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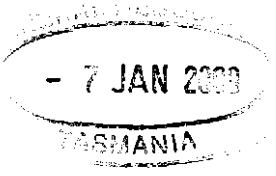

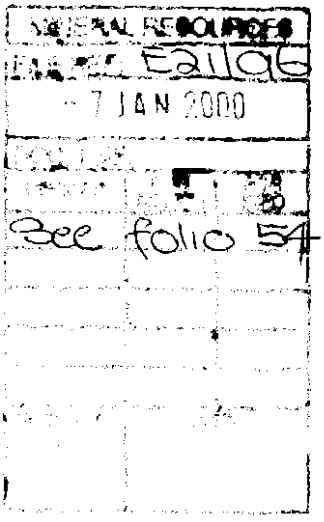

PASMINCO EXPLORATION

DUNDAS - EL 21/96

ANNUAL REPORT FOR THE PERIOD NOVEMBER 1998 TO NOVEMBER 1999

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Date: November 1999

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Pasminco Exploration, Melbourne
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Submitted By:

Accepted By:

Melbourne Report No: VC 284

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1. SUMMARY

This report details exploration completed on the Dundas Licence during the third year of tenure, from November 1998 to November 1999. During this period a detailed airborne EM and Magnetic survey was flown over the licence area. This new geophysical data has added significant value to the geological understanding of the Dundas area as well as identifying at least nine significant EM conductors which have been targeted for follow up exploration in the coming year.

2. INTRODUCTION

This report details exploration undertaken on the Dundas EL 21/96 during the reporting period November 1998 to November 1999. The Dundas licence covers a mountainous and heavily forested area extending from the north slopes of Mount Dundas to the township of Rosebery. The eastern edge of the licence is located immediately west of Rosebery township (Figure 1).

The Dundas area has a prolonged exploration history for base metals, tin and more recently gold, as indicated by the large number of prospects the area. It is estimated that well over 100 surface drill holes have been collared on the EL at a variety of geological, geochemical and/or geophysical targets.

3. LAND TENURE

EL 21/96 was granted to Pasminco in October 1996 over an area of 90 square kilometres in the Dundas-Ring River area. Two mining leases remain excised from the title. One ML covers a 1.5km^2 area in the vicinity of the Razorback Mine and the other is the Rosebery mine lease, which overlaps by approximately 6km^2 along the north eastern margin of the licence.

A portion of the Dundas area is subjected to claims for National Estate and RAP areas. These areas have been highlighted in Figure 2.

During 1998, M & E Phelan applied for a Mining Lease covering an area of 5 hectares or less on Stichtite Hill. This application was for Category 3 minerals as described within Schedule 4 of the Mineral Resources Regulations 1996, being semi-precious stones including stichtite. The Mining Lease is limited to a depth of 20 metres from the natural surface of the land contained within the Mining Lease. Pasminco retains an exclusive right to explore and mine Category 1 Minerals within this Mining Lease area.

4. GEOLOGY

The geologically complex Dundas area is characterised by the interleaving of lithologies and overturned beds, with the distribution of units largely controlled by faulted boundaries (Burrett & Martin, 1989). In the Dundas area, The Mount Read Volcanics (MRV) are divided into three provinces which are separated from west to east by the Marionoak and Rosebery Fault zones. The volcanic sequences, to the east of the Rosebery Fault, are grouped together into the central MRV (including the Que-Hellyer Volcanics and the Tyndall Group) which are host to all the major VMS deposits in Western Tasmania. Between the Rosebery and Marionoak Faults are the Dundas group rocks, including the mixed epiclastic-volcaniclastic White Spur Formation (Lees & Corbett 1987). West of the Marionoak fault are the Pre-Cambrian sequences of the Oonah and Crimson Creek Formations. These Pre-Cambrian rocks are interpreted to underlie both the Dundas Group and the MRV. The Mt Read Volcanics structurally overlie the Dundas group along the east dipping Rosebery Fault - a major east dipping thrust. Stratigraphic and fossil evidence suggests, however, that the Dundas group is at least in part stratigraphically younger than the MRV. A synopsis of the geology within EL 21/96 has been taken from Crossing & Halley (1990) and is presented below with modifications.

4.1 Oonah Formation

The oldest basal rocks observed in the Dundas area have been correlated with the Precambrian Oonah Formation. These rocks outcrop in a fault bounded block north west of Mt Dundas. The formation is comprised of both metamorphosed and relatively un-metamorphosed lithologies. The lower most unit, the Concert Schist, consists predominantly of mica phyllite with subordinate micaceous quartzite (Blissett, 1962). This unit is transitionally overlain by relatively un-metamorphosed thinly bedded mudstones and siltstones containing rare interbeds of medium-grained poorly sorted sandstone, fine-grained poorly sorted micaceous sandstone and black shales (Burrett & Martin, 1989).

The preservation of these Precambrian rocks is thought to have occurred in a down-faulted graben and thus the contact with overlying groups is either faulted or an unconformity. A conflicting view was presented in a recent PhD Thesis, by D. Selley, who concluded that the Oonah Formation was acting as a horst block, ie., basement high, during the Cambrian.

4.2 Success Creek Group

The Success Creek Group outcrops to the north west of the Dundas area just west of Renison Bell. This package is comprised of metasedimentary rocks including shallow water laminated siltstone and shale, with interbedded sandstone and conglomerate. At Renison Bell, this sequence contains three persistent dolomite horizons which host virtually all the economic stratabound tin orebodies at the Renison Tin mine.

The relationship between the Success Creek Group and the Oonah Formation is characterised by a structural hiatus. The unconformable Success Creek Group is interpreted as having been folded and deformed in a predominantly north-west trending direction where as the Oonah Formation has been affected by multiple phases of deformation (Burrett & Martin, 1989).

4.3 Crimson Creek Formation

This Formation was defined near the Renison Bell Mine where it consists of 3500m of turbiditic volcaniclastic epiclastic lithic wackes, massive siltstones, mudstones and basaltic lava flows. Numerous gabbros intrude this sequence in the vicinity of Renison Bell and occasional impure dolomite horizons have been recorded.

This formation has been mapped as a north-south trending unit at Colebrook Hill, however there remains some dispute whether this outcrop is in fact Crimson Creek Formation, as the sediments contain acid to intermediate volcanic detritus rather than the mafic detritus observed at the Renison Bell type section.

4.4 Dundas Group

The Dundas Group occupies a trough in the central portion of the licence area and consists of mixed epiclastic and minor volcaniclastic sediments. This volcano-sedimentary sequence is dominantly comprised of turbiditic to shallow water sediments containing immature conglomerates, monotonous siltstones and shales containing some sandstone and grit interbeds. Towards the top of the sequence felsic to intermediate tuffs, related volcaniclastic sediments and minor lava flows (or intrusions) occur. These volcanic units generally show marked variations in facies and thickness over short distances and often appear to interfinger with one another making boundary correlations very difficult. In general the Dundas Group is comprised of abundant felsic volcanic material derived from the Mt Read Belt which constitutes an extensive conglomeritic flysch sequence of at least 3km in thickness (Burrett & Martin, 1989).

With further detailed mapping in the Pieman River area the Dundas Group has been further divided into formation such as the Westcott Argillite, Salisbury Conglomerate, Natone Volcanics, Stitt Quartzite and Chamberlain Shale which outcrop east and south of Colebrook Hill and in the vicinity of Westcott Hill.

4.5 Ultramafic Complexes

These outcrop at a number of locations throughout the licence area and have also been intersected by drilling at depth. They typically show strong serpentinite alteration and exhibit a high degree of internal deformation, which is expected considering their alteration mineralogy. The only exception to this is in the Serpentinite Hill area where pockets of unserpentinised dunite and pyroxenite have been intruded by gabbro dykes.

The current tectonic theory has these ultramafic complexes as allochthonous thrust sheets emplaced during the middle Cambrian (Berry and Crawford, 1988).

4.6 Gabbroic Bodies

These units occur as irregular intrusions throughout the Crimson Creek Formation and Dundas Group sediments. Their age relationships and intrusion history have yet to be accurately determined.

4.7 Devonian Pine Hill Granite

The south-eastern 'tail' of this intrusion occurs on the mid-western side of the Dundas licence. The intrusion is described as a porphyritic adamellite and is thought to consist of a series of intrusions. Locally it exhibits early silica and sericite alteration of the both the granite and country rocks, followed by later boron metasomatism. The granite has extensively altered carbonate bearing units along its contact and is responsible for the metasomatic replacement of the three dolomitic units of the Success Creek Group which are host to the Renison Bell tin lodes. Not surprisingly areas surrounding this intrusive body have been extensively explored for replacement style tin mineralisation.

4.8 Quaternary

Glacial gravels occupy a N-S zone in the NE quadrant of the licence area.

4.9 Structure

The Dundas licence area is one of structural complexity, making the determination of age relationships between the various stratigraphic units difficult. Shearing and faulting is often preferentially taken up by the more mafic and shale dominated units, thereby complicating stratigraphic relationships. Several tectonic melange zones occur in the Ring River area west of Hercules, at Williamsford and Moores Pimple. The zones contain small to very large (>30m) irregular blocks of siltstone and sandstone in a highly contorted fluidised matrix of siltstone and shale. These tectonic melange's exhibit some soft sediment deformation characteristics suggesting possible synsedimentary to early digenetic deformation and tectonic instability during Dundas Group deposition.

The Oonah Formation contains strong isoclinal folding which is notably absent from the younger Palaeozoic rocks. This deformation may have occurred during the Precambrian Penguin Orogeny.

The main structural and stratigraphic features of the Dundas Trough are:

1) The thick MRV belt occurs along the eastern margin of the trough with no obvious correlates on the western side. Such felsic successions have modern analogues in Andean style subduction zones (Crossing & Halley 1990).

2) The basin has been infill by early shallow water deposits (eg Success Creek Group), followed by greywackes and tholeitic lavas and intrusions (Crimson Creek Formation) and finally a series of epiclastic and volcaniclastic sediments (Dundas Group). The sediment-volcanic deposition rates were rapid which is supported by modern dating techniques which show the basin filled in about 5 million years (Perkins *et al*, 1995).

3) Mafic and ultramafic complexes with ophiolite characteristics are present as fault bounded slices. Modern analogues to this occur in mid-oceanic ridge and oceanic island arc settings.

4) The Dundas Group metasediments are partially derived from the MRV, partly from the Precambrian and partly from intra trough sources including basement highs of ultramafic and gabbroic material.

This shows the structural history to be very complicated and difficulty arises when trying to compare the MRV Province with modern analogues. Rifting is not particularly evident in the belt, however, thrusting is thought to have occurred especially associated with the ultramafic bodies (most of which are strongly deformed and dismembered). The Dundas Group may in part post-date the main thrusting event because of conformable relationships observed at Green Prospect where sheared ultramafics are unconformably overlain, not sheared against east dipping Dundas Group metasediments.

It is believed that the Rosebery Fault has a major Cambrian thrust history, but which is not associated with emplacement of the mafic-ultramafic complexes (Crossing & Halley 1990).

In the Devonian, the Tabberabberan Orogeny produced most of the observable folding, cleavage and faulting that has been mapped in the Dundas area. This Orogeny most probably influenced some degree of control on the shape of the syn-to-post orogenic Devonian granite intrusions.

The main folds generated during the Devonian include the Huskisson Syncline north west of the Dundas licence. The Renison Anticline (to the west of the Dundas licence) and the Dundas Anticline, where the Oonah Formation has been folded, NW of Mount Dundas.

Faulting appears to be closely associated with most of the mineralised systems. Generally there are two prominent groups of faults, a NNW trending steeply dipping group with limited dip slip to oblique slip movement and a steeply dipping NE trending set which show larger orders of displacement.

An true estimate of the amount of displacement along these NE trending structures is difficult to quantify mainly due to a lack of recognisable marker beds. The NE faults often occur along margins of the mafic-ultramafic complexes, whereas the NNW faults are more generally confined. These faults and the Cambrian thrusts (including the Rosebery Fault) also acted as zones of structural weakness during the Devonian which resulted in a secondary period of mineralisation and partial remobilisation of Cambrian ore.

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5. PREVIOUS EXPLORATION

The Dundas area has been the focus of extensive exploration activity since the 1930's, when modern exploration commenced. Weber & Murphy (1997) provide a comprehensive summary of previous exploration on the tenement area. Table 1 gives an overview of previous work by other companies.

TABLE 1: Previous Work in EL 21/96 Dundas Area (partially after Crossing & Halley 1990)

COMPANY	PERIOD	PROSPECT/ COMMODITY	METHODS	RESULTS
BHP	1959/60	Razorback Grand Prize (Sn)	Turam, SP Magnetics	Inconclusive except over known mineralisation.
PLACER	1964/66	Razorback Grand Prize (Sn)	Underground Drilling & Mining	No new orebodies found. The prospects are not connected.
NCGF	1966/71	N Dundas (Montezuma) (Sn)	Magnetics, VHEM, Mapping, Geochem	Coincident Magnetic and Tin-in-Soil anomaly on Montezuma Fault. Not considered worth drilling
GEOPHOTO	1968/74	Dundas (Pb Zn Ag)	IP, REM, SP, Mag, Mapping, Geochem & 79 Drill Holes	Intensive drilling located Pb Zn Ag in several thin fissure veins separated by barren host rocks. Didn't meet corporate objectives.
COMSTAFF	1970/85	E Renison Godkin (Sn)	IP, Input, Mag, Mapping & 58 Drill Holes	Intensive drilling defined: Fenton's Tin Vein; 0.43Mt x 1% Sn, 0.2% Cu Salmon Vein; 0.83Mt x 3% Pb, 2% Zn Godkin; 0.3Mt x 0.9% Sn
CSR	1976/87	Nevada Razorback Montezuma Carbine Hill (Sn Cu Pb Zn Au)	Em, Mag, IP, Dighem, Input, Mapping, Stream Geochem, Soil Geochem & 7 Drill holes	Several geochem anomalies identified and followed up but more were drilled. Airborne geophysical anomalies were followed up by 7 unsuccessful holes.
EZ/GETTY EZ/CSR	1978/86	Colebrook Hill Ring River Mt Dundas Montezuma (Sn Cu)	Input, Dighem, Turam, IP, Mapping, Geochem & 28 Drill holes	Several encouraging Sn and/or Cu intersections as Colebrook Hill (23 holes). Only minor Sn, Pb intersections on Montezuma Fault (5 holes). Deep hole proposed - not completed.
MINOPS P/L	1979/84	Godkin Prospect (Sn)	Gridding, soil geochem, geophysics, drilling	Comstaff and Paringa JV into Godkin area outlined inferred resource 300,000t @ 0.9% Sn.

