14.5

EXPLORATION LICENCE EL5034, DOUGLAS,

NEAR HAYES CREEK NORTHERN TERRITORY

REPORT FOR THE YEAR ENDING 6 JANUARY, 1988

PREPARED FOR OCEANIA EXPLORATION AND MINING N.L.

by
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JANUARY, 1988

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A. SUMMARY

Exploration Licence 5034 consists largely of soil and alluvial covered plains, mainly overlying granite, apart from small areas of Early Proterozoic metasediments in the north and Cambrian sediments in the southwest. The only surface indications of mineralisation are quartz reefs and zones of silicification and pyritisation which follow a major NE-SW fault line and subsidiary faults.

A gold exploration programme, comprising photogeology, rock chip sampling and drainage geochemical surveys, was completed in November/December 1987 at a cost of $6200. These surveys produced negative results, as had a heavy mineral drainage survey by a previous explorer.

The area has little potential for commercial gold deposits and is recommended for relinquishment.

1. INTRODUCTION

Exploration Licence 5034 is situated 140 kilometres southeast of Darwin and 55 kilometres northwest of Pine Creek in the Tipperary 1:100,000 sheet area. The Corn Patch Roadhouse is situated eight kilometres south of the area.

The Exploration Licence was granted to Oceania Exploration & Mining NL for a two year term commencing 7th January 1987. It includes 20 one-minute square blocks with a total area of 67 square kilometres.

The area consists mainly of plains country forming part of the Douglas pastoral lease and is extensively cleared and fenced off into large paddocks. Easy access is obtainable to all parts of the area by station tracks.

This report describes exploration work carried out by GEONORTH on behalf of Oceania Exploration & Mining NL in November/December 1987.

2. GEOLOGY AND MINERALISATION

2.1 Regional Features

The Exploration Licence is in the Cullen Mineral Field which lies centrally within the Pine Creek Geosyncline (Stuart Smith & Needham 1984). The geosyncline contains Early Proterozoic, dominently clastic sediments, and minor volcanics, which were folded and metamorphosed between 1870 and 1800 m.y. The sediments are intruded by pre-orogenic mafic sills and late synorogenic to post-orogenic granitoid plutons. The granitoids contact metamorphosed the sediments and mafic intrusives to hornblende hornfels and albite-epidote hornfels facies. Largely undeformed Late Proterozoic, Palaeozoic and Mezozoic strata rest on the Early Proterozoic rocks with marked unconformity.

Table 1 summarises the stratigraphic succession in the area surrounding EL 5034.

Mineral deposits of the Cullen Mineral Field are of both epigenetic-hydrothermal type and stratabound-syngenetic type.

The hydrothermal types are by far the most numerous and show a broad regional zonation from uranium through tungsten, copper, tin, silver-lead to gold with increasing distance from granitoid contacts. Nearly all the deposits are in the granitoids or their contact metamorphic aurioles. They are commonly located within north to northwest trending shear zones and/or anticlinal hinge lines.

The hydrothermal gold deposits are widespread and occur in sulphide-bearing quartz veins, the dominent sulphides being pyrite and arsenopyrite. The most important host rocks are interbedded greywackes and slates which are best developed in the Mt. Bonnie and Burrell Creek Formations. In the axial zones of major anticlines these formations host quartz vein systems in fissure veins, saddle reefs and stockworks such as form the orebodies at Pine Creek, Goodall, Zapopan and Fountain Head among others. Relatively minor quartz - gold vein systems also occur in the Koolpin Formation, Gerowie Tuff and Zamu Dolerite.

The syngenetic stratabound deposits are relatively few in number. They include lead-zinc-silver (gold, tin) deposits associated with bedded sulphides in carbonaceous argillites of the South Alligator and Mt. Partridge Groups (e.g. Jessops, Mary River, Namoona), volcanogenic polymetallic (Pb, Zn, Ag, Au) sulphide lenses in Mt. Bonnie Formation (e.g. Mt. Bonnie Iron Blow); gold associated with banded iron formation in the Koolpin and Mt. Bonnie Formations (e.g. Cosmo Howley, Golden Dyke, Spring Hill).

