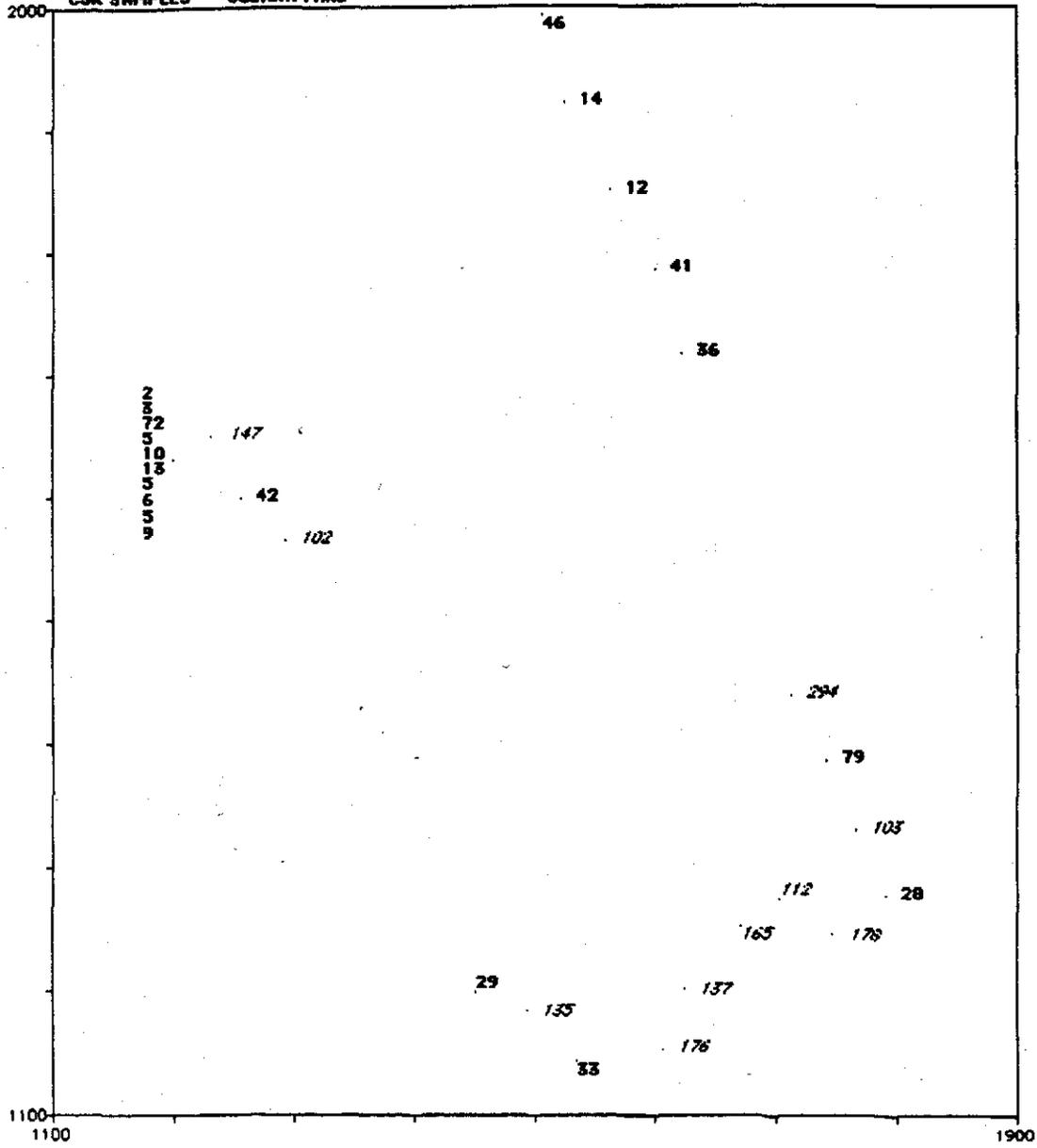
170 < 100

07-01-1986

035

909037

CSR SAMPLES - OCEANA MINE



ppb 170 x 1

Lithology = ALL

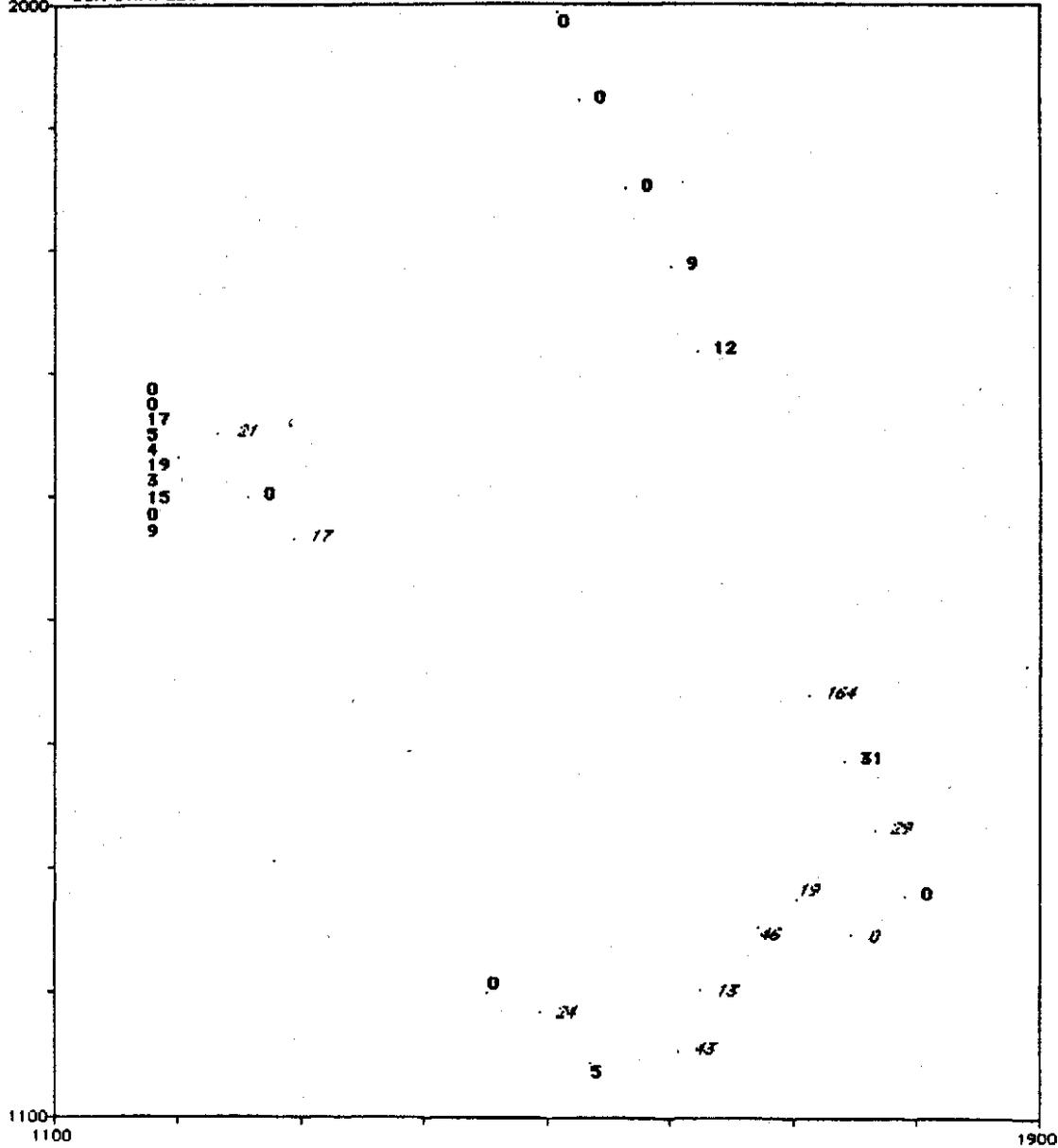
170 < 100

07-01-1986

036

909038

2000 CSR SAMPLES - OCEANA MINE



ppb C3=B x 1

Lithology = ALL

170< 100

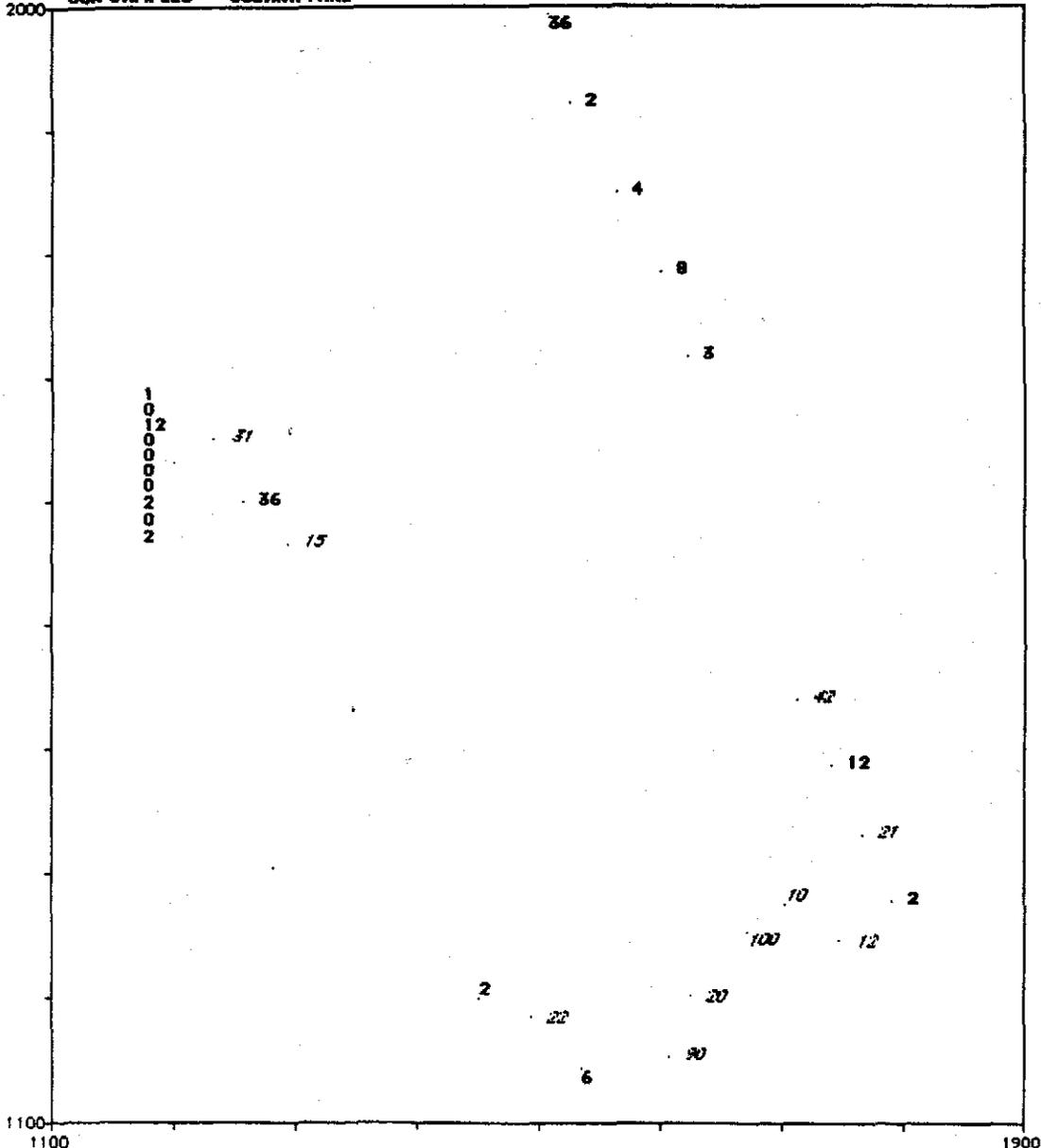
07-01-1996

037

909039

2000

CSR SAMPLES - OCEANA MINE



1100

1900

ppb CS=A x 1

Lithology = ALL

170 < 100

07-01-1986

APPENDIX II
SOIL AND DRAINAGE SAMPLE CHEMICAL ANALYSES FOR
BANNOCKBURN LINE 57200N



FIELD SAMPLE DESPATCH SHEET

17051

Project No. 7607 Project Name _____ Date Required 1916187
 Date Despatched 916187 Despatcher PDE Despatched per SKYACADS
 CSR Order No. 65062 Consignment No. _____

Lab Name COMLABS
 Preparation Method PREP 2 (CRUSH), PREP 5 (GIVE - COLLECT - 20# for analysis)
 Element(s)/Method Cu, Pb, Zn, Ni, Ag, As, Si, Ag, As, Si, Cu, As, Si, Si, Ni, As, Si, Si, XRF

