MEMORANDUM

TO: Chris Dauth
CC: Kim Denwer
FROM: NoeleneDorn
DATE: 10/11/01
RE: GEOPHYSICAL DATA COMPILATION FOR PARADISE EL13/00

Geophysical Survey data has been compiled over the Paradise EL13/00 area. Open File Reports at the Mineral Resources of Tasmania library were scanned and photocopies of all relevant maps and data presentations included. These were tabulated into data sheets for each survey and also include a 'brief' interpretation/discussion of results as included in the reports. These do not include my personal interpretations.

I have also included a chronological outline of each prospect's geophysical coverage to reduce confusion of timing/location of surveys ('cause I sure got confused!). Some of the surveys have information but no data presentations, some have data presentations but no survey information! These have been noted on the data sheets.

Data was compiled over the following prospects:

- Sheffield EL Area
- Beulah-Barite, which extended to include Garden of Eden, Simonds Grids, Beulah Extended and Lower Beulah
- Gog Range
- Star of the West
- Ireland
- Mt Roland

Gowrie Park, Cethana, Staverton and Lake Barrington were not included as I was informed that these areas have been looked at previously.

A digital copy of this report is available.

Noelene Dorn
Geophysicist

PARADISE EL13/00

SHEFFIELD AREA

Previous exploration for Que/Hellyer type massive sulphides. Base metal sulphide-bearing barite at Lower Beulah was particularly encouraging. Possible lithological/stratigraphic unit correlation with Que/Hellyer. Geochem as a reconnaissance technique identified several base metal anomalies

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
Feb 1981	CRAE	DighemI I over the Sheffield tenement area. Failed to locate any significant anomalies so it appeared that conductive, relatively shallow mineralisation is unlikely to exist in the EL. However, significant mineralisation, undetected by DighemI I, is known to exist within the EL – Lake Barrington Cu – so there is still potential to discover economic mineralisation. Table 1 lists the anomalies, their characteristics and their probable explanation. Several anomalies were routinely located on the ground using VLF-EM then lithology identification and if warranted soil sampling and ground magnetics. Failed to locate targets worthy of drilling (MRT 83-1936 goes into detail about VLF & GMag results for each DighemI I (EM & Mag) anomaly.)	MRT 83-1936
1984	Amax	DighemI I I identified 82 EM anomalies of grade 2 or better. Follow-up failed to generate encouragement. No obvious massive sulphide anomalies.	MRT84-2306

Survey	AIRBORNE EM	Sheffield Area
Company	CRA Exploration	
Contractor	Dighem Ltd	
Date	Jan-Feb 1981	
Report No	MRT 83-1936, MRT 82-1744 (Dighem Survey Report)	
Technique	DighemII Multicoil Frequency Domain EM using Lama VH-PDU Jet Helicopter	
Configuration	200m lines, 116km/hr, EM Bird=37m A.G.L., Geometrics G-803 magnetometer, 4x900Hz, 2 x noise, 1 x mag, 1 x radio altitude, Resolution EM=0.25ppm, Mag=1.0nT	
Aim	To locate any conductive mineralisation of significant size which is less than 70m depth	
Coverage	1434 line kms	
Data Recovery	AMG Located • 1:25 000 DighemII Anomaly Follow-Up (Plans TASh1119 & 1120) • Table 1: DighemII EM Anomaly Characteristics And Observations (13 pages). • 1:25 000 Electromagnetics (Anomaly grade on flight path) (Plans TASh447 & TASh448) • 1:25 000 Resistivity Contours (Plans TASh449 & TASh450) • 1:25 000 TMI Contours (Plans TASh453 & TASH454) • 1:25 000 Enhanced Magnetics Contours (Plans TASh451 & TASh452)	
Results	• Failed to locate any significant anomalies • 15-1000 ohm.m resistivities • Appears that conductive, relatively shallow mineralisation is unlikely to exist in the survey area • MRT 83-1936 goes into detail about anomalies and follow-up work.	

Survey	AIRBORNE EM	Sheffield Area
Company	Amax	
Contractor	Dighem Ltd	
Date	Feb 1984	
Report No	MRT 84-2306	
Technique	DighemIII Frequency Domain EM using VH-BQT Lama Turbine Helicopter	
Configuration	250m lines, EM Bird= 42m AGL, 115km/hr, Resolution EM=0.2ppm, Mag=1.0nT, 4 x 900Hz, 2 x 7200Hz, 2 x ambient noise, coarse + fine magnetics, radio altitude	
Aim	Evaluating mineral potential of license areas which contains prospective intermediate-acid volcanics	
Coverage	360 line kms (Figure 1)	
Data Recovery	AMG Located • 1:250 000 Survey Location Map (1 figure) • 1:10 000 TMI Contours (Plans 3321 & 3322) • 1:10 000 Enhanced Magnetics (Downward continued to 1/20th sensor-source distance) (Plans 3323 & 3324) • 1:10 000 Resistivity Contours (Plans 3319 & 3320) • 1:10 000 Electromagnetic Anomalies (Anomaly grade on flight path) (Plans 3317 & 3318) Aberfoyle tried to locate tapes from Amax but their source was unknown. Dighem Canada had discarded their tapes (MRT 87-2656)	
Results	• 501 anomalies were identified with 82 anomalies of grade 2 or better (75-9 mhos). Dighem detected a few weak, possible bedrock EM conductors. These, in addition to 56 of the 82 anomalies with +2 grade conductor were followed up by ground geological investigation, and where appropriate rock chip geochem. Some showed Basalt cover and were given low priority. None of the anomalies were found to be related to surface or near-surface mineralisation. • Comparison with geological maps indicated that many of the EM highs could be connected as well-defined linear features that sub-parallel bedding direction and were interpreted as being probably related to weakly conductive lithologies such as graphitic or carbonaceous shales. EM anomalies are well distributed through areas of ` Formation andesites, but do not show an apparent trend nor linearity. A few bedrock conductors are associated with areas of low resistivity • TMI strongly defined the dominant lithologies – Gog Range Greywacke (low to monotonously flat amplitude), Beulah Formation andesites (high amplitude with rapid variability) and	

	Minnon Keratophyre volcanics (moderate amplitude with uniform variations). Small discrete highs characterize intrusive rocks. Magnetic trends occur along lithological boundaries and known bedding directions, with breaks used to map inferred faults • Resistivity maps known geology – Cambrian geology, conductive overburden, Tertiary basalts, Jurassic dolerites and Owen Conglomerate scree & rubble. • No obvious massive sulphide conductors in the area were evident • No obvious magnetic and EM correlation • No follow-up geophysics was recommended

Survey	FIXED LOOP EM	Sheffield Area
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Sep 1982	
Report No	MRT 83-1936	
Technique	VLF-EM Phoenix VLF-2 System (CRAE's)	
Configuration	RX= 25m stns TX= North West Cape?, 22.3kHz	
Aim	Routine follow-up to Dighem anomalies	
Coverage	See DighemI I anomaly map (Plans TASh1119 & 11120)	
Data Recovery	Local Grid? • VLF-EM Dip Angle & Max. Horiz. Field Strength Stacked Profiles (Plans TASh1051-1165)	
Results	See MRT 83-1936 for detailed interp.	

