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Anglo Australian Resources N.L.

Annual Report

1996

EL 37/94

"LEBRINA"

MICROFILMED
FICHE No. 014070-71

EL 38/94

"NABOWLA"

EL37/94 EL
28 OCT 1996 38/94
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See folio 17
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See folio 69

OPEN FILE

Russell Fulton
Grant MacDonald
October, 1996

96-3928

ANNUAL REPORT 1996 - EL 37/94
"LEBRINA" & EL 38/94 "NABOWLA"
ANGLO AUST. RES. - FULTON/MACDONALD

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Historical research has indicated that the Denison area has the potential to host high grade mesothermal structurally controlled/hosted gold-quartz reefs. Although generally narrow, widths of up to 0.45 metres are reported with grades in excess of 1oz/tonne not uncommon.

A single RC drill hole was targeted under the Sir Willam Denison old workings. No significant amounts of quartz were seen in the chips, no shallow granitoid nor thermally metamorphosed rocks were intersected and gold grades were very low.

Rock chip samples were taken from old workings and gave a maximum gold assay of 5.8 g/t at Denison and 5.3 g/t at Lebrina. Battery sands from the Lebrina mine returned a maximum grade of 4.8 g/t.

Landsat image interpretation was undertaken and successfully picked out linear features associated with the lithologically-based NNW trends, and also NNE trends, which are strongly developed in the Lefroy goldfield area but more subtle in the Denison goldfield area and not obvious from the magnetic data.

Enhancement and interpretation of recently acquired aeromagnetic, gravity and radiometric images show that in the vicinity of the Denison goldfield, the Lebrina mine, and an area north of the Denison goldfield and along strike from the Lefroy goldfield, there are distinctive geophysical anomalies.

2.0 INTRODUCTION

2.1 Location

E.L. 37/94 "Lebrina" and E.L. 38/94 "Nabowla" are located in northeast Tasmania, west of Scottsdale and north of Lilydale (Figure 1).

2.2 Tenure

The licences were granted to Silverthorne Resources on the 11th of November, 1994. Anglo Australian Resources N.L. joint ventured into the licence on Each licence covers an area of 250 square kilometres.

2.3 Land Status/Usage

The majority of the land area covered by the E.L.s is private freehold land and is used for a variety of purposes including private forestry, cropping, and mixed farming. The remainder is mostly State Forest and is being used for production forestry.

2.4 Topography/Vegetation

Both E.L.s consists of gently undulating topography covered by open dry eucalyt forest where clearing for agriculture has not taken place. Gullies carry wetter, denser vegetation.

2.5 Access

Access is generally very good. There are many roads and tracks in areas cleared for agriculture and where logging operations have been or are taking place. The Denison goldfield is approximately 30-40 minutes drive from Launceston

Figure 1. Location map for EL 37/94 - Lebrina and EL 38/94 - Nabowla
Scale 1:250,000

5 cm



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AMG REFERENCE POINTS ADDED

The Eastern Tasmanian Terrane (Banks and Baillie, 1989) is the southernmost Australian expression of the Lachlan Fold Belt, and in north-eastern Tasmania it is comprised of an early Ordovician to early Devonian folded succession of turbiditic quartzwackes and pelites, the Mathinna Group (Powell and Baillie, 1993), which have been correlated with rocks of the Melbourne Trough in Victoria. Mathinna Group rocks have undergone regional low-grade metamorphism, and thermal metamorphism where they have been intruded by calc-alkaline granitoid batholiths of Devonian age. Thermal aureoles are commonly sharply defined and vary in width from about 800 to 5000 metres. Flat-lying sediments of the late Carboniferous/Early Permian to Triassic Parmeener Supergroup unconformably overlie both the Mathinna Group and the Devonian granitoids. The Parmeener Supergroup rocks are intruded by thick sheets of Jurassic dolerite. Areas of Tertiary basalt and associated Tertiary sediments occur in northeastern Tasmania and in some places have filled pre-existing drainage systems to form deep leads, some of which contain alluvial gold. Quaternary alluvium occurs in river valleys, and in the near the coast, Quaternary windblown sands obscure much of the bedrock.

Gold mineralisation occurs in the Mathinna Group sediments throughout northeast Tasmania. At some locations the gold mineralisation appears to be granitoid related, eg Golden Ridge and Lisle-Golconda-Panama, and in other locations there is no spatial relationship to granitoids eg. the Lyndhurst-Alberton-Mathinna-Mangana "gold corridor" and Lefroy. In this respect, there are similarities with the gold mineralisation in Victoria. At Gladstone, textural evidence in a gold- and tin-bearing rock from the thermal aureole of a granitoid suggests that gold mineralisation occurred before thermal metamorphism and that tin mineralisation was subsequent to thermal metamorphism (Roach, 1994).

Approximately 75% of the area of the E.L.s is underlain by Mathinna Group rocks with 5% underlain by granodiorite (in the southeast corner). Apart from 5% cover by Tertiary basalts and gravels, the rest of the area is covered by Quaternary sands and alluvium. A map of the geology is shown in Figure 2.

Mathinna Group rocks mapped in the area (Marshall et al, 1965) are predominantly siltstones and sandstones, however a significant unit of pelitic rocks,

336008

5450

5440

37/94

38/94

Sms

Sms

Sms

Sms

Sms

Sms

At

Sms

Sms

Mathinna Group talus (at)

520

530

540

Figure 2. Regional geology
(modified from Pipers River 1:63,360 geological atlas)
Scale 1:100,000

-  Quaternary sediments
-  Cainozoic sediments
-  Cainozoic ironstones & ferruginous, pisolitic gravels
-  Tertiary sediments
-  Tertiary basalt
-  Devonian granodiorite
-  Mathinna Group predominantly slates and phyllites
-  Mathinna Group predominantly siltstones and sandstones
-  Mathinna Group contact metamorphosed

L

Lebrina gold mine

D

Denison gold field

considered to be a more favourable lithology for gold mineralisation in "slate belt gold" regions, occurs near the Lebrina area. Pelitic rocks have also been observed on mine dumps at the Denison goldfield and Reid (1926) refers to gold-bearing quartz veins being hosted in slates at Denison.

Structurally, the Mathinna Group rocks are broadly folded on sub-horizontal NNW trending fold axes, a common trend in north east Tasmania.

Roach (1992) recognised a gravity low in the area of the Denison goldfield and has postulated a granitoid at depth. Modelling suggests that the granitoid could not be a granodiorite similar to nearby Lisle, but is probably a more evolved granite.

Gold occurs in quartz veins, typically trending ENE and associated with pyrite and/or arsenopyrite or galena, and lesser or no chalcopyrite.

4.0 EXPLORATION PHILOSOPHY

Anglo Australian Resources N.L. is a small gold/base metal explorer. Anglo Australian Resources N.L.'s target model is one of the following;

- One or more narrow but high grade structurally controlled/hosted gold-quartz reefs with a total gold content of ~100 000 oz's at a grade of >10g/t.
- A large tonnage lower grade gold deposit in the thermal aureole of an underlying granitoid.

A number of such gold-quartz reefs were worked in the area in the latter part of last century and the early part of this century. Reported drop in grades with depth is an oft cited cause in the closure of these mines. There is some evidence that this drop was metallurgical and not real. Anglo Australian Resources N.L. believes that there is potential for economic gold mineralisation at depth beneath old workings with the gold possibly refractory or finer grained.

These gold-quartz reefs are structurally hosted within the Ordovician-Devonian Mathinna Beds. These structures themselves may be recognisable as dislocations in the weakly, but sufficiently, magnetic Mathinna Beds. Alternatively favourable structural settings such as anticlinal hinges may be recognisable in the available aeromagnetic data. These structures may also have a surface expression recognisable from landsat imagery.

The Denison goldfield lies to the north of the Lisle goldfield which produced ~250 000oz's of gold from alluvials. The source of this gold is enigmatic, however, one explanation is that the gold was sourced from the contact thermal aureole of a Devonian granodiorite underlying the Lisle basin. It is possible that the same or similar granitoid underlies the Denison goldfield and that the known gold-quartz reefs are the peripheral parts of a deeper mineralising system. The depth to, and type of granitoid may be interpreted from the existing aeromagnetic and gravity data.

Known gold-quartz reefs discovered by early prospectors almost certainly outcropped. Undiscovered gold-quartz reefs or broader zones of large tonnage low grade gold mineralisation at shallow depths may be expected to be overlain by soils anomalous in gold with a this anomalism exhibiting a reasonably coherent dispersion pattern away from the reef for some distance. A broader dispersion pattern is expected

from the more mobile metal elements commonly associated with gold in these reefs.
The most significant of these elements is arsenic.

Drill targets may be defined by old workings, favourable structures, shallow favourable granitoids or gold and/or arsenic soil geochemical anomalism or any combination of these.

5.0 PREVIOUS EXPLORATION

Mining at the Denison goldfield started in the 1870's and continued until about 1911 (Coroneos, 1993). The most successful operation on the field was the Alacrity mine which produced 10.3 kilograms of gold at an average grade of 48 g/t (Bottrill, 1994). The Alacrity mine worked a 0.3 to 0.45 metre vein to a depth of 60 metres with levels at 32, 46 and 60 metres (Reid, 1926) and was eventually closed due to financial trouble - an inability to raise capital for further development (Coroneos, 1993). The gold was associated with pyrite and arsenopyrite and between the 46 and 60 metre levels, 400 tonnes of unstoped ore was left. The Sir William Denison mine worked two veins, one 0.3 to 0.45 metres width and the other, 0.15 to 0.30 metres wide, to a depth of 30 metres with levels at 16 and 30 metres. Reid (1926) reports several crushings which averaged 45.5, 46.7, and 243.0 g/t. The accessory minerals are pyrite and galena in the large vein, with the gold contained mostly in the pyrite, and arsenopyrite in the smaller vein. The Wiangatta mine worked a narrow vein to a depth of about 80 metres and averaged 68.4 g/t, the gold being nearly pure. Most of the mines on the field reported vein orientations trending ENE and dipping steeply, predominantly to the northwest, except for the Wiangatta which dipped to the southeast. Other mines include the Brooklyn (6 g/t) and the Star (7.5 g/t)

The Lebrina mine was operated from 1909 until 1916, when financial troubles arose. The mine produced 1.2 kilograms (40 ounces) of gold from 200 tonnes of ore at an average grade of 6 g/t and, according to Nye (1924), the final parcel of 11 tonnes of ore taken from the mine assayed at 15 g/t. The following description is summarised from Nye (1924) and Reid (1926). A main quartz reef (Lebrina Reef) of 0.1 to 0.6 metres width is contained in blue slate and sandstone, striking 050° and with dips varying from high to the south-east to high to the north-west. The reef was proven over a strike length of 183 metres to a depth of 30 metres, and was opened in two adits and a 30 metre deep shaft. At the end of the longer adit (200 metres), the reef is offset approximately 6 metres by a 1 metre wide, 310° trending quartz reef (Splitters Reef), barren except for a narrow, central, gold-bearing veinlet. Another 310° trending reef (East Reef) is a quartz-veined quartzite formation up to 2 metres wide containing a rich, 3 centimetre wide stringer. East Reef terminates the main reef to the east.

Numerous other reefs are reported to occur over a strike length of 800 metres to the ENE of the Lebrina Reef and represent a parallel but discontinuous mineralised

zone. One reef is described as being "...heavily mineralised, the sulphide minerals occurring being arsenopyrite, pyrite, chalcopyrite, and galena in that order of relative abundance."

Drinkwater Creek, a few hundred metres north-east of the mine, produced 1.6 kilograms (50 ounces) of alluvial gold from shallow creek workings, including a small 20 gram nugget.

Modern exploration for hard rock gold in the project area has been very limited. Most work has focussed on the alluvials in the area. The exploration which has been carried out has generally been of the nature of regional geophysical surveys and interpretation, regional stream sediment sampling or rock chip sampling e.g. CRA Exploration P/L (Broadbent, 1982) and Billiton (Randell, 1991,1992). Gold Fields Exploration Pty. Ltd. conducted a very comprehensive survey of the literature concerning all gold occurrences in northeast Tasmania (McOnie, 1983). In the mid-1980's, Argyle Minerals (Cromer, 1986,1987a,b) carried out extensive trenching and rock chip sampling and drilled six shallow holes at the Denison goldfields. The two highest rock chip gold values were 5.33 and 3.13 g/t Au.

Anecdotal evidence suggests that there has been mining activity on the field outside the official E.L./M.L. system for a considerable number of years.

At Lebrina, there is no evidence of exploration since the Lebrina mine closed in 1914. A contributing factor to exploration inactivity may have been the location of the mine in the wrong place on the Pipers River 1:63360 geological map and the more recent Mineral Deposit Location database (MIRLOCH). Argyle Minerals tried but were unable to locate the mine.

6.0 WORK CONDUCTED

6.1 Historical research

Mines Department reports were consulted to determine the extent of mining activities which took place, the nature of the mineralisation and what, if any, gold was produced. The most instructive reports were by Nye (1924) and Reid (1926). An archaeological survey of the Denison-Lebrina-Lisle-Golconda area by Forestry Tasmania (Coroneos, 1993) provided useful additional information. The information gleaned from the reports has been incorporated into section 5.0.

6.2 RC drilling

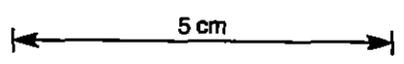
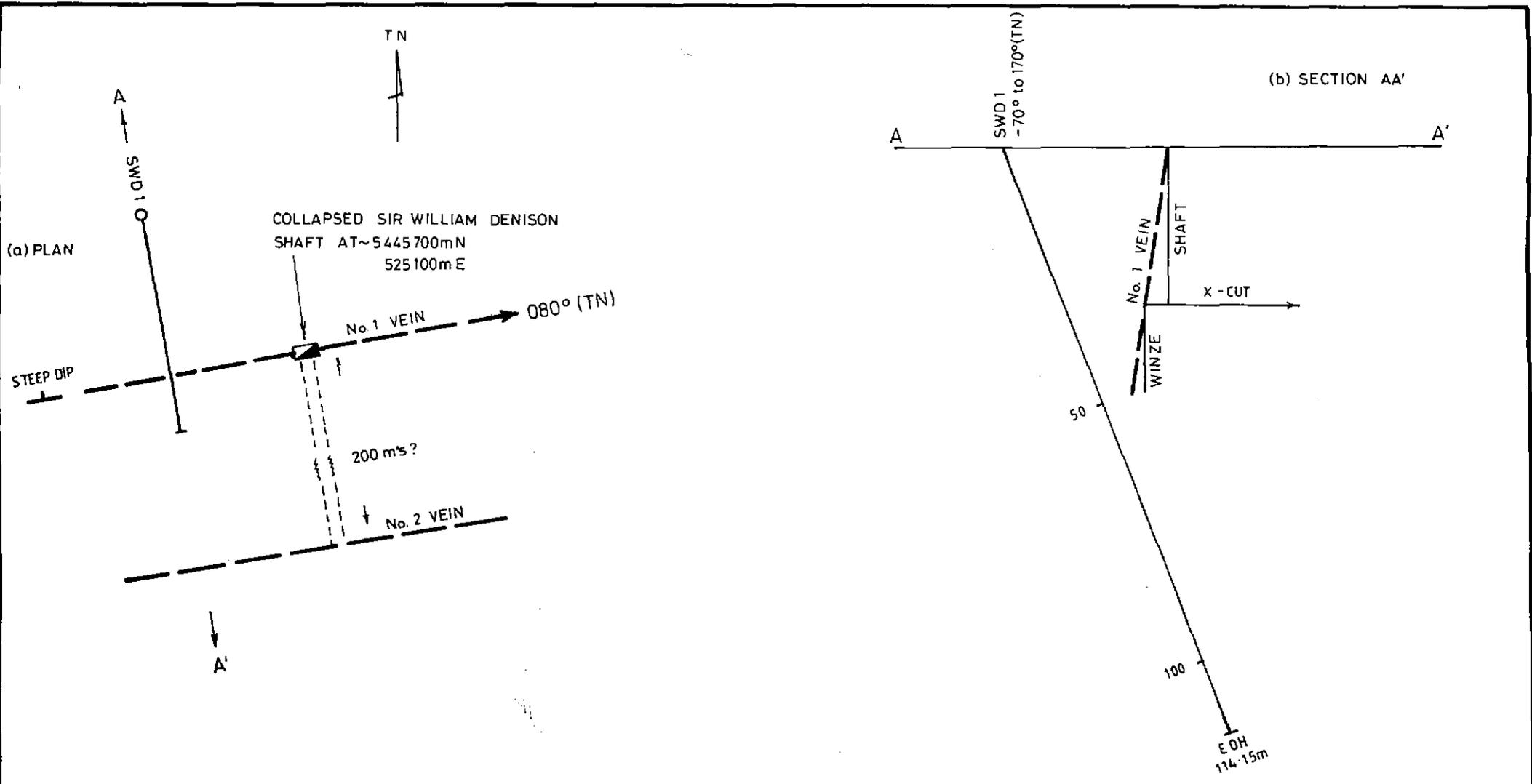
A single RC drill hole was drilled under the interpreted projection of the Sir William Denison reef. The hole was drilled prior to any soil sampling or detailed mapping for a number of reasons.

