

AUSTRALIAN STOCK EXCHANGE LIMITED

Incorporated in ACT by Act of Parliament A.C.N. 008 624 691

MARKET RELEASE

11 May 2000

Gunson Resources Limited

Gunson Resources Limited has applied for admission to the official list of Australian Stock Exchange Limited and for quotation of its securities. It has been given a provisional ASX code. Provision of an ASX code and publication of the following information does not mean that the entity will be admitted or that its securities will be quoted.

Pam Ross Manager Company Announcements Office



GUNSON RESOURCES LIMITED

ACN 090 603 642

PROSPECTUS

INITIAL PUBLIC OFFERING

An offer of 17,500,000 Shares for subscription at an issue price of 20 cents each payable in full on application.

*Underwriter Morgan Corporate Limited ACN 010 539 607



IMPORTANT INFORMATION

This is an important document that should be read in its entirety. If you do not understand it you should consult your professional advisers without delay. The Shares offered by this Prospectus are of a speculative nature. It is proposed that this Issue will close at 5.00pm (Perth time) on 19 April 2000.

• Note the Underwriting Agreement is conditional. Full details of the conditions are contained on pages 89 to 91 of this Prospectus.

CORPORATE DIRECTORY

Directors

W H Cunningham B.Com. (Chairman) D N Harley Msc., F.Aus. I.M.M. (Managing Director) P C Harley B.Com., F.C.P.A.

Secretary I A Macliver B.Com., C.A.

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Share Registry

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Auditors

PricewaterhouseCoopers Chartered Accountants Level 12, The Quadrant 1 William Street PERTH WA 6000

Independent Accountant

PricewaterhouseCoopers Securities Limited ACN 003 311 617 Level 7, 256 St Georges' Terrace PERTH WA 6000

Solicitors to the Issue and

Solicitors Reporting on Title Minter Ellison Lawyers 15th Floor, AMP Building 1 King William Street ADELAIDE SA 5000

Underwriter

Morgan Corporate Limited ACN 010 539 607 Level 29, Riverside Centre 123 Eagle Street BRISBANE QLD 4000

Broker to the Issue

Morgan Stockbroking Limited ACN 010 669 726 Level 29, Riverside Centre 123 Eagle Street BRISBANE QLD 4000

Independent Consulting Geologist Mackay & Schnellmann Pty Limited ACN 008 725 022

Geological and Mining Consultants Suite 6, 25 Hamilton Street SUBIACO WA 6008





Figure 1: Project Location Map



Sunset at Emmie Bluff Prospect, Mount Gunson Project, South Australia.

Font Coven Diamond with on hole MDC 4, Mount Gunson Project, August 1958



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This Prospectus is dated 15 March 2000. A copy of this Prospectus was lodged on 15 March 2000 with the Australian Securities and Investments Commission ('ASIC'). Neither ASIC nor its officers take any responsibility for the contents of this Prospectus.

No securities will be allotted or issued on the basis of this Prospectus later than four months after the date of issue of this Prospectus. An application for Shares will only be accepted on the Application Form attached to this Prospectus.

The Company will apply to Australian Stock Exchange Limited ('ASX') within 7 days of the date of this Prospectus for permission for the Shares offered by this Prospectus to be listed for quotation on ASX. ASX takes no responsibility for the contents of this Prospectus.

This issue is underwritten by Morgan Corporate Limited on the terms and conditions set out in this Prospectus.

Certain words and terms used in this Prospectus have defined meanings which appear in the Glossary and Definitions at pages 100 and 101 of this Prospectus.

This document is very important and should be considered in its entirety before deciding to apply for Shares. The Shares offered by this Prospectus are considered to be speculative in nature. Applicants should consult their sharebroker, solicitor, accountant or other professional advisor before deciding to apply for Shares.

SUMMARY OF ISSUE

This Prospectus is for the issue of 17,500,000 ordinary shares at 20 cents each, to raise \$3,500,000.00. The issue is fully underwritten by Morgan Corporate Limited, on the terms and conditions contained on page 89 to 91 of this Prospectus.

Some important dates are:

Date of Prospectus 15 March 2000

Issue Opens 28 March 2000

Issue Closes* 19 April 2000

Intended share allotment date 28 April 2000

Anticipated quotation date 2 May 2000

*Subject to the right of the Directors to close the Issue on an earlier date or to extend the Closing Date of the Issue.



CHAIRMAN'S LETTER

15 March 2000

Dear Investor

On behalf of the Board, I am pleased to present this Prospectus inviting you to subscribe for shares in Gunson Resources Limited.

The Company has contracted with Stuart Petroleum NL, formerly Stuart Metals NL (Stuart) to acquire all of Stuart's mineral exploration tenements, which include two outstanding properties: the Mount Gunson copper project in South Australia and the Coburn mineral sand project in Western Australia. Both these properties have been worked up at considerable cost over the past several years by Stuart's high calibre mineral exploration team, who have transferred to the Company. The Company's exploration team is led by former WMC Exploration Division general manager David Harley and includes several other former WMC exploration staff who have specific expertise in the geology of the minerals being sought.

The Mount Gunson copper project is located some 100 kilometres south of the world class Olympic Dam copper mine and covers about 4,000 square kilometres of the South Australian copper belt, host to nearly three quarters of Australia's known copper resources. This project has attracted a major international mining company Billiton plc who through its Australian subsidiary Billiton Exploration Australia Pty Ltd (Billiton) has agreed to pay \$0.5 million to acquire 2,500,000 shares in the Company, on the condition that the Company applies those funds plus an additional \$0.3 million towards exploration of the Mount Gunson tenements. Once these funds have been spent, Billiton will then have the option under the recently executed Mt Gunson Joint Venture agreement to earn up to 70% of the Mount Gunson project by spending \$6 million within 5 years of its election to do so. If Billiton achieves its 70% equity, the Company may then elect to contribute to ongoing expenditure on a pro rata basis or dilute to a 20% equity. If it elects the latter alternative, the Company would be carried at 20% interest into commercial production by Billiton, which would then recoup the Company's share of pre production costs from 85% of the Company's free cash flow from any mine development.

Billiton is backing the Company's exploration team to make a major copper discovery at Mount Gunson and a drilling program will be initiated as soon as practicable after the issue is completed to test several quality targets for Olympic Dam style mineralisation.

The second outstanding mineral property is the Coburn heavy mineral sand project near Shark Bay in Western Australia. The exploration target at Coburn is a major fossil bay similar to the world class Eneabba heavy mineral field some 400 kilometres to the south. A scout drilling program at Coburn in September 1999 confirmed the geological model and revealed the presence of high quality heavy minerals in a favourable geological setting. Mineralisation occurs in both fossil wind blown sand dunes and underlying beach sand, where there is good potential for long, narrow high grade beach strand deposits parallel with the fossil coastline. A major drilling program to establish the size and grade of the mineralisation is scheduled to commence shortly after the issue is completed.

The third mineral property to be acquired from Stuart is the Mount Tabor cobalt project in Queensland. This project contains the Mount Manganese prospect and has the potential to yield a small cash flow for the Company. In addition, the Company proposes to acquire the Onslow copper project from Adelaide Mining Geophysics Pty Ltd. The Onslow project covers two gravity/magnetic geophysical targets which are prospective for Olympic Dam style mineralisation.

The Board considers the acquisition of these mineral tenements to be an outstanding opportunity for the Company to discover world class mineral deposits in Australia. This offer to subscribe for shares represents a chance for you to share in that opportunity. The Board regards the Company as having an exciting future in the mineral industry, and considers that the Company will be well placed to generate additional quality mineral prospects and benefit from any improvements in mineral commodity prices.



The Board has budgeted for expenditure of approximately \$2.9 million on exploration over the next two years. Exploration programs and budgets will be regularly reviewed in the light of results, and the Board will revise the programs accordingly.

The information contained in this Prospectus is very important. I urge you to read the Prospectus carefully and to seek your own investment advice before making any investment decision.

On behalf of the Directors, I look forward to welcoming you as a shareholder of Gunson Resources Limited.

Yours faithfully

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W H Cunningham Chairman



Diamond drill at hole MGD 5 on the Mount Gunson Project August 1998.



SUMMARY

Establishment of the Company

Gunson Resources has been established to acquire and explore the Stuart Tenements and the Onslow Tenement.

Subject to the approval of the shareholders of Stuart at a meeting to be held on 27 March 2000, Gunson has agreed to acquire all of the Stuart Tenements, for a price of \$2,453,600 to be satisfied by Gunson issuing 12,268,000 shares in the Company to Stuart. These shares will be distributed directly to Stuart's Shareholders in proportion to their shareholdings, pursuant to the In Specie Distribution.

Issue

Gunson Resources invites investors to subscribe for 17,500,000 Shares at an issue price of 20 cents each. This Issue is fully underwritten by Morgan Corporate Limited, and at the completion of the Issue there will be approximately 32 million Shares on issue.

The Billiton Subscription Agreement

At Completion, Billiton Exploration has agreed under the Billiton Subscription Agreement to subscribe for 2.5 million Shares at a cost of \$0.5 million as set out on page 92 of this Prospectus. Billiton Exploration has agreed to acquire these Shares on the condition that the Company expends \$800,000 on exploration of the Mount Gunson Tenements.

The other material terms of the Billiton Subscription Agreement are that:

- Following the expenditure of the \$800,000 described above, Billiton Exploration may elect to form the Mt Gunson Joint Venture with Gunson under which:
 - Billiton Exploration may earn a 51% interest in the Mount Gunson Tenements by expending \$2.5 million within 2 years thereof;
 - (b) If it does earn 51% Billiton Exploration may increase its interest in the Mt Gunson Joint Venture by a further 19% by expending a further \$3.5 million on exploration of the Mount Gunson Tenements within a further 3 years;
 - (c) If Billiton Exploration remains at 51% or reaches 70% interest in the Mt Gunson Joint Venture each party will thereafter fund its share of expenditure or dilute; and
 - (d) If Gunson's interest in the Mt Gunson Joint Venture falls to 20% its interest will be 'loan carried' at that level until the commencement of commercial production with the loan proceeds being repayable (together with interest) from 85% of the free cash flow produced from the operations of the Mt Gunson Joint Venture.
- Gunson appoints Billiton Exploration (or an affiliate) to act as the exclusive marketer of Gunson's share of product derived from the Mt Gunson Joint Venture.

Billiton Group

The Billiton Group is one of the world's leading mining and metals businesses, with operations in Australia, Brazil, Canada, Columbia, Mozambique, South Africa and Suriname. The Billiton Group has an unrivalled portfolio of non-listed assets, diversified by commodity and country and characterised by their low cost of production. The Billiton Group ranks among the world's top four producers of aluminium and alumina. It is the world's leading producer of chrome and manganese ores and alloys and the largest exporter of thermal coal. Listed in London, Paris and Johannesberg, Billiton is also the Western world's fourth largest producer of nickel and owns 50% of the world's foremost producer of titanium minerals.



PROFILES OF DIRECTORS AND SENIOR CONSULTANTS

Chairman

William H Cunningham B.Com.

Mr Cunningham is a consultant in mineral commodities marketing with over 35 years experience in the mining industry, mainly with WMC Resources Limited and CRA Limited. Prior to leaving WMC in 1997, he was manager for that company's Nickel Division intermediate products marketing, which included products containing copper and cobalt.

Managing Director

David N Harley BSc (Hons) MSc., F.Aus. I.M.M.

Mr Harley is a geologist with over 28 years experience in the mining industry, mostly in senior exploration management positions with WMC Resources Limited. He is Vice President of the Association of Mining and Exploration Companies, AMEC, Chairman of Gallery Gold Ltd, a director of the Australian Geodynamics Cooperative Research Centre and a Councillor of the Australian Mineral Foundation. He was Managing Director of Stuart Metals NL for 3 years until October 1999.

Non-Executive Director

Peter C Harley B.Com., F.C.P.A.

Mr Harley is an accountant with over 20 years experience with publicly listed companies. He was an executive director of ERG Limited for nine years until June 1996, and is currently a non executive director of Nautronix Ltd, iiNet Ltd and Foundation Capital Ltd. He is also Chairman of the Cooperative Research Centre for Australian Telecommunications based at Curtin University. Mr Harley was a director of Stuart Metals NL for a 3 year period to October 1999.



Board of Directors: From the left, Peter Harley, David Harley, Bill Cunningham.

Senior Consultants

- Heavy mineral sand geologist Roger Hamilton who developed and will manage the Coburn Project;
- Geophysicist **James Hanneson** who has extensive experience in exploration for Olympic Dam style copper deposits; and
- Geologist **Hamish Paterson** who managed WMC's exploration around Olympic Dam for five years during the mid 1980s. Mr Paterson will manage the Mount Gunson Project.



SUMMARY OF MINERAL PROJECTS

MOUNT GUNSON COPPER PROJECT

SOUTH AUSTRALIA (100% INTEREST)

1. Introduction

The Mount Gunson Project is strategically located in the best endowed copper belt in Australia. This belt is about 400 kilometres long, stretching from Olympic Dam in the north to Moonta in the south (Figure 2) and contains approximately three quarters of the known copper resources in Australia. The Mount Gunson Project lies in the central northern portion of the belt and covers just over a quarter of its total strike length.

The major regional centre of Port Augusta lies some 70 kilometres to the south of the Project. The Stuart Highway, the Transcontinental railway, the power line from Port Augusta to Olympic Dam and the water pipeline from Port Augusta to Woomera all run through the Project area

Since the discovery of copper near Mount Gunson in 1875, exploration has been carried out intermittently to the present day, the major phase of activity in the region being the last 30 year period from 1969

encouraged by the discovery of the Cattlegrid deposit by CSR in 1972 and the Olympic Dam deposit by WMC in 1975. These two deposits occur in the cover and basement rocks respectively and highlight the long history of major copper mineralisation in the belt. Despite the major wave of exploration activity over the past 30 years, only some 100 drill holes have penetrated into basement rocks in the Olympic Dam-Mount Gunson district outside the Olympic Dam mine area.

Quality drill targets for major copper deposits in the basement of the Olympic Dam type have been defined for testing immediately after the fund raising is completed.

2. Regional Geology

The Mount Gunson Project lies on the eastern side of the Gawler Craton (Figure 2) within the Stuart Shelf geological province, which comprises flat lying sedimentary rocks of mainly Upper Proterozoic (Adelaidean) age, resting on an older Gawler Craton basement. Within the Mount Gunson Tenements, the sedimentary rocks of the Stuart Shelf vary in thickness from about 100 metres over a basement ridge in the northeast to nearly a kilometre in the northwestern part of the Mount Gunson Project (Figure 3). These sedimentary rocks contain widespread occurrences of base



Figure 2: South Australian Copper Belt.

metal mineralisation, particularly copper-cobalt around Mount Gunson and at Emmie Bluff Prospect and are similar in age and many other respects to rocks of the world class Central African Copper Belt.

About 110 kilometres to the north of Mount Gunson, the Olympic Dam copper-uranium-gold mine, the sixth largest copper deposit and largest uranium deposit in the world, lies within rocks of the Gawler Craton basement, beneath some 300 metres of Stuart Shelf sediments (Figure 3). Expansion of this mine to produce about 200,000 tonnes of copper metal, 4,600 tonnes of uranium oxide, 78,000 ounces of gold and 850,000 ounces of silver per annum was completed recently. This will make Olympic Dam one of the lowest cost copper producers in the world after inclusion of by product credits.



Within the northern and best mineralised half of the South Australian Copper Belt (Figure 2) a number of occurrences of Olympic Dam style mineralisation in basement rocks have been discovered by previous explorers (Figure 3). These copper prospects lie in a narrow NNW trending corridor about 50 kilometres wide which trends southward from Olympic Dam into the Mount Gunson Project. The lower Emmie Bluff Prospect mineralisation, discovered at a depth of 890 metres by MIM in 1984, lies in the northernmost portion of the Mount Gunson Project.

As shown by the contour line on Figure 3, there are only two areas of relatively shallow basement within this corridor, one around Olympic Dam and the other in the north eastern part of the Mount Gunson Tenements. These two strategic areas are dominated by WMC Resources and the Company respectively.

3. Exploration Rationale and Drill Targets

The strategic position of the Mount Gunson Project in the central portion of the best endowed copper belt in Australia clearly justifies a systematic long term exploration approach, particularly as previous deep exploration had been focused on relatively small areas and as new exploration technologies have become available.

Because of the relatively deep basinal cover in the area, most of the work by previous explorers searching for Olympic Dam style mineralisation over the Mount Gunson Project was based on geophysical targeting followed by drilling. The deep cover discouraged the use of systematic geochemical exploration but the recent success of new soil and groundwater geochemical techniques for detecting relatively deeply buried mineralisation encouraged a new approach to exploration of the Mount Gunson Project in early 1997.

The new approach was based on systematic regional soil sampling, initially on a 1.6 kilometre by 800 metre grid, to generate new exploration targets which had not been detected by previous explorers. This approach was supported by hydrogeochemical sampling of old exploration drill holes and reinterpretation of existing geophysical and geological data sets.



Figure 3: Mount Gunson Project.



Following a drilling program in 1998 that provided some important new data to assist geophysical interpretation of the basement, a major gravity geophysical survey was completed in 1999. As a result, some priority drill targets in the Elizabeth Creek and Hunter Hill areas have been defined which are summarised below:

3.1 Elizabeth Creek Area (Figure 4)

This is an area of relatively shallow basement recognised by previous explorers, who intersected rocks, alteration and copper mineralisation similar to that observed in other basement copper-gold deposits between here and the Olympic Dam mine.

A soil geochemical survey by Stuart in 1997-98 defined two anomalies on the Elizabeth Creek grid which in mid 1998 were tested with three diamond drill holes: MGD 2, 4 and 5. Sampling of the groundwater in these and nearby holes revealed a very strong uranium anomaly in hole MGD 5, similar in strength to the response around the Yeelirrie uranium deposit in Western Australia; and a copper anomaly in hole EC 48.

The new gravity data has revealed three priority drill targets, at Yeltacowie, Barber Dam and Bottle Hill. A fourth zone of interest has also been defined in older gravity data near Kialla Dam but further infill gravity readings will be necessary to better define this gravity feature prior to drilling.

At Yeltacowie, the feature of interest is a 2 square kilometre gravity anomaly, the peak of which coincides with the apparently demagnetised portion of a 5 kilometre long basement magnetic unit. This feature is interpreted as a zone of hematitic alteration of a magnetite bearing unit. In most large iron oxide associated copper-gold deposits such as Olympic Dam and Ernest Henry, hematite alteration accompanies the copper-gold mineralisation and at Olympic Dam is expressed as a gravity anomaly.



Figure 4: Mount Gunson Project - Elizabeth Creek Area.



The Barber Dam and Bottle Hill gravity anomalies are also thought to represent hematite alteration zones around a younger granite of similar age to the Olympic Dam granite, the latter being expressed geophysically as a gravity low. The groundwater anomalies in holes EC 48 and MGD 5 lie downstream from the Bottle Hill gravity anomaly and provide geochemical support for this drill target.

3.2 Hunter Hill Area (Figure 5)

This area lies along the same basement high as Elizabeth Creek some 10 kilometres to the north.

Processing of new gravity data merged with good quality older data has revealed two zones of interest which lie along a northerly trending magnetic discontinuity which is interpreted to be a basement fault. The Hunter Hill gravity high is coincident with a demagnetised zone in basement rocks which beyond this zone have been observed in widely spaced drilling to contain abundant secondary magnetite. The presence of abundant secondary magnetite is a favourable feature exploration geologists seek when targeting for iron oxide associated copper-gold deposits.

The Hunter Hill North gravity high about four kilometres to the north and occurs close to the intersection of two interpreted fault zones.

3.3 Other Areas of Interest

The Company's Independent Consulting Geologist has pointed out over 30 other targets for copper mineralisation in the basement and cover sequence respectively. It rates the Mount Gunson Project very highly as an exploration property.



Figure 5: Mount Gunson Project – Hunter Hill Area.