The syngenetic deposits have in some cases probably been remobilised and locally enriched during metamorphism and deformation. Deep oxidation and lateritic weathering have also been factors in producing ore from metallurgically difficult or low grade primary mineralisation (e.g. Mt. Bonnie, Golden Dyke).

2.2 Local Geology and Mineralisation

The Douglas area is largely underlain by the Early Proterozoic Fenton Granite, which forms extensive soil and alluvium covered plains with little outcrop. In the east the granite is overlain by late Proterozoic Depot Creek and Stray Creek Sandstones which form the Mt Tolmer Plateau with an abrupt escarpment overlooking the granite areas. In the southwest the granite is overlain by Jindare Formation and Tindall Limestone of the Palaeozoic Daly River Basin.

Early Proterozoic Wildman Siltstone and Burrell Creek Formation probably underlie parts of the northern area but exposures are insufficient to delineate their distribution.

A major NE-SW fault bisects the area (part of the Hayes Creek Fault system), and zones of silicification, pyritisation and quartz veining of granite and sediment mark the line of this structure. Other zones of quartz veining and pyritisation occur to the southeast of the main fault and probably have been emplaced along associated subsidiary faults.

The only recorded metallic mineralisation within the area are a secondary copper showing and traces of alluvial tin noted in section 3 below.

3. PREVIOUS EXPLORATION WORK

Since the Douglas area is underlain predominantly by granite, and bedrock exposures are few, there has not been extensive exploration for metallic minerals.

The potential of the Tindall Limestone in the southwest, as a source of cement and lime, was examined in 1973 and 1974 (EL692), and again in 1979 and 1980 (EL1748), by Northern Cement Pty Ltd.

Portions of EL5034 were included in a previous Exploration Licence (EL1322) which was explored by International Mining Corporation NL in 1976/77 for uranium and base metals, with negative results.

The area was held under EL2885 by Messrs Henry, Walker, Bailey & Wright in 1982/83. A gravel sampling programme for Kimberlite indicators was carried out with negative results apart from identification of cassiterite in some samples. A small showing of secondary copper minerals near Douglas homestead was examined and found to be of no commercial interest.

4. WORK CARRIED OUT

The exploration work consisted of literature research, geochemical drainage reconnaissance, rock chip sampling, and compilation of a photogeological base map.

At each drainage sample site a sample of minus 80 mesh active sediment was obtained to be analysed for Au, As, Cu, Pb and Zn, and a bulk (5kg) sample of minus 10 mesh sediment was collected for gold analysis by cyanide leach.

Composite rock chip samples were taken of pyritised, silicified country rock and quartz veins along the Hayes Creek Fault zone and elsewhere.

Figure 4 shows sample locations; analytical results are given in Appendices I, II and III.

TABLE 1 - SUMMARY OF STRATIGRAPHY

MESOZOIC	Jurassic to late Cretaceous		PETREL FORMATION	Quartz sandstone & minor conglomerate.
		unconformity		
PALAEOZOIC	Cambrian to Ordovician	DALY RIVER GROUP	TINDALL LIMESTONE	Limestone with chert bands and nodules.
			JINDARE FORMATION	Quartz sandstone.
		unconformity		
MID PROTEROZOIC		TOLMER GROUP	STRAY CREEK SANDSTONE	Quartzite and micaceous siltstone.
			DEPOT CREEK SANDSTONE	Quartz sandstone.
		unconformity		
EARLY PROTEROZOIC	Cullen Batholith		FENTON, BURNSIDE, MARGARET, SHOOBRIDGE AND CULLEN GRANITES	Granite, adamellite and granodiorite.
		folding metamorphism and granite intrusion		
			ZAMU DOLERITE	Quartz dolerite and amphibolite.
		FINNISS RIVER GROUP	BURRELL CREEK FORMATION	Feldspathic greywacke and siltstone.
		SOUTH ALLIGATOR GROUP	MT. BONNIE FORMATION	Feldspathic greywacke, siltstone, mudstone, black shale, tuff and banded iron formation.
			GEROWIE TUFF	Tuffaceous chert and siltstone.
			KOOLPIN FORMATION	Ferruginous and carbonaceous argillite, chert and banded iron formation.
	warping			
		MOUNT PARTRIDGE GROUP	WILDMAN SILTSTONE	Siltstone, carbonaceous shale and quartz sandstone.
			MUNDOGIE SANDSTONE	Feldspathic sandstone, micaceous quartzite, minor chert and conglomerate.
	warping			
		NAMOONA GROUP	MASSON FORMATION	Carbonaceous shale, siltstone, minor quartzite.