TABLE 1: Previous Work in EL 21/96 Dundas Area (partially after Crossing & Halley 1990) cont.

COMPANY	PERIOD	PROSPECT/ COMMODITY	METHODS	RESULTS
RENISON LTD	1971/87	Grand Prize (Fault) North Dundas Grid Commonwealth Hill Razorback Grid Kapi Carbine Hill Serpentine Hill (Sn Cu Asbestos, PGM)	Gridding, mapping, Airborne EM, drilling. Soil/rock geochem. IP, Dighem.	Extremely deep diamond drilling on the Kapi Fault returned in S 652, 313.4-313.9m 0.5m @ 2.14% Cu. Grand Prize Fault: S 947A @ 534.8m tourmaline alteration zone. S 969: 406.8-409.8 - 3m @ 5.21% Sn, 0.23% Cu, 13 g/t Ag 408.4-409.8 - 1.4m @ 10.93% Sn
ROGER POLTOCK GEOLOGICAL P/L	1986/88	Colebrook Hill (Au Cu W)	Stream Sediments	Concluded Colebrook Hill was a thin skarn alteration system.
RGC EXPLORATION P/L	1987/95 1988/95 (Dundas & Moores Pimple)	Montezuma Grid Ring River Wallace Prospect Greens Prospect (Sn Au)	Gridding, prospect mapping, rock chip sampling, IP	MZ 004 182.1-183.7 1.6m @ 19.25% As, 725ppm Sb and 0.54 g/t Au.

6. WORK COMPLETED 1998-99 REPORTING PERIOD

Work completed during the current reporting period has focused on improving the understanding of the regional geological setting and architecture of the Dundas area. Additional work has also been completed on identifying priority prospect areas. To short cut the process a decision was made to fly an Airborne EM and magnetic survey over the licence area. It was anticipated that this data would provide a more comprehensive picture of the local geology and assist in placing the historic exploration data and prospects in context.

A high resolution helicopter-borne frequency domain electromagnetic (HEM) and magnetic survey was completed in April 1999, by Geo Instruments Pty Ltd. The survey was flown on east-west lines spaced 100m apart, with an average bird hight of 30m. A more detailed description of survey parameters are given in Appendix 1. Some difficulties were encountered during the survey in maintaining constant terrain clearance due to the often rugged terrain. The primary aim of the survey was to locate anomalous conductive responses using the EM data that could be directly targeted for base-metal mineralisation. In additional the survey would also assist with geological mapping of the area and potentially define prospective horizons on which to focus more detailed exploration efforts.

Preliminary modeling and interpretation of this data has been completed, however full integration with all available geological and geochemical information remains to be done.

A suite of anomalous conductor responses has be delineated in the EM data, however most of these can be directly related to shallow glacial cover. Several more discrete anomalous responses are also identified which are worthy of further investigation. These target areas have been highlighted in Figure 2.

7. CONCLUSIONS AND RECOMMENDATIONS

The airborne EM survey over the Dundas licence was successful in delineating a number of previously unknown conductors and has as added significant new "geological" information on the area. Nine priority conductors are identified in the data and these have been outlined for evaluation in the coming year.

Prior to designing follow up work programs to asses these target areas it is recommended that complete integration of EM and magnetic data with all available geological and geochemical information over the licence is completed and the data re-interpreted to qualify and rank these anomalies. The airborne EM data is well located by differential GPS and should be sufficiently accurate to eliminate the need for any ground EM surveys. It is also unlikely that the identified conductors will be less than 150m below surface, so a follow up exploration program consisting of grid-based partial leach soil geochemistry and geological mapping, followed by drill testing of encouraging targets is recommended.

8. EXPENDITURE

Expenditure on EL 21/96 during the 12 month period ending November 1999 was $153,299. A detailed breakdown of this expenditure is presented below.

Personnel	15,314
Travel & Accommodation	2,164
Consultants & Contractors	114,254
Drilling	8
Stores & Supplies	823
Vehicles Plant & Equipment	342
Land	2,192
Computing	240
Office	1,612
Administration Fee	13,695
Total Tenement Expenditure	**$150,644**

Work programs for the coming year will involve grid cutting, soil geochemistry, geological mapping, data compilation and interpretation. It is estimated that these activities will cost in excess of $35,000.

9. KEYWORDS AND LOCALITY

Keywords

ZINC, LEAD, COPPER, SILVER, TIN, ARSENOPYRITE, TENNANTITE, DUNDAS, OONAH FORMATION, SUCCESS CREEK, ROSEBERY FAULT, PINE HILL GRANITE, AIRBORNE EM, MAGNETICS.

Locality

QUEENSTOWN SK 55-5

Mt Dundas, Rosebery, Montezuma, Renison Bell, Ring River, Moores Pimple .

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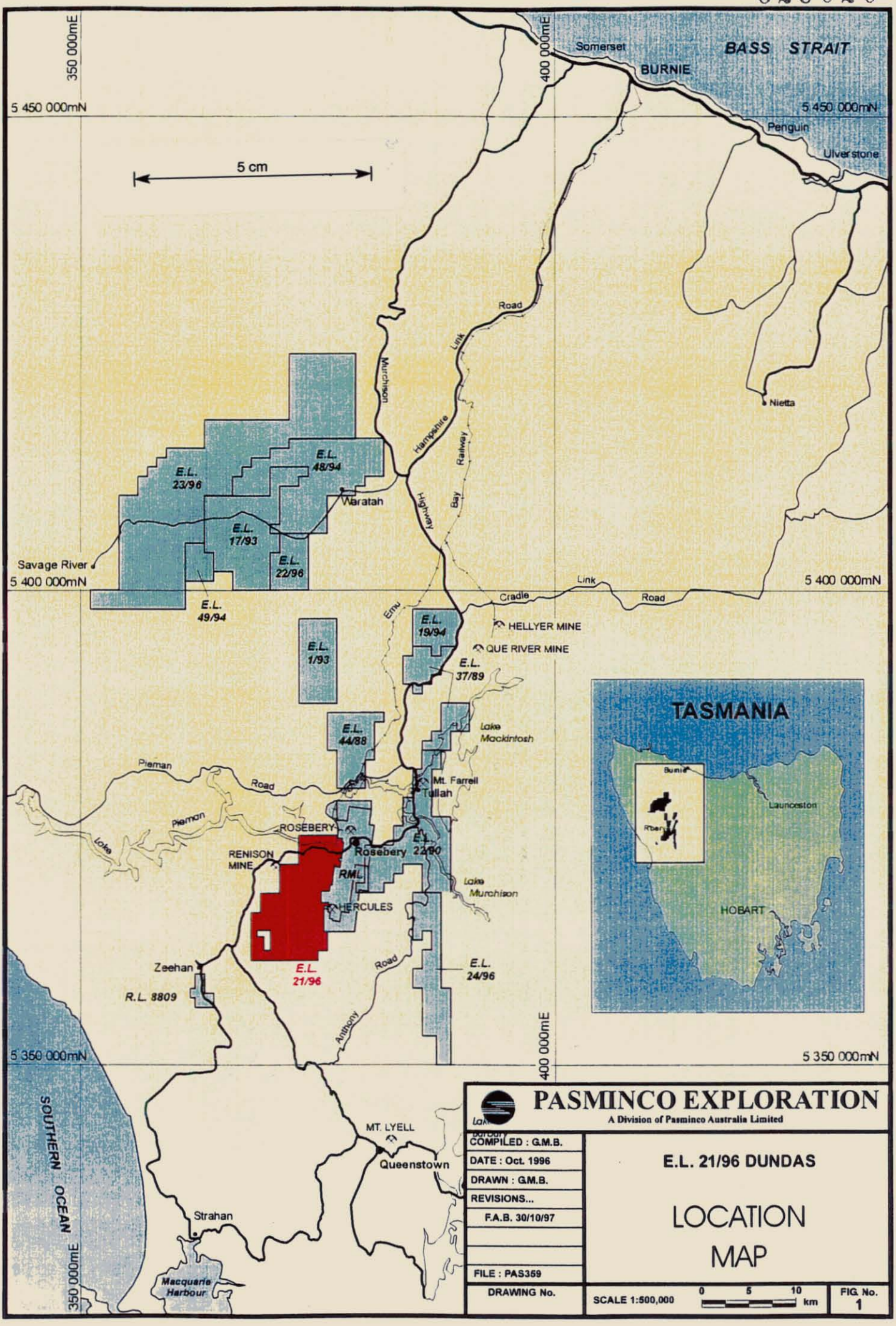
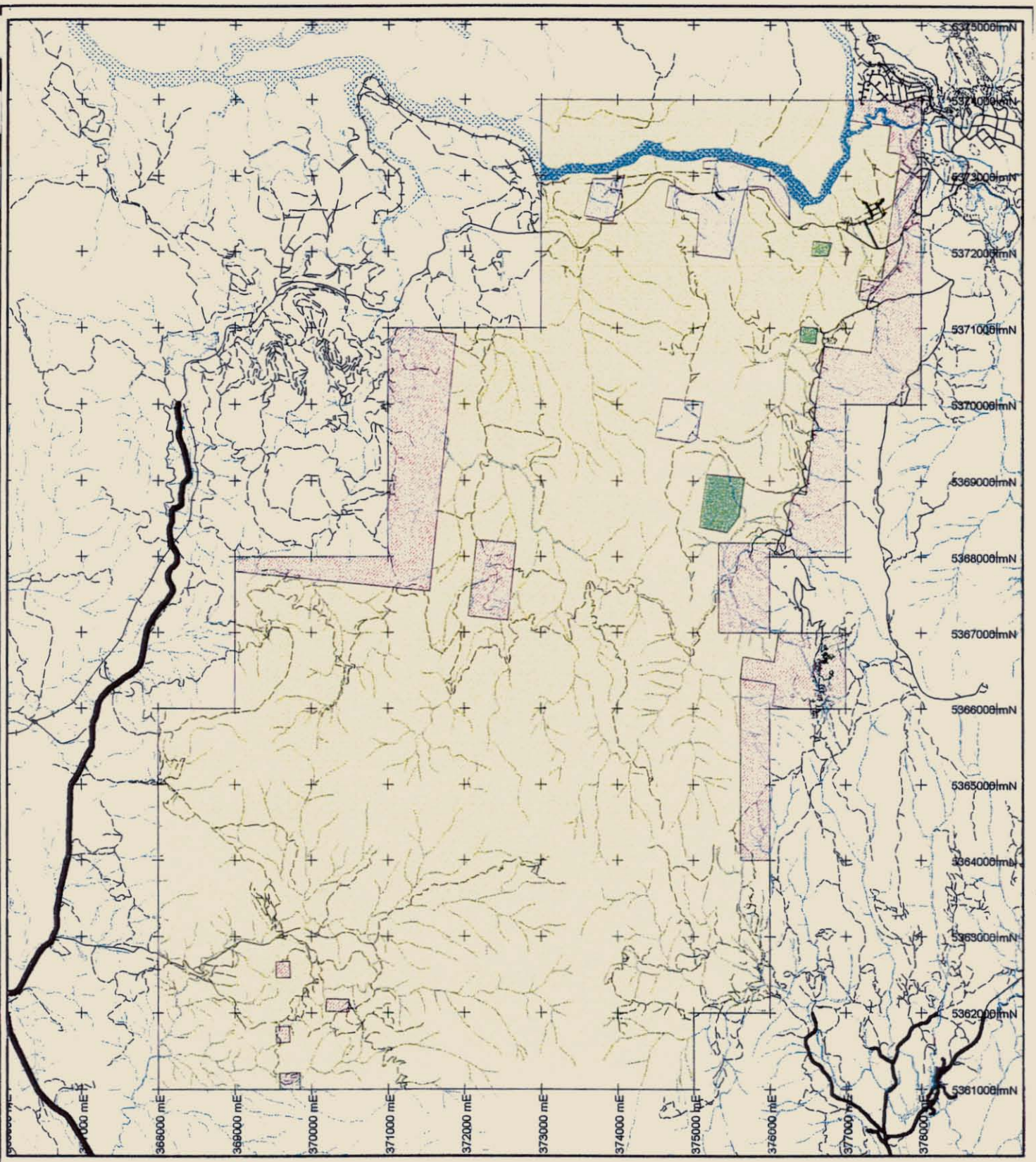


PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : G.M.B.	E.L. 21/96 DUNDAS
DATE : Oct. 1996	
DRAWN : G.M.B.	LOCATION MAP
REVISIONS...	
F.A.B. 30/10/97	
FILE : PAS359	
DRAWING No.	SCALE 1:500,000 (0 5 10 km) — FIG. No. 1



PASMINCO EXPLORATION

Figure 2:
EL21/96 - Dundas,
Land Tenure Map.