4. Exploration Program and Budget

The exploration program is to be focused on testing the basement for Olympic Dam style mineralisation, in accordance with the agreement with Billiton Exploration. In addition, the potential for large copper deposits of Central African Copper Belt style in the sedimentary cover sequence will be reviewed as time and resources permit.

A drilling program for basement mineralisation in the north eastern part of the Project is proposed as soon as practicable after the fund raising is completed, together with gravity surveys and some soil and groundwater geochemistry. Diamond drilling is programmed to test the following targets:

Yeltacowie	2 holes to 450 metres
Bottle Hill	1 hole to 450 metres
Barber Dam	1 hole to 450 metres
Hunter Hill area	3 holes to 400-450 metres

Drilling is also likely at Kialla Dam and on other targets defined during the exploration program which is summarised in Table 1 below.

Activ	ity	Area	Details	Cost (\$)
1	Diamond drilling	Yeltacowie	2 x 450 m	90,000
2	Diamond drilling	Bottle Hill	1 x 450 m	45,000
3	Diamond drilling	Barber Dam	1 x 450 m	45,000
4	Diamond drilling	Hunter Hill	2 x 400 m	80,000
5	Diamond drilling	Hunter Hill North	1 x 450 m	45,000
6	Contingency drilling	Various	RC/diamond	65,000
7	Reconnaissance gravity survey	Whole project	2 x 2 km	40,000
8	Infill gravity surveys	Various	400 x 200 m	60,000
9	Soil surveys	EL2516 and 2639		60,000
10	Aboriginal heritage surveys	Drill sites		20,000
11	Geophysical interpretation	All		70,000
12	Geological supervision	All		100,000
13	Administration	All		80,000
			TOTAL	800,000

TABLE 1: MOUNT GUNSON EXPLORATION PROGRAM

5. Conclusions

The Mount Gunson Project lies near the centre of a world class copper belt which has potential for both Olympic Dam style iron oxide associated deposits and strata bound deposits of the Central African Copper Belt type.

Although a number of examples of these deposit types have been discovered on the Mount Gunson Project during the past 30 years, previous exploration has not effectively tested the area as a whole, due to the lack of a reliable regional geochemical technique and the assumption that large iron oxide associated deposits would only be associated with strong gravity and/or magnetic anomalies.

Published maps show that the high grade north western extension of the Olympic Dam ore body is associated with relatively minor hematite, implying a relatively weak gravity anomaly for this part of the ore body compared to the main hematite mass to the south east. This observation, along with emerging descriptions of the Aitik iron oxide associated copper-gold deposit in Sweden, which has a low iron oxide content, indicate that high quality ore bodies of this type can occur with weak geophysical anomalies. It has lent support to the Company's planned exploration program in this very well endowed belt with new and more sensitive exploration techniques designed to discover variations of the two world class ore types that have eluded previous explorers.



COBURN MINERAL SANDS PROJECT

WESTERN AUSTRALIA (100% INTEREST)

1. Introduction

The Coburn Project covers a fossil coastline immediately south of Shark Bay which has the potential to host a major heavy mineral sand field.

A scout drilling program in September 1999 revealed a favourable geological environment with widespread occurrences of the valuable heavy minerals ilmenite, zircon and rutile. A major drilling campaign to follow up this early encouragement is the main feature of the work program.

The Coburn Project is located immediately south of Shark Bay and comprises three exploration licences and five exploration licence applications which are contiguous and cover just over 1,400 square kilometres (Figures 6 and 7). These tenements straddle the south eastern margin of the Shark Bay World Heritage Area, just over half of the Coburn Project being within this Area and the remainder outside it to the east. The major portion of the three granted exploration licences lie outside the World Heritage Area. A no mining/exploration condition presently applies to those portions of the licences which lie within the World Heritage Area but the Company will pursue the right to extend its exploration activities into this Area.



Figure 6: Regional Setting of the Coburn Project.



The northern boundary of the Coburn Project abuts the sealed road between the town of Denham and the North West Coastal Highway. From this point, the road distance to the regional centre of Geraldton is approximately 300 kilometres. Geraldton has a deep water port and a synthetic rutile plant operated by Iluka Resources Ltd.

2. Regional Geology

The area south of Shark Bay was highlighted during a study by Stuart of Western Australian heavy mineral sand potential during the latter half of 1997. This included a review of the regional geological setting of the major heavy mineral sand deposits in Western Australia, indicating that they are located near the mouths of old rivers which had discharged into north facing J shaped bays. Examples are the Yoganup (Capel area) deposits near Geographe Bay and the Eneabba deposits.

The Shark Bay area is the most prominent north facing J shaped bay on the Western Australian coast and a review of previous exploration data revealed that little work had been done on the Coburn Project area of interest including no drilling for heavy mineral sands. Results from the work that had been completed in the surrounding region showed that the heavy mineral assemblage was very favourable.



Figure 7: Coburn Project - Exploration Target Areas.



Field work during mid 1998 revealed two north facing J shaped fossil bays which lie south of and inland from the present coastline (Figure 7). These bays which comprise the Hamelin and Tamala target areas respectively appear to be separated by a peninsula which was probably the precursor of the present Peron Peninsula.

Sampling along fence lines and tracks which straddle these two fossil bays revealed heavy mineral soil anomalies over a large proportion of both bays. These anomalies average 0.4 weight per cent heavy minerals and have a high proportion of ilmenite, zircon and rutile. Analysis of heavy mineral assemblages selected from some of the 500 soil samples collected by Stuart revealed some similarity to the heavy minerals in the soils above the Eneabba deposits 400 kilometres to the south.

3. Work Completed and Results

A widely spaced scout drilling program of 124 shallow air core holes was completed over the easternmost fossil bay in September 1999 (Figure 8). The hole spacing was approximately 400 metres along the east-west trending traverses, which were nearly 10 kilometres apart, and 800 metres on the northerly trending traverses. Average hole depth was 19 metres.



Figure 8: Hamelin Target Area - Scout Drilling Traverses.



The drilling confirmed Stuart's geological interpretation of a series of sub parallel fossil beaches at progressively lower (younger) levels toward the present coastline, overlain by a fossil sand dune sequence (Figure 8). Each of these sand sequences contains anomalous heavy mineral concentrations.

A 26 metre thick mineralised dune sand sequence averaging 1.4% heavy minerals from the surface was encountered in hole CBC 106 (Figure 8). The dune sand in this hole is unconsolidated, resting on a thin zone of coarser unconsolidated shallow marine (near beach) sand containing approximately 1.5% heavy minerals.

The contained heavy mineral suites analysed to date from the drilling program are attractive, with low levels of uneconomic or trash minerals in samples from the older beach strand deposits at the 50 and 40 metre heights above present sea level and their associated dunes but higher levels in a sample from the younger deposits, as shown on Figure 8 and listed below:

Mineral	50m strand*	40m strand+	5m dune•
llmenite	49%	49%	62%
Leucoxene	10%	9%	2%
Zircon	18%	21%	4%
Rutile	7%	8%	5%
Trash	16%	13%	27%
	*(CBC57_31-38m)	+(CBC65.67)	• (CBC106_0-27m)

llmenite is strongly altered, a favourable characteristic for use in pigment production. Analysis of ilmenite concentrates from the drilling was carried out by Oretest Laboratories Pty Ltd in late 1999. The results indicated that the primary ilmenite concentrate is typical of most Western Australian ilmenites while the TiO_2 content is slightly higher than the Eneabba and Capel ilmenites. The Uranium and Thorium levels were reported to be similar to the Capel primary ilmenites and considerably lower than the levels encountered in the Eneabba deposits.

Laterite cement is absent in the area and no induration was encountered in the bulk of the drill holes. The slime content is very low, averaging less than 2% and the median heavy mineral grain size is about 120 microns.

The heavy minerals appear to occur within a foredune-beach environment and have been preserved at different levels (Figure 8). Heavy minerals in the overlying dune sequence may be analogous to the North Stradbroke Island style of mineralisation. The dune sequence appears to be laterally extensive, and where mineralised is typically thick, containing in excess of 0.8% heavy minerals with maximum grades over a metre interval of 2-3%. The underlying shallow marine sands are up to 20 metres thick and, in the lower part of the sequence typically contain approximately 0.5% heavy minerals with higher concentrations up to 2% over 5 metres. In view of the wide drill hole spacing, there is potential to find higher grade ribbon-like beach strands which are typically 80m-250m wide, between the existing drill holes.

Mineralisation occurs for the most part in clean, free-flowing sand. This raises the possibility that, provided substantial and adequate reserves can be defined, very low cost mining methods could be employed.



Drilling on the Coburn Project in September 1999.



4. Economic Significance

About 24% of the 124 scout drill holes intersected between 1% and 3% heavy minerals over a minimum width of 1 metre and subsequent analysis indicates that the heavy mineral suite is high quality.

The Coburn Project has potential for large tonnages of low grade dune hosted mineralisation averaging about 1.5% heavy minerals, which using suction dredge mining could be economically attractive. There is also potential for high grade marine beach strand mineralisation beneath the dunes and if continuous mineralisation between the dunes and underlying strands, such as that encountered in hole CBC 106, could be shown to be widespread, the economics could be favourable.

A deposit containing the same heavy mineral suite as revealed on the Coburn Project at an average grade of 5% would compare favourably with some of the deposits at Capel in Western Australia.



The photo above is the magnetic fraction, dominated by black to brown ilmenite.

The photo at right is the non-magnetic fraction, mainly zircon (clear) with lesser leucoxene (light brown) and rutile (dark).



5. Exploration Program and Budget

The objectives of the exploration program are to establish the scope of the Hamelin mineralised area outside the Shark Bay World Heritage Area to support a mining operation and to commence exploration of the Tamala target within the World Heritage Area.

5.1 Hamelin Target Area

The two year program outlined below has three aims

- To show that the thick, low grade intersections encountered on widely spaced scout drilling traverses are continuous. If this can be shown to be the case, the low grade dune hosted deposits have the potential to be similar in size to the North Stradbroke Island deposit near Brisbane.
- To test for narrower high grade beach strand deposits beneath the fossil sand dunes.
- If warranted after the work program has been completed to mount a preliminary feasibility study.



TABLE 2: HAMELIN EXPLORATION PROGRAM

Activity	Details		Cost (\$)
Soil Sampling	To guide drilling		50,000
Air Photography/Photogrammetry	600 square km		50,000
Heritage Site Clearances	All Drill Lines		50,000
Second Pass Drilling	2 km x 200 m		120,000
Laboratory Test Work	Mineralogy		50,000
Infill Drilling	1 km x 100 m		200,000
Detailed Drilling	500 m x 20 m		300,000
Large Diameter Drilling	8 sites		100,000
Scoping Study	Mining/Metallurgy/Marketing		150,000
Geological Supervision			140,000
Environmental Baseline Study	Includes Community Relations		50,000
Administration			190,000
		TOTAL	1,450,000

5.2 Tamala Target Area

The Tamala target lies wholly within the Shark Bay World Heritage Area and discussions with the appropriate authorities are in progress regarding exploration access. On the assumption that title is granted during 2000, the following exploration program has been planned for the next 2 years.

TABLE 3: TAMALA EXPLORATION PROGRAM

Activity	Details		Cost (\$)
Soil Sampling	To guide first pass drilling		15,000
Air Photography	600 square km		25,000
Heritage Site Clearances	·		15,000
Scout Drilling	10 km x 400 m		50,000
Botanical Study			20,000
Laboratory Test Work	Mineralogy/Metallurgy		10,000
Geological Supervision			30,000
Administration			35,000
		TOTAL	200,000

6 Conclusions

The Coburn Project covers two large north facing J shaped fossil bays which have the potential to host a major heavy mineral sand field.

There had been no previous drilling for heavy minerals in either of these fossil bays and Stuart's scout drilling in the easternmost bay has indicated its potential to support a stand alone mining operation. A major drilling program to further test this potential is clearly warranted and the Company will continue its efforts to access the westernmost bay, which lies entirely within the Shark Bay World Heritage Area. This latter bay may have better scope for high grade strand mineralisation than the easternmost bay due to its closer proximity to the open ocean.



Air core drilling at Coburn Project September 1999.



MOUNT TABOR PROJECT – QUEENSLAND

(100% BENEFICIAL INTEREST)

1. Introduction

The Mount Tabor Project contains a cobalt resource known as Mount Manganese which has the potential to sustain a small profitable open pit – heap leach – electrowin mining operation. It is located in south central Queensland, some 130 kilometres north east of Augathelia.

The deposit has been drilled to the inferred resource category and metallurgical test work over the past two years has produced some encouraging results.

2. Geology and Resources

The Mount Manganese deposit occurs as a series of cylindrical shaped cobaltiferous manganese oxide pipes within jointed and brecciated sandstone. The mineralisation occurs as veins, coatings and more massive patches within the joints and brecciated portions of the host sandstone. The pipes taper downwards from small circular to elliptical outcrops about 10-20 metres in diameter.

An inferred resource of 115,000 tonnes averaging 0.18% cobalt has been calculated from approximately 50 shallow percussion and rotary air blast drill holes. The bulk of this resource lies above 50 metres vertical depth.

3. Metallurgical Test Work

Metallurgical test work on samples from Mount Manganese Prospect has been in progress intermittently for the past several years. Work to date has shown that most of the cobalt in the samples tested can be dissolved into solution without much of the associated manganese.

4. Exploration Program and Budget

At the current cobalt price of some \$A20 per pound, the in situ value of the mineralisation at Mount Manganese Prospect is approximately \$9 million. Because it lies close to the surface within relatively soft host rocks, Mount Manganese is a potentially attractive resource for a small miner with low operating costs. On this basis, Stuart has been working with a Townsville company with a view to a tribute mining or other similar arrangement. This company is making encouraging progress with metallurgical test work, which is being carried out at its cost.

The key issue for the Mount Tabor Project is to complete the metallurgical test work to a stage where project financing for a tribute operation can be arranged. The budget of \$30,000 is for the collection of additional samples for ongoing metallurgical tests. It is envisaged that the remainder of the costs for the project would be borne by the potential tribute miner.



Cobaltiferous manganese oxide outcrop on the Mount Tabor Project.



ONSLOW PROJECT - WESTERN AUSTRALIA

(RIGHT TO ACQUIRE 100%INTEREST)

1. Introduction

The Onslow Project comprises of two gravity/magnetic geophysical targets, which are considered prospective for Olympic Dam style mineralisation.

These two geophysical anomalies are located under thin basinal cover rocks within the Lower Proterozoic Gascoyne Complex. The granites of this complex are similar in age and many other respects to the Tennant Creek district, which is host to numerous high grade gold-copper mines. Oxidised granite intrusives and minor copper – gold showings have been observed in outcropping portions of the Gascoyne Complex to the east of the Onslow Project.

The Onslow Project comprises a single exploration licence application of 64 square kilometres which is located immediately west of the Ashburton River about 60 kilometres south of Onslow. Access is via Onslow along tracks on the Minderoo pastoral lease.

2. Previous Work and Exploration Targets

The area was previously explored for copper-gold mineralisation in the mid 1990's. The previous explorer, who defined the two geophysical anomalies discussed above did not drill either and before abandoning its exploration program, carried out a partial digest soil survey over both anomalies. This survey revealed a weak but distinct soil anomaly over the northern of the two geophysical anomalies.

The two targets on the Onslow Project comprise the Minderoo North and Minderoo South Prospects. The Minderoo North Prospect comprises of an intense circular magnetic anomaly about 1 kilometre across with a coincident gravity high. The magnetic anomaly amplitudes are comparable to those observed at the Ernest Henry copper-gold mine in Queensland.

The Minderoo South Prospect comprises a very strong linear magnetic anomaly which appears to be tightly folded at one point. The tightest part of the inferred fold is only weakly magnetic; suggesting an alteration zone, and this zone has a strong near coincident gravity anomaly parallel with it and another stronger gravity anomaly about a kilometre to the south.

3. Exploration Program and Budget

Subject to the grant of the tenement, both prospects can be quickly advanced to the drilling stage, as much of the preliminary geophysical targeting has already been completed. Additional soil sampling and some electrical geophysical surveys are to be carried out prior to the commencement of the drilling.

TABLE 4: ONSLOW EXPLORATION PROGRAM

Activity	Details		Cost (\$)
Soil Sampling	200 x 100 m on both prospects		10,000
IP Geophysical Survey	Both prospects		10,000
Diamond Drilling	Minderoo North – 2 holes to 300m		51,000
Diamond Drilling	Minderoo South – 2 holes to 400m		68,000
Geophysical Interpretation			5.000
Geological Supervision			25,000
Administration			31,000
		TOTAL	200,000



Drilling at Mount Gunson in August 1998.



Hamish Paterson inspecting core at hole MGD 4, Mount Gunson, August 1998.



DETAILS OF THE ISSUE

Purpose of the Issue

Gunson Resources intends to apply the proceeds of the Issue and the \$500,000 to be subscribed pursuant to the Billiton Subscription Agreement in the following manner to:

	fund the exploration activities of the Company, and in particular;	\$
	 fund an aggressive exploration program on the 100% owned Coburn Tenements, 	
	with a view to bringing them to preliminary feasibility stage within 2 years of	
	completion of the Issue	1,650,000
	 fund the first \$800,000 of exploration costs on the Mount Gunson Tenements 	
	in accordance with the Billiton Subscription Agreement	800,000
	 fund exploration on the Onslow Tenement 	200,000
	 fund ongoing work on the Mount Tabor Tenements 	30,000
	fund 2 years administration expenses	500,000
	meet the cost of the Issue (including underwriting fee)	476,500
RIER	stamp duty on transfer of mineral projects	120,000
5100 回时的	fund the generation of further prospective mineral properties in Australia	223,500
		4,000,000

After completion of the Issue, issue of the Billiton shares and payment of all associated expenses Gunson Resources will have cash resources of approximately \$3.4 million.

Shares Offered for Subscription

Gunson Resources hereby offers 17,500,000 Shares at a price of 20 cents per Share. The rights attaching to these Shares are particularised on pages 98 and 99 of this Prospectus. Oversubscriptions will not be accepted.

Underwriting and Brokerage

The Issue of 17,500,000 Shares offered by this Prospectus has been underwritten by Morgan Corporate Limited for a management fee of \$35,000 and an underwriting fee of \$140,000 to be paid from the proceeds of the Issue. A summary of the Underwriting Agreement and the conditions thereof are contained on pages 89 to 91 of this Prospectus.

Minimum Subscription

The minimum level of subscription that must be subscribed under this Prospectus is for all of the 17,500,000 Shares offered under this Prospectus i.e. \$3,500,000. Unless that minimum subscription is received no Shares will be allotted under this Prospectus. Under the Corporations Law unless the minimum subscription has been subscribed before the end of 4 months after the date of this Prospectus the Company must repay all moneys received from applicants for Shares.

Ranking of Shares

Shares issued pursuant to this Prospectus will rank pari passu in all respects with all of the other Shares on issue by the Company at Completion (except to the extent that certain Stuart In Specie Shares and the Onslow Shares may be subject to restrictions as a result of being classified as 'restricted securities' by ASX).

Conditions

No Shares will be issued pursuant to this Prospectus unless and until Completion occurs and Completion will not occur unless:

- The Stuart Shareholders have approved of the sale of the Stuart Tenements to Gunson Resources and have also approved the Capital Reduction at the Meeting.
- The Stuart In Specie Shares are distributed contemporaneously with the Shares issued pursuant to this Prospectus.
- The minimum subscription of \$3,500,000 has been subscribed for and the Minimum Condition has been satisfied.
- The Company has received confirmation that subject to standard requirements of ASX the Company dualifies for admission to the Official List of ASX.



- Permission has been granted by ASX (albeit conditionally) for the Shares offered by this Prospectus, the Stuart in Specie Shares and the Billiton Shares to be listed for quotation.
- The Billiton Subscription Agreement has been performed by Billiton Exploration subscribing for the Billiton Shares.

Information for the Applicant

An application for Shares in Gunson Resources can only be made by completing and lodging one of the Application Forms contained at the back of this Prospectus. Completion instructions are included on the reverse side of the Application Form.