Survey	MAGNETICS	Sheffield
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Sep 1982	
Report No	MRT 83-1936	
Technique	Ground Mag, Geometrics G826 magnetometer	
Configuration	?5m stns	
Aim	Routine follow-up to Dighem anomalies	
Coverage	See DighemII anomaly map (Plans TASh1119 & 11120)	
Data Recovery	Local Grid? • Total Magnetic intensity Profiles (Plans TASh1052-1167)	
Results	See MRT 83-1936 for detailed interp.	

STONEBRIDGE PROSPECT

Asarco and CRAE sampling programmes found anomalous Pb values in streams draining Cambrian volcanics and potential because of proximity to Stonebridge Barite occurrence. A Department of Mines unpublished report identified position of two barite occurrences, so testing for possible base metal deposits.

CRAE found a gossan that was estimated at 150m long and 4m wide with 1% Pb, 0.13% Zn, 0.15% Cu, 18ppm Ag and 0.2ppm Au, and 300x10-6 (?10-5) SI units. They postulated its origin as:

- a basal basalt feature which is geochemically enriched,
- Or it related to a possible fault structure interpreted from ground magnetics.

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
Nov 1984	CRAE	Ground Magnetics and GENIE profiles were carried out over lines 7300mE – 8000mE (detailed interpretation in memo within MRT 85-2330). Noisy EM and mag responses whilst mapping basalt contact. No major conductors identified. IP and EM were recommended as follow-up.	MRT 85-2330
1987?	CRAE	Ground magnetics 9800N – 10850N. ULF-EM, GENIE (SE-88), Sirotem and Ground Magnetics over Gossan and surrounding area. Very noisy data from cultural features and low signal VLF-EM strength from the Yosami transmitter station in Japan.	MRT 87-2639
1989?	Aberfoyle	UTEM over lines 10200N – 13600N revealed no conductors worthy of follow-up and No Further Work was recommended.	MRT 89-3004

Survey	FIXED LOOP EM	Stonebridge
Company	Aberfoyle Resources	
Contractor	Lamontagne Geophysics	
Date	Feb 1989	
Report No	MRT 89-3004	
Technique	UTEM III System	
Configuration	RX= 50m stns, Vertical component TX= 3 x TX loops, Fbase=26.23 Hz	
Aim	To use UTEM with proper interpretation to identify geologically desirable targets. As farmland hindered optimum loop design significant accumulations of sulphides would most likely show as current gathering effects (to a large extent) (J.Silic)	
Coverage	30 line kms • 10200N-13600N	
Data Recovery	AMG Located • 1:10 000 UTEM Loop Locations (Plan GP30) • Secondary Field % Response Stacked Profiles, Continuously & Point Normalized, Loop8, Lines 10200N-11800N (18 figures) • Secondary Field % Response Stacked Profiles, Continuously & Point Normalized, Loop9, Lines 12000N-13000N (12 figures) • Secondary Field % Response Stacked Profiles, Continuously & Point Normalized, Loop10, Lines 13200N-13600N (6 figures)	
Results	• Loop layouts not ideal due to prospect within farming land. Effectiveness of technique was to be reviewed on current gathering effects in steeply dipping targets. • Some formational near-surface conductors & fence effects identified by second derivative technique. • No features indicative of sulphide accumulation No conductive bodies worthy of follow-up	

Survey	MAGNETICS	Stonebridge Prospect
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	May 1986?	
Report No	MRT 87-2639	
Technique	Ground Mag, Geometrics G-816 magnetometer	
Configuration	100m lines, 10m stns	
Aim	To map depth extension of gossan (3x10-6? SI) and mineral potential of surrounding area.	
Coverage	6.9 line kms • 9800N-10850N	
Data Recovery	AMG Located • 1:5000 TMI Contours with Data Values (Plan TASh3018)	
Results	• The gossan, whilst having a high magnetic susceptibility, did not appear to have a response.	

Survey	MAGNETICS	Stonebridge
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	1984?	
Report No	MRT 86-2530, MRT 85-2330	
Technique	Ground Mag, Geometrics G856 proton precession magnetometer	
Configuration	12.5m stns, 100m lines	
Aim	To locate massive sulphides and follow-up Genie	
Coverage	7 line kms • 7400E-8000E	
Data Recovery	Local Grid • 1:5000 TMI Profiles, Lines 7400E-8000E (7 figures)	
Results	• Noisy magnetic response due to highly changeable geology.	

Survey	MOVING LOOP EM	Stonebridge Prospect
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Nov? 1984	
Report No	MRT 85-2330	
Technique	Scintrex SE-88 Genie FDEM System	
Configuration	100m lines, 25m stns, TX-RX=100m, F.Pairs=337Hz/112Hz & 3037Hz/112Hz	
Aim	?	
Coverage	8 line kms 7300mE-8000mE	
Data Recovery	Local Grid • 1:5000 Secondary Field % Response (337Hz/112Hz & 3037Hz/112Hz) Stacked Profiles, Lines 7300E-8000E (Plans TASh2274-2281)	
Results	• Noisy EM due to highly changeable geology • Basalt on eastern line has high frequency conductive response • Some minor conductors which may need follow-up • Basically it maps the basalt but no major conductors were identified.	

GARDEN OF EDEN PROSPECT

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1982?	CRAE	Ground magnetics and VLF-EM on Dighem follow-up	MRT 83-1936
1986?	CRAE	UTEM on lines 4400E-6200E detected an anomaly at 5200E-5600E but has no associated soil anomaly. Low time constant (0.44), shallow depth plunging eastward from 50m to 80m depth and dips 50º south. Was not detected by GENIE. Drill tested with DD86GE1 but low mineral values indicated that the source was not intersected. DHEM survey did not complete whole hole as hole was blocked above postulated depth. No off-hole conductor indicated. UTEM remained unexplained	MRT 86-2530, MRT 86-2531, MRT 87-2639

Survey	DOWN HOLE EM	Garden of Eden Grid
Company	CRA Exploration	
Contractor	Geoterrex Limited	
Date	Nov 1986	
Report No	MRT 87-2639	
Technique	Geoterrex EM37 System	
Configuration	RX= DD86GE1, ch1=88.5usec, Crystal sync, 256 cycles TX=200mx200m, Toff=120usec, I=16A, F=25Hz	
Aim	To test for UTEM conductor not explained by drilling	
Coverage	10-90 m	
Data Recovery	Local Grid • 1:1000 Axial Secondary Field Response (nV/Am2) Stacked Profiles (Plan TASh3288)	
Results	• PVC cased hole blocked above postulated conductor depth • No end of (surveyed) hole off-hole conductors were seen so UTEM anomaly remains unexplained	