CSR SAMPLE NUMBER	FIELD NUMBER	SAMPLE TYPE	CONTROL TYPE	SAMPLE DESCRIPTION	ORIGINAL NUMBER	SAMPLE WEIGHT SUBMITTED
A1151621011		ER		57200M66750E		
1210121		ER		66775E		
1210131		ER		66800E		
1210141		ER		66825E		
1210151		ER		66850E		
1210161		ER		66875E		
1210171		ER		66900E		
1210181		ER		66925E		
1210191		ER		66950E		
121101		ER		66975E		
121111		ER		67000E		
121121		ER		67025E		
121131		ER		67050E		
121141		ER		67075E		
121151		ER		67100E		
121161		ER		67125E		
121171		ER		67150E		
121181		ER		67175E		
121191		ER		67200E		
121201		SIS		57200M67200E		
121211		SIS		57075M67200E		
121221		SIS		57025M67200E		
121231		CIL	SIT	6x110		
A11516212101		CIL	SIT	6x16		

DISBURSEMENT: WHITE - to Assay Laboratory with order. PINK - to Computer Services. YELLOW - to Head Office filing. GREEN - field copy.

040

LABS SERVICES PTY. LTD.

909042



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ANALYTICAL REPORT

JOB COM871285
O/N : 45062

SAMPLE	Cu	Pb	Zn	Bi	Ag	Ni	Cr
A 156201	8	6	46	<4	<1	18	12
A 156202	7	14	65	<4	<1	20	14
A 156203	7	18	50	8	<1	24	16
A 156204	9	16	34	<4	<1	10	20
A 156205	10	20	70	<4	<1	34	16
A 156206	10	18	50	<4	2	8	20
A 156207	9	18	32	<4	2	10	20
A 156208	18	22	32	<4	1	14	16
A 156209	6	12	30	<4	<1	14	12
A 156210	4	14	26	<4	<1	6	10
A 156211	3	10	18	<4	<1	6	12
A 156212	3	4	20	<4	<1	8	10
A 156213	3	4	16	<4	<1	8	12
A 156214	5	4	20	6	<1	<4	16
A 156215	4	12	20	<4	<1	<4	14
A 156216	16	18	85	<4	<1	55	16
A 156217	16	16	32	<4	<1	16	18
A 156218	14	22	22	<4	<1	16	16
A 156219	14	34	30	<4	<1	16	28
A 156220	3	10	9	<4	<1	<4	18
A 156221	3	8	24	<4	<1	6	16
A 156222	4	12	20	<4	<1	6	14
A 156223	4	<4	8	<4	<1	<4	18
A 156224	165	10	130	24	<1	46	40
UNITS	ppm						
SCHEME	AAS1	AAS1	AAS1	AAS1	AAS3	AAS1	AAS2

041

909043

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- 2 -



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ANALYTICAL REPORT

JOB COM871285
O/N : 45062

SAMPLE	As	Sb	Sn	W
A 156201	7	8	10	<10
A 156202	9	6	8	15
A 156203	4	8	4	<10
A 156204	6	4	4	<10
A 156205	5	10	4	<10
A 156206	12	6	4	<10
A 156207	10	<4	<4	<10
A 156208	8	6	<4	<10
A 156209	6	8	6	<10
A 156210	8	8	<4	<10
A 156211	7	10	4	<10
A 156212	5	6	4	<10
A 156213	7	<4	4	<10
A 156214	6	12	<4	10
A 156215	6	4	8	<10
A 156216	12	4	6	<10
A 156217	10	6	6	<10
A 156218	8	10	8	<10
A 156219	12	<4	8	<10
A 156220	8	<4	<4	<10
A 156221	10	4	4	<10
A 156222	8	12	6	<10
A 156223	7	4	38	<10
A 156224	12	6	6	85
UNITS	ppm	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1	XRF1

042

909044

APPENDIX III

GROUND MAGNETIC DATA FROM BANNOCKBURN LINE 57200N

043

909045

LINE 57200N - BANNOCKBURN"ANOMALY J"