Scale = 1:70,000

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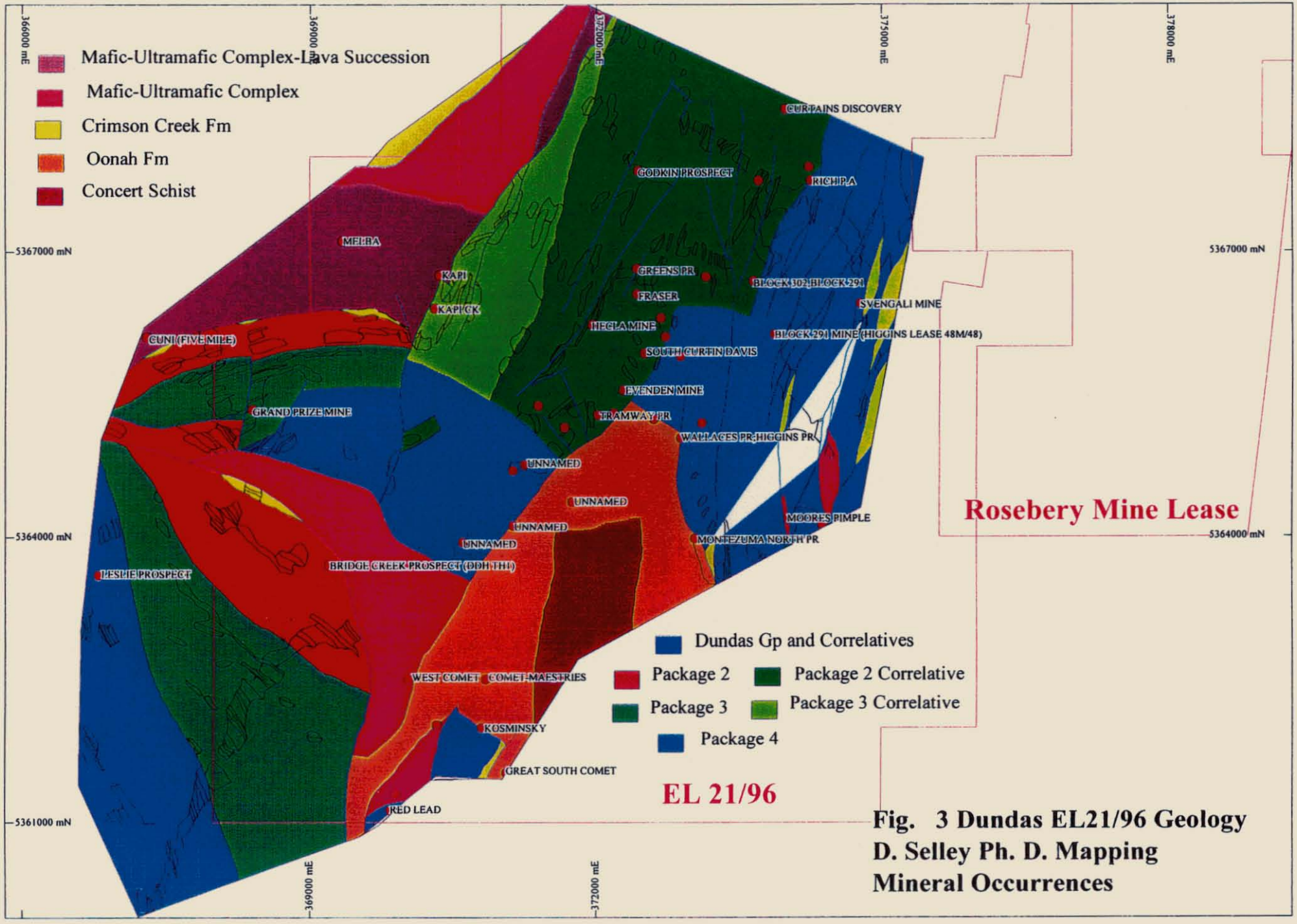

Fig. 3 Dundas EL21/96 Geology
D. Selley Ph. D. Mapping
Mineral Occurrences

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Pasminco Exploration

Dundas EL 21/96
1:25k Geology
Mineral Occurrences

Fig. 4

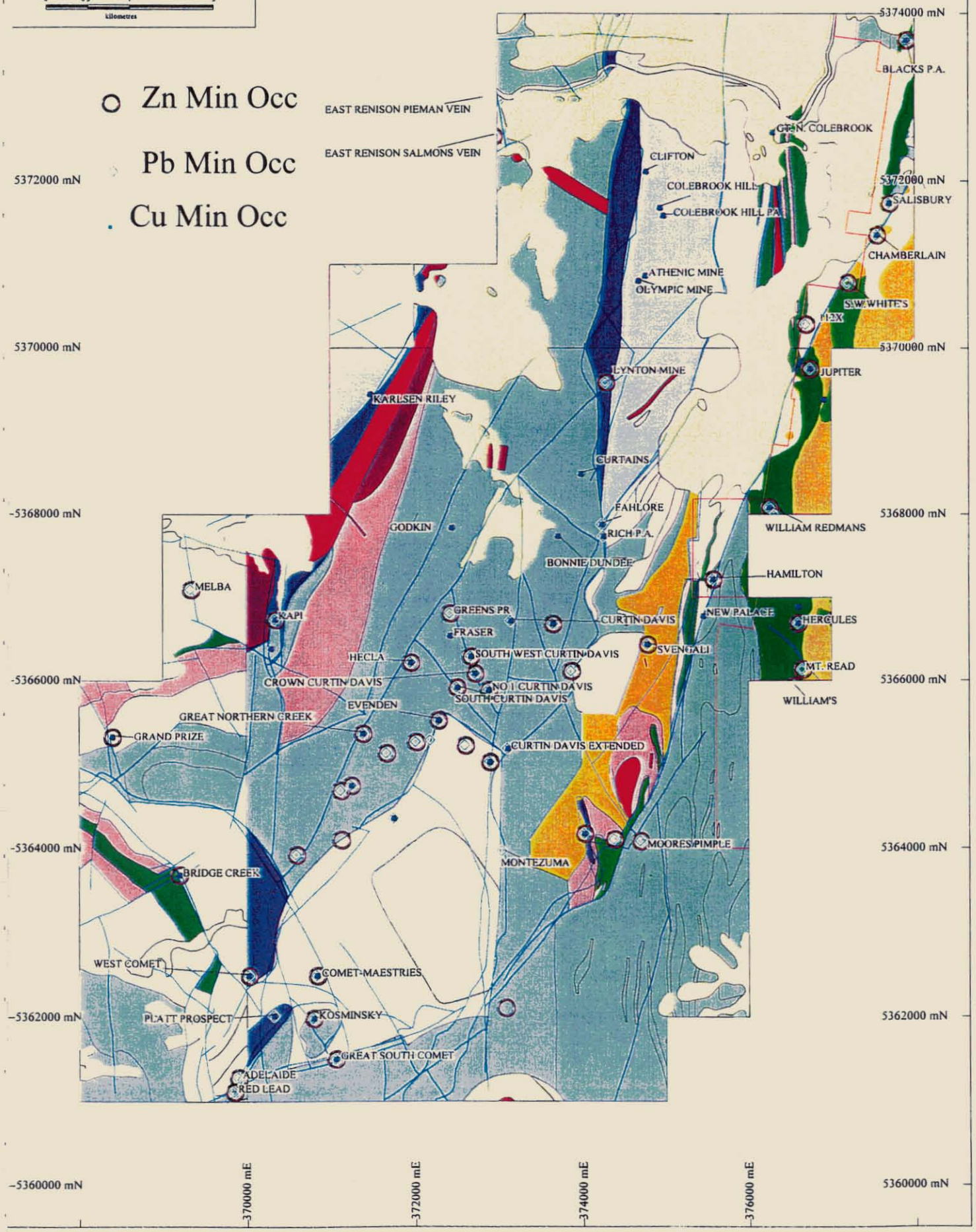
0 0.5 1 2
kilometres

5 cm

○ Zn Min Occ

Pb Min Occ

. Cu Min Occ



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Operations and Processing Report on the 1999 Helicopter Electromagnetic Survey, Dundas and North Geoinstruments Pty Ltd; Pasminco Exploration*
Anon EL21/96

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APPENDIX ONE

Geo-Instruments Technical Report

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Operations and Processing Report

ON THE 1999 HELICOPTER ELECTROMAGNETIC SURVEY, DUNDAS AND NORTH MURCHISON BLOCKS, ZEEHAN, TASMANIA

March 1999

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AUSTRALIA

(opsrep/Pasminco-HEM-Zeehan)

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APPENDIX 1

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APPENDIX 2

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APPENDIX 3

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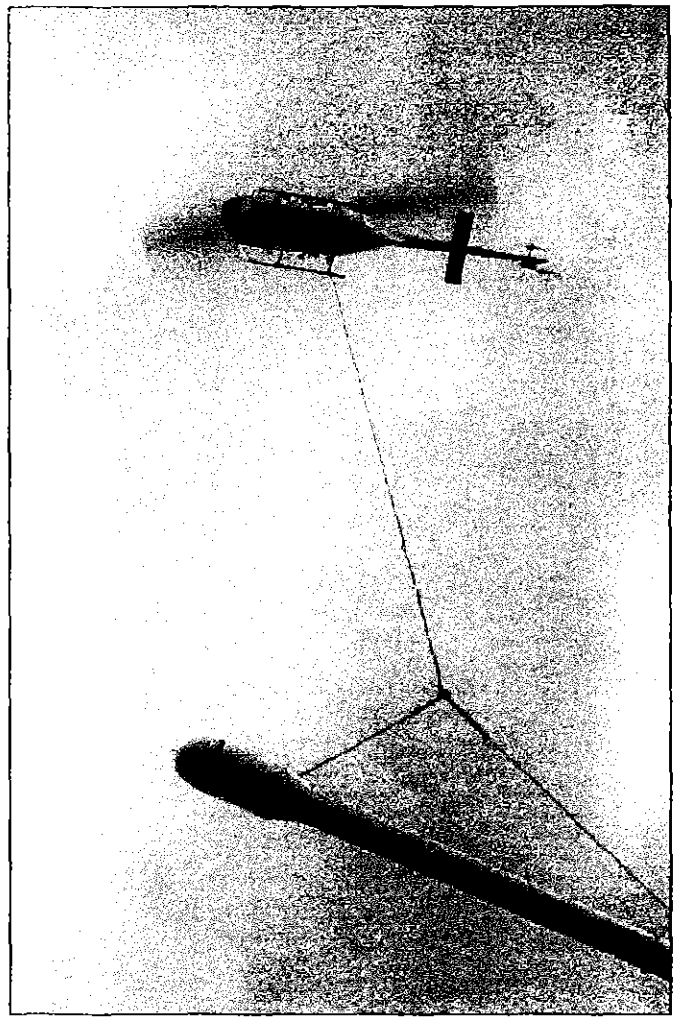
APPENDIX 4

OPERATORS FLIGHT REPORT



HUMMINGBIRD EM SYSTEM

1. INTRODUCTION

This report describes the operations for the Dundas and North Murchison helicopter geophysical surveys conducted at Zeehan, Tasmania, by Geo Instruments Pty Ltd under contract to Pasminco Australia Limited between 13th and 25th March 1999. The survey areas contain volcanic and sedimentary units of the Mt Read Volcanics which are prospective for volcanogenic Pb-Zn-Ag massive sulphide deposits, as well as intrusive rocks which may be associated with other styles of mineralisation.

The survey collected a total of 1,210 line kilometres of electromagnetic, magnetic and elevation data in six days of survey operations. The results of the geophysical survey are presented as colour images of resistivity for three frequencies, magnetics and digital terrain model, plus multi-parameter profiles of each survey line.

2. SURVEY SPECIFICATIONS

The survey comprises airborne geophysical mapping over the Dundas and North Murchison Blocks at Zeehan, Tasmania. Data acquisition totalled 1,210 line kilometres of airborne electomagnetic, magnetic and elevation data.

2.1 LINE SPECIFICATIONS

Dundas Area (987 Kms)

Traverse Line Direction	090°-270°
Traverse Line Spacing	100 metres
Tie Line Direction	00°-180°
Tie Line Spacing	1000 metres

North Murchison Area (223 Kms)

Traverse Line Direction	115°- 295°
Traverse Line Spacing	100 metres
Tie Line Direction	025° - 205°
Tie Line Spacing	1000 metres

2.2 INSTRUMENTAL SPECIFICATIONS

Electromagnetic	
Sampling Interval	0.1 second
Sensitivity	1 ppm
Coaxial Coil Frequencies	980 and 7001 Hz
Coplanar Coil Frequencies	385, 6606 and 34133 Hz

Magnetics	
Sampling Interval	0.1 second
Total Noise	< 0.05 nT

Base Station Magnetometer	
Sampling Interval	1 second
Noise Level	< 0.2 nT
Resolution	Better than or equal to 0.1 nT

Radar Altimeter	Output 13.1mV/m

2.3 FLYING SPECIFICATIONS

Electromagnetic and Magnetometer Sensor Nominal Terrain Clearance	30 metres (30 metre bird cable)
Flying Speed	40 m/second

3. SURVEY OPERATIONS

3.1 SURVEY BASES

The survey entailed 2 blocks referred to as Dundas and North Murchison (Refer to map in Appendix 1). The base for the program was the Heemskirk Motel in Zeehan.

The helicopter survey equipment and party chief arrived in Zeehan on 11th March 1999 and the base magnetometer and base GPS stations were set up on 12th March. The helicopter arrived on site on 13th March and installation and testing were completed that day. Rain and low cloud precluded flying in the survey areas for three days. Surveying of the Dundas Block commenced on 17th March. Heavy rain and strong winds resulted in no production for a further two days. The survey concluded on 24th March. The final report on the survey program is included in Appendix 3. Logs for each flight are presented in Appendix 4.

The quality control (QC) and field data processing were carried out at the Heemskirk Motel. The helicopter was always parked at the same location at the base to ensure consistency in ground calibrations.

3.2 FLIGHT PLANNING

Coordinates of all flight blocks (see map in Appendix 1) were planned out in separate blocks for each area. Maps of the proposed flight lines and tie lines were reviewed with the client prior to commencement of flying. The presence of both large and small power transmission lines in the survey areas was considered in the overall survey design.