Applications must be accompanied by payment in Australian currency of 20 cents per Share. Cheques should be made payable to '**Gunson Resources Limited**' and crossed 'Not Negotiable'. No brokerage or stamp duty is payable by applicants.

Application forms and accompanying cheques should be lodged with the share registry as follows:

Computershare Registry Services Pty Ltd	OR	Computershare Registry Services Pty Ltd
Level 2, Reserve Bank Building		GPO Box D182
45 St Georges' Terrace		PERTH WA 6840
Perth wa 6000		

Important Dates (indicative only)

Opening Date	28 March 2000
Closing Date	19 April 2000
Intended Allotment Date	28 April 2000
Anticipated quotation	2 May 2000

When to Apply

Completed applications may be lodged at any time after the issue of the Prospectus. The application list is due to open at **9:00 am Perth Time on 28 March 2000** and will remain open until **5:00pm Perth Time on 19 April 2000** subject to the right of the Company, in consultation with the Underwriter, to close the issue earlier without prior notice. Prompt lodgement of your application is recommended. The Directors reserve the right to accept or reject any application.

Minimum Application

The minimum application is for 10,000 Shares. A larger number of Shares may be applied for in multiples of 2,000 Shares.

For applications in respect of more than 10,000 Shares, the Directors reserve the right to allocate a lesser number than that applied for. Where the number of Shares allocated is fewer than the number applied for, surplus application monies will be refunded, without interest.

Allotments

Subject to satisfaction of the conditions of this Issue, Shares will be allotted as soon as practicable after the closing of the Issue. Where the number of Shares allotted is less than the number applied for, the surplus application monies will be refunded, without interest.

ASX Listing

Subject to satisfaction of the conditions of this Issue Shares will be allotted as soon as practicable after the closing of the Issue.

Application will be made not later than 7 days after the date of this Prospectus for Gunson Resources to be admitted to the Official List of ASX and for official quotation of the shares offered by this Prospectus. Quotation, if granted, of the Shares offered by this Prospectus will commence as soon as practicable after the issue of advice to successful allottees.

The fact that ASX may admit the Company to the Official List of ASX is not to be taken in any way as an indication of the merits of the Company or of the shares now offered for subscription.

As noted at page 20 of this Prospectus certain of the Stuart In Specie Shares and the Onslow Shares may be classified by ASX as 'restricted securities'.



INVESTMENT RISKS

The Mineral Assets are at an exploration stage. Accordingly, investment in the Shares offered by this Prospectus should be regarded as speculative.

The Shares offered under this Prospectus are also considered speculative because of the inherent risks associated with mineral exploration.

The success of the Company is dependent upon a number of factors, including:

- the identification of commercially viable prospects;
- the availability of sufficient funding to enable exploitation of ore bodies; and
- stability and growth in international resources markets.

A summary of risk factors that face both the Board of Directors of the Company and Shareholders is set out below. The list is not exhaustive and potential investors should read the Prospectus in full seeking professional advice if they require further information on material risks.

Exploration

Mineral exploration is a high risk undertaking which occasionally provides high rewards. Gunson Resources' projects are at an exploration stage and no certainty exists that further exploration will lead to the economic production of minerals.

Economic Factors

Demand for commodities and factors such as inflation, foreign currency fluctuations, interest rates, industrial disruption, political decisions, cost over-runs and technical problems all affect the ability of a company to profit from any mineral discovery. The international market prices for commodities are beyond the control of Gunson Resources.

Funding

Gunson Resources has no income producing assets and is dependent upon being able to obtain future equity, debt or joint venture funding to support long term exploration, evaluation and development of its properties.

Share Market Conditions

The market price of Gunson Resources' shares may be subject to the varied and unpredictable fluctuations in the market for equities in general, and resource exploration stocks in particular. The value of its shares may impact on Gunson Resources' capacity to raise equity capital.

Native Title

The Directors are aware of a number of native title claims either wholly or partially covering the areas comprising the Mineral Assets, which may impact upon planned exploration programs.

The potential also exists for further native title claims to be lodged over any areas not presently or formerly the subject of grants of freehold interests in land, including land in which the Company presently has interests, or in which it may acquire interests in the future. Native title claims have the potential to cause significant delays to exploration.

The Directors have undertaken some limited historical, legal, anthropological and ethnographic enquiries required in order for it to assess the likelihood for the success of a native title claim over any of the areas in which it presently holds interests. However, the Directors are not in a position to assess in detail the impact of native title on the Company's planned operations.

The Directors therefore consider the potential for native title claims to be lodged over the areas comprising the Mineral Assets to be a risk to investment. For further information on native title generally, the native title claims in areas of interest to Gunson Resources , and Aboriginal heritage matters, investors are referred to the native title and related sections in the Solicitors' Report appearing at pages 77 to 88 of the Prospectus.



Aboriginal Sites of Significance

Commonwealth and State legislation obliges Gunson Resources to identify and protect sites of significance to Aboriginal custom and tradition. Further details of this legislation are set out in the Solicitors' Report in this Prospectus.

It is likely that some sites of significance will be identified within the tenements for the Mineral Assets, due to the substantial area covered by those tenements. It is therefore possible that one or more sites of significance may exist in an area which the Company considers to be prospective.

Environmental Considerations

The Coburn Tenements are situated on the eastern edge of the Shark Bay World Heritage Area and although title has been issued over most of the project outside that heritage area, a no mining (exploration) condition has been imposed over those portions of the granted tenements which overlap the Heritage Area, and stringent environmental conditions have been imposed on exploration activities on the granted tenements. An exploration management plan for these activities has been approved by the relevant authorities and a scout drilling program was successfully completed in September 1999. The Company will pursue the right to extend its exploration activities into the World Heritage Area.

Normal statutory environmental conditions apply to the other Mineral Assets.

At Completion the capital structure of the Company will be as follows:			
No. of Sha	ares		Paid Up Amount \$
	5	Shares initially subscribed for by Stuart	1
2,268,0	000	Shares issued to Stuart for acquisition of its mineral projects*	2,453,600
17,500,0	000	New fully paid Shares @ 20 cents each pursuant to this Prospectus	3,500,000
2,500,0	000	New fully paid Shares @ 20 cents each to Billiton	500,000
	-	(Less) estimated expenses of the Issue	(476,500)
32,268,0	005		\$5,977,101
Notes:	1.	At Completion the Management Options will be granted and issue	d.
	2.	Subject to the conditions thereof under the Onslow Agreement the agreed to issue the 400,000 Onslow Shares which will be issued at 2	Company has 20 cents each.
		*These shares will be distributed in specie to Stuart Shareholders at on the basis of one Gunson Share for each five Stuart Shares held o 2000.	Completion n 4 April



INDEPENDENT GEOLOGIST'S REPORT

ON THE MINERAL PROPERTY INTERESTS

OF

GUNSON RESOURCES LIMITED

Prepared for:

Gunson Resources Limited 9 Havelock Street West Perth Western Australia 6005

Date:

9 March 2000

GEOLOGICAL AND MINING CONSULTANTS

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J.B. Lott MA(Cantab) CEng MIMechE MBIM

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BIBLIOGRAPHY

The Bibliography of documents upon which this Independent Geologist's Report has been based is exceptionally voluminous. In view of this situation the Bibliography is not reproduced in the text of the Independent Geologist's Report incorporated in this Prospectus. A copy of the full Bibliography is available and will be provided free of charge upon request by interested parties from Gunson Resources Limited during the application period of this Prospectus. The Bibliography contains references to geological material which the Independent Geologist has considered in the preparation of its report. The information therein is primarily of interest to professional analysts or advisers or investors with similar specialist information needs.

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SUMMARY

This Independent Geologist's Report has been prepared by Mackay & Schnellmann Pty Limited at the request of Gunson Resources Limited for inclusion in a prospectus to be issued by the Company and covers the Mount Gunson, Coburn, Mount Tabor and Onslow projects.

The Mount Gunson project comprises four contiguous Exploration Licences covering approximately 4000 square kilometres and is located in South Australia some 400 kilometres to the north of Adelaide. The area is underlain by Proterozoic rocks under surficial deposits. Oldest known rocks are metasediments with granitic intrusives and volcanics. Overlying are the Pandurra Formation sedimentary rocks that are in turn disconformably overlain by Upper Proterozoic volcanics and sediments.

Base metal mineralisation occurs in the area in two environments. Copper mineralisation is known in the basement sequence where it is associated with hematisation similar to that at the Olympic Dam deposit. In the overlying Upper Proterozoic sequence copper-leadzinc mineralisation occurs close to the disconformable contact between the Upper Proterozoic sediments and the underlying Pandurra Formation.

Copper was discovered in the area in 1875 and mining has continued intermittently from late in the 19th century to the present. During this period the most significant production was from the Cattle Grid deposit between 1974 and 1986 but several other deposits nearby were worked.

Exploration over the tenements began in a systematic manner in the middle 1960s and has been on a very significant scale. From 1993 exploration has been carried out by Cobalt Resources N.L. that later became Stuart Metals N.L. and then Stuart Petroleum N.L. (Stuart) up to the present day. Throughout the period from the 1960s many other explorers also undertook programmes on the fringes of the present area.

A wide range of exploration techniques have been employed including geological mapping; rock, soil, mud, groundwater and biogeochemistry; core and non core drilling of many types: geophysics especially magnetic andgravity surveys but also many other techniques; down hole logging; petrology; and numerous other activities.

The mineralisation discovered in the area was in the cover rock sequence and exploration up to the early 1980s concentrated on this style of mineralisation. Thereafter, attention was also given to basement mineralisation potential and this necessitated the drilling of deep holes usually positioned using modelling of geophysical data.

The exploration resulted in the discovery of a number of deposits several of which were mined. In addition there are a large number of targets that warrant follow up investigation. These are shown on Figures 12 and 12A.

Stuart have defined six basement targets namely Yeltacowie, Bottle Hill, Barber Dam, Kialla Dam and two at Hunter Hill. Other basement targets are known at Emmie Bluff, PY3 and PY8 from earlier exploration.

Five of the cover sequence deposits have quantified resources as follows:

Windabout

Indicated Resource 18.75 million tonnes at 0.96% copper

MG14 Indicated Resource	1.1 million tonnes at 1.7% copper
Emmie Bluff Inferred Resource	24 million tonnes at 1.3% copper
Cattle Grid South Inferred Resource	700 000 tonnes at 1.7% copper
Sweet Nell Inferred Resource	350 000 tonnes at 1.2% copper

In addition there are more than thirty other cover sequence targets that warrant follow up work as well as rock and hydrogeochemical anomalies that do not appear to be associated with known mineralisation.

The Coburn project near Shark Bay, Western Australia consists of three exploration licenses over the Hamelin target area and five exploration licence applications mainly over the Tamala target area. Total area is around 1400 square kilometres. The tenements cover a regional dune sand sequence occurring in a foredune-beach environment, consisting of Cainozoic sediments overlying Late Mesozoic calcilutite. Tectonism in the Shark Bay area consisting of Jurassic normal faulting and post Miocene reactivation of existing faults has helped shape the Peron and Edel Peninsulas. As a result the bay now has a "]" shape morphology open to the northwest where the Peron Peninsula has acted as a trap mechanism for marine sands in the project area during northwest aeolian and wave action. This "]" shape has proved to be a successful trap mechanism for marine sands elsewhere including the world class Eneabba and Yoganup mineral fields. However the Coburn area was not tested by previously active mineral sand explorers.

Mineral sand accumulations occur at the 5, 10, 20, 40, 50, 65 and 75 metre RLs. Although the 120 metre RL sea cliff that bounds the Eneabba mineral field is present to the east of the North West Coastal Highway, only RLs below 75 metres have been found to be prospective. The system is interpreted to be a beach ridge overlain by transgressive sand bodies that contain heavy mineral accumulations in some areas. The mean and mode grain size of sediments are 120 and 175 microns respectively and the assemblages show no induration, low slime and high TiO₂ contents. Recent exploration by Stuart has included 124 aircore drill holes over the Hamelin target area. More than half the samples have greater than 0.25% heavy mineral contents. Favourable heavy mineral grades of up to 3.2% have been obtained from this early exploration drilling. Further drilling will investigate the poptential for large low grade dune hosted deposits like Stradbroke Island in Queensland and the possible occurrence of higher grade ribbon-like strand sequences.

The Mt Tabor project consists of an Exploration Permit covering 6 square kilometres surrounding a 35 hectare Mineral Development Licence Application covering the Mt Manganese resource in central Queensland. Occurring on the eastern edge of the Eromanga Basin, the area is underlain by Jurassic and Tertiary sediments intruded by Tertiary basalt plugs and sills.

Mt Manganese is one of a northwest trending line of basaltic plugs that have formed resistant peaks. The plug is emplaced in manganiferous sandstone and grits exposed in small scarps and bluffs. Up to nine deposits of manganese wad containing cobalt mineralisation occur near Mt Manganese in the form of pipes up to 20 metres in diameter at the surface. Outcrops 2, 3 and 4 that extend up to 450 metres northwest from the main peak are the most prospective. Previous exploration at Mt Manganese since 1978 has included 61 percussion drill holes with more recent drilling by Stuart comprising 139 RAB holes. A preliminary estimate is of an Indicated Resource of 115 000 tonnes at 0.18% cobalt.

The Onslow project is located 60 kilometres south of Onslow in Western Australia and consists of a 64 square kilometre Exploration Licence Application. Two targets occur, defined from previous exploration activity and called Minderoo North and Minderoo South. Bedrock for the area consists of basement Gascoyne Complex rocks that have been targetted for copper and gold mineralisation. Porphyritic adamellite with or without magnetite, smaller pink coloured granites and granite dykes with pink pegmatite and aplite crosscutting the adamellite are present and all have intruded metasediments. The igneous rocks belong to the Minnie Creek Granite Supersuite and show oxidation and fractionation. They are similar in age and style to the Tennant Creek granites of the Northern Territory and are rated as moderate for copper potential and high for gold potential.

The Minderoo North and Minderoo South prospects lie on a northeast trending lineament along with two previously explored anomalies called Lobster and Oyster located outside the project area further to the northeast. Lobster occurs in foliated diorite and mafics with later hydrothermally formed magnetite with a best drill hole analysis of 2900 ppm copper. The Oyster anomaly, like Minderoo South, lies within folded metasediments that exhibit iron metasomatism and upon drilling revealed a highest result in the centre of the geophysical anomaly of 540 ppm copper. Minderoo North and South have not been drilled. Geophysical interpretation of gravity and magnetic data has indicated that Minderoo South may consist of demagnetised iron formation adjacent to a fold nose that has been dragged into a north-south trending fault with a large gravity anomaly occurring around one kilometre to the southeast. The Minderoo North anomaly, adjacent to an uplift fault, has been interpreted as containing a magnetite concentration of 30% with overlying dense material within 200 metres of the surface. Both anomalies are believed to be prospective for Olympic Dam style basement mineralisation.

INTRODUCTION

In a letter dated 6 January 2000, Mackay & Schnellmann Pty Limited was engaged by Gunson Resources Limited ("Gunson") to prepare an Independent Geologist's Report on the Company's mineral exploration properties. The purpose of the Report is for inclusion in a Prospectus to be issued by Gunson to raise \$3.5 million.

For the purpose of the Corporations Law, Mackay & Schnellmann Pty Limited and Martin Reynolds and John Garlick were involved in the preparation of the Independent Geologist's Report for inclusion in Gunson's Prospectus and have not been involved in the preparation, authorisation or issuance of any other part of the Prospectus.

This Independent Geologist's Report has been prepared in accordance with the Valmin Code that is binding upon members of the Australasian Institute of Mining and Metallurgy and applies to reports prepared after 1 April 1998. It has been prepared in accordance with rules and guidelines of the Australian Securities and Investments Commission and the Australian Stock Exchange.

Mackay & Schnellmann Pty Limited is a minerals industry consulting firm located at Suite 6, 25 Hamilton Street, Subiaco, Western Australia. The company was incorporated in 1969 and has operated as a geological consultancy since then. It has been responsible for the preparation of a considerable number of geological reports and valuations for various purposes.

Martin Reynolds, B.Sc., a Director of Mackay & Schnellmann Pty Limited, assumes responsibility for this Report. He has more than 10 years relevant experience and is a Fellow of the Australasian Institute of Mining and Metallurgy.

John Garlick, M.Sc., a Director of Mackay & Schnellmann Pty Limited, was responsible for preparing portions of this Report.

Neither the authors nor Mackay & Schnellmann Pty Limited has or has had any material interest in any of the mineral assets under review. No previous commercial relationship has existed between Gunson and Mackay & Schnellmann Pty Limited. Mackay & Schnellmann Pty Limited has had no input into the formulation of any of the mineral properties under review. This Independent Geologist's Report has been prepared strictly as an independent report. Fees for the preparation of this Independent Geologist's Report are being charged at \$800 per day whilst expenses are being reimbursed at cost. Payment of fees is in no way contingent upon the conclusions of this Independent Geologist's Report nor on the outcome of the proposed prospectus issue.

The contents of this Independent Geologist's Report are based on reports and data held by Gunson, research undertaken at the Department of Minerals and Energy of Western Australia, Primary Industries and Resources of South Australia and the Department of Mines and Energy of Queensland and site visits. Research of publicly available material on all the properties except Onslow was undertaken by Gunson but the completeness of the coverage was checked by Mackay & Schnellmann Pty Limited who also assumed direct responsibility for research on the Onslow area. Documents and reports reviewed in the preparation of this Independent Geologist's Report are cited in the Bibliography, which constitutes part of the Independent Geologist's Report. Copies of published material and other publicly available documents are held at the relevant government departments in Western Australia. South Australia and Queensland as given above. Unpublished material not publicly available is held at the offices of Gunson. The site visits were made between 8 and 12 December 1999 to Coburn and Onslow, between 18 and 21 December 1999 to Mt Tabor and between 6 January and 10 January 2000 to Mount Gunson.

Gunson has warranted in writing that full disclosure of all material information in its possession has been made and that to the best of its knowledge and understanding, such information is complete, accurate and true. Gunson has stated that all the information provided may be presented in the Report and that none of it is regarded as confidential. Gunson has reviewed a draft of the Independent Geologist's Report for correction of matters of fact and notification of material omissions.

Such information as is available has been utilised to allow an informed appraisal of the mineral assets. All material used in preparation of this Independent Geologist's Report is judged to be reliable. However, in instances where work undertaken is poorly documented, such circumstances are noted in the body of the Independent Geologist's Report.

Where resource or reserve figures are given in the body of our report without qualification the terminology used conforms with that of the Australasian Code for the Reporting of Mineral Resources and Ore Reserves dated September 1999. Where the source document from which figures have been taken uses terminology at variance with the current code then the resource category is given in quotation marks or is otherwise qualified to highlight the discrepancy in usage.

Gunson has a satisfactory and clearly defined exploration and expenditure program which is reasonable having regard to its stated objectives. Sufficient exploration has taken place in the past two years to justify the budgeted exploration and expenditure program.

Mackay & Schnellmann Pty Limited has not investigated the legal aspects of tenements and agreements. Present and future implications arising from terms and conditions relating to tenements and agreements have not been investigated. These matters are considered elsewhere in the Prospectus, in a report by Minter Ellison, lawyers. For the purpose of this document, it is assumed that all tenements and agreements are and will remain in good standing in the immediate future and that tenements are or will be wholly beneficially owned by Gunson. Investigations relating to present or future native title claims have not been undertaken. Potential consequences of exploration and mining on rare and endangered flora and fauna have not been assessed. Restricted access due to World Heritage Area status for part of the Coburn project area has not been considered. These matters are outside our expertise and opinion on possible consequences should be sought elsewhere.

Mackay & Schnellmann Pty Limited has given consent in writing to the issue of the prospectus in which this Independent Geologist's Report is included in the form and context in which it appears and has not withdrawn consent prior to its issue.