The Sir William Denison mine was one of the deeper and better developed mines in the area (the Alacrity had not been located with certainty at the time of drilling) and was considered to be a good test of two concepts. One, that the reef grades continued deeper than the extent of the workings but that the gold could not be won using the metallurgical practices of the time, and two, that there was a shallow granitoid in the area. The rig had just finished another job in the area and was made available at much reduced mobilisation-demobilisation cost.

The hole was drilled on 4th and 5th of November, 1996 but was not reported upon in last years annual report. The hole was drilled by Diamond Drilling Tasmania track mounted UDR650. The location of the hole is shown in figure 3a and the section showing its relationship to the reported and interpreted old workings of the Sir William Denison mine are shown on section 3b. The log of the hole is in appendix A.

The hole was sampled on a four composite basis with a P.V.C. pipe spike taken from each one metre bag. The intention was that anomalous 4 metre composites would be resampled on a one metre basis with a splitter. This was not considered to be justified.

The samples were assayed by Analabs (Burnie) for copper, lead and zinc using acid digest/AAS, arsenic using hydride generation/AAS and gold using fire assay/AAS on a 30g charge.



ANGLO AUSTRALIAN RESOURCES N.L.	
E.L. 38/94 "NABOWLA"	
DENISON PROSPECT	
R.C. DRILL HOLE SWD1	
PLAN AND SECTION	
SCALE 1:1000	DRAFTED G Mac Donald
0 10 20 30	DRAWN O. Hedditch
METRES	DATE Oct. 1996
	FIGURE 3

335015
335015

Water, which was first hit at 10 metres with the first wet sample at 77 metres, caused the hole to be pulled up at 114.15 metres, short of the planned 120 metres.

The drill hole intersected a sequence of predominantly hard dark grey and dark greenish grey siltstones and fine grained siltstones with minor zones of more shaley siltstones.

Trace amounts of pyrite were noted in a number of samples and almost all samples contained small amounts of quartz which appear to be from narrow (less than 3mm thick) quartz veinlets. However, all gold assays were below the detection limit and the maximum Cu, Pb, Zn and As results were 33, 31, 81 and 47 respectively. A number of samples contain greater amounts of quartz (to 25%) which may represent larger veins or reefs but assays from these intervals were low.

There was no apparent change in the mineralogy or texture of the rocks at depth to indicate proximity to a granitoid.

6.3 Rock sampling

Rock chip samples have been collected from mullock heaps associated with old workings at both Denison and Lebrina. Table 1 contains assays for all rock chip samples analysed so far, and analyses for sands and slimes from the Lebrina battery. Samples collected at Lebrina were from near the shaft and adit or from in the paddock across the Scottsdale to Lilydale road, where the battery was located. The Lebrina samples exhibit a strong association between gold and arsenic whereas only some of the Denison samples exhibit a strong gold-arsenic association (e.g.D10), others showing a gold-lead association (e.g. D1, D2) which confirms reported gold-galena associations (Reid, 1926). The high number of old workings makes it difficult to identify individual mines named in old reports and it is probable that many of the samples collected have been given the wrong names. The low gold values may also indicate that the mines sampled may not have been the intended ones. As part of the soil sampling project, a map of all the old workings encountered will be made which may help to identify the workings.

TABLE 1 - Rock Chip And Battery Sands Assays**Lebrina samples - All in ppm**

No.	Name	Au	As	Cu	Zn	Sb	Pb
L1	Lebrina battery slime	3.5	4547	63	37	65	247
		3.7 (repeat)					
L2	Lebrina battery sand	4.8	4862	88	50	122	549
		4.8 (repeat)					
L3	Paddock mullock heap #1	0.8	2157	50	30	21	133
L4	Paddock mullock heap #2	5.3	>5000	132	13	87	213
		4.9 (repeat)					
L5	Paddock quartz #1	0.1	104	15	18	<5	11
L6	Paddock quartz #2	0.1	35	7	4	<5	<3
L7	Paddock quartz #3	bdl	17	10	63	<5	3
L8	Lebrina mine surface quartz #1	0.04	35	10	5	-	75
L9	Lebrina mine surface quartz #1	0.3	7	8	7	-	<3

Denison samples - all in ppm

No.	Name	Au	As	Cu	Zn	Sb	Pb
D1	Globe #1	1.0	8	65	109	41	2187
		1.0 (repeat)					
D2	Globe #2	5.6	9	73	12	21	359
		4.9 (repeat)					
D3	Globe #3	0.1	80	339	44	111	120
D4	Wildcat #1	0.1	22	20	12	4	7
D5	Wildcat #2	0.4	14	10	9	5	8
D6	Wiangatta #1	0.01	19	72	122	7	108
D7	Wiangatta #2	bdl	7	15	24	2	16
D8	Royal Treasury North #1	0.3	25	9	4	2	6
		0.3 (repeat)					
D9	Royal Treasury North #2	0.07	11	7	5	1	10
D10	South Globe	1.4	650	21	4	24	33
SWD1	near Alacrity	0.2					
SWD2	near Alacrity	b.d.l.					
A1	Sir William Denison	2.54					
		2.76 (repeat)					
A2	Sir William Denison	0.02					
EOW1	near Wiangatta	0.01					
S1	Star	b.d.l.					
S2	Star	b.d.l.					

6.4 Geophysical interpretation

Enhancement of available gravity, aeromagnetic and radiometric data was carried out by the Dr. Bob Richardson at Mineral Resources Tasmania and interpreted by Mr Leaman Geophysics. The interpretation map and report is attached as Appendix D. The interpretation suggests that ENE and ESE trends are common, as is the NNW-trending fabric which is lithologically-based. In the vicinity of the Denison goldfield, a depressed gravity field (suggestive of a subsurface granitoid?), a sharp change in radiometrics, and a distinctive magnetic terrane delineating both ENE and ESE trending structures are all apparent. At Lebrina, which is along strike on an ENE trend from the Denison goldfield, the ENE and ESE linears are apparent and there is a disruption to the radiometrics. There is no gravity anomaly. Approximately 15 kilometres north of the Denison goldfield and about 20 kilometres ENE from the Lefroy goldfields, along the strike of a distinctive radiometric/magnetic lineation, an area of disrupted radiometrics has no known gold mineralisation, but is in an area which had considerable Tertiary and Quaternary cover.

6.5 Landsat imagery

A series of Landsat Thematic Mapper - image maps, interpreted features maps and exploration guides were prepared by the Alpine Exploration Group, and their report is attached as Appendix C. The interpreted features maps pick out linear features associated with the lithologically-based NNW trends, and also NNE trends, which are strongly developed in the Lefroy goldfield area but more subtle in the Denison goldfield area and not obvious from the magnetic data.

6.6 Soil sampling

A hand-auger ing soil sampling program was commenced at the Denison goldfield during the last part of the year. Approximately 1200 soil samples will be collected on a 100 * 25 metre grid covering all the known old workings. Samples will be assayed for gold and arsenic and results will be reported next year.

A hand-augering soil sampling program is also planned for the area around the Lebrina mine. Approximately 275 samples will be collected on a 100 * 25 metre grid and assayed for gold and arsenic. The grid is designed to cover all the known old workings, which extend some 800 metre to the east-north-east of the old mine.

and assayed for gold and arsenic. The grid is designed to cover all the known old workings, which extend some 800 metre to the east-north-east of the old mine.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Landat imagery and interpretation of enhanced gravity, aeromagnetic and radiometric data have shown that the known gold mineralisation at Denison and Lebrina correspond to areas of unusual geophysical features. Similar features occur north of Denison in an area which is not known to be mineralised, but has a substantial amount of cover. This area may have some potential for future exploration, however, at present the focus will be on the Denison-Lebrina area with its known gold mineralisation.

The current soil sampling program will be finished by the end of October, and it is envisaged that results will be received and assessed by the end of November. Depending on the results, either a program of trenching will be undertaken to further assess drilling targets or drilling will be undertaken if suitable targets are delineated. It is likely that the Alacrity reef will be drilled irrespective of the soil assay results, based on the reported production and grade.

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Anglo Australian Resources N.L.			Hole No. SWD 1.	Co-ordinates ~ 5445700mN, 525100mE	R.L. collar ~ 58 m a.s.l.
Project EL38/94 "NABONLA"	Location DENISON G.F.	Date 4/11/95	Drill type R.C.	Logged by GRANT MACDONALD	Azimuth 170° TN. Incl -70°

From	To	Fol.	Description	ASSAY				Lith.	Hard.	Mineralisation	Alteration	Wth. (BoFOx) %q	
				Sample No.	Ave.								
0	1		mod. brown clay ± minor qtz									sg	
1	2	wy	dark yellowish orange siltstone					silt				"	
2	3	wy	90% " + 10% med. dark gy. siltstone/shale					"				"	
3	4	wy	dark yellowish orange siltstone					"				"	
4	5	wy	"					"				"	
5	6	wy	"					"				"	
6	7	my	medium dark grey fg. siltstone					fg silt				my	
7	8	sg	" siltstone/shale					silt/sh				"	
8	9	sg	" "					"				"	
9	10	wy	" "					"				"	
10	11	my	" "					"		Hit water table		"	
11	12	sg	30% " + 70% olive grey siltstone					silt				wy	
12	13	wy	80% olive grey siltstone + 2% dark grey sy. fol. siltstone shale.					"				"	
13	14	wy	60% " + 40% "					"				"	
14	15	wy	80% " + 20% "					"				"	
15	16	wy	30% " + 70% "					"			qtz as fine vnts	"	2
16	17	wy	70% " + 30% "					"			"	"	2
17	18	wy	70% med. dark grey siltstone + 30% sy. fol. dark grey siltstone/shale					"		mn. dscl. py. in silt			tc
18	19	wy	80% " + 20% olive grey siltstone.					"					
19	20	sg	dark grey siltstone/shale					silt/sh		mn dscl py in silt			
20	21	wy	90% dark grey siltstone + 10% dark grey sy. fol. siltstone/shale.					silt					
21	22	wy	dark grey siltstone					"			qtz as fine vnts.		2

336023

From	To	Fol.	Description	Sample No.	ASSAY	Ave.	Lith.	Hard.	Mineralisation	Alteration	Wth. (Bo/Ox) %c
22	23	wy	dark grey siltstone ^{95%} ± 5% dark grey sy. hol.	siltstone/shale			slt		tc dsd py in slt	smoky wt qtz ^{2mm}	4
23	24		dark grey siltstone				"		"	smoky wt qtz ^{1mm}	3
24	25		"				"		"	"	2
25	26		"				"		"	"	4
26	27		"				"		"	"	3
27	28		"				"		"	"	3
28	29	my	dark grey fine grained siltstone				fg slt		"	"	1
29	30	wy	"						"	"	3
30	31	wy	dark grey siltstone				slt		"	"	2
31	32	wy	"				"		"	"	4
32	33	wy	" + mn siltstone/shale				"		"	smoky wt qtz ^{3mm}	4
33	34	wy	very dark grey siltstone				"		"	"	3
34	35	my	very dark grey siltstone				"		tc dsd py in slt	"	7
35	36	wy	dark grey siltstone				"		"	"	1
36	37	my	dark grey ^{fine grained} siltstone				fg slt		"	"	-
37	38	my	dark grey fine grained siltstone and siltstone				slt		"	smoky wt qtz ^{2-3mm}	3
38	39	wy	dark grey siltstone				"		tc dsd py in slt	"	3
39	40	wy	"				"		"	"	tc
40	41	wy	"				"		"	massive? wt to smoky qtz	25
41	42	wy	"				"		"	massive + stringer qtz	15
42	43	wy	"				"		"	5mm qtz stringers	10
43	44	my	"				"		"	"	3
44	45	wy	"				"		"	3mm qtz stringers	3
45	46	wy	"				"		"	"	3
46	47	wy	"				"		tc py on qtz	"	5

336024

From	To	Fol.	Description	Sample No.	ASSAY	Ave.	Lith.	Hard.	Mineralisation	Alteration	Wth. (BotOx) %q
47	48	wy	dark grey siltstone				silt			mn sil. c Smoky qtz vnt 2mm	3
48	49	"	med. dark grey siltstone				"			"	20
49	50	"	"				"			"	3
50	51	"	dark grey siltstone				"			" 3mm	3
51	52	"	"				"			" 1mm	2
52	53	"	50% " + 50% bleached light greenish grey siltstone				"	tc dsd py	tc qtz		tc
53	54	"	dark grey siltstone				"			Smoky qtz vnt 1mm	2
54	55	wy	80% " + 20% very dark grey sy. fol. siltstone/shale				"			"	5
55	56	wy	dark grey siltstone				"	v mn dsd py in silt		"	1
56	57	"	"				"	tc py in silt		smoky qtz vnt 2mm	2
57	58	"					"	tc dsd py in silt		"	3
58	59	"					"	tc py in qtz		"	2
59	60	"					"	tc dsd py in silt		"	3
60	61	"					"	"		"	4
61	62	"					"	"		smoky wt qtz to 5mm	4
62	63	"					"	"		"	5
63	64	"					"	"		smoky wt qtz to 3mm	25
64	65	"					"	"		"	5
65	66	"					"	"		"	3
66	67	"					"	"		smoky wt qtz to 2mm	4
67	68	"	10% " + 90% dark greenish grey siltstone				"			"	3
68	69	"	dark greenish grey siltstone				"			"	7
69	70	"	98% " + puggy zone c sy fol. dark grey siltstone/shale				"			"	1
70	71	"	dark greenish grey siltstone				"			"	5
71	72	"	"				"	tc dsd py in silt		"	4

336025

From	To	Fol.	Description	Sample No.	ASSAY	Ave.	Lith.	Hard.	Mineralisation	Alteration	Wth. (BotOx) %
72	73	wy	med. dark grey siltstone				silt		tr dsd py m silt	smoky wt qtz vnl	5
73	74	"	50% dark greenish grey siltstone + 50% dark grey siltstone/shale				"			"	7
74	75	"	100% dark greenish grey siltstone				"			"	3
75	76	my	50% " + 50% dark grey sy fol siltstone/shale				"				-
76	77	"	dark grey siltstone				"			smoky wt qtz vnl <2m	2
77	78	wy	" wet sample				"			"	2
78	79	"	" wet sample.				"		tr dsd py m silt	"	4
79	80	"	"				"		"	"	4
80	81	"	"				"		"	"	4
81	82	"	"				"		tr dsd tr py m silt	"	2
82	83	"	dark greenish grey siltstone				"			"	2
83	84	"	90% " + 10% dark green my. fol. siltstone/shale				"			"	4
84	85	"	dark greenish grey siltstone				"		tr dsd py m silt	"	4
85	86	"	"				"		"	"	4
86	87	"	"				"		tr py m qtz	"	2
87	88	"	"				"		"	"	2
88	89	"	"				"		"	"	2
89	90	"	95% " + 5% my. fol. dark grey siltstone/shale				"		tr dsd py m silt	"	-
90	91	wy	100% "				"		"	smoky wt qtz vnl <1m	1
91	92	"	95% " + 5% sy fol "				"		"	"	1
92	93	"	85% " + 15% " "				"		"	smoky wt qtz vnl <2m	5
93	94	"	95% " + 5% my fol "				"		"	smoky wt qtz vnl	2
94	95	my	med. dark grey fine grained siltstone				fg silt		"	smoky wt qtz vnl <3m	3
95	96	wy	95% " + 5% my. fol. dark grey siltstone/shale				silt		"	"	3
96	97	"	100% "				"		"	"	2

326022

336028

Phone (004) 318837

14 Thirkell St, COOEE TAS 7320

Fax (004) 318890

ANALYTICAL REPORT No.