5. DISCUSSION OF RESULTS

Analyses of bulk stream sediment samples gave consistently low results, with most samples reporting below the detection limit of 0.05ppb Au. The maximum value was 0.850ppb Au. Experience elsewhere in the district indicates that values exceeding 1.0ppb are present in areas containing significant gold mineralisation.

The minus 80 mesh stream sediment samples reported maximum values of 2.0ppb Au, < 20ppm As, 42ppm Pb, 29ppm Zn and 46ppm Cu. These results are not considered to be anomalous.

Small traces of gold are present in some of the pyritic quartz vein samples, the maximum value being 0.10ppm in DS1013. This is not significant in terms of economic gold mineralisation.

6. RECOMMENDATIONS

In view of the consistent lack of encouragement, in both the results of past explorers and in the present exploration programme, no further gold exploration is warranted and it is recommended that the entire area is relinquished.

APPENDIX I

Stream Sediment Samples Analytical Reports

amdel
technology and enterprise

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Telephone (089) 32 2637
Telex: AA85987

28th January, 1988

Our Ref : D706/88

REPORT NUMBER : D706/88

CLIENT : Geonorth

CLIENT REFERENCE : Order Number 13

REPORT COMPRISING : Cover Page
Page 1

DATE RECEIVED : 4th December, 1987

Alan Ciplys
Manager
AMDEL Limited (N.T.)

amdel

ANALYSIS

SAMPLE MARK	Au ppb
DS 02	0.060
DS 03	<0.050
DS 04	<0.050
DS 07	0.070
DS 08	<0.050
DS 09	<0.050
DS 10	<0.050
DS 11	<0.050
DS 12	<0.050
DS 13	<0.050
DS 14	<0.050
DS 15	<0.050
DS 17	<0.050
DS 18	LISTED NOT RECEIVED
DS 19	0.350
DS 20	<0.050
DS 22	0.850
DS 25	<0.050
DS 28	<0.050
DS 29	<0.050
DS 30	<0.050
DS 31	<0.050

METHOD : PM6

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

FORM 38

REPORT AC D705/88

ANALYSIS PPB

Sample N°	Au			Cu.	Pb.	Zn.	As.	
DS 101	<1			46	42	20	<20	
102	<			19	10	11	<20	
103	<			20	13	12	<20	
104	2			10	7	6	<20	
105	<			19	11	24	<20	
106	<			13	10	9	<20	
107	2			33	17	22	70	
108	<			21	13	17	<20	
109	<			10	18	8	<20	
110	<			7	8	7	<20	
111	<			7	12	9	<20	
112	<			14	7	29	<20	
113	<			12	8	5	<20	
114	<			5	8	6	<20	
115	<			5	12	6	<20	
116	<			7	24	9	<20	
117	<			5	7	5	<20	
118	<			20	11	10	<20	
119	2			23	19	8	<20	
120	<			14	7	17	<20	
121	<			17	17	11	<20	
122	<			36	13	13	20	
123	<			14	13	10	<20	
124	<			9	11	7	<20	
125	<			11	9	9	<20	