MOUNT GUNSON

LOCATION AND ACCESS

The Mount Gunson project area is located in South Australia around 400 kilometres northnorthwest of Adelaide. It is situated between 31°06'00"S and 32°00'00"S and between 136°45'00"E and 137°30'00"E. Vehicular access to the project area is via the Stuart Highway that traverses the tenements between Pimba to the northwest and Port Augusta to the southeast. The highway provides all weather access to the area with the many pastoral and exploration tracks providing access elsewhere. Off road vehicle access varies depending on vegetation cover and the presence of sand dunes, saline lakes and drainages but overall is good in dry weather conditions. Wet weather conditions considerably reduce off road access by vehicle.

Apart from isolated residual hills the relief in the area is flat to moderate with poor rock exposure. Undulating treeless gibber plains are indicative of sub crop. Dune sands support trees up to three metres in height along with saltbush and low shrubs.

A disused unsealed airstrip exists to the south of the old Mount Gunson mine workings that could be utilised following upgrading.

TENEMENTS

Four exploration licences constitute the Mount Gunson mineral project area namely EL2099, EL2516, EL2567 and EL2639.

The largest southern tenement EL2099 was granted on 4 August 1995 for a period of five years. After a reduction in area the licence now covers 1206 square kilometres. The northernmost licence EL2516 covers 765 square kilometres and was granted for a period of two years from 4 May 1998. EL2567 in the southwest was granted for two years from 27 November 1998 and has an area of 568 square kilometres. The central tenement EL2639 has an area of 1439 square kilometres and was granted on 3 September 1999 for a period of one year.

As shown in the accompanying figure three small tenements are excised from EL2639. They cover many of the previously worked copper deposits such as Cattle Grid, Main Open Cut, House and Gunyot.

GEOLOGY

The Mount Gunson project area is situated within the Stuart Shelf geological province that consists of relatively thin mostly flat lying Middle to Upper Proterozoic sedimentary cover sequences resting on Middle to Lower Proterozoic basement of the Gawler Craton. A major northerly trending discontinuity known as the Torrens Hinge Line forms the eastern margin of the Stuart Shelf and the Gawler Craton about 50 kilometres to the east of Mount Gunson. East of the Torrens Hinge Line is the Adelaide Geosyncline where the Upper Proterozoic sedimentary sequence is much thicker and extensively folded.

The bedrock sequence in the tenemented area ranges in age from Lower Proterozoic to Upper Proterozoic and is

overlain by soil, sand dunes and salt lake deposits. Some members of the bedrock sequence do not crop out and are known in the area only from drill holes. Other rock types intersected by some of the deeper holes are of doubtful or unknown attributions due to the lack of stratigraphic knowledge at depth.

Oldest identified rock type in the present tenemented area is deformed granite in deep drill hole MGD5 in the Elizabeth Creek area dated at 1856 million years old. No other age dating appears to have been completed but metasedimentary rocks identified as Wandearah Formation have been intersected in deep drilling at Emmie Bluff prospect and around Elizabeth Creek. The age of these rocks is believed to be between 1740 and 1600 million years ago.

The most common basement rock unit in the tenemented area appears to be the Gawler Range Volcanics that have been dated elsewhere at between 1580 and 1600 million years ago. The sequence comprises basaltic to rhyolitic volcanic rocks that crop out to the west of the Mount Gunson property but within it are known only from deep drill holes. The sequence is considered to extend at least as far east as the Torrens Hinge Line.

Certain of the deep drill holes in the northern part of the property area have bottomed in granitic rocks in some cases with alteration, hematisation and base metal mineralisation. Some of these intrusives have been tentatively identified with the Hiltaba Suite batholiths that are closely associated with the Olympic Dam deposit but most are deformed and are probably similar in age to the 1854 million year old granite of hole MGD5. The age of the Hiltaba Suite granites in the Stuart Shelf province is about 1580 million years old and it is generally accepted that they are comagmatic with and often intrude the Gawler Range Volcanics. Rock types range from granite to monzonite to quartz monzonite to quartz syenite.

Overlying the Gawler Craton basement is the Pandurra Formation which comprises a fluvial, red bed sequence of sandstones. Outcrop of this sequence is extensive to the west of Pernatty Lagoon where it occurs in an area referred to as the Pernatty Culmination. This is interpreted as an uplifted horst block that formed a topographic high during Upper Proterozoic times. There was considerable erosion and weathering of the Pandurra Formation before the later sediments accumulated and there is strong evidence that this occurred under periglacial conditions.

Disconformably overlying the Pandurra Formation is a sequence of Upper Proterozoic sediments. These crop out around the Pandurra Formation outcrop area of the Pernatty Culmination.

Overlying the Pandurra Formation but underlying the Upper Proterozoic sediments are the Beda Volcanics. These do not crop out in the Mount Gunson property area but are known from drill holes in the southeastern part and in the northern part. The sequence comprises basalts and interbedded conglomerates. Extensive northnorthwestly trending mafic dyke emplacement is associated with the Beda Volcanics episode.

The Upper Proterozoic sequence comprises the Tapley Hill Formation with the Woocalla Dolomite Member, the Yudnapinna Beds, the Whyalla Sandstone, the Tregolana Shale, the Corraberra Sandstone and the Simmens Quartzite Member. All these rocks are known collectively as the Adelaidean sequence.

A transgression occurred during the deposition of the lowermost parts of this sequence with the result that the units onlap on to the Pandurra Formation Proterozoic erosion surface.

The Tapley Hill Formation comprises dark grey laminated shales that are in parts dolomitic. The Woocalla Dolomite



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Figure 10: Mount Gunson Mining Centre Schematic Cross Section This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000

Member is an oolitic and stromatolitic facies that is considered to have formed off shore. The Yudnapinna Beds are a sequence of sandstones and siltstones that are not known to crop out in the Mount Gunson area.

Whyalla Sandstone crops out around the Pandurra Formation inlier and comprises a sequence of cross bedded sandstones.

The Tregolana Shale is a laminated varicoloured mostly oxidised shale sequence with subordinate black shales and the Nuccaleena Formation dolomites. The Corraberra Sandstone comprises sandstones and siltstones and the Simmens Quartzite consists of cross bedded sandstones with subordinate shales. These three units are members of the Tent Hill Formation.

Overlying the Proterozoic sequence are the Mesozoic Marree Subgroup of kaolinitic siltstones and Cainozoic detrital deposits.

Outcrop is poor in the area and structure is largely known from the interpretation of geophysical surveys. Dominant faulting directions are considered to be approximately northnorthwest and northeast.

Basement in this report is taken as the top of the Gawler Craton rocks and in most places appears to be directly overlain by the Pandurra Formation. Very little is known about this contact as it usually lies at very considerable depths and few drill holes have reached it. However it is known that there is a northeasterly trending ridge of this basement at relatively shallow depths in the Elizabeth Creek area of the property. Other references in the literature to basement mean the top of the Pandurra Formation and the associated old erosion surface. This is located at present surface or at shallow depths at the Pernatty Culmination and in the areas surrounding it. However, to the west and particularly to the north the depth increases markedly: in the extreme northwest of the property the Tapley Hill Formation is at around 400 metres depth.

Mineralisation within the Mount Gunson property is known to occur in two environments.

The first of these is base metal mineralisation in the basement below the Pandurra Formation. This has been intersected by drill holes in the northern part of the area where copper mineralisation occurs in altered granites and metasiltstones. Formation of this type of basement mineralisation appears to be associated with the emplacement, alteration, brecciation, hematisation and base metal mineralisation of granitic intrusives. Although at considerable depths hydrothermal mineralisation of this type is an attractive target due to the possibility of discovering a large copper-gold-uranium deposit of the Olympic Dam type.

The second type of mineralisation is the occurrence of copper and other base metals in the Upper Proterozoic sedimentary sequence and the topmost part of the Pandurra Formation. At the Cattle Grid and similar deposits the mineralisation occurs where Whyalla Sandstone directly overlies Pandurra Formation sandstone. At the MG14 deposit and elsewhere, the Tapley Hill Formation shale is host to base metal mineralisation: somewhat similar mineralisation has been intersected in the Tregolana Shale. The Tapley Hill Formation shale hosted deposits are far more widespread than the sandstone hosted types.

The formation of both styles of sediment hosted deposits is considered to be related to the glaciation event that took place after the deposition of the Pandurra Formation. In the case of the deposits at the Whyalla Sandstone-Pandurra Formation contact, brecciation of the materials under glacial conditions appears to have controlled the formation of the deposits. The deposits of the Tapley Hill Formation type are considered to have occurred in anaerobic conditions in closed or semi closed basins with restricted sedimentation. The MG14 deposit and others that have been drilled tend to be elongate with approximately northwesterly trends. The closing of the basins could be due either to a rock bar or to the formation of an ice bar.

Source of the base metals in the sedimentary rock sequence is problematical but possibilities are the Pandurra Formation, the mafic volcanic portions of the Gawler Range Volcanics, the Beda Volcanics or remobilisation of the mineralisation of a basement deposit similar to Olympic Dam. On reaching the palaeo surface of the Pandurra Formation the base metals carried in solution would precipitate due to changed physical and chemical conditions.

PREVIOUS EXPLORATION

Introduction

The area covered by the tenements to be acquired by Gunson has been the subject of extensive exploration since the middle 1960s. A number of explorers have undertaken work on the area both consecutively and concurrently. In the account of the exploration history which is given in this report section for any given time period the explorer of the central part of the present area is considered first followed by other approximately contemporary explorers on the periphery of the area before the consecutive series of events is resumed.

Some of the older reports upon which the following account of exploration history is based give quantities in imperiat units. Where such is the case these have been converted to metric units and rounded off. In certain cases where measurements are given in 'tons' it is not evident whether long tons or short tons are meant. In such cases the original unit has been assumed to be short tons since this was the prevailing unit in the minerals industry of the time.

For the bulk of the exploration carried out over the area, samples were routinely analysed for copper, lead and zinc. In many cases additional elements were determined: the additional number can range from one to more than twenty. In our text, the suite of elements analysed has not been given in full in each instance but anomalous results whether for base metals or other elements are noted. Generally speaking standard analytical procedures were followed but where this was not the case this is noted.

Due to the nature of the geology of the area explorers made extensive and repeated use of geophysical techniques. In our reporting of the exploration history, the surveys recorded are documented but the often large number of anomalies that these generated are not described individually. The results from the on going geophysical surveys were used in the positioning of drill holes to test anomalies. An exception to this rule has been made for the anomalies generated by recent work by Stuart where the interpreted anomalies have yet to be explored.

The results generated by various exploration activities were assessed and reassessed on a continuing basis throughout most of the exploration programmes covered below. Such evaluation procedures are not in general specifically mentioned in the text.

As far as can be judged from the documentary record, the standards of exploration and reporting were generally high and conformed to prevailing standards of the time. In cases where non standard techniques were used this is noted in the text. However, techniques have improved over the years and the approach adopted decades ago would not necessarily be that used now.

As is inevitable in such a large quantity of archived material there are hiatuses and overlaps in the written record. This can make it difficult to be certain of such matters as the total numbers of holes drilled over a given period, the total metres drilled and so forth. Such statistics as are given in our text have been rounded off for this reason since total accuracy is not possible in the circumstances. Non geological activities that were completed in the area are briefly recorded in our text but no comments are made on their work contents or technical outcomes.

After some early programmes, initial exploration was carried out in the area from 1966 to 1968. Contemporary with this work was some exploration by another explorer in the north.

From 1968 to 1973 exploration of the Mount Gunson deposits and the surrounding area was undertaken. Around the same time limited exploration was carried out to the east and in the southern part of the present tenemented area.

Limited exploration appears to have been carried out by an explorer over the central part of the area during the 1971 to 1973 period but the main exploration was from 1973 to 1979 during which time a very considerable amount of work was completed. Exploration was also undertaken west and south of the present area in the middle 1970s: a small proportion of this work is relevant to the current tenements.

In the late 1970s to early 1980s exploration was carried out over areas that are now partially covered by the western part of EL2516, the western fringe of EL2567 and the southern half of EL2516. Exploration was undertaken over an area to the north, a small part of which overlapped EL2516 and within which a limited amount of work was done in the late 1970s.

From 1979 to 1993 major exploration of the presently tenemented area was carried out. Exploration in the northern part of the present tenements was undertaken by Carpentaria Exploration Company Pty. Ltd during the 1983 to 1991 period followed by M.I.M. Exploration Pty. Ltd from 1991 to 1996. In the early 1990s ground that overlapped the eastern part of the present tenements was held by another explorer but no work was carried out within the current area.

Cobalt Resources N.L. explored the main area from 1994. This company subsequently changed its name to Stuart Metals N.L. in 1996 and then to Stuart Petroleum N.L in 1999. The companies are referred to collectively in this report as Stuart.

In the following history of exploration in the area of interest the activities of the various explorers are given in the order outlined above.

Initial exploration of the area concentrated on base metal deposits in the Upper Proterozoic sedimentary cover rocks. This work was successful with the discovery and mining of a number of deposits in the Mount Gunson area and the discovery of mineralisation in the Tapley Hill Formation and other shale hosted rocks. With the announcement of the discovery of the Olympic Dam deposit in 1975 possible large basement deposits were added to the types of targets sought. Considerable work on this type of target was carried out by explorers.

Early Exploration

At an early date a hole at least 314 metres deep was drilled in the extreme southeast of what is the present EL2099. The hole that is known as the Beda Bore was reportedly drilled in 1913 for the Irrigation and Water Supply Department. Samples were taken at some time over variable and not necessarily consecutive lengths. Somewhat elevated base metal results were returned on analysis from samples at depths of around 95 metres with the highest copper result being 340 ppm.

It is reported that nine churn drill holes were completed in the 1951/52 period. The holes were on a north-south line and appear to have been located on what are now the excised tenements ML5598 and MPL1. Mineralisation of 0.95% copper over some 3.65 metres was reported from one hole in the north.

During the first quarter of 1964 exploration was carried out in what is now the southern half of EL2639 to the west of Pernatty Lagoon.

Exploration techniques employed comprised geophysics and geochemistry. An IP survey was run on a series of approximately east-west lines at spacings ranging from around 350 metres to 2000 metres. In all approximately 86 line kilometres were run. A total of 290 geochemical soil samples was taken from some 100 line kilometres on lines at approximate spacings of some 360 metres. Samples appear to have been tested chemically for the presence of copper.

As a result of this work three anomalous zones were delineated. The northern zone comprised a number of IP responses and elevated copper results in an area with old copper workings. This zone covered the deposits that were later mined. The southern zone had the same characteristics and was located northeast of Woocalla in the vicinity of the Sweet Nell and Fair Nell workings. The central zone had IP anomalies but no elevated copper values in the soil samples and was associated with the old manganese workings west of Pernatty Lagoon.

During 1966, exploration was carried out in the Mount Gunson area. Much of the work was located within what are now the excised tenements ML5598 and MPL1 or on the deposits that were eventually mined.

Geological mapping and geochemical sampling were undertaken. Percussion drilling comprised 3234 metres over more than 214 holes at Gunyot and at the Lagoon deposits. Samples were analysed for copper by a titration method: check samples analysed by AAS gave generally good agreement. Auger drilling totalled 29 holes for 91 metres mainly being carried out in Pernatty Lagoon.

Mining engineering and metallurgical investigations were also carried out including bulk sampling.

A biogeochemical survey was carried out in two areas namely in what is now the central part of EL2639 immediately south of the Mount Gunson workings and in what is now the southern part of the same tenement in the vicinity of Ironstone Lagoon. Twig samples were taken from two species of Acacia at locations on nominal grids of around 60 metres by 120 metres and 245 metres by 60 metres for the northern and southern areas respectively. In all 2200 samples were taken from 180 line kilometres.

Samples were reduced to ash and the copper content determined using a colorimetric method. Check samples submitted for AAS analysis reportedly showed satisfactory correlation with the colorimetric determinations. Anomalous values were taken as those results of greater than 80 ppm copper.

From this work, an anomaly was delineated within the present EL2639 some three kilometres southsouthwest of the old workings. Another anomaly was located in what is now the southeastern part of the same tenement to the east of Ironstone Lagoon.

Geochemical samples were taken from the lake sediments of Pernatty Lagoon in the area where percussion drilling had previously been undertaken. This work indicated that the technique could be a useful one for detecting mineralisation within the lake.

From late 1966 to late 1968 further exploration was carried out.

Most of the work during this period was focussed on exploration of the known deposits. Drilling comprised at least 536 holes for 10 196 metres: the greater part of this was open hole drilling but some diamond coring was also undertaken.

Geophysical exploration over the deposits comprised seismic surveys along with IP and resistivity surveys.

Surveying, geological interpretation, mineralogy and metallurgical test work were also completed

A trench was dug at the Lagoon deposit to obtain a bulk sample for metallurgical test work and trial mining was completed on the Mount Gunson and Lagoon deposits.

The then current estimate of 1968 was a "Drill Measured Reserve" of 2.0 million tonnes at 1.23 % copper and a "Drill Indicated Reserve" of 0.4 million tonnes at 0.89% copper.

The northern biogeochemical anomaly was the subject of a drilling campaign at the beginning of 1967. In all 215 holes were drilled for a total of some 3120 metres. The best two

holes gave intercepts of 1.5 metres at 1.04% copper and 1.5 metres at 0.68%. No other holes returned values greater than 0.5% copper although 26 holes had low values of greater than 0.1% copper. The southern biogeochemical anomaly was not drilled.

Central Area Exploration 1967 to 1973

Around 1967 exploration was undertaken over a large area which covered the present tenements apart from much of EL2516 and also extended further to the east, west and south. Exploration activities comprised geological mapping, geochemistry and geophysics.

Regional geological mapping and rock outcrop geochemical sampling were carried out over the area. Samples were also taken from old drill hole cuttings. In all 204 samples were taken for analysis mainly from the Whyalla Sandstone and the underlying Pandurra Formation. A certain amount of follow up sampling of anomalous results was included in the total.

Based upon the results of this programme, three anomalous areas were considered to warrant follow up exploration. One anomaly is located on what is now the southern boundary of EL2516 to the east of Pernatty Lagoon. Highest lead result was 100 ppm but with no associated elevated copper. Another anomaly is located near the present western boundary of EL2639 to the northeast of Oakden Hills Homestead. Copper values ranged up to 680 ppm with lead values being up to 1850 ppm. The third anomaly is located in the southwestern corner of EL2099 to the east of Winniepinnie Dam. Maximum copper value from this location was 380 ppm with the highest lead result being 1550 ppm.

An interpretation was carried out of the existing aeromagnetic data to assist in the understanding of the basic geology of the area.

During the first half of 1971 a seven hole drilling programme was carried out. The holes were drilled at widely spaced locations in what are now the southern part of EL2639, the eastern part of EL2567 and the western part of EL2099. Of the total of around 834 metres, some 476 metres were percussion drilled with 358 metres being core drilled. Targets were shale units of the Whyalla Sandstone particularly in the vicinity of interpreted faults. Both core and percussion samples were analysed.

Two of the holes returned copper values greater than 1000 ppm with maximum results being 1224 ppm and 1600 ppm respectively. These holes were located in what is now the northeast part of EL2099 and in the southwestern part of the same tenement. The latter hole also had elevated lead of 1750 ppm. Holes in other locations with high lead and zinc results were located southeast of Lake Blyth with up to 9000 ppm zinc, in the northeast part of the present EL2567 with up to 1291 ppm zinc and north of Lake Dutton with 1011 ppm lead.

Central Area Exploration 1968 to 1973

Further exploration of the known deposits and the surrounding area was carried out from 1968 to 1973. Towards the end of this period regional exploration work was commenced as is described below.

Drilling of the known deposits during the period amounted to more than 355 holes for 3851 metres of which the greater part appears to have been open hole drilling and the balance core. This work was carried out in the vicinity of the House, Main Open Cut, Lagoon and Gunyot deposits. IP and EM surveys were completed over the main deposits and the immediately adjacent areas. The purpose of these programmes was to close off the mineralisation and quantify the resource prior to production.

A feasibility study was completed during the period and pre production activities were commenced.
Outside of the known deposits exploration was carried out over an area that is now covered by EL2639.