101210.60.11399

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

INVOICE TO

Anglo Australian Resources N.L.
Level 1/44 Ord Street
WEST PERTH WA 6005

ORDER No. G MACDONALD PROJECT

DATE RECEIVED 09/11/95 RESULTS REQUIRED ASAF

No. OF PAGES OF RESULTS 2
DATE REPORTED 28/11/95
No. OF COPIES 1

TOTAL No. OF SAMPLES 29

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
<SDW ,0-4/108/4,112-114.15	RC Prep : 6P032	Au, Au (R), Au (S) / 66309
<SDW ,0-4/108/4,112-114.15	RC	Cu, Pb, Zn, As / 6A140, As / HA140

RESULTS TO

Anglo Australian Resources N.L.
Level 1/44 Ord Street
WEST PERTH WA 6005

RESULTS TO

Mr G Macdonald
Anglo Australian Resources N.L.
Mangana Road
FINGAL TAS 7214

RESULTS TO

REMARKS

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NO.

REPORT DATE

CLIENT ORDER NO.

PAGE

		101210.60.11399			28/11/95		G MACDONALD		1 OF 2	
REF. NO.		Ca	Pb	Zn	Cd	As	Ag (R)	Bi (S)		
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
1	SDW 0-4	18	23	24	19.0	<0.008	-	-		
2	SDW 4-8	27	31	47	16.0	<0.008	-	-		
3	SDW 8-12	33	25	74	25.0	<0.008	-	<0.008		
4	SDW 12-16	15	15	44	17.0	<0.008	-	-		
5	SDW 16-20	37	16	81	25.0	<0.008	-	-		
6	SDW 20-24	11	14	41	4.2	<0.008	-	-		
7	SDW 24-28	13	13	42	1.4	<0.008	-	-		
8	SDW 28-32	18	21	58	12.0	<0.008	-	-		
9	SDW 32-36	13	13	41	2.7	<0.008	-	-		
10	SDW 36-40	23	22	81	20.0	<0.008	-	-		
11	SDW 40-44	9	11	25	12.0	<0.008	-	-		
12	SDW 44-48	9	14	36	13.0	<0.008	<0.008	-		
13	SDW 48-52	11	13	31	14.0	<0.008	-	-		
14	SDW 52-56	12	13	41	26.0	<0.008	-	-		
15	SDW 56-60	8	8	29	47.0	0.016	-	-		
16	SDW 60-64	7	10	24	28.0	<0.008	-	-		
17	SDW 64-68	10	15	46	17.0	<0.008	-	-		
18	SDW 68-72	11	14	53	6.6	<0.008	-	-		
19	SDW 72-76	23	15	60	11.0	<0.008	-	-		
20	SDW 76-80	23	18	40	10.0	<0.008	-	-		
21	SDW 80-84	12	12	29	8.3	<0.008	-	-		
22	SDW 84-88	12	14	43	8.3	<0.008	<0.008	-		
23	SDW 88-92	17	13	44	7.6	<0.008	-	-		
24	SDW 92-96	12	9	39	17.0	<0.008	-	-		
25	SDW 96-100	12	13	32	8.4	<0.008	-	<0.008		



ANALYTICAL DATA

SAMPLE PREFIX

REPORT NO.

REPORT DATE

CLIENT ORDER NO.

PAGE

101210.60.11399

28/11/95

B MACDONALD

2 OF 2

NO./ID	SAMPLE	Cu	Pb	Zn	As	Au	Au(R)	Au(S)	
		GA140	GA140	GA140	GA140	GG309	GG309	GG309	
1	SDW 100-104	10	13	34	6.8	<0.008	-	-	
2	SDW 104-108	9	15	28	10.0	<0.008	-	-	
3	SDW 108-112	9	5	9	22.0	<0.008	-	-	
4	SDW 112-114.15	8	9	16	7.7	<0.008	-	-	
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24	DETECTION	2	3	2	0.1	0.008	0.008	0.008	
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	



336031

Phone (004) 316837

14 Thirkell St. COOEE TAS 7320

Fax (004) 318890

ANALYTICAL REPORT No

ANG201.60.12135

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

INVOICE TO:

Anglo Australian Resources NL
Level 1/44 Ord Street
WEST PERTH WA 6005

RUSSELL FULTON

DATE RECEIVED
29/07/96

PROJECT

RESULTS REQUIRED
ASAP

No OF PAGES
OF RESULTS
2

DATE
REPORTED
08/08/96

No
OF COPIES
1

TOTAL No
OF SAMPLES
14

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENTS
GLDRE 1/3 & others	RD Prep : GP033	Au, Au (R) / 66309
BLDRE 1/3 & others	RQ Prep : GP033	Cu, Pb, Zn, As / GA140, As / HA140
GLDRE 1/3 & others	RD Prep : GP033	Sb / SI211

RESULTS TO	Russell Fulton Anglo Australian Resources NL PO Box 429 SANDY BAY TAS 7005
RESULTS TO	
RESULTS TO	

REMARKS

PP *[Signature]*
AUTHORISED SIGNATURE

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NO.

REPORT DATE

CLIENT ORDER NO.

PAGE

ANG201.60.12135

08/08/96

RUSSELL FULTO

1 OF 2

METHOD	SAMPLE	Au	Ag	Cu	Pb	Zn	Mn	Fe
1	GLOBE 1	1.044	0.964	65	2187	109	-	8.1
2	GLOBE 2	5.560	4.920	73	359	12	-	9.3
3	GLOBE 3	0.115	-	339	120	44	80	-
4	WIDCAT 1	0.130	-	20	7	12	-	21.7
5	WIDCAT 2	0.389	-	10	8	9	-	13.8
6	WIANGATTA 1	0.012	-	72	108	122	-	19.5
7	WIANGATTA 2	<0.008	-	15	16	24	-	6.6
8	ROYAL TREAS NORTH 1	0.311	0.339	9	6	4	-	24.9
9	ROYAL TREAS NORTH 2	0.070	-	7	10	5	-	11.0
10	LEBRINA 1	0.039	-	10	75	5	-	55.3
11	LEBRINA 2	0.285	-	8	<3	7	-	7.0
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24	DETECTION	0.008	0.008	2	3	2	50	0.15
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Units in ppm unless otherwise specified
 - = result not determined

IS = insufficient sample
 SNF = sample not found

336033

ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

PAGE

		ONG201 40 12135	08/08/94	RUSSELL EULTO 2	PAGE 2 OF 2	
METHOD	SAMPLE No.					
1	GLOBE 1	40.5				
2	GLOBE 2	21.0				
3	GLOBE 3	110.9				
4	WIDCAT 1	3.9				
5	WIDCAT 2	5.0				
6	WANGATTA 1	7.0				
7	WANGATTA 2	2.0				
8	ROYAL TREAS NORTH 1	1.9				
9	ROYAL TREAS NORTH 2	1.0				
10	LERRINA 1	1.0				
11	LERRINA 2	14.9				
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24	DETECTION	0.5				
25	UNITS	PPM				

in ppm unless otherwise specified
if not determined

(S - sample received
SNR - sample not received

336034

Analabs

Analabs Pty. Ltd.

A.C.N. 004 591 664

337

14 Thirkell St. COOEE TAS 7320

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ANALYTICAL REPORT No.

ANG201.60.12213

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WEST PERTH WA 6005

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7

16/09/96

1

145

SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

LEB SLIME 1/2 & others

RO Prep : GP033

Au, Au(R)/GG309

LEB SLIME 1/2 & others

RO Prep : GP033

Cu, Pb, Zn, As/GA140, As/HA140

LEB SLIME 1/2 & others

RO Prep : GP033

Sb/G1211

Various

SO Prep : GP032

Au, Au(R)/GG309

Various

SO Prep : GP032

As/GA140, As/HA140

REMARKS

RESULTS TO

Russell Fulton
Anglo Australian Resources NL
PO Box 429
SANDY BAY TAS 7005

RESULTS TO

RESULTS TO

PP *M.A. Good*
AUTHORISED OFFICER

ANALYTICAL DATA

REPORT DATE

CLIENT ORDER No.

PAGE

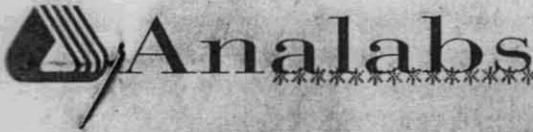
ANG201.60.12213

16/09/96

RUSSELL FULTO

1 of 7

			Sb	Zn	As	Ag	As	As	Sb	As	Pb
Met			GA140	GA140	GA140	GA140	GA104	GA1211	GA309	GA140	
1	LEB SLIME	1	63	37	4547	-	-	65	3.480	247	
2	LEB SLIME	2	88	50	4862	-	-	122	4.790	549	
3	LEB MULL	1	50	30	2157	-	-	21	0.754	133	
4	LEB MULL	2	132	13	>5000	-	1.35	87	5.280	213	
5	LEB PADD	1	15	18	104	-	-	<5	0.114	11	
6	LEB PADD	2	7	4	-	35.4	-	<5	0.054	<3	
7	LEB PADD	3	10	63	-	17.4	-	<5	<0.008	3	
8	SOUTH GLOBE		21	4	650	-	-	24	1.370	33	
9	7100 E 4400 N		-	-	-	4.8	-	-	<0.008	-	
10	7100 E 4425 N		-	-	-	13.0	-	-	<0.008	-	
11	7100 E 4450 N		-	-	-	6.5	-	-	<0.008	-	
12	7100 E 4475 N		-	-	-	3.9	-	-	<0.008	-	
13	7100 E 4500 N		-	-	-	5.4	-	-	<0.008	-	
14	7100 E 4525 N		-	-	-	1.8	-	-	<0.008	-	
15	7100 E 4550 N		-	-	-	4.0	-	-	<0.008	-	
16	7100 E 4575 N		-	-	-	2.7	-	-	<0.008	-	
17	7100 E 4600 N		-	-	-	2.8	-	-	<0.008	-	
18	7100 E 4625 N		-	-	-	4.3	-	-	<0.008	-	
19	7100 E 4650 N		-	-	-	4.5	-	-	<0.008	-	
20	7100 E 4675 N		-	-	-	5.4	-	-	<0.008	-	
21	7100 E 4700 N		-	-	-	5.1	-	-	<0.008	-	
22	7100 E 4725 N		-	-	-	9.3	-	-	<0.008	-	
23	7100 E 4750 N		-	-	-	6.6	-	-	<0.008	-	
24	7100 E 4775 N		-	-	-	7.7	-	-	<0.008	-	
25	7100 E 4800 N		-	-	-	6.5	-	-	<0.008	-	



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

ANALYTICAL REPORT No.

101210..60..11088

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

INVOICE TO:

Anglo Australian Resources N.L.
Level 1/44 Ord Street
WEST PERTH WA 6005

ORDER No.

PROJECT

G MACDONALD

DATE RECEIVED

RESULTS REQUIRED

17/07/95

ASAP

No. OF PAGES OF RESULTS

DATE REPORTED

No. OF COPIES

TOTAL No. OF SAMPLES

2

26/07/95

1

27

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
VARIOUS	RO Prep : 6P033	Au, Au(R), Au(S)/66309

RESULTS TO

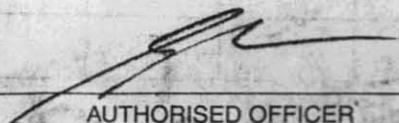
Anglo Australian Resources N.L.
Level 1/44 Ord Street
WEST PERTH WA 6005

RESULTS TO

Mr G MacDonaid
Anglo Australian Resources N.L.
Mangana Road
FINGAL TAS 7214

RESULTS TO

REMARKS


AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

REPORT No

REPORT DATE

CLIENT ORDER No.

PAGE

101210.60.11088

26/07/95

G MACDONALD

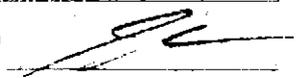
1 OF 2

METHOD	SAMPLE No.	Au	Au (R)	Au (S)					
		GG309	GG309	GG309					
1	GF 1	30.700	-	-					
2	GF 2	4.340	-	-					
3	GF 3	39.500	-	-					
4	GF 4	0.616	-	-					
5	BB 1	0.083	-	0.076					
6	BB 2	0.050	-	-					
7	S.W.D. 1	0.025	-	-					
8	S.W.D. 2	<0.008	-	-					
9	E.D.W 1	0.011	-	-					
10	S 1	<0.008	-	-					
11	S 2	<0.008	-	-					
12	A 1	2.540	2.760	-					
13	A 2	0.024	-	-					
14	F 1	0.480	-	-					
15	F 2	0.028	-	-					
16	P 1	41.400	-	-					
17	P 2	41.000	-	-					
18	P 3	23.300	-	-					
19	P 4	125.70	60.400	66.200					
20	P 5	30.340	-	-					
21	RT1 1	0.196	-	-					
22	RT1 2	0.016	0.014	-					
23	RT1 3	0.026	-	-					
24	RT2 1	124.00	193.00	141.00					
25	RT2 2	16.640	-	-					

Results in ppm unless otherwise specified
 - element not determined

IS = insufficient sample
 SNR = sample not received

AUTHORISED OFFICER



ANALYTICAL DATA

SAMPLE PREFIX		REPORT No	REPORT DATE	CLIENT ORDER No	PAGE	
		101210.60.11088	26/07/95	G MACDONALD	2	OF 2
METHOD	SAMPLE No.	Au	Au(R)	Au(S)		
		GG309	GG309	GG309		
1	RT2 3	28.200	-	-		
2	RT2 4	0.640	-	-		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24	DETECTION	0.008	0.008	0.008		
25	UNITS	ppm	ppm	ppm		

Results in ppm unless otherwise specified
 - = element not determined

IS = insufficient sample
 SNR = sample not received

AUTHORISED OFFICER



336039

96-3928 A
CAppx 1 of
TOR 96-3928

Landsat Thematic Mapper - Image Maps

**Denison Project
Gladstone Project
Tasmania**

prepared for
Anglo Australian Resources N.L.
1st Floor, 44 Ord Street
West Perth, Western Australia 6005
619 322 5811

by
Henry Truebe
Alpine Exploration Group
3113 East Table Mountain Road
Tucson, Arizona 85718
520 577 9494

August 15, 1996

336040

Landsat Thematic Mapper - Image Maps

**Denison Project
Gladstone Project
Tasmania**

Summary and recommendations

Remote sensing information has been found to be a useful supplement to existing geologic maps at projects undertaken by Anglo Australian Resources. Work on remote sensing image-maps covering the Denison project area was begun in June of 1995; this work was later expanded to include the Gladstone area. The basic data for this work is a Landsat thematic mapper scene acquired 19 May 1995 which covers an area of 110 x 60 kilometers in northeastern Tasmania. A total of forty eight maps were made and are included in this report.

The maps are of six kinds. The True color, False color and PET image maps were made directly from the satellite data by using various enhancement techniques. Geologic maps provided by AAR were scanned using a color scanner, rotated and cropped to fit a standard map format. The Existing maps allow convenient comparison to the remote sensing image maps. Maps showing Interpreted features were derived from the above maps to illustrate areas of possible hydrothermal alteration and linear features as well as the locations of known gold deposits. A final map was created to show areas with the highest gold exploration potential.