Survey	FIXED LOOP EM	Garden of Eden
Company	CRA Exploration	
Contractor	Lamontagne Geophysics	
Date	Mar 1985	
Report No	MRT 86-2530	
Technique	UTEM III System	
Configuration	RX= 25m stns, vertical component; TX= Fbase=26.23 Hz	
Aim	To test for massive Pb-Zn mineralisation related to geochemical anomalies and Barite occurrences at Beulah Possibly encounter Cu mineralisation in vicinity of an IP and geochem anomaly	
Coverage	10.6 line kms • 4400E-6200E	
Data Recovery	AMG Located • 1:5000 UTEM Conductor Traces Plan (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2639) • 1:5000 UTEM Ch4 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2636) • 1:5000 UTEM Ch5 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2637) • 1:5000 UTEM Ch6 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2638) • 1:2500 Secondary Field % Response Stacked Profiles, Point & Continuously Normalized, Loop1, Lines 4400E-5600E, (Plans TASh2786-2781, 2780-2772) (Fraser Filtered for crossovers to become peaks – a guide to anomaly position)	
Results	• Maps conductivity variation between various lithologies (shales, Beulah Formation). Number of smaller, narrow and therefore shallower responses correlated to some extent with the stratigraphy. Other conductors too shallow to be due to sulphide bodies • Broad, low time constant anomaly on eastern end of grid at 5200E-5600E. Modelled as plunging to east from 50m to 80m depth, 50 dip correlates to geology, Tau=0.44S (<massive sulphides). No geochem anomaly. No GENIE response. DD86GE1 was drilled to test this UTEM conductor. Haematite alternation throughout the hole with low min values (Cu<170ppm, Pb<30ppm, Zn<230ppm, Ag<14ppm). • Was recommended to extended grid eastward to test possible	

	east plunging extension of the anomaly

Survey	FIXED LOOP EM	Garden of Eden
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	1982?	
Report No	MRT 83-1936	
Technique	VLF-EM Phoenix VLF-2? (CRAE's)	
Configuration	TX= North West Cap?, 22.3kHz	
Aim	Routine follow-up on Dighem anomalies in conjunction with ground magnetics.	
Coverage	5.4 line kms • 4800E-5600E	
Data Recovery	AMG Located • 1:5000 TMI Contours (Plan TASh1231)	
Results	?	

Survey	MAGNETICS	Garden of Eden
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	1982?	
Report No	MRT 83-1936	
Technique	Ground Mag, Geometrics G816 magnetometer	
Configuration		
Aim	Routine follow-up on Dighem anomalies in conjunction with VLF-EM.	
Coverage	5.4 line kms • 4800E-5600E	
Data Recovery	AMG Located • 1:5000 TMI Contours (Plan TASh1231)	
Results	?	

GOG RANGE PROSPECT

In the 1970's Asarco's regional stream seds programme located anomalous Cu (260ppm), Pb(260ppm) and Zn(1600ppm) values in four creeks draining the west end of the Gog Range. They put a grid in for mapping and soil sampling with four geochem anomalies recognised. In 1983 CRAE tried gold sampling. Rhyolitic dome found in centre of prospect generated Genie coverage.

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1982	CRAE	Reconnaissance ground magnetics and PEM over the best Cu geochem and Dighem anomaly 126xB was undertaken. Disappointing results but slightly anomalous response to west was followed-up with Ground Magnetics, VLF-EM, SP and additional soil sampling over the extended grid (detailed interp in MRT 83-1936). Ground magnetics revealed two magnetic zones exhibiting near surface characteristics but were thought to be lithological related. VLFEM revealed the strong character change between the Cambrian volcanics and sediments in the north and Ordovician Roland Conglomerates in the south. SP was dominated by Cambrian-Ordovician contact, but moderate SP anomalies coincide with VLF-EM, geochem and PEM anomalies.	MRT 83-1936
Aug 1985	CRAE	GENIE over lines 35E-41E for sulphides at shallow depth. No conductor anomalies were found over major soil anomalies although a small anomaly was detected on westernmost line 35E (is in vicinity of a Zn anomaly and a western Zn & Pb anomaly). A single line of IP was recorded over line 45E after which the system broke down. A slight rise in chargeability was detected at southern end of line but was thought not to be due to concentration of sulphides.	MRT 86-2530
Jul 1986	CRAE	GENIE over lines 29E, 31E, 34E, 43E-53E to map small anomaly detected earlier. Near surface anomaly but does not agree with long time constant so no further work was suggested. A number of weak conductor responses attributed to alteration and lithologic effects. VLF, GMag, and Crone PEM showed no major evidence of a major sulphide body and geochem anomaly was put down to local concentrations in	MRT 87-2639

		selected lithologies.	

Survey	SP	Gog Range
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Sep 1982	
Report No	MRT 83-1936	
Technique	Self Potential	
Configuration	100m lines, 25m stns	
Aim	To map mineralisation associated with Cu & Zn soil anomaly	
Coverage	5.21 line kms 2100mE-2700mE	
Data Recovery	Local Grid 1:2500 Self Potential values (Plan TASH882) 1:2500 Self Potential Contour Plan (Plan TASH883)	
Results	Response is dominated by Cambrian-Ordovician contact Most significant response is on 2500-2580m at 4850mN and coincides with VLF-EM, geochem and PEM anomalies.	

Survey	FIXED LOOP EM	Gog Range
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	1982	
Report No	MRT 83-1936	
Technique	VLF-EM Phoenix VLF-2 System (CRAE'S)	
Configuration	100m lines, 10m stns TX= North West Cape?, 22.3kHz	
Aim	Locating DighemI I anomalies on the ground as routine follow-up along with magnetics	
Coverage	• 5.8 line kms • 2100mE-2700mE	
Data Recovery	• Local Grid • 1:2500 VLF-EM normalized dip contours (Plan TASh1112) • 1:2500 VLF-EM normalized dip data values (Plan TASh1110) • 1:2500 VLF-EM Max. Horiz. Field Strength % Contours (Plan TASh1113) • 1:2500 VLF-EM Max. Horiz. Field Strength % Data Values (PlanTASh1111) • Dip Angle and Max. Horiz. Field Strength % Profiles, Lines 2100mE-2700mE (7 figures)	
Results	• Failed to locate targets worthy of follow-up • MRT 83-1936 goes into detail about VLF results for each line.	

Survey	MOVING LOOP EM	Gog Range
Company	CRA Exploration Pty Ltd	
Contractor	?	
Date	July? 1986	
Report No	MRT 87-2639	
Technique	Scintrex SE-88 Genie FDEM System	
Configuration	Topofill & compass line locations; 200m lines, 25m stns TX-RX= 75m, Slingram, TX to the north, , 112.5/337.5/3037.5 Hz,	
Aim	Westerly extension to 1984/85 survey to follow-up small anomaly (line 35E)	
Coverage	1.35 line kms • 29E, 31E, 34E, 43E, 45E, 47E, 49E, 51E, 53E	
Data Recovery	Local Grid • 1:2500 Secondary Field % Response (3037Hz/112.5Hz & 337Hz/ 112.5Hz) Stacked Profiles, Line 29E-53E (Plans TASh3103-3111)	
Results	• Anomaly on line 35E was not evident 100m west on line 34E • A weak anomaly at 47E 4810N to 45E 4860N coincides with a geochem anomaly. Was modelled as 20m to top, Tau=600S. Observed response is too small for this high Tau so was concluded to be too small to be a significant massive sulphide body • No further work was recommended	

Survey	MOVING LOOP EM	Gog Range Grid
Company	CRA Exploration	
Contractor	CRA Exploration	
Date	1986?	
Report No	MRT 86-2530	
Technique	Scintrex SE-88 Genie FDEM System	
Configuration	25m stns, 112.5/337.5/3037.5 Hz, Tx-RX=100m	
Aim	• To investigate the possibility of massive sulphide body at shallow depth being the source of high Pb, Zn & Cu values. • Answer rapidly and inexpensively on a number of lines across the main part of the anomalies • Follow-up UTEM anomalies on 2000W to 2300W near Beulah to test them (one on the volcanic/sediments contact)	
Coverage	1.4 line kms • 35E, 37E, 39E, 41E	
Data Recovery	Local Grid • 1:2500 Secondary Field % Response (3037Hz/112.5Hz & 337Hz/ 112.5Hz) Stacked Profiles, Lines 35E-41E (Plans TASh2791-2794)	
Results	• The conductor on 35E is just up the hill from the Zn anomaly and there is a stronger coincident Zn/Pb anomaly just to the west. No conductors associated directly with geochem anomalies, except for small anomalies at base of cliffs, which may be due to faulting. • Data was very affected by geological noise but indicated considerable difference between the conductivity of various units in the area. No clear conductive response was detected. • Therefore inferred that no sizeable massive sulphide body within 80m of surface exists.	