Both survey areas are located in UTM Zone 55.

3.3 FLIGHT PATH CONTROL

A NovAtel 951R receiver was used for navigation and for flight path verification. The position solution from the receiver was obtained using signals from the U.S. Global Positioning System (GPS). Real time corrections were provided by the Fugro Omnistar satellite system. In rare circumstances, the real time differential corrections were not received due to the satellite disappearing below the horizon (ie in valleys) or due to microwave interference. Altitude control is derived from the radar altimeter.

The GPS receiver transmits two data streams to the logging computer. One data stream consists of real time differentially corrected positions at two times per second. The other stream contains the raw range data from all of the satellites being tracked and this is logged once per second.

The positional data are used to calculate the flight path guidance information which

is presented to the pilot on both digital and analogue displays mounted in direct view. The radar altimeter display is mounted in close proximity to the guidance displays for easy cross reference.

The GPS base station was a NovAtel 3151R unit.

3.4 SURVEY PLATFORM

Helicopter: Aerospatiale AS350BA "Squirrel" Helicopter
Registration: VH-JWD
Contracted From: Heli-Aust Pty Ltd of Bankstown
Endurance: 3.5 hours fully loaded
Survey Speed: 30 m/sec

3.5 WEATHER DETAILS

The weather was often unfavourable for flying in the rugged terrain within the two survey blocks. Cold fronts with strong wind and heavy rain or low cloud and light rain were encountered on five days resulting in no survey production.

3.6 SAFETY MANAGEMENT

There were no aviation incidents during the implementation of the airborne survey for the aircraft utilised on the project. Safety procedures included strict rotation of pilots, and adherence to daily and scheduled maintenance of the helicopter. The presence of major and minor powerline cables and towers in the survey areas presented a recognised safety hazard. Daily flight plans and radio communication with base camp on completion of each flight line served to predict the position of the helicopter at all times.

3.7 ENVIRONMENTAL MANAGEMENT

The aircraft operations are non-polluting except for noise associated with take-off and landing. All operations were conducted during normal day time and no complaints were received regarding noise. Extreme care was maintained during all refuelling operations to eliminate the risk of fuel spillage or fire.

Ground operations are minor, usually focused around the survey bases. Common sense rules apply to these tasks with particular reference to public facilities, residential areas, stock yards, access paths, etc. Any staff member responsible for damaging property or land is liable for dismissal.

4. PERSONNEL

Survey management and geophysical personnel were provided by Geo Instruments Pty Ltd, Sydney. The helicopter pilot was provided by Heli-Aust Pty Ltd. In field quality control was undertaken at the Heemskirk Motel in Zeehan and data processing, map production were undertaken by Geo Instruments Pty Ltd in Sydney.

Field Operations

Field Project Manager:	Zoltan Beldi
Pilot:	Tony Feller
Operator:	Marc Thomson
Field Processor	Neil Fiset

Data Processing

Data Supervisor:	Neil Fiset

Client Representative

Field Operations and Data Processing:	Chris Dauth

5. GEOPHYSICAL EQUIPMENT

5.1 ELECTROMAGNETIC SYSTEM

The electromagnetic system is the Geotech Hummingbird 5-frequency system. It consists of two vertical coaxial coil pairs operating at 980 Hz and 7001 Hz and three horizontal coplanar coil pairs operating at 385 Hz, 6606 Hz, and 34133 Hz housed in a 6.5m long bird together with the magnetometer sensor. The transmitter-receiver separation for each coil pair is 6.2 metres.

The receiver coil responses are converted into their in-phase and out-of-phase (quadrature) components by processors installed in the bird, and are then transmitted as digital data by serial cable to the Geotech processor console in the aircraft. This console retains the calibration coefficients to convert the digital data representing voltages to parts per million. These data are transmitted to the Geo Instruments data acquisition system at 1 second intervals.

The EM system is mounted in a lightweight Kevlar bird which is towed 30 metres below the helicopter. Measurements of the in-phase and out-of-phase signals for each frequency are recorded at the rate of 10 times per second, with a sensitivity of one millionth of the primary field (1 part per million).

5.2 MAGNETOMETER

The Geometrics G822A Magnetometer is a highly sensitive unit incorporating an optically pumped sensor. The constant harmonic frequency from the sensor is proportional to the surrounding scalar magnetic field. This frequency is resolved by the Counter/ Processor which provides the magnetic field to a nominal accuracy of 0.01nT at 10 times per second both in analogue and digital forms. The sensor and pre-amp was mounted in the EM boom which was attached by approximately 30 metres of cable to the helicopter.

5.3 ALTIMETER

A Sperry AA210 radar altimeter system was installed in the helicopter. This controls the pilot's analogue indicator, which provides a terrain clearance display from 0 to 750 metres (0 to 2,500 ft.) above ground level. This is the primary tool used to maintain a consistent terrain clearance. The output of the altimeter is 13.1 mV/m and it can be read to a resolution of 1 mV for 0.076 metres.

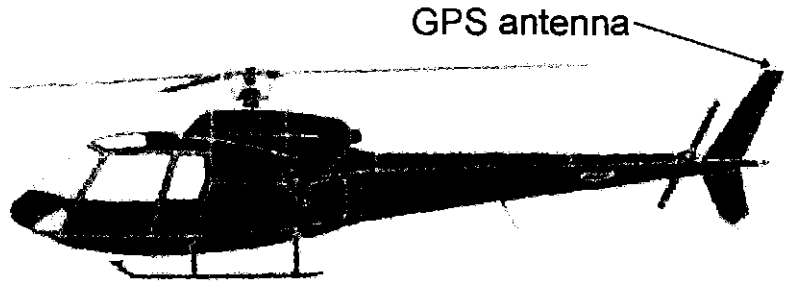
The reference height above the geoid used for data purposes, was derived from the differentially corrected height value provided by the GPS receiver.

Both GPS altitude and the radar terrain clearance were recorded every second by the digital acquisition.

5.4 GPS NAVIGATION SYSTEM

The guidance system for the helicopter was based on the U.S. Global Positioning System. GPS co-ordinates were referenced to the AGD84 spheroid.

A NovAtel 951R receiver mounted on the upper rear fuselage of the helicopter was used for navigation by means of analog and digital displays of the aircraft position located directly in front of the pilot.The corrected position is accurate to 1 metre for X and Y and 5 metres for Z (see Section 3.3).



The GPS base station was a NovAtel 3151R unit, with the antenna mounted on an external wall of the Heemskirk motel.

5.5 DATA ACQUISITION SYSTEM

The Geo Instruments G2002 digital acquisition system is based on the IBM PC AT architecture. The system is fitted with several modules tailored to condition the input data from the various sensing instruments. A custom written software package facilitates the following:

(a) Correct synchronisation of the data streams,
(b) Formatting of all data received,
(c) Extended error checking of all parameters,
(d) Visual data presentation for monitoring purposes,
(e) Generation and distribution of synchronising fiducial numbers,
(f) Recording of data to magnetic media,
(g) Calculation of position and provision of steering display for pilot.

5.6 BASE STATION MAGNETOMETER

A Geometrics Recording Base Station Model G-856 with analog and digital recording was used as a diurnal monitor and run continuously during the survey periods. The sensor of the magnetometer was placed in a low gradient area beyond the region of expected influence of any man-made interference. This base station was located at Zeehan airstrip approximately 1km northeast of Zeehan, and used to record the diurnal variations in the earth's magnetic field every 5 seconds with a resolution of 0.1nT and an accuracy of 0.1nT. The base station was synchronised with the airborne magnetometer.

All diurnal base station magnetometer data form part of the delivered digital information and individual records are not included in this report.

Diurnal activity was classed as quiet throughout the survey and there were no significant diurnal magnetic variations.

6. CALIBRATIONS

6.1 ELECTROMAGNETIC SYSTEM

The electromagnetic response is calibrated using an external Q coil at the commencement of the survey program. Calibration checks are conducted at the beginning and end of each sortie using internal coils, and at the beginning of each day using a ferrite phasing bar. Any drift is monitored by flying out of ground effect (above 350 metres) twice per hour to record electromagnetic zero levels. Prior to the commencement of surveying the EM system is run for at least an hour to stabilise temperatures and the system drift is observed and verified to be less than 5 ppm in 5 minutes.

6.2 MAGNETOMETER

The Geometrics G-822A Caesium vapour magnetometer operates on a split-beam principle with a constant relationship between the earth's magnetic field and the Larmor frequency (the frequency with which gyromagnetic moments precess in a magnetic field). They are therefore not subject to instrumental drift and do not require calibration.

6.3 ALTIMETER

The radar altimeter was calibrated against GPS height by multi-level flights prior to the commencement of the survey.

7. DATA PROCESSING

7.1 IN-FIELD DATA VERIFICATION

In-field quality control (QC) of the survey data entailed two stages of assessment. Firstly the field party leader at the survey base conducted an analysis of the most recently acquired data using both proprietary company software and commercial software (e.g. Geosoft).

At the survey base the post-processed GPS position information was merged with the geophysical data and then subjected to the following checks:

a) Speed correlation,
b) Identification of spikes, dropouts and noise bursts in all data streams,
c) Verification that adequate flight path coverage was achieved,
d) Checking flight line spacing and terrain clearance tolerances,
e) Conformity to Contract specifications.

7.2 FINAL PROCESSING

The final data processing was undertaken by Neil Fiset for Geo Instruments Pty Ltd using both Geosoft and Intrepid software. All data had previously been checked for abnormalities by the in-field data verification system described in 7.1 above.

7.2.1 Flight Path Recovery

Processing of the differential GPS location data entailed the following steps:

a) Post-flight differential GPS corrections using the Ranger differential position processing software where the real time differential GPS data was affected by limited correction satellite visibility (in valleys) or by microwave interference,
b) No fiducial synchronisation is required as both range data and fiducials are synchronised to GPS time,
c) Merging of positional data with geophysical data.

7.2.2 Electromagnetic Data Processing

Processing of the in phase and quadrature EM channels entailed:

a) Filtering to remove major sferic events and reduce system noise;
b) Base level correction using high altitude EM zero levels;
c) Calculation of apparent resistivity for the coplanar coils;
d) Gridding at 25m cell size and micro-levelling

The resistivity formulae are taken from "Geo-Electromagnetism" by James R. Wait, Academic Press, 1982, pp. 108-112. They are standard integrals involving Bessel functions and reflection coefficients for a layered halfspace. For the nomogram look-up, a large number of models over a range of resistivities and depths are calculated, giving in-phase and quadrature results, to produce the nomogram grids (with in-phase and quadrature values on the axes, and the grid variables being resistivity, and depth.) The resistivity for a given value of in-phase and quadrature is then found by interpolating the grid.

7.2.3 Magnetic Processing

Having verified all data in the field, the final processing sequence is reduced to the following steps:

a) Five point low pass filter,
b) Diurnal variation removal,
c) System parallax removal,
d) IGRF removal,
e) Micro levelling,
f) Addition of the mean diurnal value and the IGRF base value,
g) Gridding at 25m cell size

The helicopter magnetic data have been corrected for regional gradient by subtraction of the IGRF Model for 1998.9 derived from the 1995 secular variation model. The IGRF was calculated at each sample point at the GPS height of the aircraft, adjusted for the geoid-spheroid separation. Diurnal variations and system parallax have been removed. The mean diurnal value and IGRF base value have been added to the data. No filters were applied to the data prior to gridding. The Akima algorithm was used for gridding of the data.

7.2.4 Digital Terrain Model (DTM) Processing

The digital terrain model is computed from the difference in GPS height and radar altitude. The raw GPS range data are recorded internally every one second and corrected using real time factors provided by the Fugro Omnistar satellite system. This yields the position of the aircraft GPS antenna, including longitude, latitude and height relative to the AGD84 reference ellipsoid for each set of range data (every one second).

The radar altimeter provided the aircraft's ground clearance, the altimeter data being sampled every tenth of a second. The radar altimeter results were lightly smoothed to remove any spikes, spurious reflections or instrument noise.

The raw ground elevation data were then calculated as the difference between the height of the aircraft above the ellipsoid and the height of the aircraft above the ground. These raw elevation data calculated every one second are relative to the AGD84 reference geoid.

The GPS antenna was mounted on the tail fin of the aircraft. The radar altimeter sensor was located under the belly at the front of the aircraft.

The digital terrain model information was gridded at 25m cell size using the Akima gridding algorithm. Decorrugation and microlevelling tools in Intrepid were then applied.

DISCLAIMER NOT TO BE USED FOR NAVIGATION

This digital terrain model (DTM) has been computed from data generated during the course of an airborne geophysical survey flown at a nominal line spacings and data have been interpolated/gridded between such lines. Every effort has been made to make the model a useful general reference. No guarantee can be made that this model is a true representation of height above sea level and it does contain radar altimeter responses from buildings and dense timber. Users of this product should be aware of the topographic limitations mapped here within. **Do not use this DTM for navigation purposes.**

8. DELIVERED ITEMS

Following implementation of all corrections and levelling of the EM, magnetic and DTM fields, ERMapper grid files were generated and subject to further micro-levelling. Preliminary maps and preliminary grid files were delivered for review and approval, then final digital data files were delivered.

Map Products

Flight path map, draft contoured TMI map, draft contoured apparent resistivity maps for 385Hz, 6.6K Hz and 34K Hz.

Multi-parameter plots of EM data plus TMI and DTM.

In-phase and quadrature stacked profiles of EM data.

Digital Data

CD-ROM containing Final Located Data, Gridded Resistivity for each coplanar coil set, Gridded Total Magnetic Intensity and Gridded Digital Terrain Model.