<u>NORTHING</u>	<u>EASTING</u>	<u>MAGNETIC VALUE</u>
Line 57200N	66000 E	62397
	66025	62398
	66050	62401
	66075	62396
	66100	62398
	66125	62395
	66150	62385
	66175	62392
	66200	62388
	66225	62393
	66250	62394
	66275	62395
	66300	62400
	66325	62402
	66350	62406
	66375	62408
	66400	62410
	66425	62419
	66450	62416
	66475	62414
	66500	62417
	66525	62414
	66550	62422
	66575	6244
	66600	62413
	66625	62418
	66650	62415
	66675	62425
	66700	62404
	66725	62404
	66750	62412
	66775	62414
	66800	62411
	66825	62425

044

- 2 -

909046

NORTHING	EASTING	MAGNETIC VALUE
	66850	62419
	66875	62422
	66900	62431
	66925	62437
	66950	62446
	66975	62445
	67000	62441
	67025	62454
	67050	62440
	67075	62444
	67100	62446
	67125	62445
	67150	62450
	67175	62466
	67200	62498
	67225	62496
	67250	62473
	67275	62455
	67300	62429
	67325	62454
	67350	62454
	67375	62496
	67400	62335
	67425	62388
	67450	62447
	67475	62438
	67500	62439
	67525	62393
	67550	62302
	67575	62446
	67600	62449
	67625	62428
	67650	62468
	67668.5	62395

APPENDIX IV

GROUND MAGNETIC DATA FROM THE MISERY HILL ANOMALY

046

909048

LINE 5361000mN - AMG

AMG E. COORDINATE	LINE POINT	MAGNETIC VALUE
366140	300W	62366
366165	275W	62363
366190	250W	62366
366215	225W	62368
366240	200W	62368
366265	175W	62370
366290	150W	62371
366315	125W	62373
366340	100W	62376
366365	75W	62375
366390	50W	62380
366415	25W	62384
366440mE	0	62376
366465	25E	62389
366490	50E	62391
366515	75E	62395
366540	100E	62389
366565	125E	62390
366590	150E	62394
366615	175E	62397
366640	200E	62401
366665	225E	62405
366690	250E	62407
366715	275E	62408
366740	300E	62410
366765	325E	62412
366790	350E	62415
366815	375E	62416
366840	400E	62418
366865	425E	62421
366890	450E	62422
366915	475E	62422
366940	500E	62425
366965	525E	62429
366990	550E	62430
367015	575E	62433
367040	600E	62434
367065	625E	62435
367090	650E	62441
367115	675E	62443
367140	700E	62448
367165	725E	62451
367190	750E	62453
367215	775E	62463
367240	800E	62467
367265	825E	62472
367290	850E	62468
367315	875E	62477
367340	900E	62479
367365	925E	62483
367390	950E	62479
367415	975E	62489
367440	1000E	62491