A limited IP survey was completed in 1970 over a known IP anomaly in the Gunyah Lake-Pernatty Lagoon area and confirmed its existence. The anomaly appears to have been the subject of a short drilling campaign of five percussion holes of some 76 metres in all. Results were essentially negative with only one hole having minor copper and some pyrite.

A total of at least 47 percussion drill holes was completed in early to mid 1971 in the vicinity of the Sweet Nell deposit at the southern end of Pernatty Lagoon in what is now the southern part of EL2639. Of 31 holes in the immediate Sweet Nell area, 21 appear to have intersected copper grades of greater than 0.5% with the highest grade being 2.15%.

Drilling was undertaken in the Manganese workings area on the western shore of Pernatty Lagoon to the north of Sweet Nell. Problems were encountered in drilling. Minor copper mineralisation to a maximum of 0.23% was encountered. Similar results to a maximum of 0.22% copper were obtained from a short drilling programme in the Woocalla area.

In mid 1971 aerial photography was completed and geological mapping was undertaken on the Sweet Nell, Manganese workings, Woocalla and Elizabeth Creek areas. The latter area is to the north of Pernatty Lagoon.

Stream sediment geochemistry and magnetometry. EM and IP surveys were reportedly carried out in the second half of 1971 but no results have been seen.

In the 1971/72 period diamond drilling was carried out on a traverse across part of Pernatty Lagoon and at the Mystery area on the western shore of the Lagoon. Copper of 1% level was reported to occur in one hole within the lagoon near the shore line but only pyrite and manganese were recorded further to the east.

Geological mapping was undertaken to the north of Gunyah Lake and in the Mystery to Manganese workings area.

Percussion drilling was carried out in the area between the House deposit and the Manganese workings to investigate an IP anomaly generated in 1964. Stratigraphic drilling was completed to the north and west of Gunyah Lake.

Orientation geochemical sampling was undertaken in Gunyah Lake in the first half of 1972. Mud samples were analysed. The best response came from sediments just above the bedrock. An anomaly of up to 230 ppm copper was generated near the northern shore of Lake Gunyah.

In mid 1972 comprehensive geological mapping of much of the area now covered by EL2639 was completed and percussion drilling programmes were undertaken on a number of areas.

At the Elizabeth Creek area, 4 holes were completed for 135 metres with no significant mineralisation being encountered. In the Cattle Grid area 54 holes were drilled for 2328 metres. Copper sulphide and pyrite mineralisation was encountered at the Whyalla Sandstone/Pandurra contact at depths of 23 to 45 metres. At the Powerline Embayment location, 9 holes for 318 metres were drilled with no mineralisation being intersected. In the Monalena area near Ironstone Lagoon the 16 holes for 451 metres encountered pyrite but without associated copper. In the Ironstone Lagoon to Pernatty Lagoon area pyrite was also encountered in the 8 holes which were drilled for 183 metres. Drilling of an IP anomaly on the western shore of Pernatty Lagoon involved 19 holes for 444 metres. Most of the holes intersected pyrite. Pyrite was also encountered in most of the 9 holes drilled in the vicinity of Lake Windabout that totalled 531 metres.

Lake sediment geochemistry on a 30 metre by 100 metre grid was carried out in Lake Gunyah. A total of 191 stations were sampled for 1.5 line kilometres. A copper anomaly approximately paralleling the north shore of the lake was delineated.

A similar survey in Ironstone Lagoon was carried out on a 100 metre by 200 metre grid with 183 samples being analysed. No halo associated with the Sweet Nell and Fair Nell workings was observed although anomalous values up to 154 ppm copper were encountered just to the east of them. In the eastern part of the lagoon there was an isolated anomalous value of 380 ppm copper adjacent to the northern shore.

Wide spaced geochemical mud sampling at 200 metre by 2500 metre centres was undertaken in Pernatty Lagoon with 291 samples being sent for analysis. Further work was carried out in 1972 as is described below.

Ground magnetometry was also carried out.

In the second half of 1972 a total of 1275 metres of percussion drilling was carried out over 33 holes along with a further 422 metres of core which were drilled over 37 holes with 1286 metres of non core drilling in the same holes. Precise locations and the results of this work are not known as is the case with the 1451 further mud geochemical samples which were taken.

Geological mapping was continued and incorporated the results from drilling.

Mud geochemical sampling was extended to cover all of Pernatty Lagoon plus parts of Lake Windabout, Triangle Lake and North Boundary Lake.

Mud sampling at Pernatty Lagoon was undertaken on a 200 metre by 2500 metre grid with additional sampling in the north of the lagoon on 200 metre by 1250 metre centres. In all 474 samples were taken and analysed. Results were low over most of the lagoon with anomalous results occurring in the Mystery area, with up to 121 ppm copper, and around the Dolomite Islands. Limited follow up mud geochemistry on a 100 metre by 100 metre grid at Mystery did not enhance the anomaly. Follow up sampling around the Dolomite Islands was on a 100 metre by 100 metre grid with the area between the islands and Gunyah Lake being sampled on a 200 metre by 100 metre grid. A total of 989 samples were analysed. Three anomalous zones were resampled at 60 metre intervals for a total of 112 samples.

Five percussion drill holes were completed within the lagoon of which four were on the first anomaly. No potentially economic mineralisation was encountered but geochemically elevated results were obtained from some holes with the highest being 540 ppm copper. Access problems prevented any drilling being completed at the other two geochemical anomalies.

Percussion, rotary and diamond core drilling was continued during 1973. Drilling in the Canegrass Dam area intersected pyrite with weak copper mineralisation being encountered in one hole. Further drilling in the Elizabeth Creek-Lake Windabout area also encountered pyrite. South of Ironstone Lagoon drilling intersected geochemically elevated copper contents of up to 270 ppm.

The main emphasis of the drilling was, however, to explore the copper intersected in 1971/72 at what became known as the Cattle Grid deposit. Percussion drilling in the area had obtained results of up to 6000 ppm copper. A further 14 percussion holes were drilled some of which obtained values of greater than 1% copper to the south of the initial discovery hole. Additional drilling to a total of 59 holes outlined the mineralisation.

Follow up exploration comprised a core drilling programme with all except one of the holes having rotary drilled precollars. Core recovery was very good and demonstrated that the percussion drilling results were not quantitatively reliable. In all 69 core holes were completed to give coverage on approximately 140 metre centres. A further 40 core holes were later drilled to reduce the distance to 100 metres. Continuity of mineralisation was tested by drilling core holes at 10 metre intervals in two directions at each of two holes with high grade intercepts. The 40 holes all intercepted mineralisation and proved the continuity of the mineralised horizon. Further drilling was undertaken to reduce the hole spacing to 70 metre centres.

Based upon the exploration at the Cattle Grid deposit, a resource estimate was completed. At a cut-off grade of 1% copper there was estimated to be 4.59 million tonnes at 2.44% copper. The material was designated an "ore reserve" although no mining, metallurgical or financial studies appear to have been carried out up to that time.

In mid 1973, as part of a larger programme covering areas to the west, 10 holes for some 417 metres were drilled in the Oakden Hills area near the present western boundary of EL2099 and EL2639. One of these holes returned up to 430 ppm copper from the vicinity of the earlier rock geochemical anomaly.

An auger soil sampling programme was undertaken around the same time in this area but depth penetration was considered too shallow to be effective.

Eastern Area Exploration 1969 to 1971

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In mid 1969 the Department of Mines of South Australia carried out a seismic survey. The area covered was mainly to the east of Pernatty Lagoon. Of the present area of interest, the southeastern portion of EL2516, the eastern margin of EL2639 and a small part of EL2099 in the east were covered.

Purpose of the programme was to investigate the basic geology and to locate areas where the Whyalla Sandstone or Woocalla Dolomite was in contact with the Pandurra Sandstone at shallow depths. Four such areas either partially or completely within the current tenemented area were interpreted as being present to the north of Pernatty Lagoon, to the east of Pernatty Lagoon in the north and south and to the south of Pernatty Lagoon east of Lake Dutton.

Subsequently, in the second half of 1969 a 16 hole percussion drilling programme for around 489 metres was carried out by an explorer. Two of the holes were located north of Pernatty Lagoon within EL2639 and two were to the east of the lagoon within that tenement with the balance being further east mainly just beyond the licence boundary. Some of the holes were within the geophysical targets generated by the seismic survey but many were not.

Mechanical problems were experienced during drilling and the programme was eventually abandoned. Many holes reportedly did not reach their target depth.

Samples were analysed by AAS in the field. Geochemically elevated copper results were obtained from one hole with the highest value being 305 ppm. This hole was located between the two seismic targets to the east of Pernatty Lagoon and is a short distance to the east of the present EL2639.

In the 1970/71 period, exploration was carried out over an area that lay mainly to the east of the present tenemented area. A small part of the ground, however, covered what is now the central part of EL2516.

Geological reconnaissance was carried out along with ground geophysics. Ground magnetometry and scintillometry were completed. Precise coverage is not extant but only a very small proportion of this work could have been within the present area.

Central Area Exploration 1971 to 1978

In the 1971 to 1973 period exploration work appears to have been carried out over the area that is now covered by EL2639 by an explorer other than the main explorer that is described above.

During 1971 geological mapping was carried out in the Elizabeth Creek area.

In mid 1972 thirteen percussion holes for 666 metres were drilled in the area between Lake Windabout and the southern end of Elizabeth Creek. No elevated results were returned by this drilling.

A 9 hole percussion programme was completed in the Powerline Embayment area in mid 1972. Contamination of samples by near surface material was extensive. Only a small proportion of samples were analysed. No elevated results were obtained, the highest copper value being 165 ppm.

In late 1972 to early 1973 an orientation mud sampling programme was carried out over part of Gunyah Lake centred on existing drill holes that had intersected potentially economic results. Auger samples were taken on a 500 metre by 600 metre grid. In all 137 samples were taken and analysed. The results did not delineate the known mineralisation although low order anomalies were present in the northeast of the area tested. It was concluded that mud geochemistry was an inappropriate technique in lake areas underlain by Tregolana Shale. The reason for the anomaly in the northeast was not known as no drilling existed in that area.

In mid 1973, as part of a larger programme covering areas to the west, 10 holes for some 417 metres were drilled in the Oakden Hills area near the present western boundary of EL2099 and EL2639. An auger soil sampling programme was undertaken around the same time in this area but depth penetration was considered too shallow to be effective.

Between the second half of 1973 and the middle of 1979, an area was explored that covered all of the current tenements apart from EL2516 plus a large area to the west and a smaller area to the east. Although during this period there was considerable overlap of activities these are presented in this report in the order geochemistry, drilling, geophysics and other exploration for greater ease of understanding.

Contemporary with this exploration was other work carried out in the period 1973 to 1975 to the west and south of the main part of the present area. This work is considered at the end of this report subsection.

Geochemistry

Work commenced in 1973 with geological mapping and geochemical outcrop sampling in the Oakden Hills area and the southeastern part of EL2099. Anomalous copper values in Whyalla Sandstone were obtained from two locations in the vicinity of North and South Oakden Hills. One was immediately east of what is now the western boundary of EL2099 and the second was further east on what is now the EL2099/EL2639 boundary. Maximum copper values were 720 ppm and 970 ppm respectively.

Further field mapping and rock geochemistry was undertaken later in 1973 including over the area of the airstrip INPUT anomaly described below. Results were essentially negative with only one anomalous result of 220 ppm copper being returned from the airstrip location.

In early 1974 geochemical drilling was undertaken at the Cattle Grid, Oakden Hills and Powerline Embayment areas. At Cattle Grid, 29 holes were drilled for some 451 metres on a line north of the deposit. Anomalous lead and zinc was intersected in a clay layer.

At Oakden Hills, 86 holes were drilled on 400 metre centres for 1236 metres in the vicinity of the anomalous rock geochemistry results. The intention was to drill to the water table but only 56 holes achieved this. Two holes gave slightly anomalous copper values of 95 ppm and 50 ppm respectively in comparison to background values of up to 25 ppm copper. In the Powerline Embayment area 10 holes for 153 metres were drilled on an INPUT anomaly. No elevated copper results were obtained.

In the second half of 1975, an orientation biogeochemical survey was carried out involving the collection of 188 samples from trees on six traverses. These samples were analysed for a suite of six elements including copper. The work was carried out in the Cattle Grid and MG14 areas. A response was considered to be detectable in the Cattle Grid area but not at MG14. A biogeochemical survey was completed on three traverses in the area between Bellamy Wells and Birthday Siding in the first half of 1976. No geochemical anomalies were obtained from the programme.

A geochemical survey was carried out in early 1976 in the area between Oakden Hills and Birthday Siding. A series of 114 shallow holes was drilled on a 500 metre by 250 metre grid. Samples were analysed for copper, lead, zinc and iron. Two anomalies were delineated. The first was a cluster of four holes with copper values ranging from 100 to 190 ppm that was located adjacent to the railway south of Birthday Siding. The second was a single point anomaly of 90 ppm somewhat to the west. The lead, zinc and iron anomalies were not associated with the copper anomalies.

In the second half of 1978, analyses of water samples from drill holes that had been taken in the 1973 to 1978 period were reported. Copper and zinc determinations were completed on samples from around 94 holes within the present area whilst uranium was determined on some 46 samples.

Anomalous copper and uranium results tended to occur in the same locations. Such results were associated with the known mineralisation in the area at the Windabout, Mount Gunson, Cattle Grid and Powerline Embayment localities. Isolated copper anomalies were found west of McLeay, west of Winniepinnie Dam, west of Charlinga Homestead and southwest of Belo Hill near the southern border of the present area. An isolated uranium anomaly was identified between Gunyah Lake and Elizabeth Creek.

The zinc results did not appear to be associated with known mineralisation.

Drilling

During the 1973 to 1979 period drilling was carried out at the Lake Windabout, Windabout, Elizabeth Creek, Canegrass Dam, MG14, Gully, Cattle Grid, Powerline Embayment, Oakden Hills, Bellamy Wells, Wirrappa, Birthday Siding, Snake Pit, Lake Dutton, Winniepinnie and Bookaloo areas. In all at least 32 224 metres of drilling were completed for a total of 660 holes excluding the geochemical drilling described above. The greater part of the exploration drilling was open hole but core drilling comprised around 10% of the total.

A target was drilled to the west of Lake Windabout in early 1978. Hole LH1 was intended to investigate an aeromagnetic anomaly that had been the subject of ground geophysical investigations as described below. Final depth of the hole was some 788 metres of which 232 metres were precollared and the balance core drilled. Minor sulphides were observed in the top of the Pandurra Formation and in the overlying sediments with the highest result being 220 ppm copper but no explanation for the anomaly was evident. The hole bottomed in Pandurra Formation.

INPUT survey anomalies were drill tested in the Windabout-Elizabeth Creek area in the second half of 1975. In all 8 holes were drilled for some 398 metres. Three holes gave anomalous values in the Elizabeth Creek area with maxima of 340 ppm copper in Pandurra Formation overlain by Tregolana Shale and 380 ppm copper in dolomitic Tregolana Shale. A further 16 holes for 1073 metres were drilled in mid 1976 for stratigraphic purposes. Anomalous results were obtained from two holes in the southern part of the area between Gunyah Lake and Lake Windabout. The highest value was 5200 ppm copper in the Tapley Hill Formation with 200 ppm copper in Whyalla Sandstone in a nearby hole. Later, in mid 1977, an additional 7 holes were drilled for stratigraphic purposes in the southern part of this area.

In the Windabout area 13 holes were drilled in mid 1977 to explore INPUT survey anomalies and geochemical anomalies. Three of the holes on analysis returned elevated base metal contents from Tapley Hill Formation. Two of these holes were in the vicinity of an earlier hole with mineralisation. These two holes returned intersections of 1.65 metres at 1.30% copper and 5.0 metres at 1.36% copper. The third hole was to the south and returned 9 metres at 0.96% copper.

Follow up drilling was carried out at Windabout in late 1978. Five partially cored holes were drilled near the first target. All holes intersected mineralisation of greater than 0.5% copper with the best result being 3 metres at 1.31% copper. One partially cored hole and six rotary percussion holes were drilled around the southern target. The core hole gave a 2 metre intersection at 4.18% copper. The percussion holes were all anomalous in base metals with a best result of 4250 ppm copper and 1275 ppm zinc.

Also in late 1978 three holes were drilled for stratigraphic purposes towards Lake Windabout. Two of the holes reached Tapley Hill Formation and gave anomalous results of up to 1600 ppm and 2250 ppm copper respectively.

One rotary percussion hole was drilled north of Pernatty Lagoon in mid 1978 in the Elizabeth Creek area. Elevated results were encountered in the Tapley Hill Formation with up to 770 ppm copper, 2800 ppm lead and 5750 ppm zinc being returned on analysis.

At Canegrass Dam to the north of Gunyah Lake a programme of seven holes was drilled in mid 1977 to test targets resulting from the INPUT survey flown in early 1977.

In the second half of 1974, a 16 hole RC programme on 100 metre centres was completed north of the Cattle Grid deposit in the vicinity of the MG14 discovery hole. An additional four holes were drilled near other earlier holes which had intersected mineralisation. Most of the holes in the MG14 area intersected potentially economic grades greater than 1% copper and two of the other holes to the westnorthwest intersected geochemically anomalous values.

In early 1975 further drilling was carried out in the MG14 area. In all 15 holes were drilled at MG14 on a 200 metre grid with 281 metres being cored and the balance of 324 metres being open hole. Five of the holes returned greater than 1% copper values. The MG14 mineralisation was found to be a narrow elongate body extending westnorthwest. Drilling of 16 holes for 156 metres of core and 300 metres of open hole drilling was completed at the MG14 location in mid 1975. Purpose of the work was to evaluate the deposit and obtain samples for metallurgical purposes. This drilling closed off the deposit to the north, south and east.

Drilling in the Gully area in 1975 comprised 16 holes on 200 metre centres for a total of 396 metres of coring and 157 metres of open hole drilling. The Gully area had been recognised as having shale hosted base metal mineralisation similar to the MG14 area based upon earlier drilling. Seven of the holes contained greater than 1% copper. These holes were located in two areas namely in at the western and eastern margins of the Guily area. Grade and thickness were less than for the MG14 area.

Drilling in the Cattle Grid deposit area in the third quarter of 1973 comprised 42 holes for 2190 metres of which 171 metres were diamond core and the balance rotary.

Two deep diamond core holes were drilled in early 1974, one at the Cattle Grid deposit and the other to the northeast on a magnetic anomaly. The first hole LY2 went to 668 metres depth and stopped in Pandurra Formation. It intersected the deposit at the top of the Pandurra Formation at around 30 metres but also intersected other mineralisation at around 58 metres: a one metre intercept of 3.4% copper, 7400 ppm lead and 4400 ppm zinc was encountered. The second hole LY3 also intersected shallow mineralisation but passed in to basic dykes intruding the Pandurra Formation. Sporadic deeper elevated values were returned on analysis with the highest being 2200 ppm at around 196 metres. The hole was abandoned in Pandurra Formation at 246 metres.

A rotary drilling programme of 25 holes for 1200 metres was completed in the second half of 1974 in the vicinity of the Cattle Grid deposit. The holes were mainly located southwest of the deposit but also in the MG14 area. Two holes in the latter area returned geochemically anomalous values of up to 9000 ppm copper with support in lead and zinc. Two other holes west of the Cattle Grid deposit intersected mineralisation with maximum values on analysis of 1.07% and 1600 ppm copper respectively again with support in lead and zinc.

In mid 1975 18 holes were drilled to test for extensions to the Cattle Grid deposit. The programme comprised some 755 metres of open hole drilling. Results were essentially negative. An earlier precollar hole was deepened as a core hole in late 1976 but did not intersect any mineralisation in the Whyalla Sandstone. In mid 1977 two angled core holes for some 82 metres were drilled at the Cattle Grid deposit to explore a mineralised fault zone. In addition eight partially cored holes were drilled to test the western margin of the deposit.

Six holes were drilled in mid 1977 around the margins of the Cattle Grid deposit. One hole returned potentially economic grades.