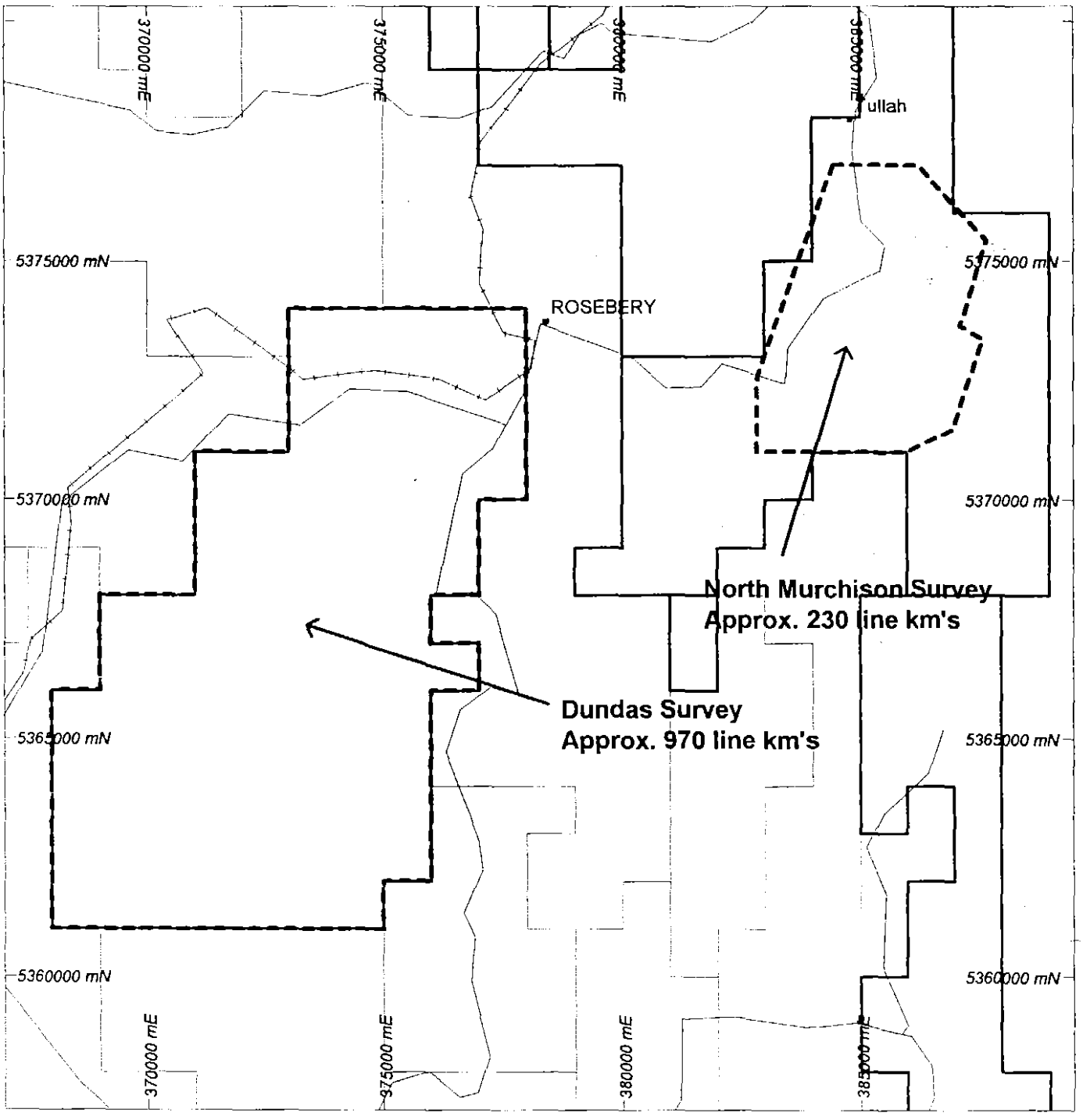
Operations Report

Data delivery included this Operations and Processing Report on the helicopter electromagnetic survey program and data processing.

629043

APPENDIX 1

Map of Areas Flown
and
List of Coordinates



HEM Survey Outline

Pasminco Tenure

Tasmania EL's

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

DUNDAS AND NORTH MURCHISON
HEM SURVEY
Location Plan

Date: 11 Feb 1999
Author: C Dauth
Office: ETS
Ref:
Scale: 1:125,000
Projection: SUTM55 AGD84
Figure: 1

COORDINATES OF SURVEY AREAS

North Murchison Survey		Dundas Survey	
East (mAMG)	North (mAMG)	East (mAMG)	North (mAMG)
384400	5377000	373000	5374000
386200	5377000	378000	5373900
387700	5375400	378000	5370000
387100	5373600	377000	5370000
387600	5373400	377000	5368000
387000	5371500	376000	5368000
386000	5371000	376000	5367000
382800	5371000	377000	5367000
382800	5372500	377000	5366000
		376000	5366000
		376000	5362000
		375000	5362000
		375000	5361000
		368000	5361000
		368000	5366000
		369000	5366000
		369000	5368000
		371000	5368000
		371000	5371000
		373000	5371000

APPENDIX 2

Digiital Data Formats

Digital Data Formats

Format for Located Electromagnetic and Magnetic Data

Column 1	Line number
Column 2	Easting
Column 3	Northing
Column 4	Fiducial
Column 5	Flight number
Column 6	Time (decimal hours)
Column 7	Rawmag (nT)
Column 8	Basemag (nT)
Column 9	Final mag (nT)
Column 10	In phase 7K
Column 11	In phase 7K lev
Column 12	In phase 7K zero
Column 13	In phase 6.6K
Column 14	In phase 6.6K lev
Column 15	In phase 6.6k zero
Column 16	In phase 980
Column 17	In phase 980 lev
Column 18	In phase 980 zero
Column 19	In phase 385
Column 20	In phase 385 lev
Column 21	In phase 385 zero
Column 22	In phase 34K
Column 23	In phase 34K lev
Column 24	In phase 34K zero
Column 25	Quadrature 7K
Column 26	Quadrature 7K lev
Column 27	Quadrature 7K zero
Column 28	Quadrature 6.6K
Column 29	Quadrature 6.6K lev
Column 30	Quadrature 6.6K zero
Column 31	Quadrature 980
Column 32	Quadrature 980 lev
Column 33	Quadrature 980 zero
Column 34	Quadrature 385
Column 35	Quadrature 385 lev
Column 36	Quadrature 385 zero
Column 37	Quadrature 34K
Column 38	Quadrature 34K lev
Column 39	Quadrature 34K zero
Column 40	Rad alt
Column 41	GPS alt
Column 42	DTM
Column 43	Temperature
Column 44	Resistivity 34K
Column 45	Resistivity 6.6K
Column 46	Resistivity 385

Digital Data Formats

Format for Gridded Data

All grids were delivered in Geosoft format and in ERMapper format.

APPENDIX 3

Operations Summary

629050

Specialists in Geophysical Instruments & Helicopter Surveys

GEO INSTRUMENTS
A.C.N. 000 978 174 Pty. Limited

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348 Rocky Point Road, Ramsgate
NSW 2217 Sydney, AUSTRALIA
Ph: +61 2 9529 2355 • Fax: +61 2 9529 9726
Email : sales@geoinstruments.com.au

FAX MESSAGE

29 March, 1999

TO	:	PASMINCO EXPLORATION	FAX #	:	(03) 9288 0211
ATTN	:	CHRIS DAUTH	FROM	:	MIKE SMITH
RE		DUNDAS AND NORTH MURCHISON HUMMINGBIRD EM SURVEY	PAGE	:	1 of 1

Ref: le6342

THIRD AND FINAL STATUS REPORT

ON SURVEY OPERATIONS TO 25 MARCH, 1999

DOY	DATE	FLIGHT	KMS	REMARKS
070	11/3	-	-	Equipment on site at Zeehan
071	12/3	-	-	Set up GPS base & base magnetometer
072	13/3	-	-	Helicopter on site. Installation completed.
073	14/3	-	-	Rain & low cloud all day. Standby
074	15/3	-	-	Rain & low cloud all day. Standby
075	16/3	-	-	Rain & low cloud all day. Standby
076	17/3	1-4	309	Dundas Block
077	18/3	5-8	214	Dundas Block
078	19/3	9-10	175	Dundas Block (Low cloud in am)
079	20/3	11-14	289	Dundas Block
080	21/3	-	-	Very heavy rain all day. Standby
081	22/3	-	-	Very strong winds all day. Standby
082	23/3	15-16	84	North Murchison Block (fog, cloud in am)
083	24/3	17-12	139	North Murchison Block
084	25/3	-	-	Demobilisation
TOTAL KILOMETRES			**1,210**	

Regards,

MIKE SMITH
MANAGER, AIRBORNE MARKETING & SALES

APPENDIX 4

Operators Flight Report

FLIGHT LOG FOR FLIGHT 01 DOY 76 LocalTime 09:06:57 Area 2 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
PRE.ALTB 6	F0100621	0	09:35:34	367762	5361227		
		181	09:37:05	368859	5360579	1.274	350
TRAVERSE 132	L0113221	181	09:44:05	367785	5360994		
		1156	09:52:13	375229	5361000	7.444	3108
TRAVERSE 131	L0113121	1156	09:53:31	375216	5361100		
		1731	09:58:18	370706	5361083	4.510	2030
PRE.ALTB 6	F0100622	1731	10:51:27	365121	5360269		
		1881	10:52:42	365688	5361157	1.054	295
TRAVERSE 131	L0113122	1881	10:55:46	367781	5361098		
		2721	11:02:46	375225	5361091	7.444	2698
TRAVERSE 130	L0113021	2721	11:03:42	375217	5361202		
		3441	11:09:41	367767	5361197	7.450	2297
TRAVERSE 129	L0112921	3441	11:10:31	367785	5361298		
		4146	11:16:24	375277	5361299	7.492	2169
PRE.ALTB 6	F0100623	4146	11:17:21	376848	5361564		
		4146	11:17:21	376860	5361571	0.014	1
PRE.ALTB 6	F0100624	4146	11:17:34	376860	5361571		
		4221	11:18:11	377596	5361595	0.736	349
TRAVERSE 128	L0112821	4221	11:19:43	375223	5361399		
		4861	11:25:03	367774	5361392	7.449	2006
TRAVERSE 127	L0112721	4861	11:25:51	367780	5361501		
		5476	11:30:58	375239	5361503	7.459	1845
TRAVERSE 126	L0112621	5476	11:31:45	375216	5361605		
		6176	11:37:34	367750	5361595	7.466	2156
PRE.ALTB 6	F0100625	6176	11:38:35	366323	5361363		
		6261	11:39:18	365832	5361522	0.516	171
TRAVERSE 125	L0112521	6261	11:40:53	367789	5361696		
		7046	11:47:27	375242	5361701	7.453	2480

F01.LOG

TRAVERSE	124	L0112421	0	12:03:40	367782	5361802		
			861	12:10:50	375236	5361793	7.454	2724
PRE.ALTB	6	F0100621	861	12:11:45	376793	5361825		
			866	12:11:47	376851	5361828	0.058	9
PRE.ALTB	6	F0100622	866	12:12:26	377758	5361912		
			916	12:12:50	377761	5361544	0.368	99
TRAVERSE	123	L0112321	916	12:14:49	375219	5361897		
			1826	12:22:24	367740	5361897	7.479	2993
PRE.ALTB	6	F0100623	1826	12:23:44	366107	5361488		
			1891	12:24:16	365376	5361177	0.794	130

FLIGHT LOG FOR FLIGHT 02 DOY 76 LocalTime 11:28:07 Area 2 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
PRE.ALTB 6	F0200621	0	15:50:30	364420	5360891		
		86	15:51:13	363867	5361611	0.908	172
TRAVERSE 122	L0212221	86	15:54:38	368221	5361995		
		976	16:02:03	376237	5361994	8.016	3019
TRAVERSE 121	L0212121	976	16:06:12	376214	5362095		
		1836	16:13:22	367765	5362098	8.449	2693
TRAVERSE 120	L0212021	1836	16:14:15	367779	5362196		
		2676	16:21:15	376230	5362199	8.451	2829
PRE.ALTB 6	F0200622	2676	16:22:03	377474	5362279		
		2681	16:22:05	377520	5362290	0.047	9
PRE.ALTB 6	F0200623	2681	16:22:18	377789	5362368		
		2751	16:22:52	378467	5362253	0.688	139
TRAVERSE 119	L0211921	2751	16:24:32	376224	5362296		
		3666	16:32:09	367759	5362291	8.465	3016
TRAVERSE 118	L0211821	3666	16:33:57	367781	5362394		
		4441	16:40:25	376235	5362399	8.454	2565
TRAVERSE 117	L0211721	4441	16:41:32	376219	5362504		
		5311	16:48:47	367732	5362492	8.487	2692
PRE.ALTB 6	F0200624	5311	16:49:23	367249	5362409		
		5381	16:49:58	366611	5362092	0.712	140
TRAVERSE 116	L0211621	5381	16:51:31	367777	5362594		
		6151	16:57:56	376227	5362604	8.450	2429
TRAVERSE 115	L0211521	6151	16:59:07	376217	5362699		
		7016	17:06:19	367731	5362694	8.486	2657
TRAVERSE 114	L0211421	7016	17:07:07	367785	5362796		
		7786	17:13:32	376238	5362809	8.453	2497
PRE.ALTB 6	F0200625	7786	17:14:22	377536	5362902		
		7881	17:15:09	378423	5362768	0.897	189
TRAVERSE 113	L0211321	7881	17:17:06	376222	5362891		
		8751	17:24:21	367723	5362896	8.499	2827
TRAVERSE 112	L0211221	8751	17:25:10	367778	5362999		
		9561	17:31:54	376245	5363006	8.467	2611
PRE.TEST 5	E0200521	9561	17:34:17	373123	5362357		
		9641	17:34:57	371892	5362363	1.231	332