The Exploration guides maps outline areas worthy of further exploration. In general the favorable areas coincide with the Denison and Gladstone goldfields. It should be noted that these favorable areas were determined rather subjectively are only intended to supplement recommendations of personnel who are familiar with the projects. The maps in this report have been arranged so that they may be conveniently reviewed by people who are familiar with the area. My work will be successful if it provides new insights and guides to prospective ground.

Landsat Thematic Mapper - Image Maps
Denison Project
Gladstone Project
Tasmania

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True color image map.....	1
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True color image map.....	1
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True color image map.....	1
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True color image map.....	1
Existing geologic map.....	2
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Landsat Thematic Mapper - Image Maps

**Denison Project
Gladstone Project
Tasmania**

Report on work done

This report covers two project areas being explored by Anglo Australian Resources, N.L. in northeastern Tasmania, Australia (Figure 1). It was felt that the application of remote sensing to the exploration effort would provide a new perspective to an area that has already seen considerable geologic mapping. The initial request for work, made in June of 1995, covered only the Gladstone project area. The area was soon expanded to cover both the Denison and the Gladstone project areas.

Each of the project areas were broken into four quadrangles at a scale of 1:100,000 with a 2 km overlap (Figure 1). Breaking the map coverage in to smaller areas reduces printing costs and allows maps to be copied widely available color copies. It also makes the maps convenient for field use without folding. For a larger perspective the four maps of each project area may be joined by using manual mosaicing techniques.

The boundaries of the maps fall at UTM coordinates and therefore will be at a slight angle to maps whose boundaries fall on longitude and latitude boundaries. Both UTM and longitude and latitude are shown on all the maps. The exact boundaries of the project areas are not shown on the quadrangles.

Existing Maps

Most of the Denison area is covered by the Pipers River quadrangle (Marshall, 1965) at a scale of 1:63,360. The Gladstone area is covered by the Blue Tier quadrangle (McClenaghan, and Williams, 1983), the Boobyalla quadrangle (Baillie, Turner, and

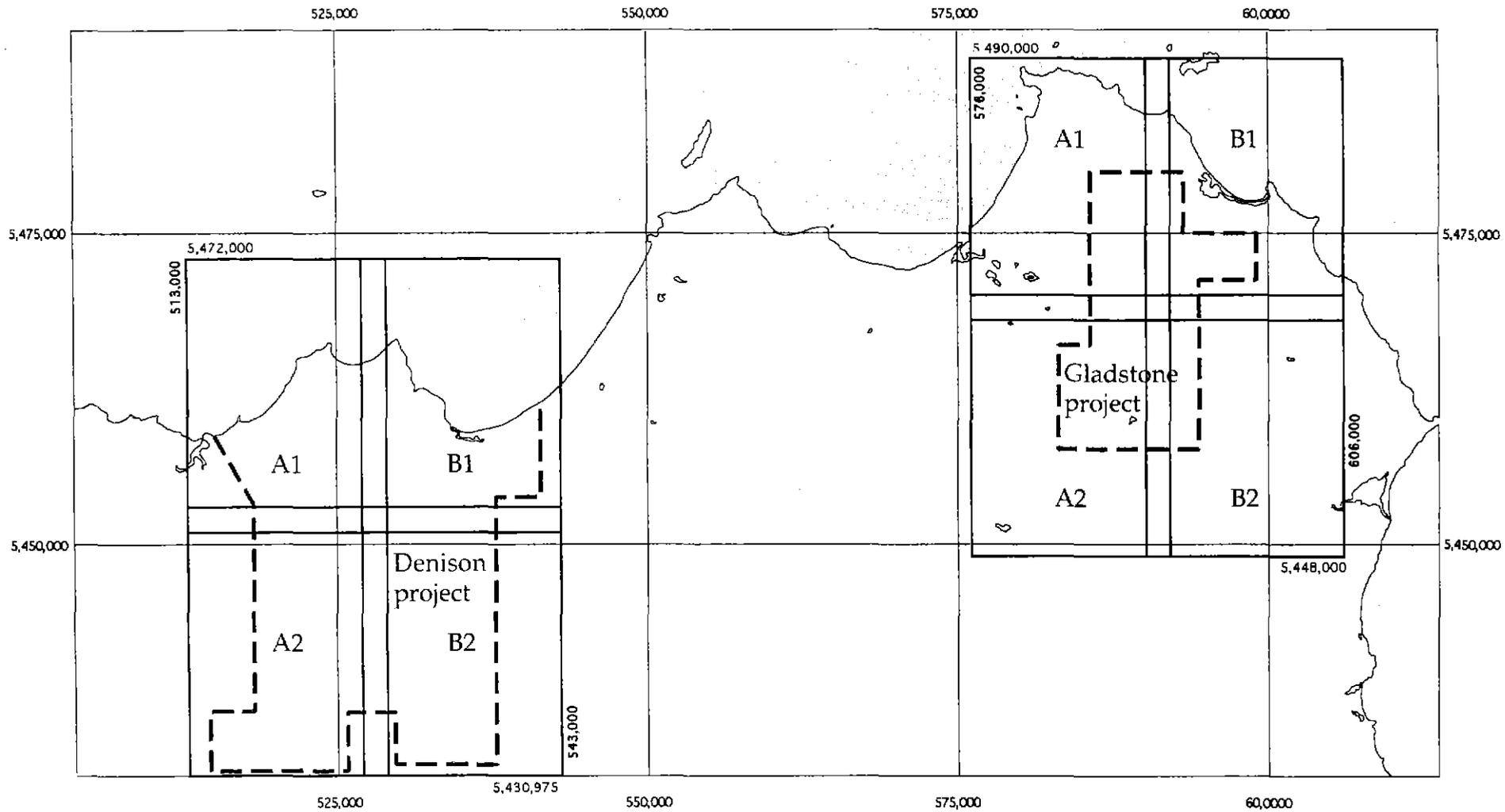


Figure 1. Approximate locations of the Denison and Gladstone Project areas (green) in northeastern Tasmania. Map quadrangles (black) show boundaries (with UTM coordinates), naming conventions and areas of overlap.

336045

Cox, 1979), the Eddystone quadrangle (Baillie, 1979) and the Ringarooma quadrangle (Brown, and all, 1977), all published at a scale of 1:50,000.

The geologic quadrangle maps (above) were scanned using a color scanner, registered to the UTM map projection and electronically trimmed to fit within the boundaries of the Denison and Gladstone maps. The scale of the maps was reduced about 50% so some detail is lost but it should be relatively easy to refer to the original maps if necessary.

Data and image processing

The project areas fall at the boundary of two, nominal Landsat scenes - 090/088 and 090/089. A 110 km (east-west) by 60 km (north-south) sub-scene was created from the Landsat data by ACRES (Australian Center for Remote Sensing). Original data were acquired by the Landsat 5 satellite on 19 May 1995, a date at which clouds did not obscure northeastern Tasmania. The data were re-sampled using cubic convolution to create a UTM map projection with 25 meter pixels.

As work progressed on the data it was discovered that images were rather dark (limited dynamic range of the data), perhaps because of the latitude. Efforts to improve the dynamic range of the data by histogram stretching increased problems with noise and striping (particularly obvious in the ocean areas). The results shown on the maps represent a compromise that shows as much discrimination as possible without introducing objectionable noise.

Image maps

Three image maps were created for each quadrangle - True color, False color and PET (proprietary enhancement technique). The true color image map (123 -> BGR) shows the area approximately as it would appear to a human eye from an aircraft above the property. The blue on the map is energy reflected in the blue part of the

electromagnetic spectrum (TM band 1), the green on the map is energy reflected in the green part of the electromagnetic spectrum (TM band 2) and the red on the map is energy reflected in the red part of the electromagnetic spectrum (TM band 3). The False color image map (257 -> BGR) shows a different perspective. The blue on the map is energy reflected in the green part of the electromagnetic spectrum (TM band 2), the green on the map is energy reflected in the near infrared part of the electromagnetic spectrum (TM band 5) and the red on the map is energy reflected in the mid infrared part of the electromagnetic spectrum (TM band 7).

The band combination used for the False color map is different than the one I use in more arid parts of the world. There it is more effective to use TM bands 1, 4 and 7 mapped to blue, green and red. If this combination were used for Tasmania the resulting images would be brilliant green because of the strong vegetation reflectance in band 4. The 257 combination reduces the vegetation effects considerably.

The PET image map was generated using ratios of the same bands (2, 5 and 7) divided by the first principal component of all bands. The intent is to remove topographic shadows and to emphasize the differences in surface materials. Again, Tasmania is blessed (?) with abundant vegetation and unfortunately the surface materials that can be discriminated are plants and not rocks.

Interpreted features

Basic photo-interpretation techniques may be applied to data acquired by satellite as well as to aerial photographs. Because of the great amount of vegetation and advanced weathering in the project areas the discrimination of lithologic types is difficult to impossible. Fortunately it is also unnecessary, since good published maps exist. The perspective provided by remote sensing does have advantages in the recognition of linear features that may not be obvious on the ground. The linear features may or may not be high-angle faults associated with gold mineralization.

The linear features shown on the Interpreted features maps are commonly caused by alignments of features on the ground - valleys, ridge lines, streams, etc. An effort was made to ignore man-made linear features such as field boundaries and roads but this was not entirely successful, particularly in the interpretation of the PET image where topographic references are obscured. The alignment of sand dunes caused by the apparently strong northwest winds generated some linear features that are probably not related to the underlying geology.

It should be remembered that the linear features shown on the maps are not always faults. However, if a particular linear feature or group of linear features coincides with known fault or vein directions, the linear features could allow the recognition of more prospective ground.

Additional processing of the TM data allows the automatic recognition of features that may not be obvious using simple photo interpretation techniques. One very effective enhancement is to create ratio images. By dividing, for example, TM band 3 (visible red) by TM band 1 (visible blue) one can create an image showing areas that are "bright" in the red band and "dim" in the blue band. Hematitic soils are bright in the red part of the spectrum and dim in the blue part of the spectrum; these would appear as bright areas on the ratio image. The same operation reduces white areas (clouds, snow, some sands, etc), which are "bright" in both red and blue, and black areas (basalts), which are "dim" in both red and blue to neutral grays. The end result is the automatic selection of anomalously red areas from the data. Further image processing can isolate the anomalous areas and show them on a map.

Another effective ratio is band 5 divided by band 7 which enhances phyllosilicate minerals such as clays and sericite. Both the 3/1 and 5/7 anomalies are shown on the Interpreted features maps. It should be noted that the anomalies are not infallible (dry, yellow-red vegetation, for example, can create a false iron-oxide anomaly) and the ratios should be used to extend field interpretations rather than replace them.

Gold deposits shown on the Interpreted features maps are those shown on the published maps. I have assumed that the alluvial deposits down stream from the Gladstone goldfield are gold, not tin, deposits since they are shown somewhat ambiguously as "alluvial workings" on the map.

It is interesting to note that tidal fluctuations in Tasmania seem to be great and that the TM data were collected at the time of low tide. This provides some of the best, vegetation-free outcrop in the region and shows geology beyond the limits the published maps.

Exploration Guides

The Exploration Guides maps for the Denison and Gladstone were derived intuitively by looking at the Existing and Interpreted features maps. Features that were spatially related to known gold deposits were considered to be important to the occurrence of gold mineralization. The coincidence of favorable features indicated areas that were especially favorable. This general procedure is commonly followed by exploration geologists using overlaying maps and was described as early as 1948 by McKinstry. A more formal approach incorporating multiple data types (Truebe, 1994) was not undertaken for this work.

Three factors were considered to be important for the occurrence of gold deposits in the Denison project area. These were proximity to known gold deposits, contact metamorphosed Mathinna series sedimentary rocks and NE-SW trending linear features. The area of influence of known gold deposits was determined by measuring the mean distance between deposits. The mean plus one standard deviation was found to be 4 kilometers and this figure was used to set the area of influence. The outlines of metamorphosed Mathinna series rocks were traced from the Existing geologic maps layer, with some extrapolation into areas covered by post-Mathinna rocks. The NE-SW linear features were traced from the Interpreted features map layer and expanded to about 1 km. These features are shown on the

Exploration Guides maps and areas of coincidence of two or three of the features are outlined.

Two factors were considered to be important for the occurrence of gold deposits in the Gladstone project area. These were proximity to known gold deposits and contact metamorphosed Mathinna series sedimentary rocks. These features were outlined on the Exploration Guides maps and areas of coincidence of two of the features were outlined.

It should be noted that the Exploration guides are highly subjective and I would give no argument to geologists having other opinions. The only firm belief I have is that the presence of known gold deposits is a good indication of gold potential. NE-SW linear features in the Denison area seem important, but NE-SW linear features may be important in the Gladstone area as well as the Denison area. Gold deposits in both project areas seem correlated with contact metamorphosed Mathinna rocks and strong case could be made for metamorphism as an ore-forming mechanism (Phillips and Hughes, 1995). However, gold deposits in the Alberton quadrangle (McClennaghan and all, 1993) are found in un-metamorphosed Mathinna rocks.

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336052

Denison Project
Quadrangle A1

515,000 E

520,000 E

525,000 E

5,470,000 N

39° 55'

5,465,000 N

5,460,000 N

41° 00'

5,455,000 N

41° 05'

5,450,000 N

147° 10' E

to Quad 2A

147° 15' E

147° 20' E

Explanation:

- TM band 1 - blue
- TM band 2 - green
- TM band 3 - red

2 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

True color image map



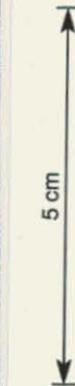
Scale 1:100,000

Denison Project Quadrangle A1

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia



to Quad 1B



336053

515,000 E

520,000 E

525,000 E

5,470,000 N

39° 55'

Bass strait

5,465,000 N

West sandy cape

Noland bay

5,460,000 N

to Quad 1B

41° 00'

5,455,000 N

5 cm

5,450,000 N

41° 05'

147° 10' E

to Quad A2 147° 15' E

147° 20' E

South half of map is from
Marshall, et al, 1965
no geologic data for north half

Existing Maps

Denison Project
Quadrangle A1

2 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona



Scale 1:100,000

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336054

Denison Project
Quadrangle A1

515,000 E

520,000 E

525,000 E

5,470,000 N

39° 55'

5,465,000 N

5,460,000 N

41° 00'

5,455,000 N

5 cm

5,450,000 N

41° 05'