Page 2 of 4

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

FORM 3B

REPORT AC D 705/88

ANALYSIS PPB

Sample N°	Au			Cu.	Pb.	Zn.	As.	
DS 126	< 1			20	18	16	< 20	
127	<			5	9	6	< 20	
128	<			8	7	6	< 20	
129	<			16	10	10	< 20	
130	<			13	13	8	< 20	
131	<			10	10	11	< 20	

APPENDIX II

Rock Sample Analytical Reports

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DOUGLAS ROCKS 16

13th January, 1988

Our Ref : D704/88

REPORT NUMBER : D704/88

CLIENT	:	Geonorth
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REPORT COMPRISING	:	Cover Page Page 1
DATE RECEIVED	:	4th December, 1987

for Alan Ciplys
Manager
AMDEL Limited (N.T.)

ANALYSIS

SAMPLE MARK	Au ppm	Au (ppm) REPEATS
DS1001	0.04	0.02
DS1002	0.04	
DS1003	0.02	
DS1004	0.03	
DS1005	0.03	
DS1006	0.06	
DS1007	0.02	0.03
DS1008	0.05	
DS1009	<0.01	<0.01
DS1010	<0.01	
DS1011	0.04	
DS1012	0.03	
DS1013	0.10	
DS1014	0.04	0.02
DS1015	0.08	
DS1016	0.01	
DS1017	0.02	
DS1018	0.02	
DS1019	<0.01	
DS1020	<0.01	
DS1021	<0.01	
DS1022	<0.01	
DS1023	<0.01	
DS1024	<0.01	
DS1025	<0.01	
DS1026	<0.01	<0.01