Survey	MAGNETICS	Gog Range Wet
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Nov 1982	
Report No	MRT 83-1936	
Technique	Ground Mag, Geometrics G836 magnetometer	
Configuration	2m Sensor height, 100m lines, 10m stns	
Aim	Locating Dighem anomaly and routinely with VLF-EM	
Coverage	5.6 line kms • 2100mE-2700mE	
Data Recovery	Local Grid • 1:2500 TMI Contours (Plan TASh950) • 1:2500 TMI Data Values (Plan TASh949)	
Results	• Failed to locate targets worthy of follow-up • MRT 83-1936 goes into detail about each anomalies follow-up	

STAR OF THE WEST PROSPECT

Numerous trenches and adits were used to explore the Cambrian quartz-porphyry and slates on which the gold is reported to occur but economic exploitation never began!!!

No geophysical coverage.

LOWER BEULAH PROSPECT

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1966	BHP	Airborne magnetics	MRT 95-3752
1984	Amax	DighemII	MRT 95-3752
1987	CRAE/ Asarco	DighemIII	MRT 95-3752
1987	Aberfoyle	UTEM on Sharmans grid (Anomaly 1) on 5400N-6800N & 2200E-2400E over Cambrian volcanics hosting anomalous geochem	MRT 88-2805, MRT 91-3318
1989	Aberfoyle	Ground magnetics at 47600E-51800E mapped geology/ lithological boundaries and was used to assist geological interpretation.	MRT 90-3126
Aug 1993	RGC	Ground magnetics north of the Aberfoyle grid along 1200N-3200N. Data merged with Aberfoyle's 1989 survey.	MRT 94-3588
Aug 1994	RGC	Ground magnetics over easterly grid extension (Beulah-Mersey River grid) along 52600E-54400E. Data merged with Aberfoyle's 1989 data and RGC's 1993 Mersey Valley dataset.	MRT 95-3752
Dec 1989	Aberfoyle	UTEM at Lower Beulah mapped lithologies and boundaries but no conductors were identified.	MRT 90-3126, MRT 91-3318, MRT 97-3752

Survey	FIXED LOOP EM	Sharman
Company	Aberfoyle Resources Ltd	
Contractor	Lamontagne Geophysics	
Date	Aug 1987	
Report No	MRT 88-2805	
Technique	UTEMIII System	
Configuration	RX= 50m stns, Vertical component TX= 2xTX loops (Loop1=1000x1400m, Loop2=1000x800m), Fbase=26.23Hz	
Aim	Routine UTEM over anomalous zone Anomaly 1 which has elevated Pb values	
Coverage	14 line kms Loop1= 5400N-6800N Loop2= 2200E-3200E	
Data Recovery	AMG Located • 1:25 000 Location of UTEM Loops (Plan BEUL9) • % Secondary Field Response stacked profiles – point and continuously normalised, Loop 1, Lines 5400N-6800N (16 figures) • % Secondary Field Response stacked profiles – point and continuously normalised, Loop 2, Lines 2200E-3200E (13 figures)	
Results	• Data generally of good quality • Some lithological conductors, fences, etc • No response due to accumulation of massive sulphides as depth was interpreted.	

Survey	FIXED LOOP EM	Lower Beulah
Company	Aberfoyle Resources Ltd	
Contractor	Lamontagne Geophysics	
Date	Dec 1989	
Report No	MRT 90-3126	
Technique	UTEMIII System	
Configuration	RX= 50m stns, vertical component, ch's 1-10=19.06-0.019msec; TX= 3 x Txloops (Loop3=1800x1400m, Loop4=1700x1000m, Loop5=1500x1000m), Fbase=26.23Hz	
Aim	?	
Coverage	32 line kms Loop3= 48200E-49800E Loop4= 10200N-11600N Loop5= 10200N-11600N	
Data Recovery	AMG located • 1:25 000 UTEM Loops Location Plan (Plan BEUL9/A) • 1:10 000 UTEM Loops Location Plan (Plan BEUL32) • % Secondary Field Response stacked profiles – point and continuously normalised, Loop 3, Lines 48200E-49800E (18 figures) • % Secondary Field Response stacked profiles – point and continuously normalised, Loop 4, Lines 10200N-11600N (18 figures) • % Secondary Field Response stacked profiles – point and continuously normalised, Loop 5, Lines 10200N-11600N (18 figures)	
Results	• All conductors are related to formational sources either: - conductive masses contained within stratigraphic units, -variations in conductivity of alluvial overburden weathering troughs, -or faults and shears. These dominate early time channels and are shallow features. • General relationship exists between conductor boundaries and features defined from the mag interp (faults, contacts…) • Downgrades possibility of sulphide mineralisation. • No Further Work recommended.	

SIMONDS GRID

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1985	CRAE	UTEM on lines 2000W-2600W, with an anomaly in a favourable geological position along strike from the Beulah Barite and ~100m from major geochem anomaly, but response indicated a low time constant (0.6 msec – but on limit of Hellyer response) thin dyke or block. Re-tested using VLF-EM to see if any surficial enhancement of the body though current channelling effects. No MHFM but anomalous dip angle north of UTEM anomaly. Tested with GENIE with success on 2000W-2300W. All indicate a narrow, pipe-like body, thickening vertically as it plunges to the west, low conductivity and geochem anomaly (Pb & Zn). No major conductors within 500m of Beulah Barite!!!!	MRT 86-2530
1987?	CRAE	UTEM anomaly was drilled tested with DD86SM1 & DD86SM2. Low metal values suggested conductor was not intersected. DHEM using SIROTEM was conducted on both holes and showed the black shales to be conductive but no discrete conductors were noted.	MRT 87-2639

Survey	DRILL HOLE EM	Simonds Grid
Company	CRA Exploration	
Contractor	?	
Date	1986	
Report No	MRT 87-2639	
Technique	Sirotem System	
Configuration	DD86SM1 (2205W 5495N, 328º magN, 55º) DD86SM2 (2050W 5502N 150º magN)	
Aim	To test for UTEM conductors	
Coverage	?	
Data Recovery	CONTRACTORS LOST DATA SO NONE IS AVAILABLE	
Results	• Maps conductive black shales • No variations due to discrete off-hole conductors were evident	