147° 10' E

to Quad A2

147° 15' E

147° 20' E

Explanation:
TM band 2 - blue
TM band 5 - green
TM band 7 - red

2 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

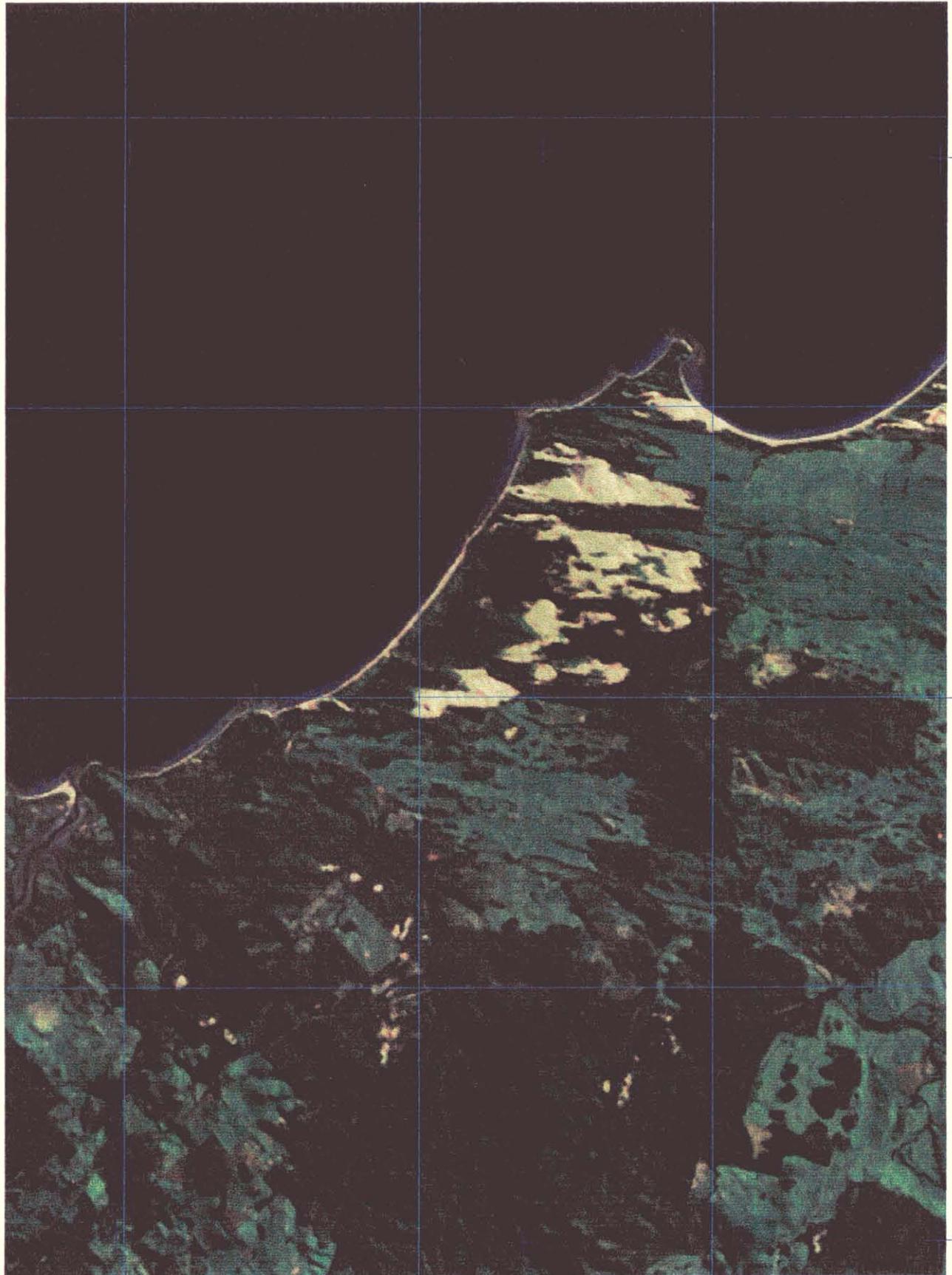
False color image map

Denison Project
Quadrangle A1



Scale 1:100,000

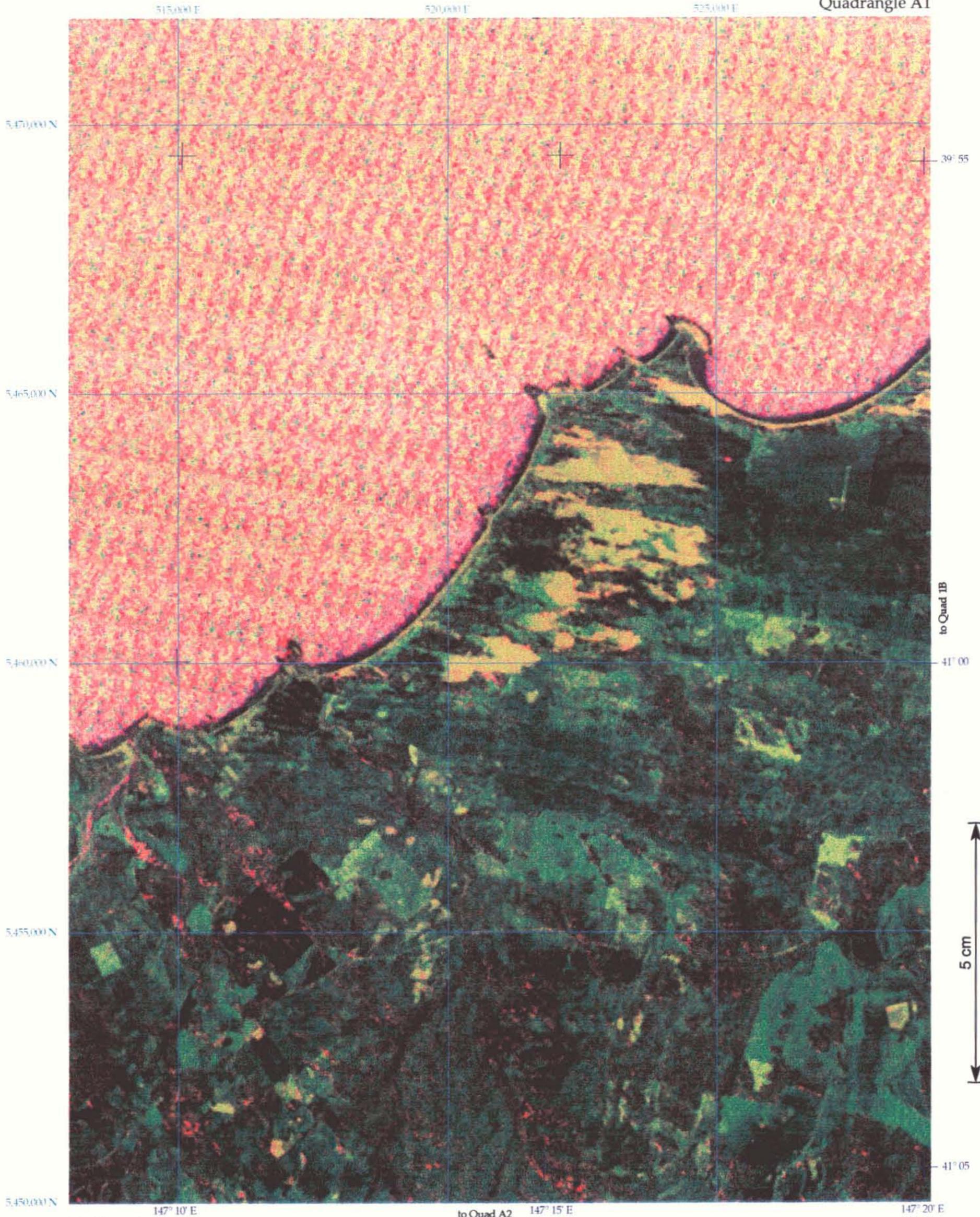
prepared for
Anglo Australian Resources N.L.
Perth, Western Australia



to Quad 1B

336055

Denison Project
Quadrangle A1



Explanation:
 PET is a proprietary enhancement
 technique designed to remove topographic
 shadows and emphasize surface materials.

2 May 1996

Image processing and graphics
Alpine Exploration Group
 Tucson, Arizona

PET image map



Scale 1:100,000

Denison Project
Quadrangle A1

prepared for
Anglo Australian Resources N.L.
 Perth, Western Australia

336056

515,000 E

520,000 E

525,000 E

5,470,000 N

39° 55'

5,465,000 N

5,460,000 N

41° 00'

5,455,000 N

5,450,000 N

41° 05'

147° 10' E

to Quad A2

147° 15' E

147° 20' E

Explanation:
High 3/1 ratio (iron enhancement) shown as red
High 5/7 ratio (clay enhancement) shown as purple
Other features are labeled on map

22 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

Interpreted features



Scale 1:100,000

Denison Project Quadrangle A1

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

Wind effects

Linear features
possible fault

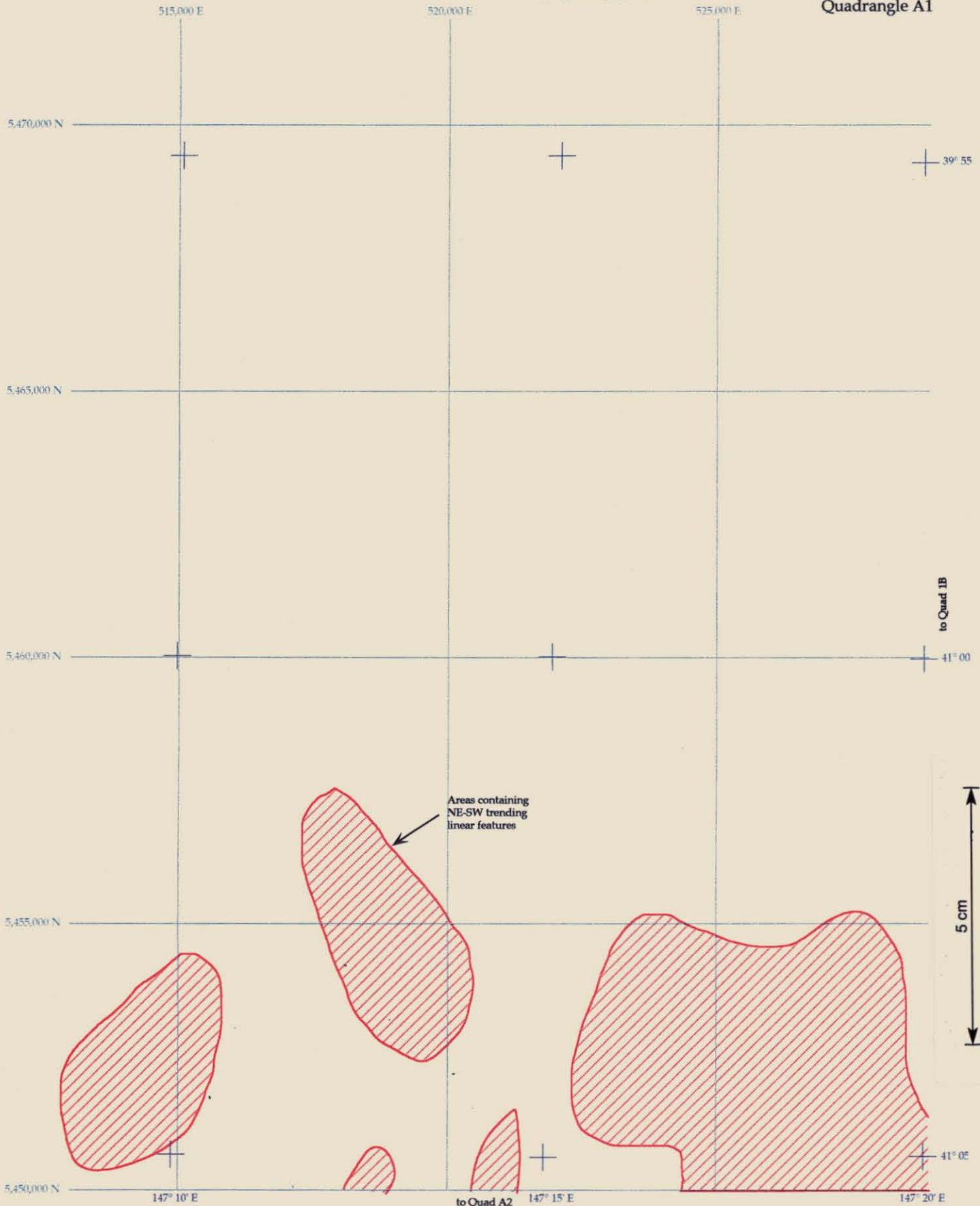
Gold (?)
mines (?)

to Quad B

5 cm

336057

Denison Project
Quadrangle A1



Areas containing
NE-SW trending
linear features

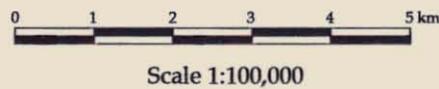
to Quad 1B

5 cm

Exploration Guides

Denison Project Quadrangle A1

4 July 1996
Image processing and graphics
Alpine Exploration Group
Tucson, Arizona



prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336058

Denison Project
Quadrangle A2

515,000 E

520,000 E

to Quad A1

525,000 E

5,450,000 N

5,445,000 N

5,440,000 N

5,435,000 N

5,430,000 N

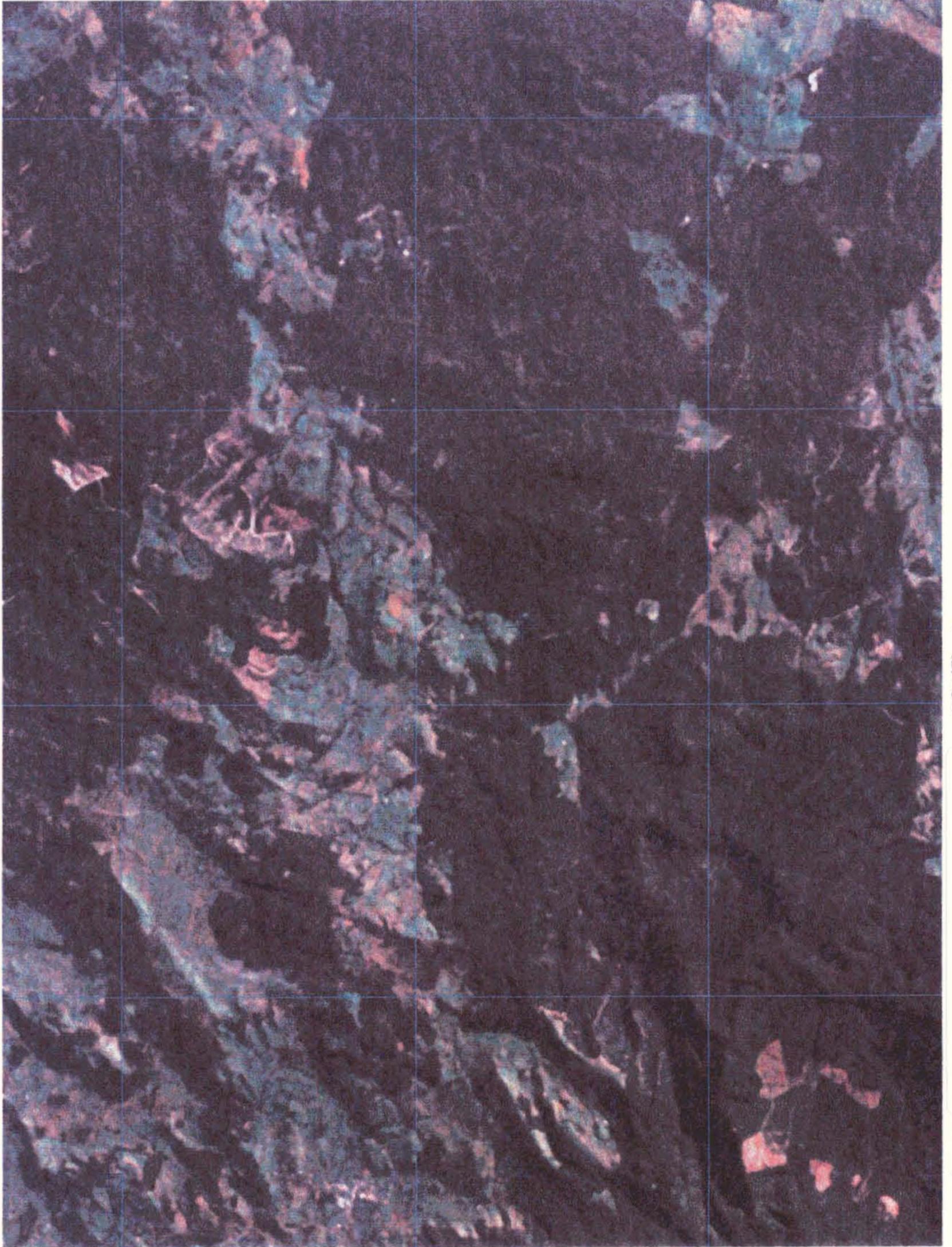
39° 55'

41° 00'

41° 15'

to Quad B2

5 cm



Southern limit of data

147° 10' E

147° 15' E

147° 20' E

Explanation:

TM band 1 - blue
TM band 2 - green
TM band 3 - red

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

True color image map



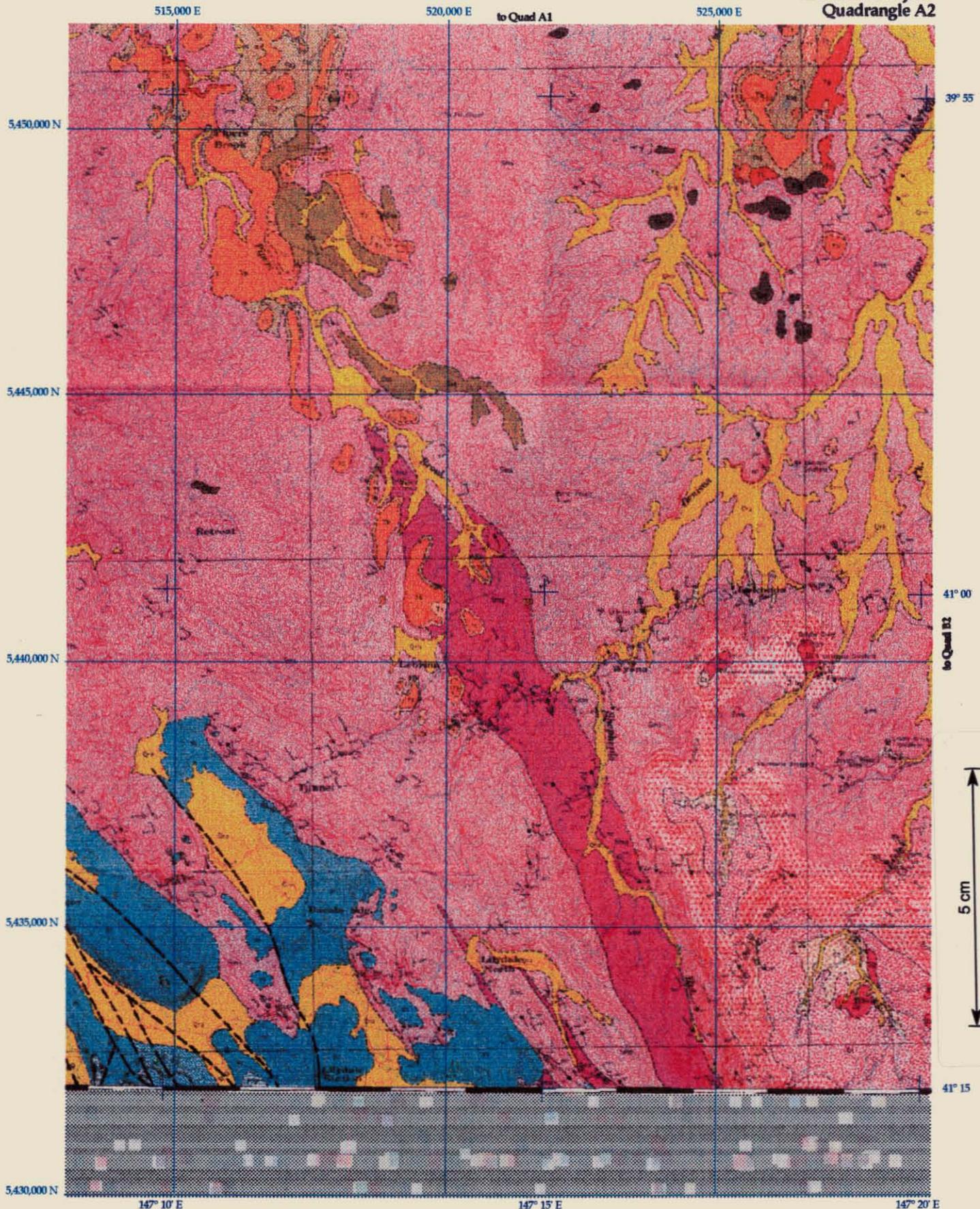
Scale 1:100,000

Denison Project
Quadrangle A2

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336059

Denison Project
Quadrangle A2



Northern part of map is from
Marshall, et al, 1965
no geologic data for southern part

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

Existing Maps



Scale 1:100,000

Denison Project Quadrangle A2

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336060

Denison Project
Quadrangle A2

515,000 E

520,000 E

to Quad A1

525,000 E

5,450,000 N

39° 55'

5,445,000 N

5,440,000 N

41° 00'

to Quad B2

5,435,000 N

41° 15'

5,430,000 N

147° 10' E

147° 15' E

147° 20' E

Explanation:

TM band 2 - blue
TM band 5 - green
TM band 7 - red

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

False color image map



Scale 1:100,000

**Denison Project
Quadrangle A2**

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

Southern limit of data

5 cm

336061

Denison Project
Quadrangle A2

515,000 E

520,000 E

to Quad A1

525,000 E

5,450,000 N

39° 55'

5,445,000 N

5,440,000 N

41° 00'

to Quad B2

5,435,000 N

41° 15'

5 cm

Southern limit of data

5,430,000 N

147° 10' E

147° 15' E

147° 20' E

Explanation:

PET is a proprietary enhancement technique designed to remove topographic shadows and emphasize surface materials.

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

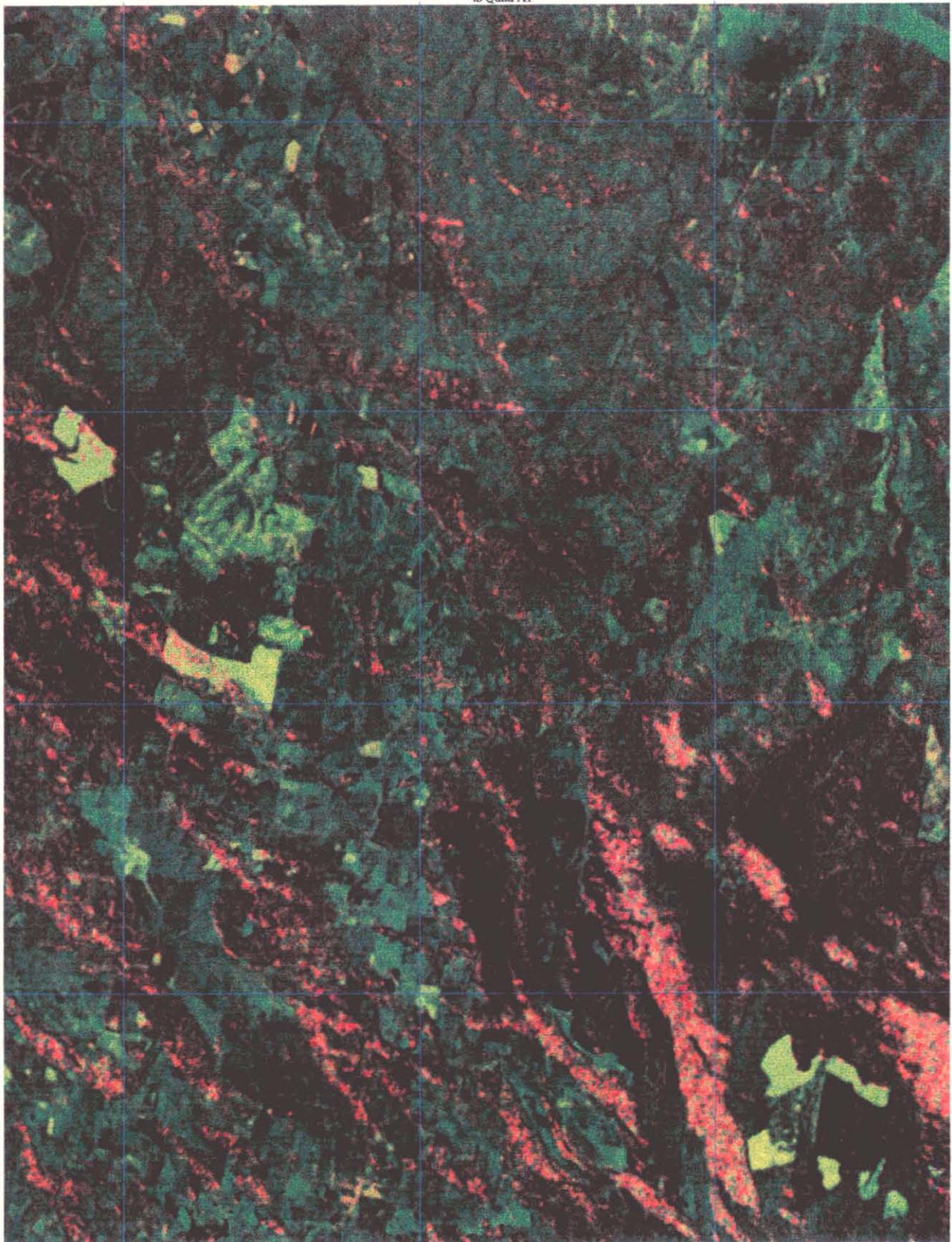
PET image map

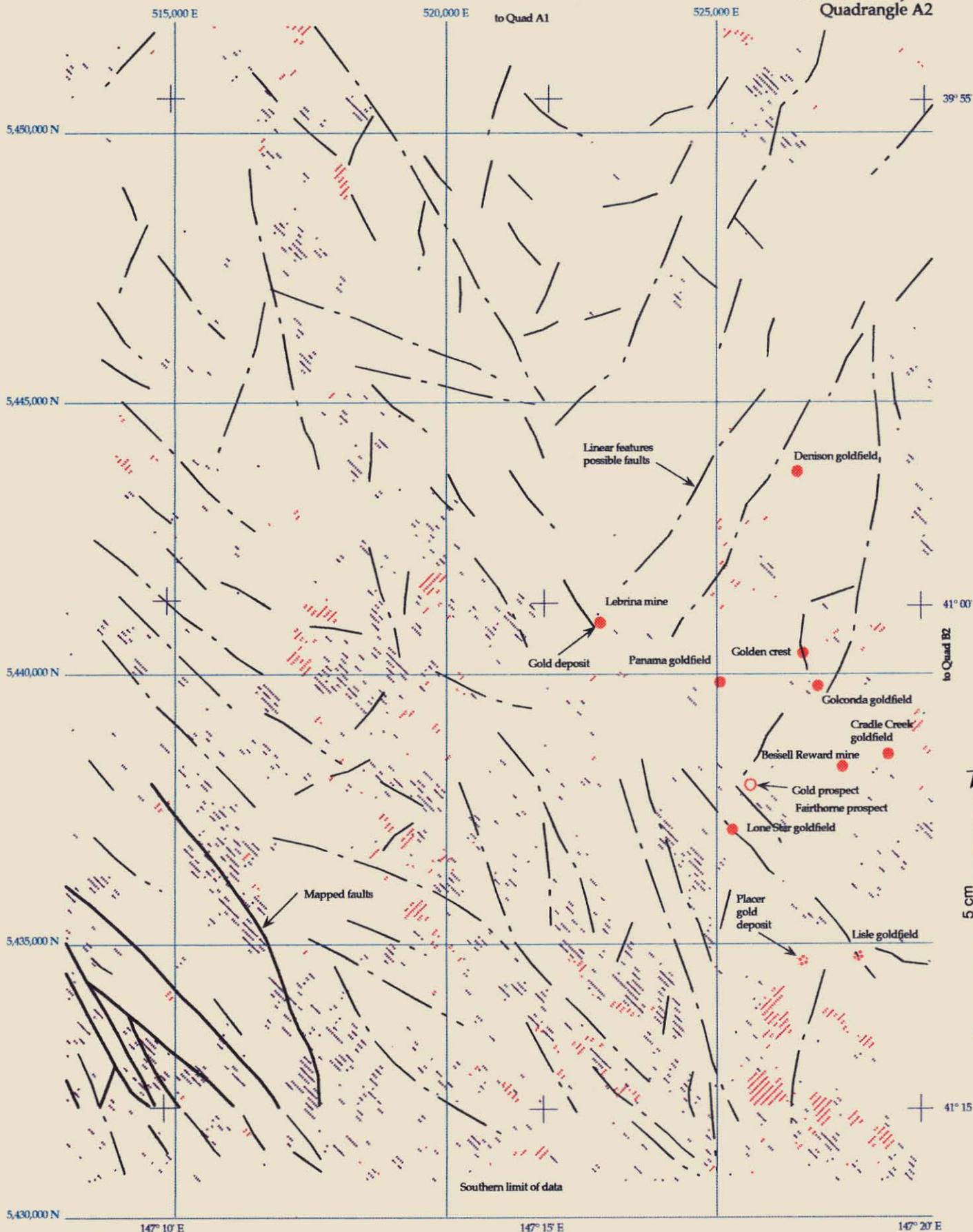


Scale 1:100,000

**Denison Project
Quadrangle A2**

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia





Explanation:
 High 3/1 ratio (iron enhancement) shown as red
 High 5/7 ratio (clay enhancement) shown as purple
 Other features are labeled on map

21 May 1996

Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

Interpreted features



Scale 1:100,000

Denison Project Quadrangle A2

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia



Explanation:
 Areas containing 3 favorable factors are surrounded by heavy black line; areas containing 2 favorable factors are surrounded by thinner line.

4 July 1996

Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

Exploration Guides



Scale 1:100,000

Denison Project Quadrangle A2

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia

336064

Denison Project
Quadrangle B1

530,000 E

535,000 E

540,000 E

5,470,000 N

39° 55'

5,465,000 N

to Quad A1

5,460,000 N

41° 00'

5,455,000 N

41° 05'

5,450,000 N

147° 20' E

to Quad B2 147° 25' E

147° 30' E

Explanation:

TM band 1 - blue
TM band 2 - green
TM band 3 - red

13 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

True color image map



Scale 1:100,000



Denison Project
Quadrangle B1

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336065

530,000 E

535,000 E

540,000 E

5,470,000 N

5,465,000 N

5,460,000 N

5,455,000 N

5,450,000 N

39° 55'

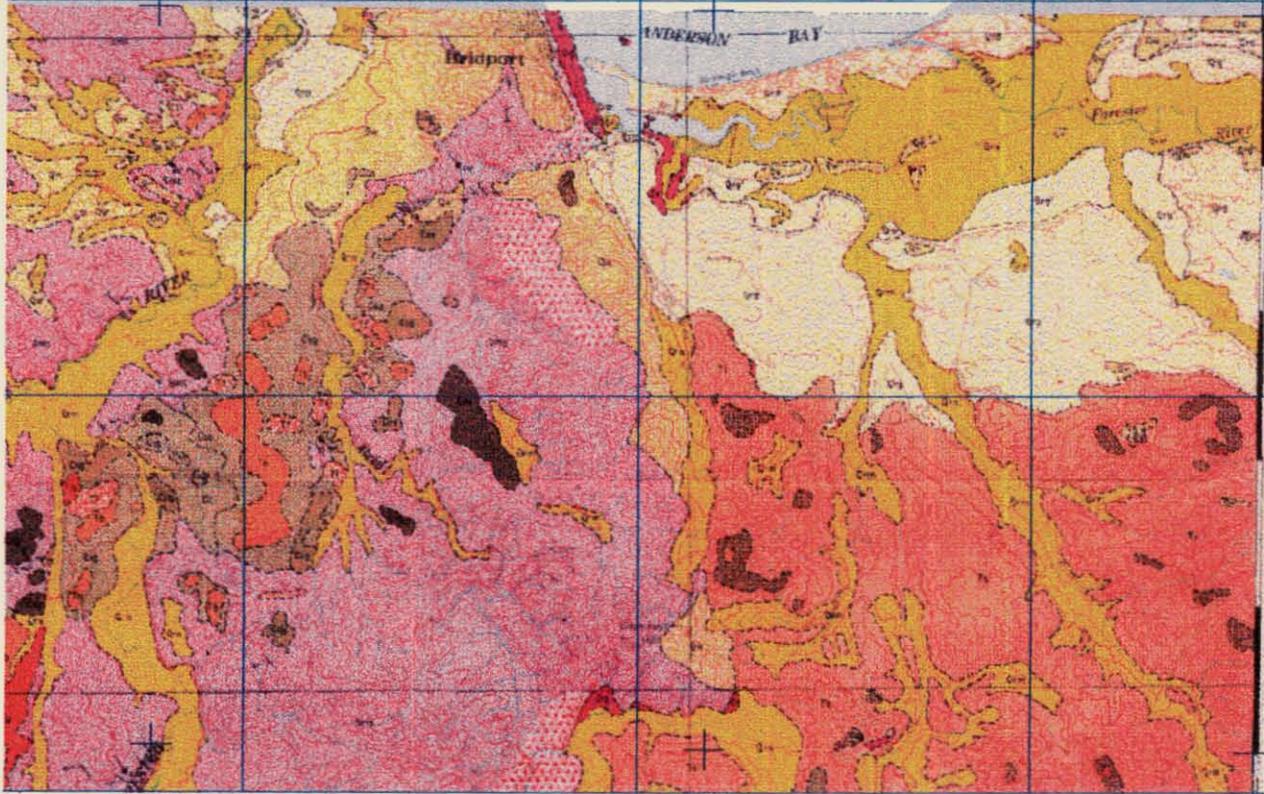
41° 00'