047

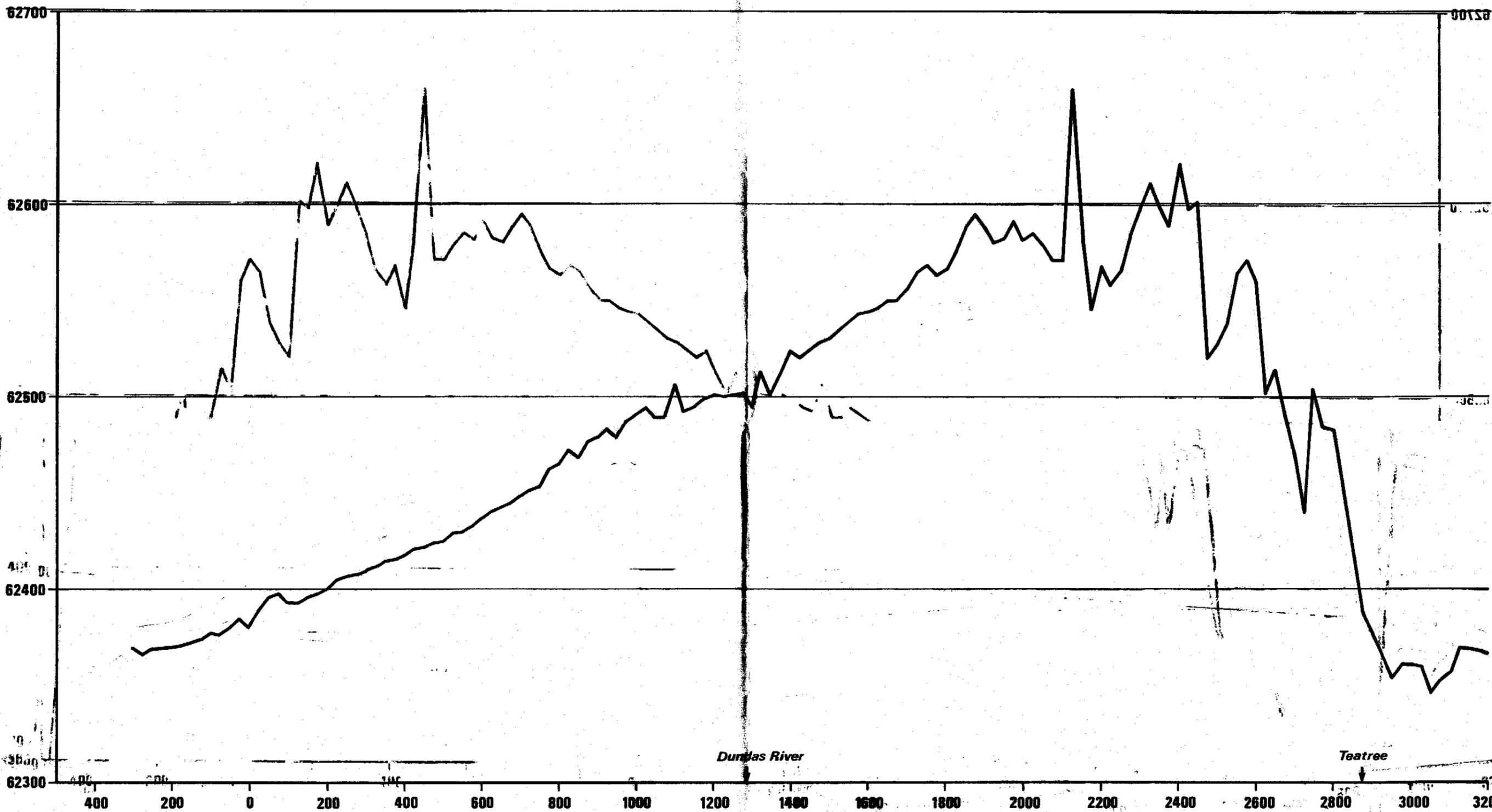
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AMG E. COORDINATE	LINE POINT	MAGNETIC VALUE
367465	1025E	62495
367490	1050E	62497
367515	1075E	62503
367540	1100E	62507
367565	1125E	62500
367590	1150E	62502
367615	1175E	62506
367640	1200E	62508
367665	1225E	62507
367690	1250E	62508
367715	1275E	62509
367740	1300E	62500
367765	1325E	62518
367790	1350E	62504
367815	1375E	62516
367840	1400E	62528
367865	1425E	62524
367890	1450E	52527
367915	1475E	62531
367940	1500E	62533
367965	1525E	62537
367990	1550E	62542
368015	1575E	62545
368040	1600E	62546
368065	1625E	62548
368090	1650E	62551
368115	1675E	62552
368140	1700E	62558
368165	1725E	62566
368190	1750E	62569
368215	1775E	62564
368240	1800E	62567
368265	1825E	62576
368290	1850E	62588
368315	1875E	62595
368340	1900E	62589
368365	1925E	62589
368390	1950E	62587
368415	1975E	62591
368440	2000E	62580
368465	2025E	62584
368490	2050E	62575
368515	2075E	62570
368540	2100E	62579
368565	2125E	62651
368590	2150E	62579
368615	2175E	62543
368640	2200E	62516
368665	2225E	62506
368690	2250E	62512
368715	2275E	62530
368740	2300E	62544
368765	2325E	62558

AMG E. COORDINATE	LINE POINT	MAGNETIC VALUE
368790	2350E	62545
368815	2375E	62535
368840	2400E	62566
368865	2425E	62542
368890	2450E	62545
368915	2475E	62526
368940	2500E	62522
368965	2525E	62538
368990	2550E	62564
369015	2575E	62571
369040	2600E	62553
369065	2625E	62495
369090	2650E	62501
369115	2675E	62484
369140	2700E	62462
369165	2725E	62443
369190	2750E	62501
369215	2775E	62481
369240	2800E	62480
369265	2825E	62451
369290	2850E	62416
369315	2875E	62385
369340	2900E	62374
369365	2925E	62363
369390	2950E	62352
369415	2975E	62359
369440	3000E	62359
369465	3025E	62358
369490	3050E	62344
369515	3075E	62351
369540	3100E	62355
369565	3125E	62368
369590	3150E	62367
369615	3175E	62366
369640	3200E	62365

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Dundas River

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E.L. 15/76 DUNDAS, TAS.