METHOD : PM3/2

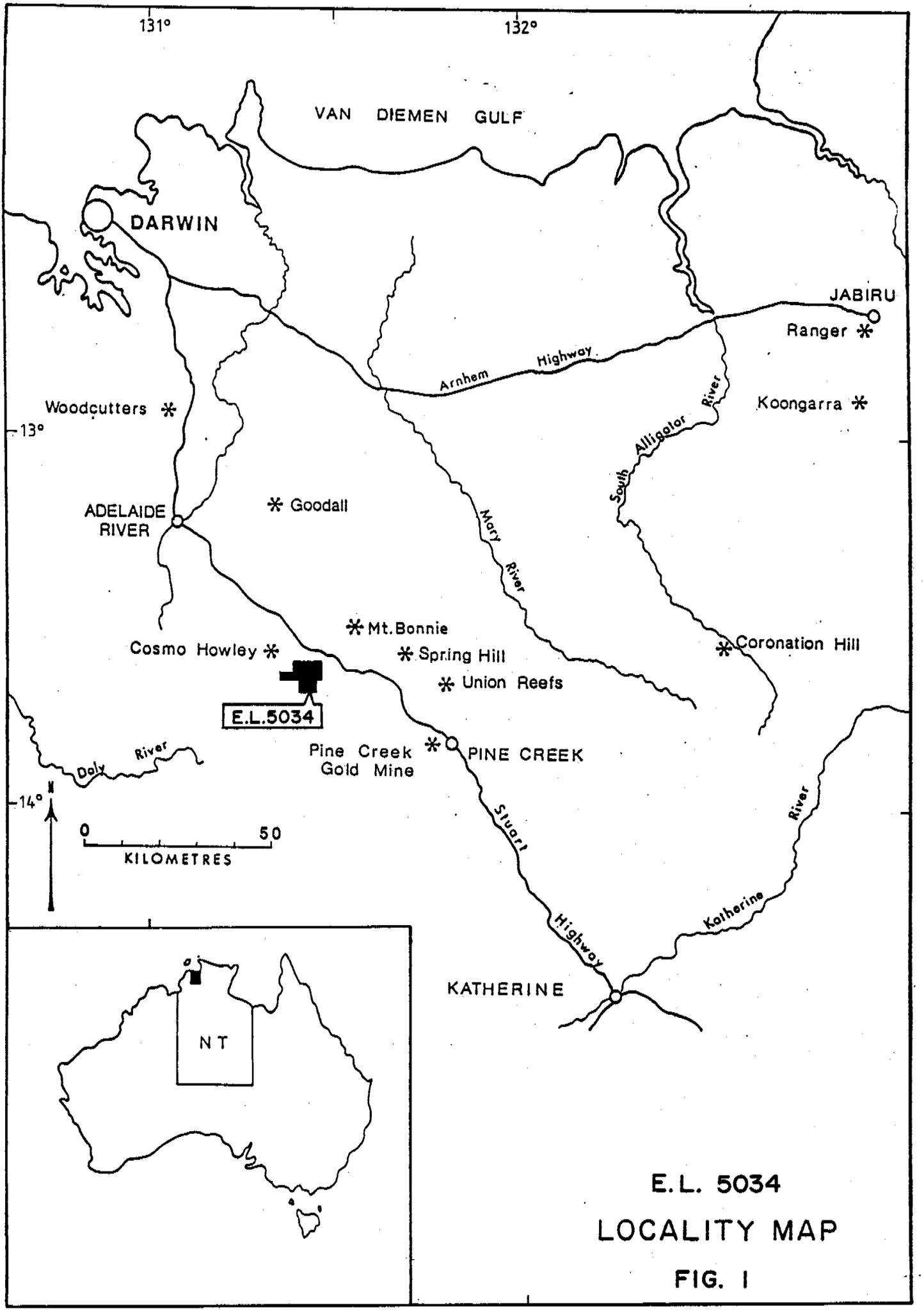
APPENDIX III

Exploration Expenditures

EXPLORATION LICENCE 5034

Exploration expenditures for the year ending 6th January 1988 are estimated to be as follows:-