FLIGHT LOG FOR FLIGHT 03 DOY 83 LocalTime 06:52:27 Area 1 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.TEST	5	E0300511	0	08:56:51	366024	5365835		
			61	08:57:22	366726	5366195	0.789	61
TRAVERSE	23	L0302311	61	09:07:17	382937	5373241		
			656	09:12:14	387228	5371777	4.534	388
TRAVERSE	24	L0302411	656	09:13:19	387250	5371868		
			1256	09:18:19	382925	5373354	4.573	497
TRAVERSE	25	L0302511	1256	09:20:17	383008	5373438		
			1821	09:24:59	387301	5371956	4.542	386
TRAVERSE	26	L0302611	1821	09:25:42	387303	5372064		
			2331	09:29:56	383009	5373532	4.538	398
TRAVERSE	27	L0302711	2331	09:30:51	383071	5373628		
			2931	09:35:52	387350	5372153	4.526	455
TRAVERSE	28	L0302811	2931	09:36:37	387364	5372248		
			3406	09:40:34	383059	5373719	4.549	417
PRE.ALTB	6	F0300611	3406	09:41:30	381904	5373418		
			3461	09:41:58	381594	5373099	0.445	108
TRAVERSE	29	L0302911	3461	09:44:18	383140	5373812		
			4041	09:49:08	387407	5372353	4.510	455
TRAVERSE	30	L0303011	4041	09:49:46	387429	5372447		
			4531	09:53:51	383145	5373905	4.525	388
TRAVERSE	31	L0303111	4531	09:54:32	383201	5374002		
			5041	09:58:47	387461	5372536	4.505	385
TRAVERSE	32	L0303211	5041	09:59:26	387485	5372630		
			5566	10:03:48	383213	5374100	4.518	430
TRAVERSE	33	L0303311	5566	10:04:56	383271	5374190		
			6031	10:08:49	387529	5372732	4.501	405
TRAVERSE	34	L0303411	6031	10:09:19	387546	5372822		
			6516	10:13:22	383297	5374276	4.491	388
TRAVERSE	35	L0303511	6516	10:14:20	383338	5374382		
			7041	10:18:42	387598	5372913	4.506	423
TRAVERSE	36	L0303611	7041	10:19:28	387610	5373011		
			7551	10:23:43	383365	5374477	4.491	406

F03.LOG

TRAVERSE	37	L0303711	7551	10:24:36	383411	5374570		
			8151	10:29:36	387650	5373103	4.486	334
TRAVERSE	38	L0303811	8151	10:30:24	387670	5373207		
			8661	10:34:39	383404	5374671	4.510	381
PRE.ALTB	6	F0300612	8661	10:35:46	382368	5374691		
			8701	10:36:06	382179	5374731	0.193	80
TRAVERSE	39	L0303911	8701	10:38:17	383472	5374762		
			9201	10:42:27	387718	5373296	4.492	451
TRAVERSE	40	L0304011	9201	10:43:37	387728	5373390		
			9671	10:47:32	383472	5374856	4.501	354
TRAVERSE	41	L0304111	9671	10:48:41	383540	5374951		
			10041	10:51:46	387253	5373654	3.933	244
TRAVERSE	42	L0304211	10041	10:52:46	387279	5373757		
			10326	10:55:09	383535	5375035	3.956	150
PRE.ALTB	6	F0300613	10326	10:56:59	381280	5373085		
			10411	10:57:41	379874	5372157	1.685	168

FLIGHT LOG FOR FLIGHT 04 DOY 77 LocalTime 07:36:40 Area 2 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
PRE.ALTB 6	F0400622	0	09:26:21	363343	5358467		
		51	09:26:47	363011	5359071	0.689	102
TRAVERSE 103	L0410321	51	09:31:58	367780	5363909		
		1121	09:40:53	376230	5363898	8.450	3435
TRAVERSE 102	L0410221	1121	09:42:30	376222	5364003		
		2126	09:50:52	367773	5363998	8.449	3371
TRAVERSE 101	L0410121	2126	09:52:05	367780	5364102		
		3316	10:01:59	376273	5364095	8.493	3723
PRE.ALTB 6	F0400623	3316	10:02:52	377166	5364272		
		3381	10:03:25	377308	5363928	0.372	129
TRAVERSE 100	L0410021	3381	10:06:45	376215	5364196		
		4321	10:14:35	367737	5364203	8.478	3106
TRAVERSE 99	L0409921	4321	10:15:51	367778	5364303		
		5466	10:25:23	376242	5364304	8.464	3620
TRAVERSE 98	L0409821	5466	10:26:28	376220	5364402		
		6541	10:35:26	367774	5364396	8.446	3575
PRE.TEST 5	E0400521	6541	10:37:07	366885	5363987		
		6611	10:37:42	366507	5363953	0.380	243
TRAVERSE 97	L0409721	6611	10:39:33	367777	5364501		
		7766	10:49:10	376230	5364505	8.453	3850
TRAVERSE 96	L0409621	7766	10:50:15	376221	5364601		
		8861	10:59:22	367751	5364599	8.470	3889
TRAVERSE 95	L0409521	8861	11:00:37	367779	5364701		
		10051	11:10:32	376258	5364703	8.479	3912
TRAVERSE 94	L0409421	10051	11:11:27	376220	5364799		
		11121	11:20:22	367766	5364799	8.454	3673
PRE.ALTB 6	F0400624	11121	11:22:30	365220	5363083		
		11186	11:23:03	364523	5362634	0.829	129

FLIGHT LOG FOR FLIGHT 05 DOY 83 LocalTime 11:45:51 Area 1 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
PRE1.GND	1	A0500111	0	11:49:23	370783 5364242		
			151	11:50:45	367468 5361935	4.039	306

FLIGHT LOG FOR FLIGHT 06 DOY 83 LocalTime 12:10:20 Area 1 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.ALTB	6	F0600611	0	12:19:17	366347	5364227		
			71	12:19:53	367042	5365120	1.132	159

FLIGHT LOG FOR FLIGHT 06 DOY 83 LocalTime 12:23:12 Area 1 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE1.GND	1	A0600111	0	12:23:33	372255	5367822		
			31	12:23:48	372710	5367764	0.459	61

FLIGHT LOG FOR FLIGHT 07 DOY 83 LocalTime 12:32:51 Area 1 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
TRAVERSE 43	L0704311	0	12:35:50	383617	5375136		
		326	12:38:33	387320	5373852	3.919	172
TRAVERSE 44	L0704411	326	12:39:25	387348	5373948		
		466	12:40:35	387483	5373892	0.146	91
TRAVERSE 45	L0704511	466	12:40:31	385828	5374468		
		596	12:41:36	383911	5375061	2.007	280

FLIGHT LOG FOR FLIGHT 20 DOY 83 LocalTime 12:44:40 Area 1 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms

FLIGHT LOG FOR FLIGHT 07 DOY 83 LocalTime 12:50:41 Area 1 Datum = AGD84

Line	File	Fid	Time	East	North	Len	Alarms
TRAVERSE 45	L0704512	0	12:52:51	383681	5375323		
		356	12:55:48	387409	5374036	3.944	287
TRAVERSE 46	L0704611	356	12:56:35	387403	5374141		
		666	12:59:09	383660	5375428	3.958	247
TRAVERSE 47	L0704711	666	13:00:10	383740	5375512		
		1006	13:03:00	387455	5374235	3.928	261
TRAVERSE 48	L0704811	1006	13:03:43	387473	5374332		
		1361	13:06:40	383757	5375607	3.929	277
TRAVERSE 49	L0704911	1361	13:07:27	383805	5375694		
		1701	13:10:17	387542	5374413	3.950	214
TRAVERSE 50	L0705011	1701	13:11:31	387538	5374521		
		2096	13:14:48	383799	5375799	3.951	217
PRE.ALTB 6	F0700611	2096	13:15:27	382905	5375860		
		2141	13:15:49	382909	5375964	0.104	90

TRAVERSE	51	L0705111	2141	13:17:10	383877	5375888		
			2566	13:20:42	387578	5374614	3.914	255
TRAVERSE	52	L0705211	2566	13:21:19	387600	5374710		
			3011	13:25:02	383903	5375982	3.910	301
TRAVERSE	53	L0705311	3011	13:25:59	383942	5376074		
			3451	13:29:39	387635	5374835	3.895	326
TRAVERSE	54	L0705411	3451	13:30:13	387659	5374899		
			4011	13:34:53	383951	5376170	3.920	445
TRAVERSE	55	L0705511	4011	13:36:23	384012	5376268		
			4471	13:40:13	387703	5375004	3.901	250
TRAVERSE	56	L0705611	4471	13:40:43	387724	5375081		
			4986	13:45:01	383996	5376321	3.929	562
PRE.ALTB	6	F0700612	4986	13:45:55	382978	5375981		
			4991	13:45:57	382961	5375929	0.055	9
PRE.ALTB	6	F0700613	4991	13:46:04	382901	5375762		
			5036	13:46:26	382619	5375146	0.677	89

FLIGHT LOG FOR FLIGHT 08 DOY 78 LocalTime 11:44:49 Area 2 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
POST.ALT	7	H0800721	0	12:02:56	372936	5372849		
			61	12:03:26	372438	5372320	0.727	121
TRAVERSE	18	L0801821	61	12:06:40	372776	5372406		
			536	12:10:38	378242	5372404	5.466	205
TRAVERSE	19	L0801921	536	12:11:28	378225	5372300		
			1001	12:15:20	372721	5372298	5.504	240
TRAVERSE	20	L0802021	1001	12:16:11	372778	5372201		
			1496	12:20:18	378257	5372207	5.479	240
TRAVERSE	21	L0802121	1496	12:21:18	378219	5372097		
			1981	12:25:20	372742	5372094	5.477	183
TRAVERSE	22	L0802221	1981	12:26:13	372782	5372003		
			2481	12:30:23	378234	5372006	5.452	284
TRAVERSE	23	L0802321	2481	12:31:25	378219	5371894		
			3041	12:36:05	372747	5371898	5.472	328
PRE.ALTB	6	F0800621	3041	12:36:51	371837	5371770		
			3041	12:36:51	371829	5371768	0.008	1
PRE.ALTB	6	F0800622	3041	12:37:13	371518	5371663		
			3091	12:37:38	371313	5371733	0.217	100
TRAVERSE	24	L0802421	3091	12:39:22	372783	5371805		
			3666	12:44:09	378264	5371800	5.481	337
TRAVERSE	25	L0802521	3666	12:45:13	378218	5371699		
			4276	12:50:17	372720	5371697	5.498	259
TRAVERSE	26	L0802621	4276	12:51:21	372776	5371604		
			4941	12:56:53	378231	5371605	5.455	415
TRAVERSE	27	L0802721	4941	12:57:55	378221	5371501		
			5521	13:02:45	372745	5371495	5.476	320
TRAVERSE	28	L0802821	5521	13:03:40	372775	5371409		
			6091	13:08:26	378228	5371405	5.453	245
PRE.ALTB	6	F0800623	6091	13:09:12	379029	5371474		
			6161	13:09:47	379242	5371344	0.250	140

FLIGHT LOG FOR FLIGHT 09 DOY 78 LocalTime 14:27:30 Area 2 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.ALTB	6	F0900621	0	14:49:38	365332	5367426		
			76	14:50:16	365844	5368852	1.515	152
TRAVERSE	12	L0901222	76	14:54:45	372780	5373001		
			451	14:57:52	377560	5373001	4.780	141
TRAVERSE	15	L0901522	451	15:00:24	378222	5372702		
			916	15:04:16	372756	5372692	5.466	261
TRAVERSE	18	L0901822	916	15:05:47	372783	5372406		
			1346	15:09:22	378245	5372392	5.462	173
TRAVERSE	29	L0902921	1346	15:11:03	378216	5371296		
			1886	15:15:33	372726	5371295	5.490	157
TRAVERSE	30	L0903021	1886	15:16:37	372778	5371201		
			2446	15:21:16	378239	5371199	5.461	146
TRAVERSE	31	L0903121	2446	15:22:08	378222	5371096		
			3106	15:27:37	370765	5371097	7.457	150
PRE.ALTB	6	F0900622	3106	15:28:52	369854	5371718		
			3166	15:29:22	369737	5371899	0.216	119
TRAVERSE	32	L0903221	3166	15:31:11	370775	5371006		
			3921	15:37:28	378250	5371005	7.475	194
TRAVERSE	33	L0903321	3921	15:38:14	378222	5370898		
			4631	15:44:08	370744	5370895	7.478	190
TRAVERSE	34	L0903421	4631	15:44:55	370782	5370799		
			5356	15:50:57	378239	5370802	7.457	133
TRAVERSE	35	L0903521	5356	15:51:46	378219	5370700		
			6071	15:57:43	370762	5370698	7.457	117
TRAVERSE	36	L0903621	6071	15:58:43	370781	5370599		
			6816	16:04:55	378238	5370595	7.457	170
PRE.ALTB	6	F0900623	6816	16:05:29	379090	5370545		
			6891	16:06:06	379630	5370547	0.540	148
TRAVERSE	37	L0903721	6891	16:07:49	378225	5370496		
			7596	16:13:41	370758	5370498	7.467	161
TRAVERSE	38	L0903821	7596	16:14:32	370785	5370398		
			8421	16:21:24	378278	5370402	7.493	263

F09.LOG

TRAVERSE	39	L0903921	8421	16:22:12	378225	5370299		
			9126	16:28:05	370771	5370296	7.454	186
TRAVERSE	40	L0904021	9126	16:29:07	370776	5370198		
			9821	16:34:55	378230	5370198	7.454	179
TRAVERSE	41	L0904121	9821	16:35:37	378220	5370105		
			10511	16:41:21	370726	5370097	7.494	104
PRE.ALTB	6	F0900624	10511	16:44:28	367348	5366766		
			10566	16:44:55	366834	5366088	0.851	110