6481

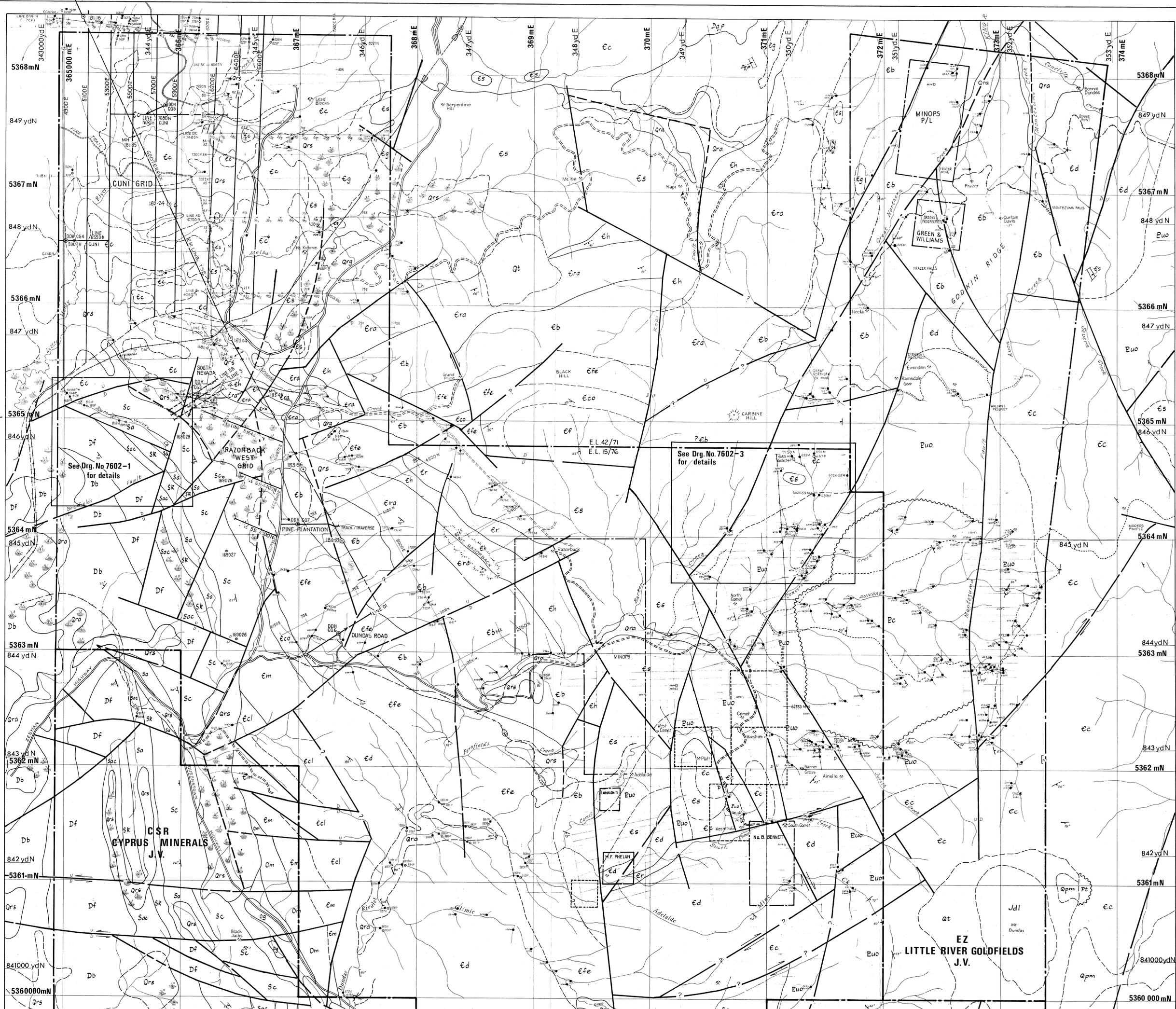
MISERY HILL ANOMALY
MAGNETIC PROFILE

5 cm

SCALE 1:10,000

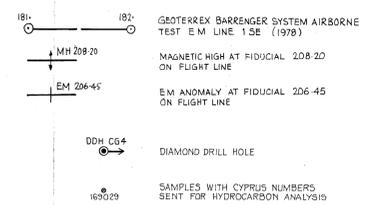
DRG No. 7602-207

R7-2679



REFERENCE	
Qra	Alluvium
Qrg	Gravels
Qt	Conglomerate talus
Qe	Dolerite talus
Qrs	Older alluvium marsh deposits downwash etc.
Qpf	Fluvioglacial & lacustrine deposits
Qpm	Moraine
P Pt	Zeehan Glacial Formation
D Db	Bell Shale
Df	Florence Quartzite
Sac	Austral Creek Siltstone
Sk	Keel Quartzite
Sa	Amber Slate
Sc	Crotty Quartzite
S	Unassigned
Og	Gordon Limestone
Om	Maina Sandstone
Oz	Mt Zeehan Conglomerate
Em	Misery Conglomerate
Ecl	Climo Formation
Ef	Fernflow Formation
Eco	Comet Formation
Efe	Ferrifields Formation
Eb	Brewery Junction Formation
Era	Razorback Conglomerate
Er	Hodge Slate
Ed	Red Lead Conglomerate
Ec	Dundas Group unassigned
E	Crimson Creek Formation
E	Cambrian unassigned
Euo	Onash Quartzite & Slate
Ea	Conant 'Chert'
Ew	White Schist
IGNEOUS ROCKS	
Jdl	JURASSIC Dolerite
P	Porphyry
Eg	Gabbro, norite and dolerite
Es	Serpentine and pyroxenite

- Stream sediments (M)
- Panned concentrate (P)
- Rock chip, float (R, F)
- Limonite (L)



909052
87-2679 6482

CSR LIMITED-MEDG

**GEOTERREX E.M. TEST LINES AND
DRAINAGE SAMPLE NUMBERS
GRID LOCATIONS**
E. L. 15 / 76 - North Sheet
DUNDAS WEST TASMANIA



Qr	Gravels
Qt	Conglomerate talus
Qc	Dolerite talus
Qrs	Older alluvium marsh deposits downwash etc.