41° 05'

to Quad A1

Anderson Bay

Banks strait

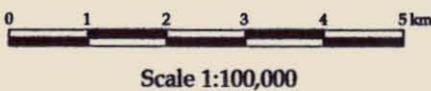


South half of map is from
Marshall, et al, 1965
no geologic data for north half

Existing Maps

Denison Project
Quadrangle B1

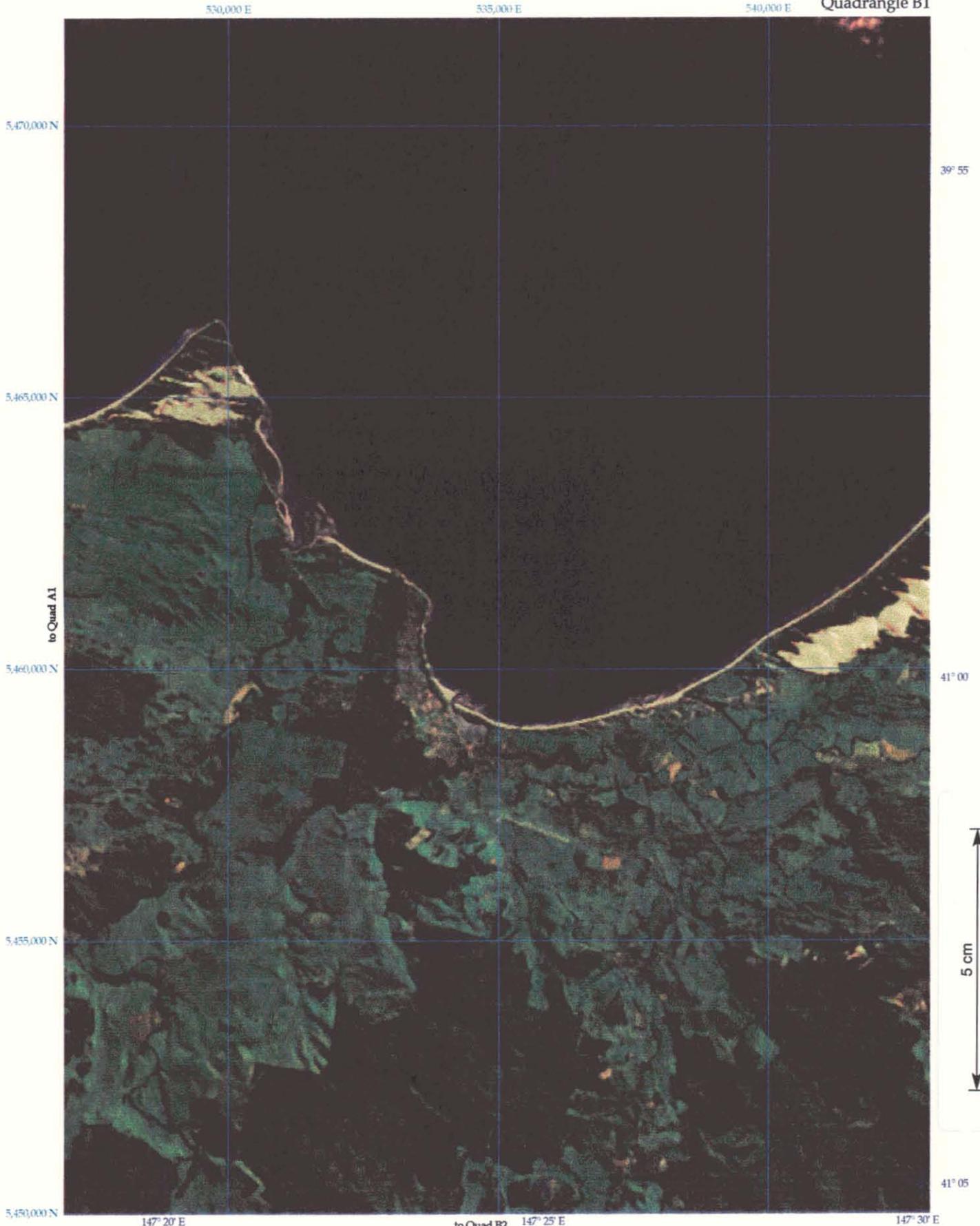
13 May 1996
Image processing and graphics
Alpine Exploration Group
Tucson, Arizona



prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336066

Denison Project
Quadrangle B1



Explanation:

TM band 2 - blue
TM band 5 - green
TM band 7 - red

13 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

False color image map



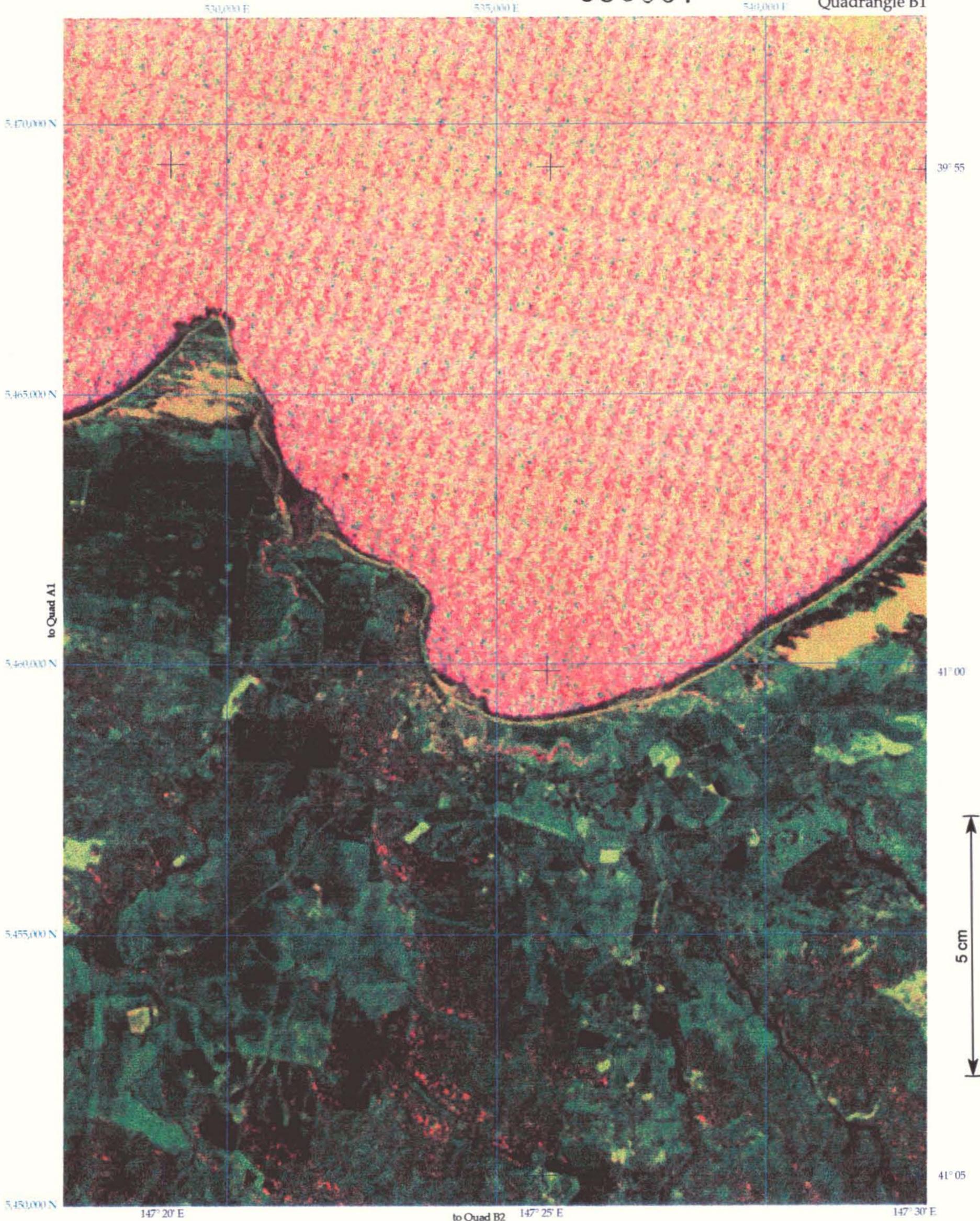
Scale 1:100,000

**Denison Project
Quadrangle B1**

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336067

Denison Project
Quadrangle B1



Explanation:
 PET is a proprietary enhancement
 technique designed to remove topographic
 shadows and emphasize surface materials.

13 May 1996

Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

PET image map



Scale 1:100,000

Denison Project
 Quadrangle B1

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia

530,000 E

535,000 E

540,000 E

5,470,000 N

39° 55'

5,465,000 N

Wind effects

5,460,000 N

41° 00'

Wind effects

5,455,000 N

5 cm

5,450,000 N

41° 05'

147° 20' E

to Quad B2 147° 25' E

147° 30' E

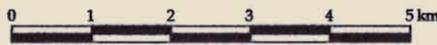
Explanation:
High 3/1 ratio (iron enhancement) shown as red
High 5/7 ratio (clay enhancement) shown as purple
Other features are labeled on map

Interpreted features

Denison Project Quadrangle B1

22 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona



Scale 1:100,000

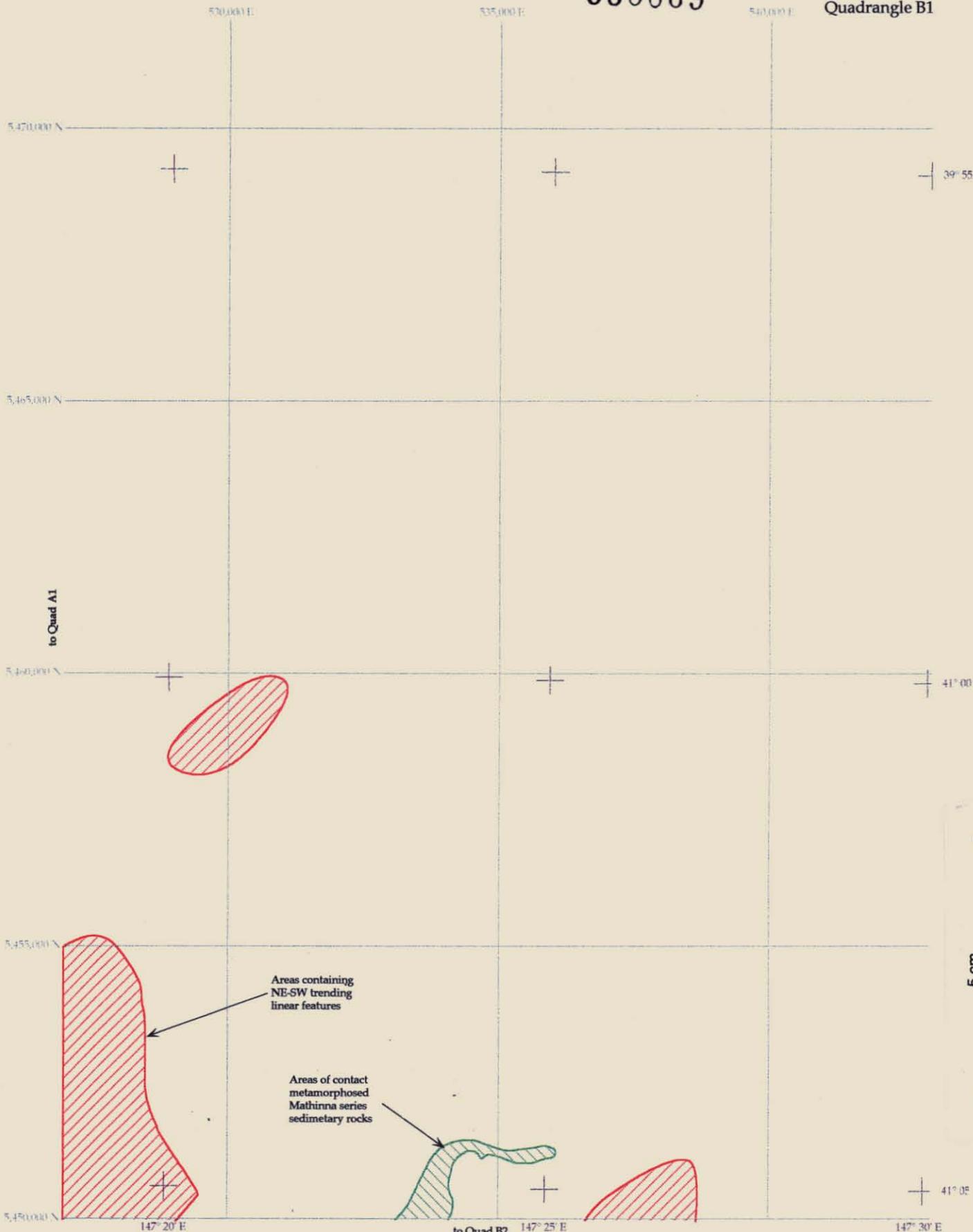
prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

Linear features
possible faults

to Quad A1

336069

Denison Project
Quadrangle B1



Explanation:
 Areas containing 3 favorable factors are surrounded by heavy black line; areas containing 2 favorable factors are surrounded by thinner line.

22 May 1996

Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

Exploration Guides



Scale 1:100,000

Denison Project Quadrangle B1

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia

336070

Denison Project
Quadrangle B2

530,000 E

to Quad B1 535,000 E

540,000 E

5,450,000 N

41° 05'

5,445,000 N

to Quad A2

5,440,000 N

41° 10'

5,435,000 N

41° 15'

5 cm

Southern limit of data

5,430,000 N

147° 20' E

147° 25' E

147° 30' E

Explanation:
TM band 1 - blue
TM band 2 - green
TM band 3 - red

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

True color image map



Scale 1:100,000

Denison Project
Quadrangle B2

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336071

Denison Project
Quadrangle B2

530,000 E

to Quad B1 535,000 E

540,000 E

5,450,000 N

41° 05'

5,445,000 N

to Quad A2

5,440,000 N

41° 10'

5,435,000 N

5,430,000 N

147° 20' E

147° 25' E

147° 30' E

5 cm

Northern part of map is from
Marshall, et al, 1965
no geologic data for southern part

Existing Maps

Denison Project Quadrangle B2

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona



Scale 1:100,000

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336072

Denison Project
Quadrangle B2

530,000 E

to Quad B1 535,000 E

540,000 E

5,450,000 N

41° 05'

5,445,000 N

to Quad A2

5,440,000 N

41° 10'

5,435,000 N

41° 15'

5 cm

5,430,000 N

147° 20' E

147° 25' E

147° 30' E

Explanation:
TM band 2 - blue
TM band 5 - green
TM band 7 - red

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

False color image map



Scale 1:100,000

Denison Project
Quadrangle B2

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

Southern limit of data

336073

Denison Project
Quadrangle B2

530,000 E

to Quad B1 535,000 E

540,000 E

5,450,000 N

41° 05'

5,445,000 N

to Quad A2

41° 10'

5,440,000 N

5,435,000 N

41° 15'

5 cm

Southern limit of data

5,430,000 N

147° 20' E

147° 25' E

147° 30' E

Explanation:
PET is a proprietary enhancement
technique designed to remove topographic
shadows and emphasize surface materials.