In late 1975 to early 1976 a series of holes were drilled between the Cattle Grid deposit and the Powerline Embayment area. In all 6 holes for 263 metres were completed. The purpose of the programme was to test for repetitions of the Cattle Grid mineralisation. Results were negative. A further 4 holes for 276 metres were drilled in mid 1976 in the Powerline Embayment area. No anomalous results were obtained.

A series of 38 rotary holes for 1731 metres was drilled in the general Oakden Hills area in early 1974. Most of the holes are within the present tenemented area. One hole southeast of the rock geochemistry anomaly described above gave 600 ppm copper in Woocalla Dolomite. A group of three holes immediately northwest of Birthday Siding all intersected elevated base metal values with the highest copper results for each hole being 3400 ppm, 1.15% and 5000 ppm respectively with associated elevated lead results up to 500 ppm and zinc up to 2300 ppm.

In the Oakden Hills area 20 holes were completed for 1125 metres in mid 1975. The purpose of the drilling was to test anomalies generated by an earlier INPUT survey. Elevated copper results were obtained in four holes west and northwest of Birthday Siding with maximum values ranging from 1100 to 3200 ppm copper. Copper values up to 500 ppm were obtained from a hole west of North Oakden Hill near Little Selby Dam. A further 4 holes for some 58 metres were drilled in late 1975 to test other INPUT anomalies and for stratigraphic purposes. No encouraging results were obtained. During mid to late 1976 an additional 26 holes for around 1092 metres were drilled at Oakden Hills. Geochemically anomalous copper

results were obtained from a hole near Bellamy Wells with up to 3800 ppm copper, another to the east of Birthday Siding with up to 4600 ppm copper and two others southwest of Birthday Siding with 800 and 500 ppm maximum copper values.

A 16 hole programme of which 6 holes were within what is the presently tenemented area were drilled in the Oakden Hills area and northwestwards towards Square Lake. No elevated base metal results were obtained within the current area. The work was carried out in mid 1977.

At the Bellamy Wells location to the west of Powerline Embayment, three holes for 228 metres were drilled in the second half of 1976. Anomalous copper values were intersected in Whyalla Sandstone at the water table in one hole. A further 14 holes of which one was a core hole were drilled later the same year. One of these holes adjacent to the earlier hole also had anomalous copper at the water table. The core hole intersected mineralised Tapley Hill Formation similar to that of the MG14 area. The highest result was 0.3 metres at 1.39% copper. In mid 1977 a further 6 holes for around 727 metres were drilled for stratigraphic purposes. Most holes were partially cored. One hole returned up to 1800 ppm copper from Tapley Hill Formation.

In mid 1977, a total of 7 holes were drilled in the Bellamy Wells area some of which were partially cored. The purpose of the drilling was stratigraphic and no elevated copper results were obtained. An additional four percussion holes were drilled in late 1978. One of these holes intersected mineralised Whyalla Sandstone that gave up to 2300 ppm copper on analysis. Three follow up holes were drilled in mid 1979. Two of the holes encountered anomalous base metal values. The highest results from the first hole were 2000 ppm copper and 2500 ppm zinc and for the second 1350 ppm copper, 3500 ppm lead and 9625 ppm zinc.

In mid 1978 a rotary percussion hole was drilled in the Wirrappa area west of Bellamy Wells near what is now the western boundary of EL2639 south of Lake Windabout. Minor elevated base metal results were returned from Tapley Hill Formation where the highest values were 400 ppm copper, 680 ppm lead and 1550 ppm zinc. Two stratigraphic holes were drilled south of Wirrappa in late 1978 along with two other holes further west beyond the limits of the present area. No elevated results were obtained.

In late 1976 at Birthday Siding, nine holes were drilled some of which were partly cored. Three holes intersected Tapley Hill Formation similar to the MG14 area although of lower grade with the best result being 0.5 metres at 0.6% copper.

In the Snake Pit area between the Stuart Highway and Ironstone Lagoon a 19 hole percussion drilling programme was completed in mid 1979. The target was copper mineralisation in the Pandurra Formation. Anomalous but sub economic results were obtained from 14 of the holes with the best result being 0.15% copper.

Two rotary percussion holes were drilled south of Pernatty Lagoon in mid 1978 in what is now the southeastern corner of EL2639. The holes were drilled for stratigraphic purposes and no elevated base metal values were encountered.

Testing of INPUT survey anomalies was carried out in the Lake Dutton area in the second half of 1975. A total of 10 holes was drilled for around 374 metres. In addition to the INPUT anomalies a magnetic anomaly and two biogeochemical anomalies from earlier work were also tested. Anomalous base metal values were returned from intersections of black shale Woocalla Dolomite with the maxima being 540 ppm copper, 840 ppm lead and 440 ppm zinc. In the second half of 1976 a series of 5 holes for 226 metres was drilled. One hole returned elevated copper results of up to 3900 ppm copper east of Lake Dutton and south of Pernatty Lagoon. In early 1977 three partially

cored holes for a total of around 213 metres were completed. Highest results were all obtained from one hole and were 290 ppm copper with elevated lead and zinc all in the Tapley Hill Formation.

Drilling at Lake Dutton in mid 1977 comprised a 5 hole programme to explore INPUT targets. No anomalous results were obtained. Subsequently in mid 1979 a further 6 holes for 428 metres were drilled to investigate a Cattle Grid deposit type environment. No elevated results were obtained.

Stratigraphic drilling was carried out in what is now EL2567 and to its west and north. In all seven holes were drilled. One intersected elevated base metal values with a maximum copper result of 750 ppm plus supporting lead and zinc. This hole was located in the Winniepinnie area near what is now the eastern boundary of EL2567.

Also at Winniepinnie a series of 21 holes for 1039 metres was drilled to test the geological interpretation derived from the INPUT survey described below. The drilling was carried out in mid 1976. Anomalous base metal values were encountered in the Tapley Hill Formation shales with the highest results being 900 ppm copper, 3100 ppm lead and 7300 ppm zinc.

At Winniepinnie in mid 1977 a 23 hole programme was completed to investigate INPUT survey anomalies and to follow up earlier drilling. No anomalous results were returned on analysis. Two holes intersected basic igneous rock that was eventually designated Beda Volcanics similar to that which occurs in an old hole in the eastern part of EL2099. An alternative explanation is that there is a mafic dyke present.

Further open hole drilling was completed in mid 1979 in the Winniepinnie area. Fourteen holes were drilled for some 1342 metres. Elevated base metal results were obtained from many of these holes with the most significant values being 3300 ppm copper from a hole in the southeastern part of EL2099, 2000 ppm lead in a hole to the north and 5250 ppm zinc in another hole in the southeastern part of EL2567 all being in Tapley Hill Formation.

A first phase of drilling carried out in the Bookaloo area in mid 1975 comprised 6 stratigraphic holes for some 802 metres. One hole located north of Charlinga Homestead gave 2300 ppm copper. A further 6 holes were drilled in early 1977 for around 770 metres of open hole and 281 metres of core drilling. The holes were drilled for stratigraphic purposes. Probable Roopena Volcanics with minor copper mineralisation were intersected beneath the Tapley Hill Formation.

In mid 1978 a 3 hole drilling programme for 390 metres was carried out in the Bookaloo area. The purpose of the drilling was to trace the Beda Volcanics sub crop. One of the three holes was within what is now the eastern part of EL2099 with the others being further north. The highest result from the hole within the present EL2099 was 0.1% zinc within the Tapley Hill Formation.

A number of holes were relogged and resampled from early 1977 onwards. Anomalous base metal results were obtained from Pandurra Formation from two holes in the Monalena area. Other holes in the Manganese Workings area gave up to 2600 ppm copper in Tapley Hill Formation and anomalous copper in Pandurra Formation.

Geophysics

A number of geophysical techniques were carried out over the Cattle Grid deposit in 1973 at a time when it was well known but mining had not yet commenced. The purpose was to assess the effectiveness of the different methods before applying them to larger areas. The techniques employed were ground magnetometry, SP, IP, airborne EM or INPUT, seismic and ground EM. it was concluded that IP and airborne INPUT would probably give useful results. Seismic also assisted in geological interpretation but had limited depth penetration with the equipment used.

The INPUT orientation survey indicated an anomaly in the vicinity of hole MG14 where potentially economic grades had been intersected. Other anomalies considered to warrant further investigation were in the Mystery area where they coincided with earlier IP anomalies and in the airstrip area.

Airborne INPUT surveys were flown over four areas in early 1975. The locations were between the northern parts of Lake Windabout and Pernatty Lagoon; the Oakden Hills area; between Lake Dutton and Pernatty Lagoon; and over what are now the southeastern part of EL2567 and the southwestern part of EL2099 in the Winniepinnie area. In the three northern areas in which INPUT surveys were carried out, a number of targets were delineated which were ranked as first, second and third priority depending on how many of the classification criteria were met.

In mid 1975, the aeromagnetic data covering the area were interpreted. This work confirmed the interpretation completed earlier for another explorer.

Based upon the INPUT anomalies and other geological data, geological models were constructed for the three northern INPUT areas as a guide for future exploration.

Interpretation work on an earlier flown INPUT survey in the Winniepinnie area was completed in mid 1975. The area covered is now occupied by the southeastern part of EL2567 and the southwestern part of EL2099. A number of anomalies were defined and ranked according to the selection criteria. Four of these anomalies were considered to be of first priority. Earlier INPUT survey data were reinterpreted in mid 1976. The aeromagnetic data from the Winniepinnie INPUT survey were also interpreted. Regional aeromagnetic and gravity data were interpreted in 1977.

A further INPUT survey was flown in early 1977 in two areas. One area was between Lake Windabout and Pernatty Lagoon whilst the second was to the south of Lake Dutton.

In mid 1976 a trial resistivity survey was undertaken. Three traverses were completed. One was in the MG14 – Cattle Grid area with the second being near Birthday Siding. The third was to the west of the present tenemented area. The purpose of the survey was to test whether the top of the Pandurra Formation could be detected using this technique. Reasonable results down to 55 metres depth were obtained but the method was not considered sufficiently accurate to detect depressions in the Pandurra Formation of the size of the Cattle Grid deposit. A further trial resistivity survey was run in early 1977 west of the Cattle Grid deposit. The technique was considered to be useful in detecting the Pandurra Formation palaeo-surface.

A test of a pulse EM survey technique was carried out in early 1977 over the Cattle Grid deposit and at an INPUT anomaly on the western shore of Pernatty Lagoon. The work failed to detect the Cattle Grid deposit but indicated the presence of near vertical conductors at the second location. Also in early 1977 an airborne EM spectrum scanning survey was flown on four lines in the vicinity of the Cattle Grid deposit.

A ground magnetometry survey of 47 line kilometres was undertaken in mid 1977 to generate targets for drilling.

A regional geophysical interpretation was completed in mid 1977 and another utilising more recent data was carried out in the first half of 1979.

Ground magnetometry surveys were completed in 1977 over sixteen anomalies detected by aeromagnetometry including the one to the west of Lake Windabout that was the subject of a deep drill hole. The interpreted depths to basic dykes were found on drilling to be accurate estimates of depths to Pandurra Formation. An aeromagnetic survey was completed in the second half of 1978.

Gravity surveys were completed in 1977 over the area to the west of Pernatty Lagoon and over a magnetic anomaly target to the west of Lake Windabout. In the first half of 1979 a gravity survey was carried out over the area adjacent to the northern half of Pernatty Lagoon.

In late 1977 a trial IP survey was carried out in the vicinity of the drill holes in the Windabout area that had returned elevated base metal results. Anomalies were delineated

A trial seismic survey was completed in the Canegrass Dam area in mid 1979.

Down hole geophysical logging was carried out on many of the drill holes. Techniques employed included gamma ray, neutron, resistivity, SP and density,

Other Exploration Procedures

Petrological studies continued throughout the period.

Age dating was undertaken on the Cattle Grid mineralisation in 1974. A tentative age estimate of 1350 to 920 million years ago was obtained with possible remobilisation between 920 and 500 million years ago.

Mineralogical studies were carried out on MG14 deposit core specimens in 1976/77 followed by processing test work in early 1977.

Aerial photography was flown in 1977 and used in the preparation of base maps..

A Landsat interpretation was carried out in 1979. The number of lineaments in the vicinity of the Mount Gunson deposits was noticeable.

Other Areas

Between mid 1973 and mid 1975, an area was explored mainly to the west of the present tenements but covering the western fringe of EL2567. Work comprised geological mapping, interpretation of gravity, aeromagnetometry and radiometry data and a rotary drilling programme. Three holes from the latter were located within what is now the western boundary of EL2567. No elevated results were obtained from this drilling but considerable technical difficulties reportedly occurred in the carrying out of this programme.

During the middle 1970s exploration was also carried out over an area that lies to the south of the present EL2099.

In the 1973 to 1975 period drilling relevant to the present area was carried out. Four holes were located in what is now the southern part of EL2099. One of these holes returned elevated base metal results with the highest being 1100 ppm copper with associated 220 ppm lead and 1000 ppm zinc just above the top of the Pandurra Formation.

Other holes were drilled south of the present EL2099. Of those reasonably close to the present boundary, one gave 1330 ppm copper with associated base metal values again just above the Pandurra Formation in the Woocalla Dolomite.

Northern and Western Areas Exploration 1975 to 1982

From 1975 to the end of 1982 exploration was carried out on an area that now constitutes the northwestern portion of EL2516.

In 1975 following geological mapping 20 rotary percussion holes were drilled for a total of 1839 metres. Most holes reached the Pandurra Formation and six of them intersected elevated base metal values on or just above the Pandurra Formation contact with the Tregolana Shale. The highest result was 2430 ppm copper on the contact in a hole immediately west of Emmie Bluff.

A further 19 rotary percussion holes were drilled for a total of 1546 metres in the second half of 1976. Analytical

results for these holes do not appear to be extant but it was reported that from the geological logging of the holes no elevated results were expected

Many of the holes had down hole radiometric logging carried out on them from mid 1977. Hole PEB13 in what is now the northern part of EL2516 had a high radiation count. Samples from this hole gave a maximum uranium result of 410 ppm.

In mid 1977 a further rotary percussion hole PEB39 was drilled to a depth of 223 metres in what is now the northwest corner of EL2516. The hole was drilled to investigate a magnetic anomaly. Positioning of the hole was carried out by completing a detailed ground magnetometry survey in the vicinity of the original aeromagnetic anomaly. Elevated copper results were obtained from the Tregolana Shale with the highest being 570 ppm copper. This hole was subsequently deepened in the first half of 1978 as core hole SAE1 and reached a depth of 818 metres but considerable drilling difficulties were encountered. A daughter hole SAE1X was wedged off and drilling was continued. Difficulties were also experienced in this hole that was abandoned at around 649 metres. No strongly anomalous copper results were obtained from the drilling with the highest value being 180 ppm. Slightly elevated contents in lead of up to 295 ppm were returned. The base of the Pandurra Formation was not reached and no cause for the magnetic anomaly was determined.

Ground magnetometry was carried out in mid 1978 better to define two other aeromagnetic anomalies.

Petrological investigations were carried out from 1976 and relative densities were determined.

In early 1979 four percussion holes for 480 metres were drilled to follow up the earlier hole with an elevated uranium intersection. Results were negative for uranium. One hole intersected 400 ppm copper just above the Pandurra Formation.

Two further percussion holes PEB44 and PEB45 for 432 metres were drilled near the present eastern border of the northern part of EL2516 in mid 1979. The holes were to explore a magnetic anomaly. Hole PEB45 was later deepened as hole SAE2 with an additional 36 metres of core drilling. This hole penetrated dacite that was considered to be responsible for the magnetic anomaly. Highest result from the drilling was 285 ppm copper in Tregolana Shale.

Four percussion holes for 1002 metres were drilled in the first half of 1981 on each of three magnetic anomalies located in what are now the northwestern, northeastern and eastern parts of EL2516. Samples were analysed for a suite of elements. No anomalous results were obtained apart from elevated copper in the Tregolana Shale of up to 580 ppm.

In late 1978 to early 1979 ground magnetometry surveys were carried out over three aeromagnetic anomalies. In the second half of 1979 further ground magnetometry and gravity surveys were undertaken on the aeromagnetic anomaly located on the eastern edge of the present EL2516. An airborne magnetic and radiometric survey was flown over what is now the northwestern part of EL2516 and was interpreted in early 1981.

Magnetic susceptibility determinations were completed on the core.

Soil sampling was undertaken in the area of the magnetic anomaly near the eastern border of EL2516. The 26 samples gave no anomalous values on analysis.

Between early 1977 and mid 1981 exploration was undertaken over an area that is mainly to the west of the present tenements but part of which is now covered by the western fringes of EL2567. Three holes from a percussion drilling programme in late 1977 were within the current area. Total depth drilled for the three holes was 921 metres. No anomalous copper results were obtained from this drilling but all three holes intercepted anomalous lead and zinc in the Tapley Hill Formation. Maximum values were 680 ppm, 670 ppm and 1180 ppm lead respectively whilst the maximum zinc results were 1540 ppm, 1880 ppm and 2700 ppm. Two of the holes are in the extreme northwest corner of El 2567 with the third being to the south.

In 1976 and 1977 exploration was carried out of an area that was located mainly to the east of the present area of interest but which did cover what is now the southern half of EL2516. The parts of the programme that are within the current tenement are described below.

In mid 1976 three percussion holes were drilled for a total of 512 metres. Geochemically anomalous copper values were returned from all three holes from the Tregolana Shale Member. Highest values for the holes were 850 ppm, 305 ppm and 225 ppm copper respectively. In late 1976 to early 1977 the three holes were deepened by core drilling for a total of around 518 metres. Minor copper mineralisation was noted in hole SAR2 north of Yeltacowie Homestead with the best result being 0.14%.

Down hole radiometric logging was carried out on the three holes in the second half of 1977.

An area was also explored to the northeast of EL2516 during the period late 1976 to late 1978.

One percussion hole from a larger programme drilled in the first half of 1977 was located close to what is now EL2516. The hole was located on Salt Creek near the point where it crosses the EL2516 boundary and went to a depth of 234 metres. Highest results were 1280 ppm copper, 180 ppm lead and 760 ppm zinc from sediments just above probable Pandurra Formation.

Northern Area Exploration 1979 to 1982

From the middle 1970s a large area was explored, the greater part of which was outside the present tenements but a small portion of which is now covered by the eastern fringes of EL2516. Exploration work within what is now EL2516 was confined to the eastern portion of its northern half.

A regional aeromagnetic survey was flown in late 1979. Detailed ground magnetometry and gravity surveys were completed. Two magnetic anomalies were defined namely a circular northern one and a dyke like southern one. No gravity anomaly was present.

The two magnetic anomalies were each tested by a drill hole in 1982. The northern hole HUD1 was precollared to 326 metres with a diamond tail to 483 metres. The southern hole HUD2 was drilled to around 396 metres with two short lengths of core drilling aggregating 1.7 metres. Both holes reached a basement of dacitic volcanic rocks containing magnetite. No elevated values were returned on analysis.

Central Area Exploration 1979 to 1987

Another explorer took over exploration of the area in 1979. Between late 1979 and late 1987 exploration was carried out over an area that is now covered by EL2639, EL2099 and the western half of EL2567 as well as extending to the east and west of the presently tenemented area.

Both core and percussion holes were drilled during this period. Much of the drilling was to relatively shallow depths but 12 deep stratigraphic core holes were drilled to test the basement for Olympic Dam style mineralisation. Total drilling during the period was at least 140 holes for 25 721 metres of which approximately one third was core drilling mainly in the deep stratigraphic holes and the balance was rotary percussion and open hole drilling. In the following account of exploration activities the shallow drilling is considered first, then the deep stratigraphic holes and finally other exploration activities although there was a time overlap between the various aspects of the programmes.

Shallow Drilling

Three stratigraphic percussion holes were drilled on the western shore of Lake Windabout in early 1982. Elevated lead results were returned by two of the holes with the highest values being 2400 ppm and 3300 ppm respectively. In mid 1982 a further 7 holes were drilled in the area. The best result was 3600 ppm copper in Tregolana Shale from one hole.