Survey	FIXED LOOP EM	Simonds Grid
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	1986?	
Report No	MRT 86-2530	
Technique	VLFEM Phoenix VLFI system (CRA owned)	
Configuration	TX= North West Cape, 22.3KhZ RX= 25m stns	
Aim	• Follow-up to 1985 UTEM survey. To detect any surface conductivity problems that might have affected the major UTEM anomalies (surface current channelling effects on 2100W) • Testing a gossan	
Coverage	2000W, 2100W	
Data Recovery	NO DATA LOCATED	
Results	• 2100W – no anomalous max horizontal field measurements but dip angle showed a broad anomaly at 5525N (50m north of UTEM anomaly). Thought unlikely to be same source as UTEM as the dip differs • 2100W 5170N strongly pronounced conductor. Did not appear on UTEM so was assumed to be very localized – possibly associated with fault with shallow weathering	

Survey	FIXED LOOP EM	Simonds Grid
Company	CRA Exploration	
Contractor	Lamontagne Geophysics	
Date	1985	
Report No	MRT 86-2530	
Technique	UTEM III System	
Configuration	RX=100m lines, 25m stns, vertical component; TX= Fbase=26.23 Hz	
Aim	To test for massive Pb-Zn mineralisation related to geochemical anomalies and Barite occurrences at Beulah Possibly encounter Cu mineralisation in vicinity of an IP and geochem anomaly	
Coverage	6.3 line kms 2000W-2600W	
Data Recovery	AMG Located • 1:5000 UTEM Ch4 Response, Point Normalised (Plan TASh2757) • 1:2500 Secondary Field % Response, Continuously Normalized, Loop3, Lines 2000W-2800W (Plans TASh2758-2766) • 1:2500 Secondary Field % Response, Point Normalized, Loop3, Lines 2000W-2200W (Plans TASh2743-2745) • 1:5000 UTEM Conductor Traces Plan (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2639) • 1:5000 UTEM Ch4 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2636) • 1:5000 UTEM Ch5 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2637) • 1:5000 UTEM Ch6 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2638) (Fraser Filtered for crossovers to become peaks – a guide to anomaly position)	
Results	• Maps conductivity variation between various lithologies (shales, Beulah Formation) • No major conductors within 500m of Barite anomaly Broad short time constant anomaly was not previously obvious on eastern end at 2000W –2300W. No coincident VLF response, therefore not a shallow effect. GENIE defined it also being shallowest at location of the geochem anomaly. Modelled as a northerly plunging dyke or block at 60-75m depth, tau=0.6msec. Drill-tested for steeply dipping conductors with scissor pair DD86SM1 (2205W 5495N) and DD86SM2 (2050W 5502N). Both	

	showed low metal values (Cu<100ppm, Pb<60ppm, Zn<175ppm, Au<0.42ppm).

Survey	MOVING LOOP EM	Simonds Grid
Company	CRA Exploration	
Contractor	CRA Exploration	
Date	1986?	
Report No	MRT 86-2530	
Technique	Scintrex SE-88 Genie FDEM System	
Configuration	25m stns, 112.5/337.5/3037.5 Hz, Tx-RX=100/50m	
Aim	• To investigate the possibility of massive sulphide body at shallow depth being the source of high Pb, Zn & Cu values. • Answer rapidly and inexpensively on a number of lines across the main part of the anomalies • Follow-up UTEM anomalies on 2000W to 2300W near Beulah to test them (one on the volcanic/sediments contact)	
Coverage	1.45 line kms • 2000W-2300W	
Data Recovery	Local Grid • 1:2500 Secondary Field % Response (3037Hz/112.5Hz & 337Hz/ 112.5Hz) Stacked Profiles, Lines 2000W-2300W (Plans TASh2787-2790)	
Results	• GENIE successfully located the UTEM conductor as the method is not as susceptible to contacts between rocks of contrasting conductivities, ~100m from main geochem anomaly. GENIE depth was shallower than UTEM. Modelled not as a thin dyke but a more spherical model, possibly of limited depth extent, Sigma-T <10 (agrees with UTEM). • Drilling was recommended	

* MRT 86-2530, CRA Exploration Report, Previous Tasmanian work suggested that Genie depths are shallower than UTEM depths by 10-15%

IRELAND PROSPECT

Initiated from a discrete bullseye aeromagnetic anomaly located at head of a creek where Asarco obtained anomalous stream seds.

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1983	CRAE	Ground magnetics over lines 1 to 4 to locate the aeromagnetic anomaly. Anomaly put down to andesitic lava containing primary magnetite – no anomalous soil values. No Further Work was recommended.	MRT 84-2091

Survey	MAGNETICS	Ireland
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Dec 1983	
Report No	MRT 84-2091	
Technique	Ground Mag, Geometrics G826? magnetometer	
Configuration	12.5m stns	
Aim	Ground follow-up of aeromagnetic bullseye anomaly at the headwaters of a creek in which Asarco obtained anomalous stream seds.	
Coverage	2 line kms • Traverses 1,2,3 & 4	
Data Recovery	AMG Located • 1:25 000 Location Diagram (Plan TASh1568) • 1:500 TMI Profiles (Plan TASh1567)	
Results	• Magnetic anomaly found to be due to andesitic lava containing primary magnetite • No anomalous soil values	

MT ROLAND – WEST MT ROLAND PROSPECT

DighemI I defined a coincident EM and bullseye magnetic anomaly 500m north of Mt Roland grid. Grid extended to cover this.

Was geophysically concluded that the prospect is uninteresting. Even if mineralisation was disseminated some EM response is expected – now was forthcoming. This section of the prospect only survives on ambiguous geochem. And bedrock geochem followed-up with IP on anomalous ones was recommended (MRT 83-2010)

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
Mar 1979	CRAE	IP defined more than two zones (A&B) of high chargeability with resistivity revealing a rather complex structure. Two trenches were bulldozed to examine the chargeability zones – no anomalous base metal mineralisation! Drill hole DD80MR1 targeted zone B and intersected up to 20% pyrite but low base metals.	MRT 83-2010
Feb 1981	CRAE	DighemI I	
Jun 1981	CRAE	DighemI I bullseye aeromagnetic anomaly with corresponding minor EM was located 500m north of Mt Roland grid. Grid extended (Mt Roland West Grid) and covered with soil sampling, ground mag and PEM	MRT 83-2010
1984?	CRAE	M.Flis' reinterpretation of 1984 UTEM identified a block conductor on four lines that was consistent with ground magnetics. PD84MR2 tested the anomaly. Magnetic susceptibility values indicated that the magnetic unit interpreted adjacent to the conductor was intersected. DHEM of PD84MR2 indicated that the highly conductive surface is source of UTEM – no conductors detected. No Further Work was recommended	MRT 85-2330
1989	?	As a result of favourable geology and geochemistry results UTEM was undertaken which showed no massive sulphide response. No Further Work was recommended.	MRT 90-3153