Qpf	Fluvio-glacial & lacustrine deposits
Qpm	Moraine
P	Zeehan Glacial Formation
Db	Bell Shale
Df	Florence Quartzite
Sac	Austral Creek Siltstone
Sk	Keel Quartzite
Sa	Amber Slate
Sc	Crotty Quartzite
S	Unassigned
Og	Gordon Limestone
Om	Mona Sandstone
Oz	Mt Zeehan Conglomerate
Em	Misery Conglomerate
Ecl	Clunie Formation
Ef	Fernflow Formation
Eco	Comet Formation
Efe	Fernfields Formation
Eb	Brenery Junction Formation
Era	Razorback Conglomerate
Eh	Hodge Slate
Er	Red Lead Conglomerate
Ecd	Dundas Group unassigned
Ec	Crimson Creek Formation
E	Cambrian unassigned
Euo	Orana Quartzite & Slate
Ecc	Concord Chert
Ew	White Chert
Jdl	JURASSIC Dolerite
D	Quartz porphyry
Ea	Gabbro, norite and dolerite
Es	Serpentine and pyroxenite

• Stream sediment (M)
 ○ Panned concentrate (P)
 ◦ Rock chip, float (R, F)
 ■ Limonite (L)

181: 182: GEOTERREX BARRENGER SYSTEM AIRBORNE TEST E.M. LINE 1 SE (1978)
 MH 209-20 MAGNETIC HIGH AT FIDUCIAL 208-20 ON FLIGHT LINE
 EM 206-45 EM ANOMALY AT FIDUCIAL 206-45 ON FLIGHT LINE
 DDH G64 DIAMOND DRILL HOLE
 163029 SAMPLES WITH CYPRUS NUMBERS SENT FOR HYDROCARBON ANALYSIS

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CSR LIMITED-MEDG
 GEOTERREX E.M. TEST LINES AND DRAINAGE SAMPLE NUMBERS GRID LOCATIONS
 E. L. 15/76 - North Sheet
 DUNDAS, WEST TASMANIA
 SCALE 1:10,000 K 555-6
 DRAWN P.M.M./P.H./P.D.E. DRG. NO. 7602-11
 DATE Jan 78
 CHECKED M.B. 81, O.C.T. 81, July 85, July 86

6482