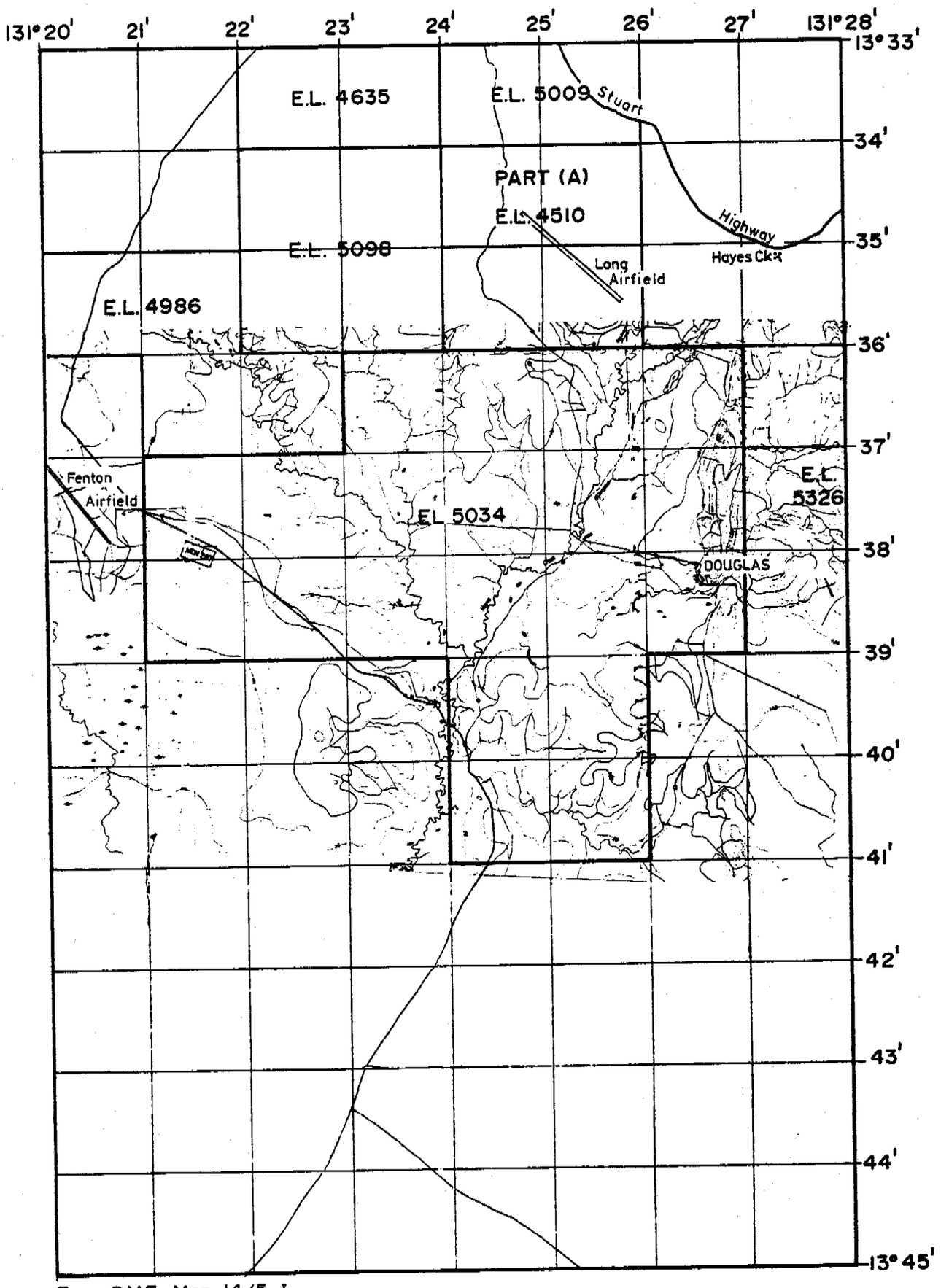
Geological consultants	1,750
Wages and salaries	1,750
Transport	495
Consumables	237
Accommodation and travel	620
Assay	1,037
Plan and report preparation	315
TOTAL	$6,204