Survey	DRILL HOLE EM	Mt Roland
Company	CRA Exploration	
Contractor	Geoterrex Pty Ltd	
Date	Sep 1984	
Report No	MRT 85-2330	
Technique	Geoterrex EM37 System	
Configuration	TX= 4 loops@1x100mx100m, I=2A, F=25Hz, Toff=120usec, RX= PD84MR2, 2m stns, Crystal sync, 256 cycles	
Aim	To locate off-hole conductors from UTEM missed by drilling	
Coverage	0-96m	
Data Recovery	Local Grid • 1:500 Axial Secondary Field Response (nV/Am2) Stacked Profiles (4 Figures)	
Results	• Surface effects to 35m • Broad response at 0-70m interested as normal signal drop-off which is distorted by high surface conductivity – initially thought as being an off-hole conductor • Surface variation believed to be source of the UTEM anomaly	

Survey	IP	Mt Roland
Company	CRA Exploration	
Contractor	Geoterrex Limited	
Date	Mar 1983?	
Report No	MRT 83-2010	
Technique	25m dip-dip Time Domain IP using Huntec MkIV	
Configuration	100m lines, n=1-6, battery powered TX, roll-along method, 2sec on 2 sec off, Integration time= 450-1100msec	
Aim	Detailed coverage on SE grid extension over chargeability zone	
Coverage	2.7 line km's • Lines 1000E, 1100E, 1200E-1500E	
Data Recovery	Local Grid • 1:1250 IP & Resistivity Psuedosections, Lines 1000E-1500E (Plans TASh1443, 1444, 1437-1440)	
Results	No written information was found on this survey! (Very confusing!)	

Survey	IP	Mt Roland
Company	CRA Exploration	
Contractor	?	
Date	Mar 1979	
Report No	MRT 83-2010	
Technique	Dip-dip IP	
Configuration	50m dip-dip, n=1-2	
Aim	?	
Coverage	6.7 line kms • 600E-1500E	
Data Recovery	Aerial Photograph Located • ~1:5500 Chargeability Contours n=1 (Plan TASh1446) • ~1:5500 Chargeability Marker Traces (Plan TASh1448) • ~1:5500 Resistivity Contours n=1 (Plan TASh1445) • ~1:5500 Resistivity Marker Traces (Plan TASh1447)	
Results	• Roll-along with n=1-2 progress was almost as rapid as gradient array surveying whilst still providing some depth control (MRT 83-2010) • Outlined two chargeability zones • Zone A is a narrow source associated with a resistivity low. Was thought it may be due to pyrite-chalcopyrite mineralisation. Was recommended that 50m dip-dip IP on 900E to test for an along strike extension of conductor A at depth. Appears to run through an old adit where galena is present. • Zone B is broader and perhaps a multi-source anomaly not particularly conductive which may represent galena-sphalerite mineralization. Traced over 400m, • Chargeability contours indicated SE corner of grid worthy of follow-up with detailed IP.	

Survey	MAGNETICS	Mt Roland
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Jun 1981	
Report No	MRT 83-2010	
Technique	Ground Mag, Geometrics G826? magnetometer	
Configuration	12.5m stns, 100m lines, 2m sensor height,	
Aim	Follow-up bullseye anomaly from Dighem II which indicated a discrete equi-dimensional magnetic body at 100-140m depth within generally depressed magnetics	
Coverage	20 line kms • Lines 600E-900E	
Data Recovery	Local Grid • TMI Stacked Profiles (Plan TASh253) • Line 600mE Modelled Section (1 figure) AMG Located • 1:25 000 Mt Roland Aeromagnetic Anomaly Contour Plan (2 figures)	
Results	• Magnetite thought to be the main contributor to the observed response • DighemII indicated magnetite by way of negative in-phase response observed in EM • Anomalies correlate with geochem, strongest with high frequency magnetics indicating a near surface geochem source • Modelled as small dyke-like body @ 45m, with 40m, 65º dip, susceptibility contrast 0.08 SI (see attached figure)	

Survey	FIXED LOOP EM	Mt Roland
Company	Aberfoyle Resources	
Contractor	Lamontagne Geophysics	
Date	Dec 1989	
Report No	MRT 90-3153	
Technique	UTEMIII System	
Configuration	RX= 50m stns, 200m lines, 10 ch's= 0.028-14.3msec, vertical component TX= Fbase=26.23 Hz	
Aim	Follow-up favourable geology and geochemistry to locate massive sulphides	
Coverage	6.5 line kms • Lines 600E-1400E • (Stations 0N-500N used Loop1) • (Stations 500N-1400N used Loop2)	
Data Recovery	AMG Located • 1:25 000 UTEM Survey Interpretation (Plan GWP37) • 1:1000 Secondary Field Response stacked profiles, Continuously & point normalised, Loop1, Lines 600E-1400E (10 figures) • 1:1000 Secondary Field Response stacked profiles, Continuously & point normalised, Loop2, Lines 600E-1400E (10 figures)	
Results	• No EM responses indicative of massive sulphides • Not surveyed for flat lying conductors 200-300m from loo edge • Mapped two faults	

Survey	FIXED LOOP EM	Mt Roland
Company	CRA Exploration	
Contractor	?	
Date	Jun 1981	
Report No	MRT 83-2010	
Technique	Crone PEM System	
Configuration	RX= 50m stns, small roving loop, vertical & horizontal field TX= 1x100mx100m loop	
Aim	Follow-up coincident Dighem and bullseye aeromagnetic anomaly	
Coverage	0.85 line kms • 600mE-900mE	
Data Recovery	Local Grid • Tabulated Vertical & Horizontal Channel Responses (1 page)	
Results	• Failed to locate anomalous conductor • All values are very low – indicating a resistive environment – and confined to first few channels • No crossovers in vertical field or persistent positive anomalies in horizontal field.	

BEULAH-BARITE PROSPECT

Extensively explored because it contains a suite of Cambrian volcanics considered to be the northern extension of the Mt Reid Volcanic Belt and hence prospective for volcanogenic mineralisation. The Beulah Barite occurs as veins parallel to schistosity in a broad sheared zone encompassing the boundary between andesites of the Cambrian Beulah Formation and sericitic schists of the Cambrian Gog Range Greywacke.
Aberfoyle's primary target is Volcanogenic Massive Sulphides.
RGC saw potential for containment of volcanic hosted massive sulphide mineralisation within intermediate Cambrian Volcanic rocks.

DATE	COMPANY	GEOPHYSICAL COVERAGE	REPORT
1973	Dept. Mines	Gravity survey to ascertain barite tonnage potential. Indicated relatively small potential resource but the survey was not extensive enough to test possible base metal mineralisation along strike and to north of barite prospect.	MRT 83-1936, MRT 95-3752
1983?	CRAE	Follow-up of Dighem II's EM and aeromagnetic anomalies. Few anomalies were significant (ie mostly cultural or not basalt related). Ground magnetics mapped an intense, near surface magnetic zone within which the main barite workings occurred. Possibly related to shearing along the Beulah Formation/Gog Range Greywacke boundary.	MRT 83-1936
1983	CRAE	VLF-EM and magnetics were undertaken simultaneously over anomalies. VLF-EM mapped two major conductive zones. More diagnostic deeper penetrating EM was recommended. UTEM on 3W-2E to test for massive Pb min associated with ?stratabound barite deposit detected several weak, short time constant anomalies generally coincident with VLF-EM responses. A drill hole was recommended to test the major 3-5 Siemen conductor at 25-30 m depth along the southern edge of the prospect	MRT 83-1936, MRT 84-2089
May 1983	CRAE	PD83BB1 was targeted at the abovementioned conductor and intersected a sequence of dark grey quartzites and argillites with minor reef quartz. 16m of graphitic shales were intersected within the target zone (50m depth). No significant mineralisation was intersected.	MRT 84-2091
1984?	CRAE	M.Flis' reinterpretation of 1983 UTEM resulted in	MRT 85-2330