15 May 1996

Image processing and graphics
Alpine Exploration Group
Tucson, Arizona

PET image map



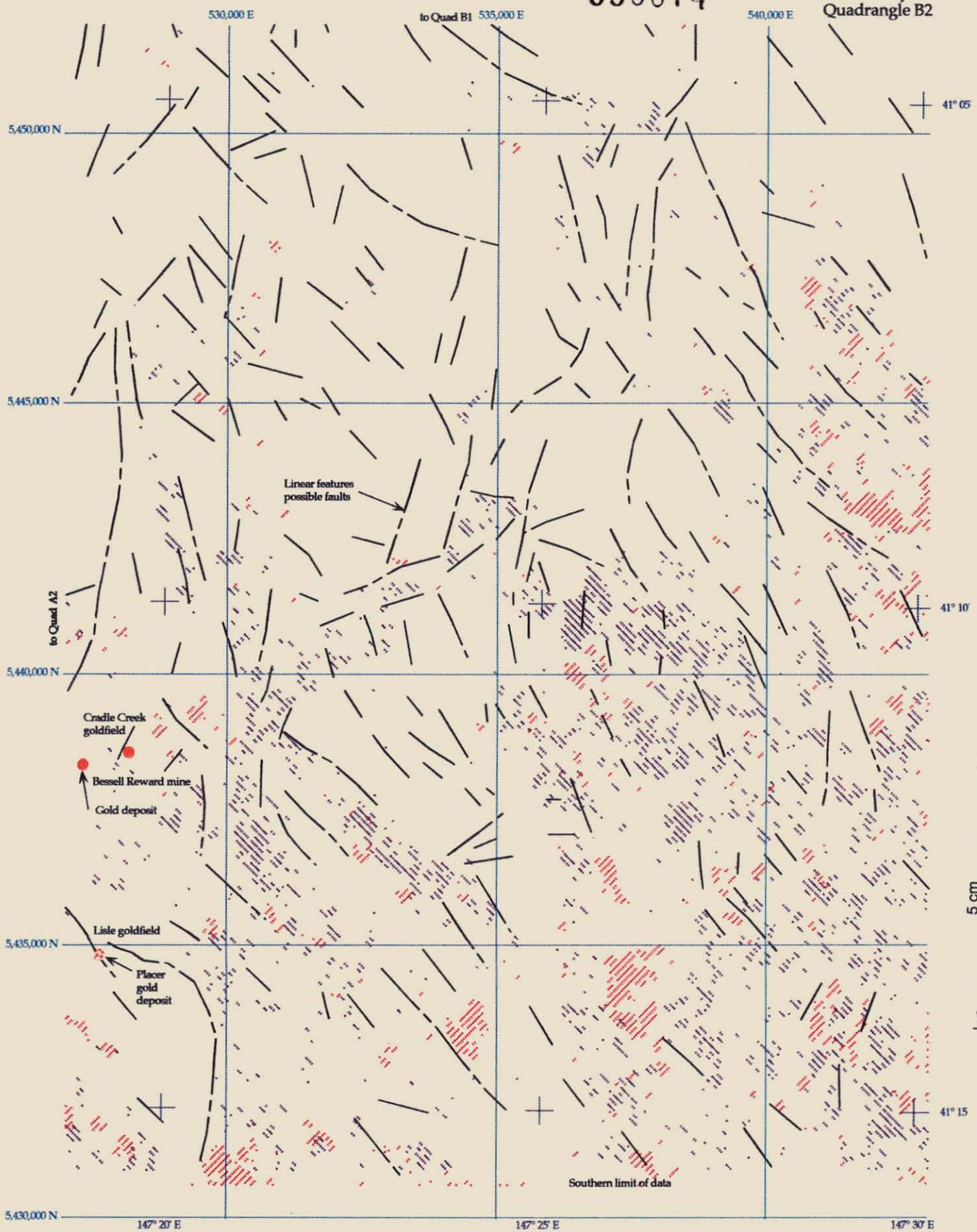
Scale 1:100,000

Denison Project
Quadrangle B2

prepared for
Anglo Australian Resources N.L.
Perth, Western Australia

336074

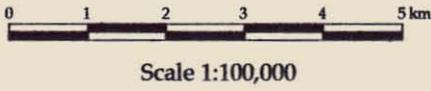
Denison Project
Quadrangle B2



Explanation:
 High 3/1 ratio (iron enhancement) shown as red
 High 5/7 ratio (clay enhancement) shown as purple
 Other features are labeled on map

18 May 1996
 Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

Interpreted features

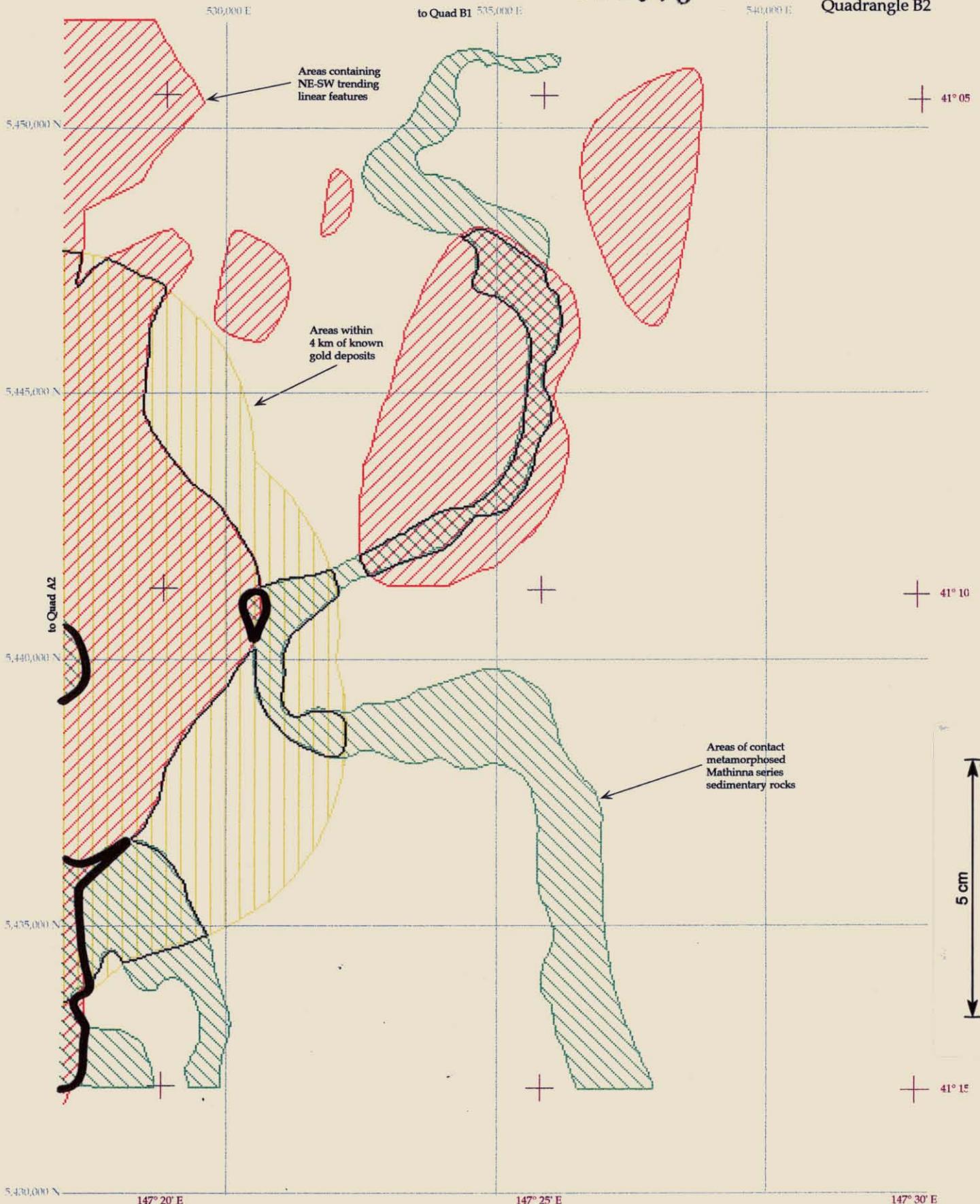


**Denison Project
 Quadrangle B2**

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia

336075

Denison Project
Quadrangle B2



Explanation:
 Areas containing 3 favorable factors are surrounded by heavy black line; areas containing 2 favorable factors are surrounded by thinner line.

4 July 1996

Image processing and graphics
 Alpine Exploration Group
 Tucson, Arizona

Exploration Guides



Scale 1:100,000

Denison Project Quadrangle B2

prepared for
 Anglo Australian Resources N.L.
 Perth, Western Australia

5 cm

DENISON PROJECT AREAELs 37/94 and 38/94, Tasmania
Anglo Australian Resources NL.

INTERPRETATION OF GEOPHYSICAL DATA - NORTHEAST TASMANIA

LEGEND

DATA
Data supplied and processed by Mineral Resources Tasmania, June 1996.
Data utilised: Total magnetic intensity (TMI), shadowed from NE & SE.
Residual magnetic intensity (1500 m continuation separation), shadowed from SE.
First vertical derivative, magnetic field, shadowed from NE and S.
Aspect of magnetic field, observed & shadowed from NE.
Residual Bouguer anomaly (2.67 gm/cc) with relief of total counts radiometric, TMI from S and NE.
Total counts radiometrics, shadowed from SE.
Multicomponent radiometrics, shadowed from SW and NW.
Radiometrics and TMI, shadowed from SW.
Landsat, channel 741.
NETGOLD data release literature.

Scale: 1:100 000. Selected for sharpest presentation of the data - a function of sampling and processing.

- Magnetic features
- ~ Radiometric features
- Gravity features
- EL boundaries
- * Known gold mineralisation (alluvial, vein)

INTERPRETATION

The interpretation was undertaken with two objectives; to outline structural fabric and to attempt identification of regional patterns associated with known mineralisation in order to guide exploration and understand fabric.

Most features marked have been extracted from magnetic data. Overlay of the fabric map and source images may show some variation in position due to filtering and shading effects. Mean positions are shown unless the actual position can be identified. Trends shown represent those present and confirmed but there may be some omissions. Where several methods display the same feature then it may be represented by more than one line. This is a measure of its possible significance.

The three geophysical methods are in general agreement; the depressed gravity field NW of the Denison Gold Field corresponds to a distinct magnetic terrane and an abrupt change in radiometrics. Unfortunately gravity coverage is relatively poor and the possibility of a local granitoid or alteration effects cannot be evaluated. Neither explanation would account for the marked radiometric effect which should only be derived at very shallow depth. The sand and weathering cover of the region is rarely apparent indicating some more fundamental cause of the radiometric responses.

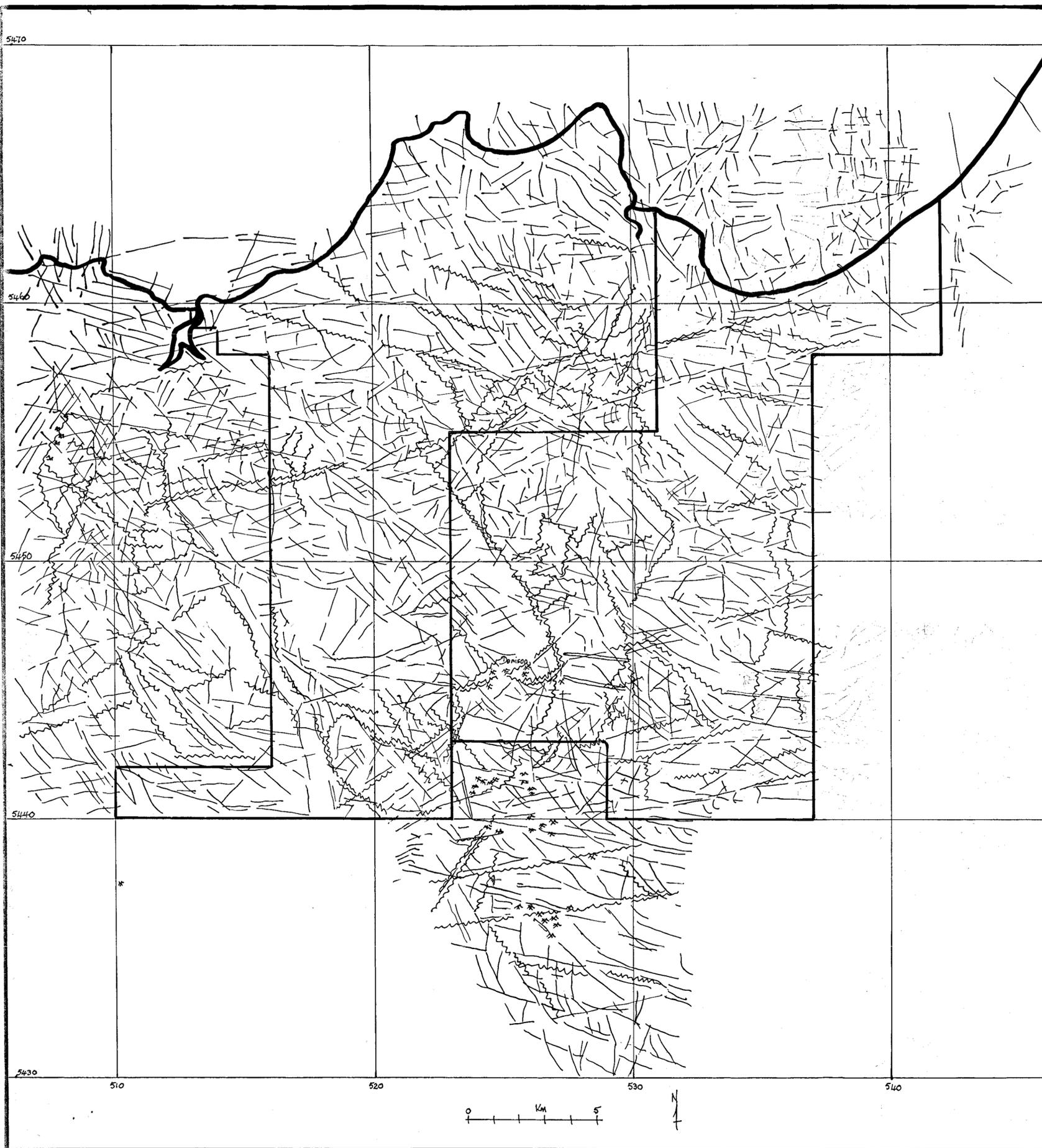
The map shows the trends observed. The most pronounced in all data sets are N-S to NNW-SSE. The largest gravity effect is just east of the licence area, extends N-S, and reflects the main batholith margin (granite-adamellites) although granodiorites occur west of it. The map suggests that ENE, ESE trends are as common and distinctive as lithologically-based NNW features but this is not the case. The easterly trends are recognisable and assembled from all data but generally subtler. The aspect version of TMI is critical since it can display both continuity of units and kinks/breaks in their grain. My SLOTS technique (Surface Location Of Transfer Structures) which links distortions in mapped structures and mirrors rejuvenated impositions on surface materials (including the shallower geophysical responses) demonstrates that the ENE trend is fundamental. The alignment of veins along the north side of the Denison field must reflect the role of this control and the structure identified nearby in several data sets.

Mineralisation patterns and associations are not easily identified. All groups (including the essentially alluvial Lisle and Back Creek sites) can be linked to near intersects of ENE and ESE features although there is no simple relationship. Many terminated NNW trends or an increased fracture pattern overall can be observed. Other such zones (possible targets) can be seen but no gold is known near them - perhaps due to lack of search. The problem of alluvials raises the issue of locality and derivation.

It is not possible to predict the existence of granitoids or alteration distant from known contacts by inspection. Previous experience has shown that this requires fuller quantitative analysis. There is no clear definition of any fold systems.

Multi-component radiometric data may, however, differentiate exploration issues. The Denison, Golconda and Panama Goldfields are associated with the margins of blocks displaying significant radiometric change (elevated counts of all components - which might indicate bulk alteration) and an association with bounding ENE fracture sets. There is no information which might allow confirmation of these inferences at Lisle or Lone Star Goldfields but it may be valid near Back Creek (even though the known deposits are alluvial) indicating a local source.

Map and interpretation prepared by
D.E. Leaman, Leaman Geophysics, GPO Box 320, Hobart, Tas. 7001
July 1996.



96-3928

ANNUAL REPORT 1996 - EL 37/94
"LEBRINA" & EL 38/94 "NABOWLA"
ANGLO AUST. RES. - FULTON/MACDONALD