FLIGHT LOG FOR FLIGHT 10 DOY 78 LocalTime 17:04:47 Area 2 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.ALTB	6	F1000621	0	17:08:32	365399	5366078		
			71	17:09:08	366073	5367232	1.336	142
TRAVERSE	42	L1004221	71	17:12:49	370778	5370003		
			966	17:20:16	378240	5370002	7.462	181
TRAVERSE	43	L1004321	966	17:22:01	377223	5369904		
			1596	17:27:16	370744	5369896	6.479	144
TRAVERSE	44	L1004421	1596	17:28:07	370786	5369800		
			2326	17:34:12	377243	5369807	6.457	193
TRAVERSE	45	L1004521	2326	17:35:06	377219	5369699		
			2961	17:40:24	370763	5369697	6.456	142
PRE.ALTB	6	F1000622	2961	17:41:51	371583	5372287		
			3026	17:42:24	372560	5373293	1.402	129
TIE.LINE	11	T1001121	3026	17:47:00	376898	5374315		
			3636	17:52:05	377997	5369067	5.362	528
TIE.LINE	10	T1001021	3636	17:55:51	376987	5365639		
			3646	17:55:56	376986	5365735	0.096	1
TIE.LINE	10	T1001022	3646	17:57:49	376990	5365779		
			4526	18:05:08	376982	5374252	8.473	166
TIE.LINE	9	T1000921	4526	18:06:56	376001	5374220		
			4571	18:07:19	375997	5373884	0.336	28

F10.LOG

FLIGHT LOG FOR FLIGHT 10 DOY 78 LocalTime 18:09:15 Area 2 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.ALTB	6	F1000621	0	18:10:20	375225	5375735		
			56	18:10:48	375417	5375972	0.305	112
TIE.LINE	9	T1000922	56	18:17:29	375999	5374223		
			1151	18:26:36	376002	5361700	12.523	189
TIE.LINE	8	T1000821	1151	18:29:12	374993	5360784		
			2281	18:38:37	374988	5374291	13.507	304
TIE.LINE	1	T1000121	2281	18:44:37	368022	5366217		
			2821	18:49:07	368024	5360713	5.504	53
PRE.ALTB	6	F1000622	2821	18:50:08	367935	5360064		
			2896	18:50:46	365906	5359902	2.035	151

FLIGHT LOG FOR FLIGHT 11 DOY 79 LocalTime 08:16:24 Area 2 Datum = AGD84

Line		File	Fid	Time	East	North	Len	Alarms
PRE.ALTB	6	F1100621	0	09:43:27	365949	5367708		
			61	09:43:57	366346	5368823	1.184	122
TRAVERSE	46	L1104621	61	09:47:13	370777	5369605		
			941	09:54:33	377235	5369602	6.458	308
TRAVERSE	47	L1104721	941	09:55:42	377225	5369504		
			1646	10:01:34	370763	5369497	6.462	114
TRAVERSE	48	L1104821	1646	10:02:40	370779	5369400		
			2426	10:09:10	377237	5369409	6.458	200
TRAVERSE	49	L1104921	2426	10:09:57	377223	5369295		
			3111	10:15:39	370759	5369294	6.464	187
TRAVERSE	50	L1105021	3111	10:16:35	370776	5369204		
			3921	10:23:21	377227	5369198	6.451	195
TRAVERSE	51	L1105121	3921	10:24:21	377220	5369102		
			4646	10:30:23	370764	5369101	6.456	170
PRE.TEST	5	E1100521	4646	10:31:25	369764	5369419		
			4706	10:31:54	369742	5369584	0.166	60
TRAVERSE	52	L1105221	4706	10:34:03	370777	5369005		
			5621	10:41:41	377240	5368998	6.463	244
TRAVERSE	53	L1105321	5621	10:42:28	377224	5368892		
			6296	10:48:05	370732	5368900	6.492	200
TRAVERSE	54	L1105421	6296	10:49:11	370777	5368800		
			7171	10:56:28	377244	5368804	6.467	219
TRAVERSE	55	L1105521	7171	10:57:13	377225	5368697		
			7846	11:02:50	370768	5368693	6.457	158
PRE.ALTB	6	F1100622	7846	11:05:33	371618	5369824		
			7916	11:06:08	371827	5368995	0.855	139
TRAVERSE	56	L1105621	7916	11:09:43	370775	5368605		
			8716	11:16:23	377237	5368603	6.462	197
TRAVERSE	57	L1105721	8716	11:17:22	377222	5368498		
			9371	11:22:49	370767	5368493	6.455	401
TRAVERSE	58	L1105821	9371	11:23:44	370775	5368399		
			10126	11:30:01	377230	5368404	6.455	219
PRE.ALTB	6	F1100623	10126	11:32:20	375197	5367276		
			10236	11:33:15	373493	5366344	1.942	220

FLIGHT LOG FOR FLIGHT 18 DOY 83 LocalTime 11:45:51 Area 1 Datum = AGD8

Line	File	Fid	Time	East	North	Len	Alarms
PRE1.GND 1	A0500111	0	11:49:23	370783	5364242		
		151	11:50:45	367468	5361935	4.039	306

APPENDIX TWO

Dundas HEM Survey Memo

629070

MEMORANDUM

30 November, 1999

PASMINCO
EXPLORATION

TO	Andrew McNeill
COPY	
FROM	Chris Dauth
SUBJECT	Dundas HEM Survey

INTRODUCTION

A high resolution helicopter-borne frequency domain electromagnetic (HEM) and magnetic survey was conducted in April 1999 over the Dundas EL 22/90 in Western Tasmania. The Dundas EL is situated less than 1 kilometre to the west of the town of Rosebery. The survey was flown by Geo Instruments Pty Ltd for Pasminco Exploration who are currently exploring the ground for Rosebery style Pb-Zn-Ag-Au mineralisation. The aim of the survey was to detect anomalous conductive response in the EM data that could be directly targeted for base-metals mineralisation. It is conceptual that massive sulphide mineralisation within a base-metals mineralised system would comprise a sufficient quantity (with suitable geometrical distribution) of conductive sulphide minerals (eg galena, pyrite, pyrrhotite, and chalcopyrite) to produce a recognisable EM response. An additional aim of the survey was to facilitate geological mapping of the region to assist with defining prospective horizons on which to focus more detailed exploration using alternative techniques.

This MEMO briefly summarises the survey results for the purpose of annual reporting of work completed to the Mines Department. A full interpretation of results is still pending.

SURVEY SPECIFICATIONS

Survey specifications for the helicopter-borne aeromagnetic and electromagnetic data are summarised as follows :

Date of Survey:	March 1999
Contractor:	Geo Instruments Pty Ltd
Aircraft:	Aerospatiale AS350BA "Squirrel"
Magnetometer:	Geometrics G822A (within the towed bird)
EM System:	GeoTech Hummingbird 5-frequency
Co-Axial Coil Freq.:	980 Hz and 7001 Hz
Co-Planar Coil Freq.:	385 Hz, 6606 Hz, and 34133 Hz
Recording Interval:	0.1 second (approx. 1-4 m)
Helicopter Clearance:	60 metres
Towed Bird Clearance:	30 metres
Line Spacing:	100 metres
Line Direction:	090°-270°

For Direct Response: Telephone: 61 (0)3 9288 0333 Facsimile: 61 (0)3 9288 0211
Pasminco Exploration A Division of Pasminco Australia Limited ACN 004 074 962 • Level 7 380 St Kilda Road Melbourne 3004 Australia
GPO Box 1291K Melbourne 3001 • Telephone (03) 9288 0333 • Facsimile (03) 9288 0211

Tie Line Spacing:	1000 metres
Tie Line Direction:	000°-180°
Navigation:	Real Time GPS
GPS Receiver:	Novatel 951R
Altimeter:	Sperry AA210
Acquisition System:	Geo Instruments G2002
Processing By:	Geo Instruments Pty Ltd
Total Line km's:	987

SURVEY RESULTS

Final located survey data have been provided in GEOSOFT XYZ format. Apparent resistivity, total magnetic intensity, and digital terrain model grids have been produced in ERMapper and GEOSOFT format for the purpose of image interpretation. All have been plotted at 1:25,000 scale in hardcopy (included accompanying this MEMO) and have been entered into the GIS database in a MAPINFO format. In addition, stacked profile plots of every line were produced to assist with data interpretation.

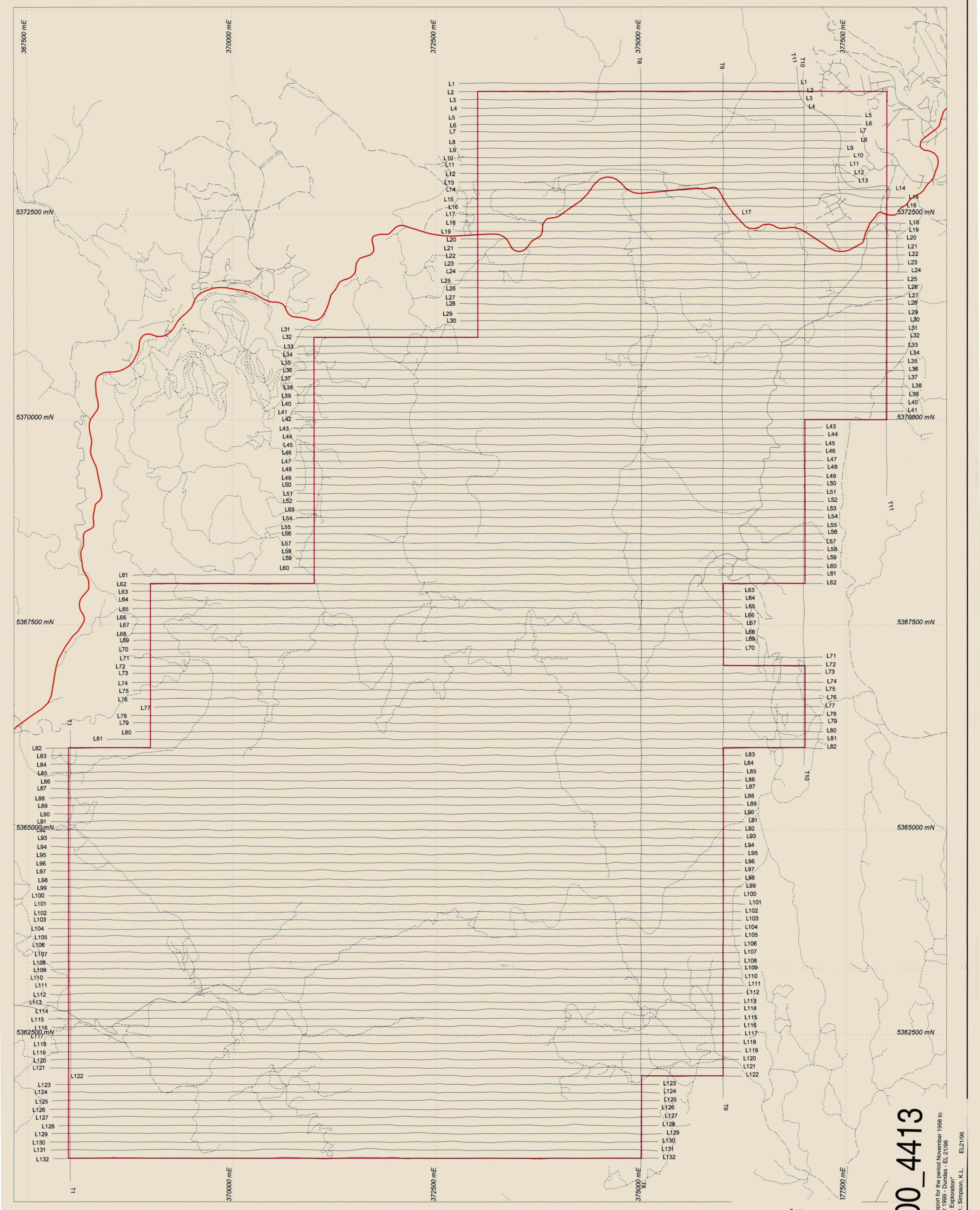
Grids of each coil frequency in units of PPM were produced highlighting problems associated with levelling of survey data. Tie line levelling of survey data was not attempted due to problems associated with maintaining survey altitude in the rugged terrain. Levelling of EM data using high altitude calibration runs was similarly not used due to rapid changes in temperature with height making these calibrations unreliable. In the end the EM survey data were levelled by taking background from areas of low EM relief.

A suite of anomalous EM responses can be delineated in the data. Most of these can be related to shallow glacial cover. several responses worthy of further investigation have been identified and will most likely be the stimulus for a full interpretation of the EM survey data and integration with existing geological information.

RECOMMENDATIONS

The HEM survey data should be interpreted integrating all available geological information. Targets that remain should be ground tested since it is unlikely that conductors greater than 150m metres below surface would be identified.