		two drill targets being interpreted. One was found to occur within gravity anomaly zone. Two drill holes PD84BB2 & PD84BB3 tested this combined UTEM, geochem and gravity target but failed to intersect significant base metals. BB2 may have missed target if the target was conformable as suggested by barium values at base of hole. BB4 may not have adequately tested the down-dip extensions of the conductor. DHEM on these two holes did not identify any off-hole conductors although the data was noisy. Gravity on 800mE (old line 2W) obtained more information about the two EM conductors (B-short lived conductor & D-finite conductor) which had been proposed for drilling DHEM on PD83BB1 showed no anomalous response, PD84BB2 indicated two of-hole conductors and PD84BB3 intersected the UTEM target. Four drill holes identified Beulah Barite as stratabound and identified possible weak base-metal hanging wall halo.	
Feb 1985	CRAE	Grid extended east to join Garden of Eden and to the west (BB Extended) and further west to Simonds. UTEM and GMag routinely on all the grids. Two of the UTEM anomalies tested with GENIE to confirm them. Magnetics threw no light on prospectivity of UTEM anomalies but useful for geological mapping. UTEM mapped volcanic-seds contact and numerous shallow anomalies often along contacts. DHEM on BB4 & BB5. BB4 was most favourable geologically and geochemically but was caved in half way down. BB5 was surveyed to full depth using two loops but no conductors were evident.	MRT 86-2531
1987?	CRAE/ ASARCO	Ground magnetics, UTEM and DighemII.	MRT 95-3752
May 1989	Aberfoyle	Ground Magnetics on 49000E-51700E	MRT 89-3004
Oct 1989	Aberfoyle	BB6 drilled a geological target beneath previous depths and below the level of effective UTEM coverage aimed at prospective sed/lava and lava contact in vicinity of Beulah Barite. Did not intersect a target footwall position. DHEM on BB6 indicated no off-hole conductor. No Further	MRT 90-3153

		Work recommended.	
Aug 1993	RGCE	Ground magnetics over lines 1200N-3200N as extending exploration to the north. Northern andesites had a stronger magnetic response than the southern andesites. These less magnetic andesites typically have higher base-metal contents.	MRT 94-3588
Aug 1994	RGCE	Ground magnetics, as an extension to the Aberfoyle's 1992 survey, over 52600E-54400E. Merged with RGCE's 1993 and Aberfoyle's data.	MRT 95-3752

Survey	DOWN HOLE EM	Beulah Barite
Company	Aberfoyle Resources	
Contractor	Geoterrex Pty Ltd	
Date	Oct 1989	
Report No	MRT 90-3153	
Technique	Geoterrex EM37 System	
Configuration	DDHBB6 TX=300mx300m, Fbase=25Hz, Toff=220usec RX=20m stns, Axial component	
Aim	Drill hole did not intersect a target footwall position so testing a possible off-hole conductor	
Coverage	20-380m	
Data Recovery	AMG Located 1:10 000 Loop Location Plan (Plan GP46) Secondary Field Response Stacked Profiles (1 figure)	
Results	?	

Survey	DOWN HOLE EM	Beulah Barite
Company	CRA Exploration	
Contractor	Geoterrex Limited	
Date	Sep 1984	
Report No	MRT 85-2330	
Technique	Geoterrex EM37 System	
Configuration	BB1, BB2, BB3 TX= 4 loops @ 100mx100m, Toff=120usec, I=26A, F=25Hz RX= 2m stns, Crystal sync	
Aim	To locate possible off hole conductors that UTEM sighted drill holes had not intersected.	
Coverage	• BB1= 0-100m • BB2= 0-90m • BB3= 0-76m	
Data Recovery	Local Grid • 1:500 Secondary Field Axial Response (nV/Am2) (9 figures)	
Results	• BB1 – surface effects to 45m depth, No deeper anomalous responses • BB2- two narrow conductors were located both <2m width. First at 53m as near vertical, limited strike extent and second at 73m in UTEM conductor location as narrow, weakly conductive body, steep dip, probably a fault • BB3 – felt that UTEM source was detected in the hole (fault zone), no other discrete conductors, increase in response EOH suggesting body <20m off hole, but low conductivity so not massive source.	

Survey	DOWN HOLE EM	Barite Beulah Prospect
Company	CRA Exploration	
Contractor	Geoterrex Pty Ltd	
Date	Feb 1985	
Report No	MRT 86-2531	
Technique	Geoterrex EM37 System	
Configuration	DD85BB4 & DD85BB5 TX= 200x200m, 25Hz, Toff=160-186usec, 14-16Amps RX= 5m stns, ch1=88.5usec, 256 cycles, Crystal sync, axial component	
Aim	Follow-up to locate UTEM anomaly not confirmed by drilling	
Coverage	• DD85BB4= 10-210m • DD85BB5= 10-90m	
Data Recovery	AMG Located • 1:5000 Loop Location Plan (TASh2639) • 1:500 Secondary Field Axial Response (nV/Am2) Stacked Profiles BB4 (Plans TASh2871-2873) • 1:500 Secondary Field Axial Response (nV/Am2) Stacked Profiles BB5 (Plans TASh2874)	
Results	• DD85BB4 was caved in half way down so only logged with one TX loop. No conductors evident • DD85BB5 logged to full depth with two TX loops. No off-hole conductors were noted. • UTEM anomaly is of low time constant and of low order so was thought to be due to minor geological variations	

Survey	MAGNETICS	Beulah Grid
Company	RGC Exploration	
Contractor	RGC Exploration	
Date	Aug 1993	
Report No	MRT 94-3588	
Technique	Ground mag, Geometrics G856 Magnetometer	
Configuration	Base= G856, 10sec cycle Roving= G856, 100m lines, 5m stns	
Aim	To test prospective Beulah Formation to north of a Zn soil anomaly	
Coverage	1200N – 3200N (overlaps north edge of Aberfoyle's Beulah Grid)	
Data Recovery	AMG Located • 1:10 000 Contours (RGC + Aberfoyle merged data sets) (Plan3)	
Results	• Provided detailed mapping contacts & magnetic lineaments (45º, 310°). Mapped Beulah Granite west of 447900E, non-magnetic Gog Range Greywacke 447800E – 448400E and andesitic Beulah SE of 448400E • Lows marked as ML1 (449300E 5410500N) & ML2 (450200E 5410150N) are within the Beulah Formation and may indicate magnetite destructive alternation. Geological and geochemical investigation was recommended	

Survey	MAGNETICS	Beulah-Barite Grid
Company	Aberfoyle Resources	
Contractor	?	
Date	May 1989	
Report No	MRT 89-3004	
Technique	Ground Mag	
Configuration	200m lines	
Aim	?	
Coverage	5.6 line km's • 49000mE-51500mE	
Data Recovery	AMG Located • 1:10 000 TMI Contour Plan (Plan GP13)	
Results	• Maps lithology, structure, faults and sediment-lava contact - Beulah Formation lavas are quite variable but high in amplitude, sediments of the Gog Range Greywacke are magnetically quiet • Beulah-Barite (50700E 8700N) occurs within the quiet area, but close to interpreted Gog Range/Beulah Formation contact	