A 28 hole diamond drill programme for 2098 metres was carried out in the Lake Windabout area over the 1983 to 1984 period. The work was follow up to preliminary ground magnetic surveys and an auger sampling programme of Lake Windabout lake sediments. Chalcocite mineralisation was encountered in two drill holes at the top of the Whyalla Sandstone beneath capping Tregolana Shale. The best intersection returned was 0.37% copper over 6 metres from 50 to 56 metres. Geochemically anomalous intersections in the Tapley Hill Formation occurred in one hole with elevated levels of up to 550 ppm copper being returned. Subsequent percussion drilling for 4018 metres during 1983/1984 in the Lucas Hill – Lake Windabout area was unsuccessful in locating new copper mineralisation. Shallow percussion drilling was carried out in the same area in 1985.

In late 1979 to early 1980 a total of 16 percussion holes were drilled in the Elizabeth Creek area. Geochemically anomalous results were obtained from six holes. In the second half of 1980 a 17 hole programme was carried out. Tapley Hill Formation was intersected in a hole near the eastern edge of Lake Windabout. Geochemically anomalous results were obtained in Tregolana Shale from six holes and from Pandurra Formation in three holes. In the second half of 1981 a 15 hole programme was completed in the Elizabeth Creek area. Anomalous base metal results were returned from some of these holes with the highest being 2420 ppm copper in Tregolana Shale.

In 1984 metallurgical drilling of 11 diamond holes for around 381 metres was carried out over the MG14 copper resource.

Other drilling during 1984 related to evaluation drilling to expand reserves and test conductivity anomalies at the Main Open Cut and Cattle Grid deposits.

In the northern part of the Oakden Hills area an 11 hole drilling programme was completed in late 1979 to early 1980. More than half of these holes were to the west of what is now EL2099. Elevated results were obtained in 3 holes one of which lay within the present tenements to the southwest of Bellamy Wells. The highest copper content was 770 ppm. Further drilling of 11 holes was completed in the second half of 1980 but the greater part of this programme was west of the present tenemented area. The two holes within the current tenements both intersected Tapley Hill Formation being northwest and southwest of Bellamy Wells: the latter hole gave a maximum value of 1900 ppm copper.

In late 1979 a ten hole rotary percussion drilling programme was completed in the Bookaloo area for a total of 1218 metres. Results were not generally anomalous although sporadic elevated results were obtained of up to 900 ppm copper.

Deep Drilling

The following deep stratigraphic holes were drilled mainly in the Elizabeth Creek area to test the basement in the northern part of EL2639. The locations of these holes are shown in Figure 11. A deep stratigraphic hole EC21 was drilled in the southern part of the Elizabeth Creek area in 1980. A precollar of some 386 metres was followed by core drilling down to 1002 metres. The hole passed through the base of the Pandurra Formation at 521 metres and then in to basement sediments and volcanics finishing in a brecciated granite. A later examination of the core by R.N.Smith in 1998 for Stuart brought out the similarities in the styles of alteration with that at Olympic Dam, in particular the ferruginous alteration of the volcanics and the barite and fluorite veining of the granitic breccia. From the sampling at the time the hole was drilled the highest copper value was 870 ppm from a split core sample.

The second deep stratigraphic core hole PY1 was drilled in early 1981 on the western shore of Pernatty Lagoon south of Gunyah Lake. It was located on a gravity anomaly high. Final depth was around 1293 metres. An Upper Proterozoic sedimentary sequence was intersected underlain by a basement volcanic sequence from 680 metres. No anomalously high results were returned.

Also in early 1981 a third deep stratigraphic hole PY2 was drilled northeast of Gunyah Lake on a northeast trending magnetic low between two magnetic highs. This also penetrated Pandurra Formation and ended in a basement volcanic sequence from 565 metres finishing short of the target depth at around 927 metres. Analytical results were generally low with the highest copper value being 740 ppm.

In 1981/82 a fourth deep core hole PY3 was drilled north of Gunyah Lake. This hole was precollared to 492 metres then core drilled to around 1288 metres. After passing through Pandurra Formation the hole entered a highly altered basement volcanic sequence with magnetite at 664 metres. Low grade chalcopyrite mineralisation was present below 1000 metres for a 250 metre depth interval with the best result from a 2 metre sample being 0.67% copper. A strong correlation was observed between alteration, magnetite content and elevated copper values.

In late 1981 a fifth deep hole EC40 was drilled north of Pernatty Lagoon. The hole was precollared then core drilled from 379 to 596 metres. The sequence was Upper Proterozoic sediments with weakly altered dolerite below 362 metres. No elevated geochemical results were obtained.

Around the same time a sixth hole was drilled to the north in the upper part of Elizabeth Creek. Core drilling of EC47 was carried out from 199 to around 371 metres. The hole passed through Upper Proterozoic sediments in to granite at 178 metres. No anomalous values were intersected.

A seventh deep stratigraphic hole BM1 was drilled northwest of the Cattle Grid deposit in early 1982. The precollar passed through an Upper Proterozoic sedimentary sequence including mineralised Tapley Hill Formation with up to 3300 ppm lead over 6 metres. Core drilling was carried out from 400 metres depth down to 700 metres. The hole bottomed in Pandurra Formation.

In late 1982 the eighth deep stratigraphic hole PY4 was drilled in the north central part of Pernatty Lagoon and reached a depth of 1015 metres after entering the basement at 563 metres. The hole intersected 600 ppm copper at the Tapley Hill Formation – Pandurra Formation disconformity at around 45 metres depth. Within the basement volcanic sequence the highest copper analysis of 800 ppm occurred in acid pyroclastics at 850 metres. Elevated zinc of up to 600 ppm was encountered from 674 to 832 metres in mafic volcanics.

The final four deep core holes were drilled to investigate the interpreted structure in the Elizabeth Creek area.

As a result of work including gravity, ground magnetometry and CSAMT surveys that are described below the structure in the Elizabeth Creek area was interpreted as



Figure 11: Mount Gunson Project Drill Holes to Basement in the Elizabeth Creek – Mount Gunson Area This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000

comprising the northnortheast trending Cattle Grid Fault approximately aligned with the Elizabeth Creek drainage, the northnorthwest trending Elizabeth Creek Fault crossing the first fault in the lower reaches of Elizabeth Creek, a basement high aligned with and on the eastern side of the Cattle Grid Fault and a half graben structure to the west of the Elizabeth Creek Fault.

Four core holes were sited and drilled in 1986 to test the interpreted structure and the geophysical anomalies. The holes were located on a gravity anomaly along Elizabeth Creek, on a CSAMT anomaly associated with the northerly trending Kyilla Fault to the east, in the postulated graben structure to the west and well to the east near the northern end of Pernatty Lagoon to test a gravity anomaly.

The first of these and the ninth deep stratigraphic hole PY5 went to a total depth of around 324 metres of which some 219 metres were an open hole precollar and the balance diamond core drilling. The hole passed through Upper Proterozoic sediments and then in to fractured and hematite veined granite at some 297 metres.

Hole PY6 was the tenth of the series and was designed to test the CSAMT anomaly. It was drilled to some 274 metres of which around 195 metres were precollar with the balance being core drilled. This hole also passed through Upper Proterozoic sediments in to granite at 186 metres. Although the granite was altered and enriched in hematite this was less intense than in the previous hole.

The eleventh hole PY7 that was intended to test the graben structure was drilled to 700 metres. The first 262 metres were open hole precollar and the remainder of the hole was cored. Upper Proterozoic sediments were encountered throughout the bed rock sequence and the hole bottomed in Pandurra Formation. Samples from part of the Pandurra Formation were analysed but no elevated results were encountered.

At the gravity anomaly in the east the twelfth hole PY8 was precollared to some 185 metres depth with the diamond core tail going to around 575 metres. This hole passed through Upper Proterozoic sediments then in to dolerite at 478 metres, a breccia at 540 metres and metasediments at 549 metres. Elevated base metal values were encountered at the Tregolana Shale-Whyalla Sandstone and Whyalla Sandstone-Tapley Hill Formation contacts, near the base of the Tapley Hill Formation and at the contact with the underlying Pandurra Formation. Highest result was 1250 ppm copper, 2100 ppm lead and 1.41% zinc. The copper occurred higher in the sequence than the other two elements. Samples from the dolerite returned up to 370 ppm copper and up to 470 ppm zinc: samples from the metasediments gave elevated copper values up to 1.55% in a 14 metre steeply dipping mineralised zone with an average grade of 1.25% copper just below the contact with the overlying breccia that is intensely altered.

Other Activities

Down hole geophysical logging was completed on the holes PY5 to PY8 plus some earlier ones. Techniques employed comprised gamma ray, density, neutron, resistivity, SP, IP, resistance, chargeability, caliper and temperature. A down hole IP survey was also completed on the last hole.

Relogging of old holes from the 1971/72 period was completed in early 1980.

Ground water samples from drill holes were analysed. Anomalous geochemical results were obtained but no values were considered to be indicative of mineralisation. A similar programme analysing helium and radon as pathfinders for uranium yielded anomalies particularly with regard to drill hole EC21 that in general terms remain unexplained.

In mid 1980 a biogeochemical survey was completed in the area between Square Lake and the power line. In all 184 samples were collected on a 500 metre by 500 metre grid. No anomalies were defined.

Around the same period rock samples were taken from the large island in the centre of Lake Windabout, from small islands near its eastern boundary and from the vicinity of North Boundary Lake. No elevated base metal results were returned on analysis of eleven samples. Barite veins were observed in Pandurra Formation in the small islands.

In mid 1982 a geochemical survey was completed around the island in Lake Windabout. In all 112 bedrock samples were taken by auger. Results were reportedly low.

Magnetic susceptibility measurements were carried out on drill hole samples and seismic velocity tests were carried out on core as were relative density determinations. Down hole seismic surveys were also completed on two of the deep core holes.

Gravity surveying was continued from 1979 to 1980 over the area covering the northern half of Pernatty Lagoon and the adjacent shore. A further gravity and magnetic survey was completed in 1982 over part of the southern half of Pernatty Lagoon and the adjacent area.

Seismic surveying was carried out in the 1979/80 period at locations within the area covered by the earlier gravity survey.

Trials of the CSAMT survey technique were completed in 1985 over the Elizabeth Creek fault area but not continued although the trial demonstrated the usefulness of the technique in detecting burled structures. Interpretation of published airborne magnetic data in 1985 presented problems due to the discovery of serious plotting errors on the contoured plans. This necessitated reprocessing of aeromagnetic data from both the Lake Torrens and Andamooka Sheets.

A photogeological study was carried out in the 1981/82 period.

Petrological studies were carried out on core samples on a continuing basis.

In 1984 a trial of the applicability of thermoluminescence for cored drill holes was undertaken. This study was later abandoned as the results obtained were judged not materially to advance geological understanding.

In the later stages of the exploration a major assessment was undertaken on the results generated. Initiatives included the creation of a drill hole database of Stuart Shelf drill holes, the commencement of a lithogeochemical study of basement drill hole samples, an overview of copper mineralisation of the Stuart Shelf and a review of geophysical results.

Central Area Exploration 1987 to 1993

From early 1987 to mid 1993 exploration was carried out on an area that is now covered by the present EL2639 and the northern part of EL2099. From early 1991, work was carried out by Ore Reserve Evaluation Services on behalf of the explorer.

Work during the period concentrated on two aspects of the area namely detailed exploration of known deposits and more regional exploration of other targets. In this account the detailed work is considered before the second aspect is covered although there is a time overlap between the two activities.

Detailed drilling was carried out on the Cattle Grid, Gunyot, House, Core Shed, Railway Carriage and Plateau deposits and on the tailings from previous mining operations. Precise positions of the last three deposits are not known. Limited reconnaissance drilling was also carried out. Between early 1987 and early 1990 a total of 834 holes were drilled on these deposits that either are located on excised portions of the present tenements or were the subject of subsequent mining operations. In all at least 7958 metres were drilled. Both core and RAB drilling are known to have been carried out but the technique for much of this drilling is not recorded.

As a result of this work the resources for the deposits examined were reported as:

Cattle Grid	380 000 tonnes at 0.43%	copper
Gunyot	33 000 tonnes at 2.4%	copper
House	21 000 tonnes at 1.1%	copper
House East	150 000 tonnes at 1.5%	copper
Core Shed	30 000 tonnes at 1.3%	copper
Railway Carriage	6 000 tonnes at 1.2%	copper
Plateau	48 000 tonnes at 1.3%	copper
Total	668 000 tonnes at 1.0%	copper

Where recorded the cut off grade applied was 0.3% copper and where categorised the materials were classified as Measured Resources.

Systematic drilling was also carried out on the MG14 deposit from early 1989 to late 1990. Total drilling comprised 97 holes for 3279 metres of core and non core drilling. In addition in the second half of 1990 a two hole large diameter coring programme was carried out to obtain samples for metallurgical test work. Around 62 metres of drilling were completed of which 44 metres was precollar and the balance 8 inch coring.

Metallurgical test work was initiated on MG14 material in mid 1989 and continued until early 1991.

A vegetation survey was completed over the MG14 area in mid 1990.

A resource estimate was prepared for the MG14 deposit in the second half of 1990. The resource was estimated using an inverse distance cubed weighting applied to a seam model based on a 0.5% copper cut-off plus upper and lower dilution of 0.3 metres and 0.5 metres respectively. Search distances were 60 metres, 60 metres and 10 metres. Maximum block size was 10 metres by 10 metres by 2.5 metres. The resource was estimated at a bulk relative density of 2.5 as:

1.5 million tonnes at 1.5% copper, 19 g/t silver and 0.43% cobalt.

No resource category was assigned to this material. The resource estimate was used in pit optimisation studies. A feasibility study on the MG14 deposit was completed by early 1991. Bulk densities were determined on core samples.

In addition to the drilling of the various known deposits a series of 40 holes for 708 metres were drilled north, west and south of Pernatty Lagoon to test for shallow oxide copper mineralisation at the Whyalla Sandstone contact with the Pandurra Formation. Results were negative with the highest copper value being 200 ppm. The work was carried out in early 1990.

From 1991, Ore Reserve Evaluation Services carried out regional exploration in the Elizabeth Creek and Powerline Embayment areas. Work comprised geophysics and drilling.

Based upon the results of the earlier drilling the best target in the Elizabeth Creek area was considered to be the intercept point of the Elizabeth Creek and Cattle Grid Faults where there was potential for mineralised breccia. The area is shown in Figure 11.

In late 1991 data from an earlier 1985 CSAMT survey were reprocessed and as a result of this a further CSAMT survey was undertaken over the Elizabeth Creek area.

A single hole PY9 was drilled in early 1992 at a location in the lower part of Elizabeth Creek at the interpreted intersection of the Elizabeth Creek and Cattle Grid Faultswhere there were approximately coincident CSAMT and gravity anomalies. The hole was precollared to 71 metres and cored down to 597 metres. The hole passed through a Proterozoic sedimentary sequence in to granitic basement from 433 metres that was in parts brecciated and hematite veined. No elevated analytical results were obtained from this drilling. Petrographic studies were carried out on selected samples. It was concluded that the gravity anomaly in this area was due to the juxtaposition of granite against lower density Pandurra Formation to the west across the Cattle Grid Fault.

In early 1992 a CSAMT survey was carried out in the Powerline Embayment area to define depth to basement. Hole PY10 was drilled in the area located on a gravity anomaly. Precollar depth was 198 metres with coring being carried out down to 992 metres. An Upper Proterozoic sequence of sediments was penetrated with the hole bottoming in Pandurra Formation. No elevated values resulted from this hole.

Northern Area Exploration by Carpentaria Exploration Company Pty. Ltd and M.I.M. Exploration Pty. Ltd 1983 to 1996

During the period mid 1983 to mid 1991 Carpentaria Exploration Company Pty. Ltd. explored a large area part of which covered much of the present EL2516 in its west and south. From mid 1991 to late 1996 work was carried out by M.I.M. Exploration Pty. Ltd. and was concentrated on what is now the western portion of EL2516.

In mid 1983 a gravity survey was carried out over the present western part of EL2516. Two anomalies were

defined by this work. A detailed gravity survey was subsequently completed in early 1984 over an area in the northwest corner of the present EL2516. A gravity anomaly was defined located some 2 kilometres east of the magnetic anomaly already known in this vicinity.

In the first half of 1984 hole SAE3 was drilled to test the gravity anomaly. A percussion precollar was drilled down to 404 metres with a diamond core tail down to 1221 metres. Beneath the Pandurra Formation hematised shales were encountered with copper mineralisation. The upper of two horizons occurred between 752 and 905 metres. The best mineralisation was in the base of this unit with an 18 metre intercept at 0.7% copper including 4 metres at 1.4% copper and 1 metre at 2.25%. The deeper horizon was between 971 and 1106 metres. Copper contents were generally lower in this horizon with the highest result being 3950 ppm. This mineralisation became known as the Emmie Bluff prospect.

A hole SAR10 was drilled east of Yeltacowie Station near the present eastern boundary of EL2516 in 1985/86. A rotary precollar was drilled to 464 metres for the first hole with a diamond core tail to around 504 metres. A wedged hole was started at around 375 metres and cored down to some 453 metres depth. Both holes passed through the Upper Proterozoic sequence with the main hole bottoming in Pandurra Formation and the wedged hole in possible Beda Volcanics. Elevated copper values were encountered in the Nue Sandstone above the Beda Volcanics with maximum results of 2350 ppm copper at around 400 metres depth.

Anomalous zinc was encountered during the drilling but was attributed to contamination. Anomalous gold was also encountered and a second wedged hole was started at around 146 metres and cored to some 270 metres. No anomalous gold was encountered in the wedged hole and the anomalous gold was attributed to contamination.

Another hole SAE4 was drilled around 800 metres north of the Emmie Bluff discovery hole in the second half of 1987. An initial precollar was abandoned at 91 metres. The second precollar was drilled to 242 metres with diamond coring down to some 1173 metres. This hole also encountered two hematite zones between 784 and 836 metres and 860 to 931 metres. In the case of this hole the deeper horizon returned the higher values. Best intercept from the upper horizon was 14 metres with trace copper and 0.27 ppm gold whereas the lower horizon gave 16 metres at 0.68% copper and 0.21 ppm gold and 20 metres at 0.89% copper and 0.25 ppm gold.

A CSAMT survey was carried out over the present northwest part of EL2516 in the first half of 1988. The survey covered 120 stations on a 200 metre by 500 metre grid. A northwest trending basement structure was interpreted as being present.

The third hole in the Emmie Bluff area SAE5 was drilled in mid 1988 to test the CSAMT anomaly. It was located about 2.4 kilometres northeast of the first hole. A percussion precollar was drilled to around 341 metres with the diamond core tail being drilled to some 914 metres. No mineralisation was encountered with the highest copper result being 1000 ppm. The hole passed through Upper Proterozoic sediments in to dolerite. Modelling of the aeromagnetic data implied that the dolerite was a sill. Petrological studies indicated that the dolerite could be much younger than the sediments it intruded.

Further modelling of the CSAMT data in early 1989 suggested that a conductor to the west of the third hole was within the Pandurra Formation rather than in the basement. A fault zone was also interpreted to be present.

A fourth site at Emmie Bluff was drilled in 1989 between the first and third sites. After two attempts that had to be abandoned the hole SAE6 was precollared to 325 metres with the balance of the hole to 1200 metres being cored. This hole also intersected two hematite bearing horizons between 937 and 952 metres and between 961 and 1006 metres. The shallower horizon returned 1.23% copper overall whilst the deeper horizon intersected mineralisation over lengths from 10 to 26 metres with copper grades ranging from 0.365 to 0.44%. Copper mineralisation was also encountered in the Tapley Hill Formation between 385 and 403 metres depth with the highest result being 2 metres at 1.45% copper with elevated but lower lead and zinc. Elevated barium at several percent levels was intersected at around 942 metres depth. This area of copper mineralisation in the Tapley Hill Formation and the basement rocks below is known collectively as the Emmie Bluff prospect.