For Direct Response: Telephone: 61 (0)3 9288 0333 Facsimile: 61 (0)3 9288 0211
Pasminco Exploration A Division of Pasminco Australia Limited ACN 004 074 962 • Level 7 380 St Kilda Road Melbourne 3004 Australia
GPO Box 1291K Melbourne 3001 • Telephone (03) 9288 0333 • Facsimile (03) 9288 0211

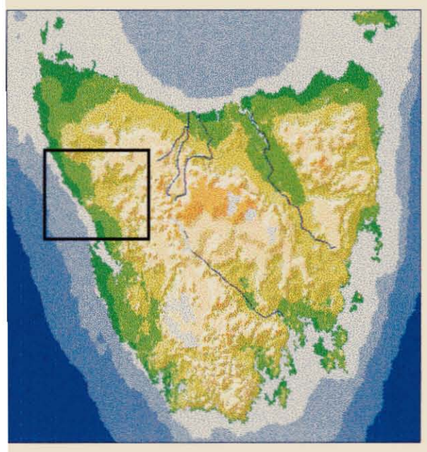


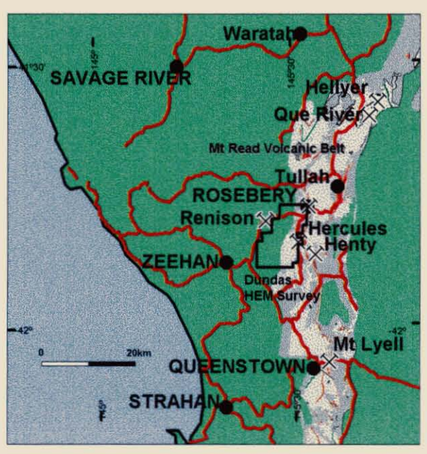
Legend

Road

Track

Pasminco EL (September 1999)





Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A

EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

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Annual Report for the period November 1998 to November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, O.; Simpson, K.L.
EL21/96

629072

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

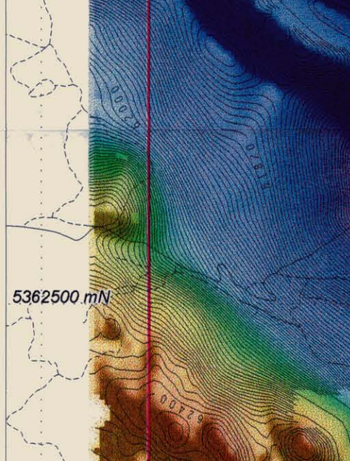
DUNDAS EL21/96
Heliborne Electromagnetic Survey
Flight Path Diagram

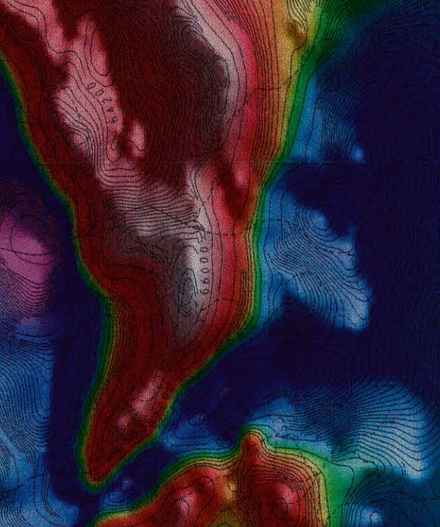
Date: Nov 1999		
Author: C Dauth		
Office: ETS		
Ref:		
Scale: 1:25,000	Projection: SUTM55 AGD84	PLAN: 1

367500 mE
370000 mE
372500 mE
375000 mE
377500 mE
5372500 mN
5370000 mN
5367500 mN
5365000 mN
5362500 mN

Legend

Road
Track
Pasminco EL (September 1999)





Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A

EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Processing Details

Diurnal removal
IGRF applied
Data gridded at 25m cell size

Contour Specifications

Parameter: TMI
Interval: 10 nT
Dropout: 0.4 mm

Image Specifications

SURFACE 1 Transparency 60%
Layer 1: TMI
Colour Table: Rainbow1
Limits: 100%
Histogram Transform: See Below

SURFACE 2
Layer 1: TMI
Limits: 100%
Colour Table: Intensity
Histogram Transform: None
Sunangle: NE at 45 degrees

TMI colour histogram transform

nanoTesla

Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

629073

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Annual Report for the period November 1998 to November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, O.; Simpson, K.L. EL21/96

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

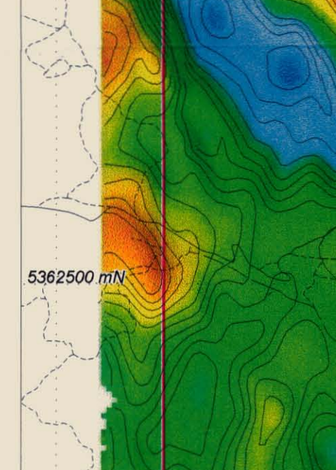
DUNDAS EL21/96
Heliborne Electromagnetic Survey
TMI Image and Contours

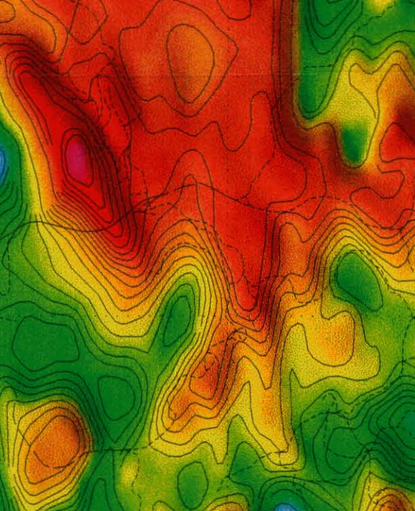
Date: Nov 1999		
Author: C Dauth		
Office: ETS		
Ref:		
Scale: 1:25,000	Projection: SUTM55 AGD84	PLAN: 2

367500 mE
370000 mE
372500 mE
375000 mE
377500 mE
5372500 mN
5370000 mN
5367500 mN
5365000 mN
5362500 mN

Legend

Road
Track
Pasminco EL (September 1999)





Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A
EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Image Specifications

GEOSOFT "Colour Shaded Grid"
Parameter: Log App. Res.
Colour Table: Colour_Reverse.tbl
Limits: 100%
Histogram Transform: Linear
Sunangle: NE at 45 degrees

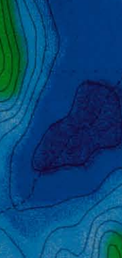
Contour Specifications

Parameter: App. Res. at 34KHz
Interval: 0.1 Log App. Res.
Dropout: 0.4 mm

Processing Details

Data levelled using background ppm levels.
Apparent Resistivity computed for a half-space response.
Data gridded at 25m cell size.

Log App. Res. (ohm.m)



Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

629074

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Annual Report for the period November 1998 to November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, O.; Simpson, K.L.
EL21/96

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

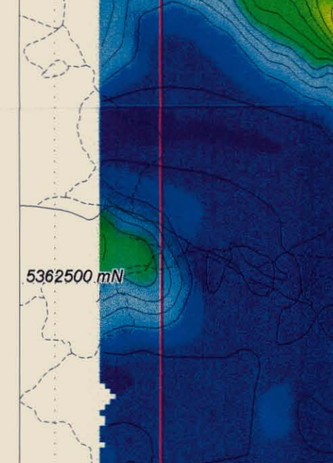
DUNDAS EL21/96
Heliborne Electromagnetic Survey
Image of Apparent Resistivity
Coplaner Coils at 34133 Hz

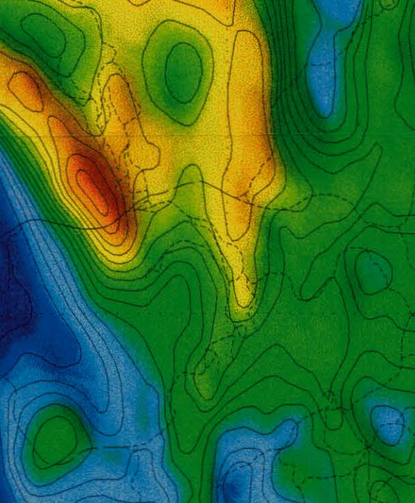
Date: Nov 1999		
Author: C Dauth		
Office: ETS		
Ref:		
Scale: 1:25,000	Projection: SUTM55 AGD84	PLAN: 3

367500 mE
370000 mE
372500 mE
375000 mE
377500 mE
5372500 mN
5370000 mN
5367500 mN
5365000 mN
5362500 mN

Legend

Road
Track
Pasminco EL (September 1999)





Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A
EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Image Specifications

GEOSOFT "Colour Shaded Grid"
Parameter: Log App. Res.
Colour Table: Colour_Reverse.tbl
Limits: Clipped 1-3.4
Histogram Transform: Linear
Sunangle: NE at 45 degrees

Contour Specifications

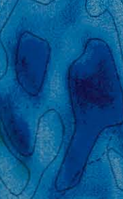
Parameter: App. Res. at 6KHz
Interval: 0.1 Log App. Res.
Dropout: 0.4 mm

Processing Details

Data levelled using background ppm levels.
Apparent Resistivity computed for a half-space response.
Data gridded at 25m cell size.

3.5 3.3 3.3 3.2 3.2 3.1 3.0 3.0 2.9 2.9 2.8 2.7 2.7 2.6 2.6 2.5 2.5 2.4 2.3 2.3 2.2 2.2 2.1 2.0 2.0 1.9 1.9 1.8 1.8 1.7 1.6 1.6 1.5 1.5 1.4 1.3 1.3 1.2 1.2 1.1 1.1 0.0

Log App. Res. (ohm.m)



Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

629075

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

DUNDAS EL21/96
Heliborne Electromagnetic Survey
Image of Apparent Resistivity
Coplaner Coils at 6606 Hz

Date: Nov 1999	
Author: C Dauth	
Office: ETS	
Ref:	
Scale: 1:25,000	Projection: SUTM55 AGD84
	PLAN: 4

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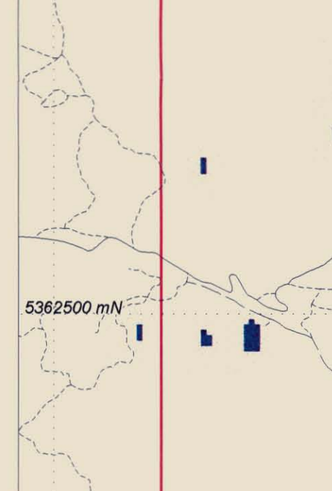
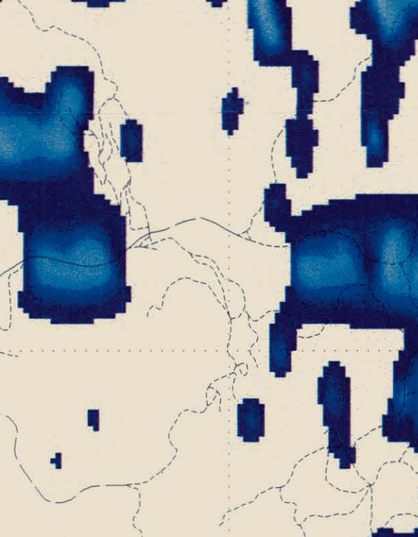
Annual Report for the period November 1998 to
November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, D ; Simpson, K.J

367500 mE
370000 mE
372500 mE
375000 mE
377500 mE
5372500 mN
5370000 mN
5367500 mN
5365000 mN
5362500 mN

Legend

Road
Track
Pasminco EL (September 1999)





Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A

EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Image Specifications

GEOSOFT "Colour Shaded Grid"
Parameter: Log App. Res.
Colour Table: Colour_Reverse.tbl
Limits: 100%
Histogram Transform: Linear
Sunangle: NE at 45 degrees

Contour Specifications

Parameter: App. Res. at 385Hz
Interval: 0.1 Log App. Res.
Dropout: 0.4 mm

Processing Details

Data levelled using background ppm levels.
Apparent Resistivity computed for a half-space response.
Data gridded at 25m cell size.

Log App. Res. (ohm.m)

Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

629076

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Annual Report for the period November 1998 to November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, O.; Simpson, K.L. EL21/96

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

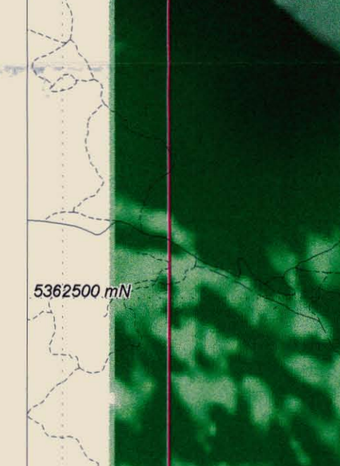
DUNDAS EL21/96
Heliborne Electromagnetic Survey
Image of Apparent Resistivity
Coplaner Coils at 385 Hz

Date: Nov 1999		
Author: C Dauth		
Office: ETS		
Ref:		
Scale: 1:25,000	Projection: SUTM55 AGD84	PLAN: 5

367500 mE
370000 mE
372500 mE
375000 mE
377500 mE
5372500 mN
5370000 mN
5367500 mN
5365000 mN
5362500 mN

Legend

Road
Track
Pasminco EL (September 1999)



Survey Specifications

Survey Date: March 1999
Contractor: Geo Instruments Pty Ltd
Line Spacing: 100m
Line Direction: 090-270 degrees
Sample Interval: 0.1 sec (1-4 m)
Terrain Clearance: Nominal 60m
Bird Clearance: Nominal 30m
Magnetometer: Geometrics G822A

EM System: Geotech Hummingbird
Frequencies: 34K, 7001Hz, 6606Hz, 980Hz, and 385Hz
Flight Path Recovery: Real Time GPS
GPS: Novatel 951R GPS Receiver
Radar Altimeter: Sperry AA210
GPS Base Station: Fugro Melbourne
Aircraft: Squirrel

Image Specifications

SURFACE 1 Transparency 60%
Layer 1: 1/DEM
Colour Table: Green
Limits: 100%
Histogram Transform: Linear

SURFACE 2
Layer 1: DEM
Colour Tabel: Intensity
Limits: 100%
Histogram Transform: Linear
Sunangle: NE at 45 degrees

Processing Details

DTM computed by
RADAR ALT - GPS Height.
Heights transformed to AHD.
Data gridded at 25m cell size.

Magnetic Inclination: 72.23 degrees
Magnetic Declination: 13.29 degrees

5 cm

Scale 1:25,000

0 500 1000 1500 2000 2500 m

Distances in Metres

Projection: UTM
Datum: AGD84
Zone: UTMS55

629077

PASMINCO EXPLORATION
ETS Melbourne

TASMANIA

DUNDAS EL21/96
Heliborne Electromagnetic Survey
Image of
Digital Elevation Model

Date: Nov 1999		
Author: C Dauth		
Office: ETS		
Ref:		
Scale: 1:25,000	Projection: SUTM55 AGD84	PLAN: 6

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Annual Report for the period November 1998 to November 1999 - Dundas - EL 21/96
Pasminco Exploration*
Parfrey, O.; Simpson, K.L.
EL21/96