Survey	MAGNETICS	Lower Beulah Grid
Company	Aberfoyle Resources	
Contractor	Aberfoyle Resources/ Highland Exploration	
Date	1989	
Report No	MRT 90-3126	
Technique	Ground Mag, EDA Omni IV magnetometer	
Configuration	100m lines, 10m stn	
Aim	?	
Coverage	Data sets merged	
Data Recovery	AMG Located • 1:10 000 TMI contour plan (50nT, median filtered) (Plan BEUL28)	
Results	• Maps magnetite depleted contacts & fracture set, magnetic Devonian Granites and correlates well with known geology. Interpretation may be used to extend known geological structures and boundaries beneath cover (ie mapping) • Magnetic highs coincide with intense epidote/quartz alteration and pervasive haematite alteration	

Survey	FIXED LOOP EM	Beulah Extension Grids
Company	CRA Exploration	
Contractor	Lamontagne Geophysics	
Date	Mar 1985	
Report No	MRT 86-2530	
Technique	UTEM III System	
Configuration	RX= 100m lines, 25m stns, vertical component TX= Fbase=26.23 Hz	
Aim	To test for massive Pb-Zn mineralisation related to geochemical anomalies and Barite occurrences at Beulah Possibly encounter Cu mineralisation in vicinity of an IP and geochem anomaly	
Coverage	3.5 line kms • 400W-800W	
Data Recovery	• 1:5000 Secondary Field % Response Stacked Profiles, Loop2, Lines 400W-800W (Plans TASh2771-2767) • 1:5000 UTEM Conductor Traces Plan (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2639) • 1:5000 UTEM Ch4 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2636) • 1:5000 UTEM Ch5 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2637) • 1:5000 UTEM Ch6 Response, Half-space Removed, Frazer Filtered (Simonds, Beulah and Garden of Eden Grids) (Plan TASh2638) (Fraser Filtered for crossovers to become peaks – a guide to anomaly position)	
Results	• Maps conductivity variation between various lithologies (shales, Beulah Formation) • No major conductors within 500m of Barite anomaly	

Survey	GRAVITY	Beulah Barite
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Jul 1984	
Report No	MRT 85-2330	
Technique	Lacoste & Romberg G-649 meter	
Configuration	12.5m stns, <1mm level accuracy, tied to AHD by contour maps, not tied to National Gravity Network, no terrain corrections,	
Aim	To obtain more information about the two EM conductors (B&D) which were proposed for drilling	
Coverage	58stns • 800mE	
Data Recovery	AMG Located • Tabulated Bouguer Anomaly per station (2 pages) • 1:5000 Ground Magnetics, UTEM, Gravity and Geology Stacked Profiles (1 figure)	
Results	• 900mE planned but not surveyed due to intense logging • 0.6mGal anomaly dominates the profile • Four anomalies on this peak to not appear to be noise. UTEM anomaly B coincides with one with both suggesting a shallow source • Anomaly D coincident with gravity low to the north and high frequency, high amplitude magnetics suggesting a relatively confined body. • Anomaly D' further north also a negative gravity feature.	

Survey	GRAVITY	Beulah
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Nov 1984?	
Report No	MRT 85-2330	
Technique	?	
Configuration	100m lines, 25m stns	
Aim	?	
Coverage	3.47 line kms • 3W-2E (excluding 1W)	
Data Recovery	Local Grid • 1:2500 Residual Gravity Contours (Plan TASh2266)	
Results	NO INFORMATION ON THIS SURVEY WAS LOCATED!	

Survey	FIXED LOOP EM	Beulah Barite
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Feb 1983?	
Report No	MRT 83-1936, MRT 84-2089	
Technique	VLF-EM, Phoenix VLF2 System (CRAE's)	
Configuration	TX= North West Cape, 22.3kHz 100m lines, 10m stns	
Aim	Routine follow-up to Dighem	
Coverage	2.9 line kms • 3W-2E	
Data Recovery	AMG Located • 1:2500 VLF-EM % Max. Horiz. Field Strength (Plan TASh1222) • 1:2500 VLF-EM Normalised Dips (Fraser Filter) (Plan TASh1223) • VLF-EM Dip Angles & Max. Horiz. Field Strength Profiles, Lines 3W-2E (Plans Tash1215-1220)	
Results	• Mapped two major conducive zones • First is north of the mag zone, trending transgressively to it. Characterized by a narrow VLF dip anom but broad MHFS anomaly. • Second is to the southern end, is stronger than the first with narrow dip and MHFS anomalies. Very minor magnetic response associated with it. • Deeper penetrating EM was recommended.	

Survey	MAGNETICS	Beulah Barite
Company	CRA Exploration	
Contractor	CRA Exploration?	
Date	Feb 1983	
Report No	MRT 83-1936	
Technique	Ground Mag, Geometrics G856/G826? magnetometer	
Configuration	2m sensor height, 100m lines, 10m stns	
Aim	Routine follow-up of DighemI I anomalies	
Coverage	2.9 line kms • 3W-2E	
Data Recovery	AMG Located • 1:2500 TMI Contours with data values (Plan TASh1221) • TMI Profiles, Lines 3W-2E (Plans TASh1209-1214)	
Results	• Mapped an intense near surface 130º gridN mag trend on west side that swings to 75º gridN on the east. Within this zone are Baryte workings. This zone is probably related to Beulah Formation/Gog Range Greywacke boundary.	

Survey	FIXED LOOP EM	Beulah Barite
Company	CRA Exploration	
Contractor	Geophysical Exploration Consultants Pty Ltd	
Date	May 1983	
Report No	MRT 84-2091, MRT 84-2089	
Technique	UTEMIII System	
Configuration	100m lines, 25m stns,TX=1000mx1000m, Fbase=26.23Hz	
Aim	To test for massive Pb min associated with ?stratabound barite deposit????	
Coverage	4.2 line kms • 3W-2E (700E-1200E)	
Data Recovery	AMG Located • 1:2500 UTEM Conductor Traces Plan (Plan TASh1623) • 1:5000 Secondary Field % Response Stacked Profiles, Lines 700E-1200E (Plans TASh1378-1380 & 3 figures) • UTEM Transient Decay Curves (selected) (Plans 1472-1477)	
Results	• Several weak, short time constant anomalies located, generally coincident with VLF-EM anomalies. • Anomaly A= Major zone reflecting 3-5 Siemen conductor at 25-30m depth occurs along southern grid edge. Drilling was recommended. Resembles P lens of Que River Cu-Pb-Zn deposit that is Cu deficient. • Anomaly B= shallow conductive inhomogeneity 700-900mE as subtle break in close with weak VLF-EM crossover. May represent margin of a sheared andesite horizon. • Failed to define a strong confined EM response. • Beulah Barite is a Pb prospect with expected conductive of a chalcopyrite-pyrite deficient galena-sphalerite assemblage. Any unexplained anomalous response must be treated with interest.	