E.L. 5034

LOCALITY MAP

FIG. 1



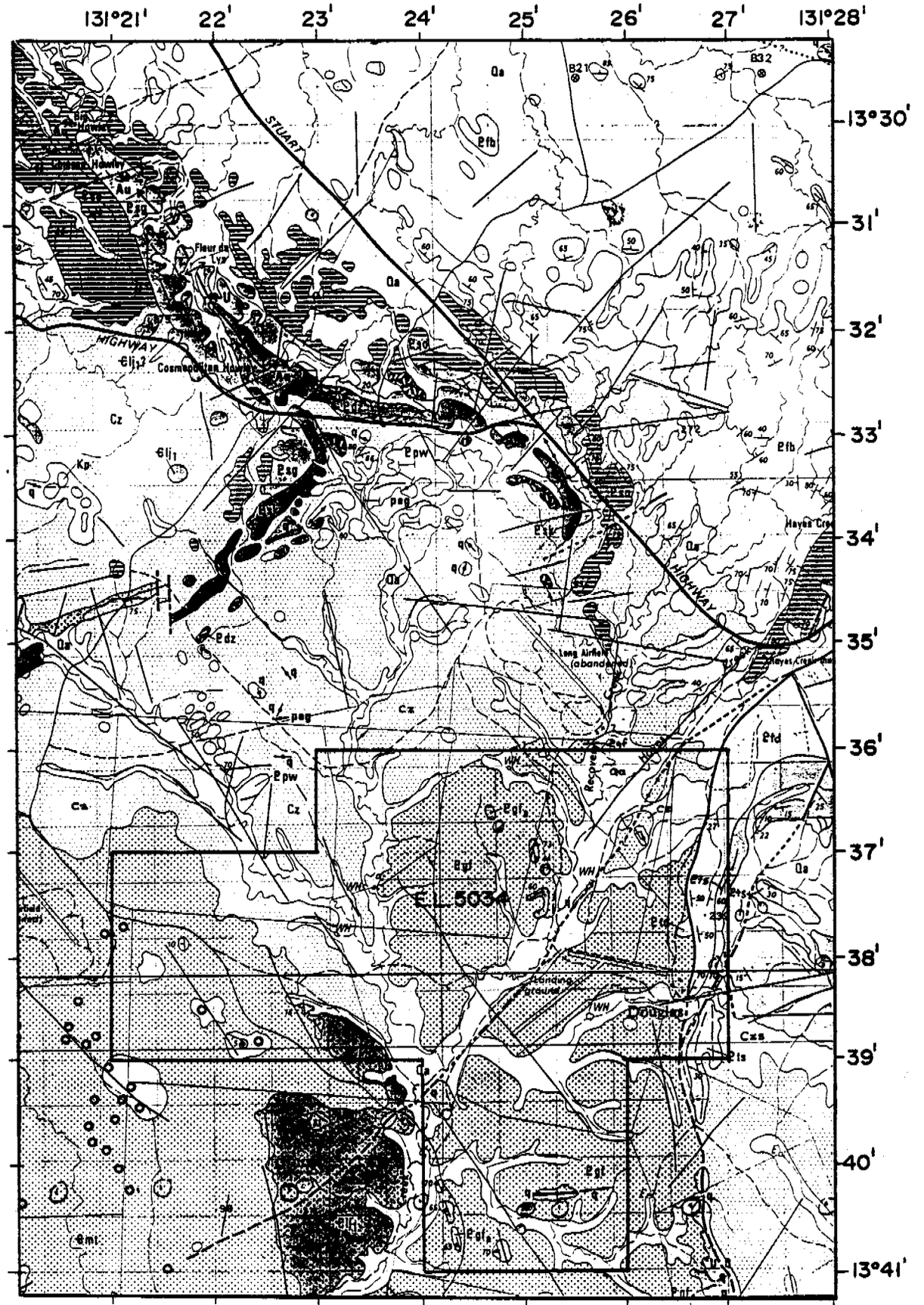
From D.M.E. Map 14/5-I

1:100 000

0 1 2 3 4 5 6 kms.

TENEMENT MAP
E.L. 5034
DOUGLAS

FIG. 2



CAINOZOIC

Qa	Alluvium.
Cz	Soil.

PALEOZOIC

€mt	Tindall Limestone
€lj1	Jindare Formation.

LATE PROTEROZOIC

Pts	Stray Ck. Sandstone Member.
Ptd	Depot Ck. Sandstone Member.

MIDDLE PROTEROZOIC

Pgf	Fenton Granite.

REGIONAL GEOLOGY

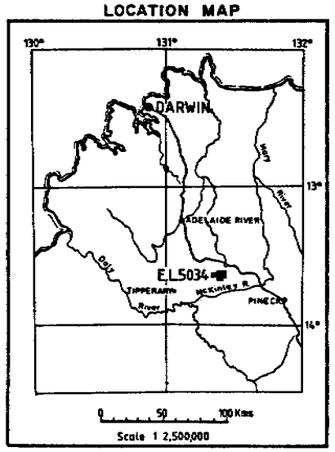
E.L. 5034

FIG. 3

Approx. Photogeological Boundary.
Trend Lines.
F— Fault.
x1009 Rock Chip Sample.
013 Bulk Sediment Sample.
113 Small Sediment Sample.

Track.
Swamp.
Swamp definite boundary.
Fence.
Creek.
Exploration Licence Boundary.

LOCATION MAP



SCALE
1: 25,000
0 1 2 3 4 5 Kms

CR88/116

OCEANIA EXPLORATION AND MINING N.L.

E.L. 5034
DOUGLAS
PHOTOGEOLOGICAL INTERPRETATION AND SAMPLE LOCATIONS

Date: NOV., 1987.
Geologist: G.R. ORRIDGE
Fig. 4