Down hole geophysical logging was carried out on many of the holes with the techniques including gamma ray, neutron, SP, resistance, resistivity, caliper, density, temperature and deviation surveys.

Magnetic susceptibility measurements were made on core from the hematite zones.

Ground magnetic and gravity surveys were carried out in the first half of 1990.

Six ground magnetometry surveys were completed of which three were located within the present area. One was over the known Emmie Bluff mineralisation in what is now the northwestern corner of EL2516, a second was further to the east and the last was to the south of that. The first of these areas was also the subject of a gravity survey.

In mid 1990 seven holes were completed with four of them located within the present area. Three of these holes were deepened by coring. Total drilling within EL2516 was some 1957 metres of open hole and 1990 metres of core.

Two of the core holes were drilled southwest and south of the Emmie Bluff mineralisation. Hole SAE7 to the southwest passed through Upper Proterozoic sediments into an altered volcanic and sedimentary rock sequence. Copper contents were very low in the latter and it was considered that this could be attributable to leaching during alteration. The second hole SAE8 also passed through Upper Proterozoic sediments in to Gawler Range Volcanics. Copper values were generally low with the best intersections being up to 1105 ppm over two metres. Elevated copper values were associated with pyrite in shears.

The third core hole SAE10 was drilled in the area of the southernmost ground magnetic survey. The core was of unaltered rhyolite porphyry and analytical results were generally low with the highest value for copper being 0.20% associated with a chalcopyrite filled fracture.

The percussion hole was drilled in the vicinity of the second ground magnetic survey. Virtually the entire hole was in Pandurra Formation. No elevated analyses were encountered.

Petrological work was carried out in early 1991 on samples of mineralised Tapley Hill Formation from an earlier drilling programme plus samples of other rock types.

Subsequent work by M.I.M. Exploration Pty. Ltd. concentrated on the mineralisation in the Tapley Hill Formation of the Emmie Bluff prospect. In the second half of 1991 four core holes with percussion precollars were drilled in the area. Percussion drilling amounted to some 1241 metres with 583 metres of core. Two of the holes were drilled in the centre of the area and two to the northeast. All four holes passed through an Upper Proterozoic sequence and bottomed in Pandurra Formation but Tapley Hill Formation was only present in the two central holes. Mineralisation was encountered in both the latter two holes in the Tapley Hill Formation. The best intersection from the first central area hole was 1.9 metres at 3.38% copper with the best from the other hole being

1.0 metres at 7325 ppm. Elevated lead, zinc, cobalt and silver values were also encountered in the Tapley Hill Formation.

An assessment was undertaken in late 1991 of the Tapley Hill Formation mineralisation at Emmie Bluff prospect on behalf of M.I.M. Exploration Pty. Limited. This study concluded that the grade would need to be higher than those encountered so far in the drilling in order for an underground operation to be viable.

A seismic survey was carried out in mid 1992 over the known mineralised area in order to define the position of the fault bounded western margin of the Tapley Hill Formation palaeo basin. Two holes were drilled in this area. One was percussion hole PEB64 of 401 metres depth whilst the second was hole SAE16 percussion precollared to some 343 metres with a diamond tail to 358 metres. Neither of these holes intercepted Tapley Hill Formation although they bottomed in Pandurra Formation. A third hole SAE17 was drilled to the southeast of the deposit and this intersected Tapley Hill Formation that was mineralised. Best intersection was 3.05 metres at 2.5% copper just below 400 metres depth. The latter hole was precollared to 315 metres with a diamond core tail to some 435 metres.

An aeromagnetic interpretation was completed in mid 1992.

Three further holes SAE18 to SAE20 were drilled in the close vicinity of the previous core hole at the Emmie Bluff prospect in the second half of 1993. Total metres were around 1274 of which 933 metres were percussion precollar and the balance core drilling. All three holes passed through Tapley Hill Formation in to Pandurra Formation and all three intersected elevated copper values. Results from the holes were 6.05 metres at 1.03% copper, 3.65 metres at 0.96% and 3.00 metres at 3.48% all at just below 400 metres depth. The last three holes were logged using gamma ray, neutron, SP, resistance, density, caliper and IP techniques.

A study was completed in early 1995 on the Tapley Hill Formation hosted mineralisation at the Emmie Bluff prospect using an assumed resource of 33 million tonnes. It was concluded that an in situ gracle in the range 3% to 4% copper would be necessary for an underground operation to be viable.

A final two holes SAE21 and SAE22 were drilled at Emmie Bluff in mid 1995 for some 616 metres of percussion precollar and 272 metres of core drilling. Both holes intersected Tapley Hill Formation at around 400 metres and both intersected base metal mineralisation. Best results from the two holes were 0.9 metres at 1.93 % copper and 1.03 metres at 1.24% copper respectively.

Exploration by Stuart 1994 to date

From 1994 to date, Stuart Metals N.L., which originally had the name Cobalt Resources N.L. and in 1999 changed its name to Stuart Petroleum N.L., undertook exploration on much of the present area. The company is referred to in this report as Stuart. Work was completed both by the company directly and by consultants acting on its behalf. In the following account of this exploration work unless the name of a consultancy organisation is given then it was carried out by Stuart directly.

Exploration of Known Mineralisation

Between mid 1994 and mid 1995, exploration was carried out over an area the limits of which coincide with the present tenement EL2639.

During this period RC drilling was carried out on eight targets. In all 157 holes were drilled for 10523 metres. Samples were analysed for copper and cobalt with some also being analysed for silver and gold.

At the Windabout prospect 92 holes were drilled for 7687 metres to follow up earlier drill intersections. The programme delineated a mineralised body within an outlier of the Tapley Hill Formation. The mineralisation is largely confined within a black calcareous shale in a shallow basin structure that dips at shallow angles to the north. Base metal mineralisation is located near the contact with the Pandurra Formation.

Drilling at the Cattle Grid South prospect was on 100 metre by 100 metre centres and comprised 14 holes for 1137 metres of drilling. The work was considered to have largely defined the limits of mineralisation. Based upon the exploration results and other physical limits there was considered to be some 700 000 tonnes of material at 1.7% copper that was later classified as an Inferred Resource.

In the southern part of what is now EL2639 drilling at the Sweet Nell prospect comprised 20 RC holes for a total of 222 metres. A thin zone of shallow mineralisation in the Tapley Hill Formation was intersected which was considered to be open to the south and east beneath Ironstone Lagoon. The resource which was later categorised as an Inferred Resource was estimated as 350 000 tonnes at 1.2% copper.

The Gully prospect drilling comprised 19 holes for 445 metres and is located within the excised tenements. Some 300 000 to 400 000 tonnes of material were considered to exist at a grade of 1.4% copper.

RC drilling at the Canegrass prospect comprised 8 holes for 493 metres. No results greater than 1% copper were obtained although three holes to the southwest of the Windabout deposit all had elevated copper contents with the highest values being 6700 ppm, 2450 ppm and 8500 ppm copper all at depths of around 50 metres.

At the Lake Windabout prospect one of the 2 holes drilled for 192 metres intersected 2 metres at 5000 ppm copper with associated high cobalt of 320 ppm.

Two holes were also drilled at the North Boundary Lake prospect for a total of 161 metres without intersecting the Tapley Hill Formation and without any significant analytical results.

The remaining 4 holes were drilled at Birthday prospect for 187 metres. These holes intersected Tapley Hill Formation: the highest result was 3100 ppm copper with 200 ppm cobalt over a 1 metre interval.

During the 1994/95 period a RAB drilling programme was carried out at the tailings dams and on the West Lagoon deposit. Drilling at the tailings dams comprised 43 holes for 360 metres and confirmed the grades in the dams as being in the ranges 0.15% to 0.17% copper and 0.009% to 0.021% cobalt. The West Lagoon holes which totalled 9 for 46 metres returned a maximum intercept of 4600 ppm copper.

Based upon the then current and earlier drilling, a geostatistical resource estimate was prepared by F.J. Hughes and Associates for the Windabout deposit. Down hole variograms were prepared and used to estimate the nugget effect. Horizontal variograms were also prepared. Grades were interpolated to a block model using median indicator kriging. Block size was 50 metres by 50 metres by 1 metre. An in situ bulk relative density of 2.5 was applied. At a 0.5% copper cut off the Indicated Resource was found to be 10.3 million tonnes at 0.94% copper and 0.059% cobalt. A polygonal estimate on sections was also prepared. At the same 0.5% cut off the estimate was 12.08 million tonnes at 0.92% copper and 0.066% cobalt.

The resource estimate was reviewed by Snowden Associates Pty Ltd and found acceptable being categorised as an Indicated Resource.

Mineralogical and metallurgical studies were completed on the Windabout deposit during this period.

Between mid 1995 and mid 1996 further exploration was carried out over the area that is now covered by EL2639.

Drilling continued at the Windabout prospect where 88 holes were completed for a total of some 6082 metres of RC drilling and 139.6 metres of NQ core drilling. The coring was carried out in twelve holes that had RC precollars.

RC drilling was also carried out at the MG14 prospect where 10 holes were completed for around 217 metres. Elevated copper values were obtained from four of these holes with the highest result from each being 1.00%, 0.99%, 1.73% and 2.00% copper generally with associated high cobalt results.

Additional drilling was carried out at the Windabout, MG14 and Sweet Nell prospects in order to obtain geotechnical data. The program consisted of 15 holes for a total of some 617 metres of HQ3 core drilling plus some 271 metres of precollar drilling in four of the holes. No samples were taken for analysis from this drilling.

Geotechnical and metallurgical studies were also completed at that time.

During the same 1995/96 period other exploration activities consisted of the acquisition of aeromagnetic data over what are now EL2639 and EL2099 and a preliminary interpretation of the results.

The resource prepared earlier for the Windabout deposit was updated twice by F.J.Hughes and Associates during this time and incorporated the additional drilling. The same methodology was used as previously but an in situ bulk relative density of 2.65 was adopted. On this basis the geostatistical resource was stated as being 18.75 million tonnes at 0.96% copper and 0.05% cobalt at a cut off of 0.5% copper. The material was classified as an Indicated Resource.

A preliminary Feasibility Study was completed by the middle of 1996 that considered the updated Windabout resource and the MG14 resource.

At the MG14 deposit the resource estimate was based upon earlier drilling on 100 metre and 200 metre centres. Using a manual cross sectional method with a 0.5% cut off and a minimum mining thickness of 1 metre the resource was estimated as 1.1 million tonnes at 1.7% copper. As noted earlier in this report a resource estimate was also prepared in 1990 using an inverse distance cubed weighting methodology and that incorporated a certain amount of dilution.

In the second half of 1997 the MG14 resource was reconsidered by Ore Reserve Evaluation Services on behalf of Stuart. The resource estimate was prepared using the existing drill hole database. The methodology was to circumscribe the mineralised volume using a 0.5% copper cut off in conjunction with an internal waste constraint. The volume was based upon the 2 metre-% contour. An inverse distance squared weighting was used for grade interpolation to resource prisms. An in situ relative density of 2.5 was applied. Based upon this methodology the Indicated Resource was found to be 1.1 million tonnes at 1.7% copper and 0.04% cobalt.

Regional Exploration

Stuart changed its strategy in 1997 to focus on exploration for large copper deposits using a systematic regional geochemical approach supported by other exploration techniques.

An orientation calcrete geochemistry survey was undertaken in early 1997 by Searchtech Pty Ltd in what are now EL2639 and EL2099. A total of 101 sites were sampled at 100 or 200 metre intervals on seven traverses in areas with transported overburden covering both known mineralisation and in other locations. The orientation lines were in the MG14, Windabout, Elizabeth Creek and Bookaloo areas. Samples were analysed for a suite of 19 elements.

In mid 1997 a second orientation regolith geochemical survey was carried out by the Cooperative Research Centre for Landscape Evolution & Mineral Exploration at the Cattle Grid open pit and at the Windabout prospect. Samples were analysed for a suite of 15 elements by ICP, submitted for X-ray diffraction analysis and subjected to six different selective extraction procedures. From the point of view of exploration of the area, a significant result was elevated cobalt values of greater than 50 ppm in near surface soils.

Subsequently in mid 1997 a systematic calcrete geochemical survey was initiated over what are now EL2099 and EL2639 as well as a small area to the west that is not covered by the present tenements. Samples were taken on a 800 metre by 1600 metre grid with the programme involving 1949 sample sites over an aggregate 1588 line kilometres.

A follow up phase of calcrete geochemistry was carried out between late 1997 and early 1998 on a 400 metre by 800 metre grid over areas with coherent anomalies. The parts of the present tenements covered were west of Lake Windabout, between Lake Windabout and Pernatty Lagoon, north of Pernatty Lagoon, between Lake Dutton and Pernatty Lagoon and over much of the southern half of the present EL2099. In all 1732 sites were sampled of which the great majority were within the current area.

Infill calcrete geochemistry on a 200 metre by 200 metre grid was commenced in early 1998 over the most favourable areas. The results from this work defined several target areas for a drilling programme carried out in the second half of 1998 that is described below.

Due to concerns over poor development of calcrete in parts of the area an orientation partial digest soils geochemistry programme was undertaken by Searchtech Pty Ltd. Samples were taken at 400 metre intervals on six lines in areas with anomalous calcrete results. The samples were from 0.1 to 0.2 metres depth and sieved in the field at 80 mesh. Dilute hydrochloric acid was used for the partial digest. The technique was found to give enhanced anomalies when compared to the calcrete geochemical programme.

Systematic partial digest geochemistry was undertaken in the first half of 1998 over eight areas delineated from the calcrete geochemistry. Samples were taken on a 200 metre by 200 metre grid with 3668 samples being collected in all. Analyses were carried out for a suite of 16 elements.

Subsequently in 1999 Stuart had partial metal digest geochemistry carried out on samples taken in 1998 as is described in the next section of this report. No clear anomaly was discernable but to ensure that coverage extended beyond the known mineralisation in to areas with background geochemistry, the line was extended to 10 kilometres and resampled. Again no anomaly was apparent and it was concluded that this technique was not appropriate to the 400 metre depth of cover at this prospect.

In late 1998 and early 1999 a partial digest methodology was developed which gave an anomaly over the blind mineralisation of the Windabout prospect. Subsequently in early 1999 five lines were sampled at the Monalena, Emmie Bluff and Winniepinnie prospects. In all 86 samples were taken from depths of 0.1 to 0.2 metres. The screened samples were subjected to a proprietary partial leach and analysed. Credible copper and cobalt anomalies were obtained at the Monalena and Winniepinnie prospects. No such anomalies were discernible at Emmie Bluff where the depth of overburden is some 400 metres. This thickness of cover is considered to be beyond the capabilities of present techniques. Following on an orientation programme, systematic partial extraction soil geochemistry was undertaken in the Bowen Hill area of EL2567. Several anomalous areas were outlined.

From mid 1997 to the present, a hydrogeochemistry programme has been carried out. In all more than 70 water samples have been taken from old holes predominantly within what is now EL2639 but also within EL2099 and EL2516. Samples were analysed for a suite of elements and chemical species. Elevated copper results were obtained from the vicinity of the Cattle Grid deposit but others occurred north of Gunyah Lagoon and north of Pernatty Lagoon in the Elizabeth Creek area. A cluster of anomalous gold results occurred near the junction of the Gunson access road with the Stuart Highway and also in the Elizabeth Creek area. Anomalous results were also obtained in the Winniepinnie area.

Interpretation of geophysical data was undertaken during the 1997/98 period by Southern Geoscience Consultants on behalf of Stuart. This work utilised airborne magnetic and radiometric data and gravity data all of which had been acquired earlier. The radiometry was not considered to add materially to the understanding of the geology but the gravity data assisted in the interpretation of the basement geology. From the interpretation of the magnetic data sixteen targets were generated which represented possible strata bound base metal prospects, possible alteration or intrusive or breccia zones and possible structurally controlled gold mineralisation. Twelve of these targets lay wholly or partially within the present tenements.

Later on in 1997 a more detailed interpretation was carried out on the Elizabeth Creek area in the northeast of EL2639. The interpretation was carried out using gravity and aeromagnetic data. The study resulted in the recognition of a gravity anomaly in the vicinity of a geochemical anomaly near Lunar Dam and also in the better definition of the Cattle Grid Fault.

The regional interpretation was extended in mid 1998 to cover EL2516 that had been granted to Stuart in May of that year. The eastern part of the area was interpreted as being underlain by relatively shallow basement whereas in the west the basement was deeper but with magnetic anomalies being present. A number of targets were defined but the depth of cover was generally considered high.

Also in mid 1998 geophysical surveys were carried out at the Elizabeth Creek area in the north of the present EL2639 and at Winniepinnie in the southwestern part of EL2099. At Elizabeth Creek limited gravity and TEM surveys were completed. The gravity survey gave a better definition of the known gravity anomaly near Lunar Dam. The TEM survey gave rise to the recognition of a northnortheast trending conductor at Emu Bluff prospect originally interpreted as being within the basement. Down hole TEM completed on core hole MGD2 drilled in 1998 that is considered below resulted in the conductor being reinterpreted as within the Adelaidean sequence. At Winniepinnie a TEM survey delineated a conductive high that was the subject of subsequent drilling.

During the 1997/98 period core from two old holes that had intersected the basement in the Elizabeth Creek area were sampled and analysed for gold, silver and arsenic. This core had not previously been sampled. Some weakly elevated results were obtained.

A scoping study was carried out on the Emmie Bluff deposit in 1998 to verify the assumptions and cost estimates of an earlier prefeasibility study.

In the second half of 1998 a 22 hole drilling programme was completed. Four of these holes were diamond core holes and of the total of some 1502 metres approximately 674 metres were core drilling with the balance being precollars. One hole was drilled at the Emmie Bluff prospect in EL2516; another was located at the Emu Bluff prospect within the Elizabeth Creek area; and the final two were at the Lunar Dam prospect also in the Elizabeth Creek area. The locations of the latter three holes are shown on Figure 11.

Hole MGD1 at Emmie Bluff was intended to test for extensions to the known Upper Proterozoic mineralisation. The Tapley Hill Formation was however not present and only minor base metal values were present in the Whyalla Sandstone immediately above the Pandurra Formation. The highest result was 62 ppm lead and 190 ppm zinc. Down hole geophysics was also carried out on this hole but without positive results.

At Emu Bluff core hole MGD2 was drilled on a basement ridge where a geochemical anomaly and an interpreted TEM conductor were located. Granitic basement was intersected at shallow depth with no Pandurra Formation being present. No significant mineralisation was encountered. Elevated copper up to 155 ppm was intersected in the near surface and it was considered that this zone could be responsible for the geochemical anomaly.

The two core holes MGD4 and MGD5 at Lunar Dam were drilled to test a coincident soil geochemical anomaly and gravity anomaly. Both holes passed from Whyalla Sandstone in to basement without the Pandurra Formation being present. In one hole elevated base metal values up to 540 ppm copper with associated lead and zinc values of 290 ppm and 800 ppm respectively were encountered within the Whyalla Sandstone. The second hole returned a peak value of 1080 ppm zinc from the basement in a section with elevated zinc content.

Seventeen RC holes were drilled for an aggregate drilling depth of 572 metres. Six of these holes were at the Monalena prospect in the southern part of the present EL2639 and eleven were at the Winniepinnie prospect in EL2099.

At Monalena the holes were intended to test a broad geochemical anomaly. The eastern three holes intersected anomalous copper values of up to 8300 ppm in Woocalla Dolomite with associated elevated lead and zinc.

The nine hole RC drilling programme at Winniepinnie demonstrated that the geochemical anomaly was due to the presence of subcropping Tapley Hill Formation shales with elevated base metal contents probably enhanced by weathering. The highest results from the drilling were 1700 ppm copper, 12 000 ppm lead, 10 600 ppm zinc and 255 ppm cobalt. To the north and west the shales occur beneath Whyalla Sandstone and this area is considered to be prospective for future exploration.

One percussion hole was drilled for water supply.

Petrographic studies were carried out on the cores and geochronological studies were carried out on granitic basement rocks intersected in the holes. The age of the granitic rocks intersected near Lunar Dam in the Elizabeth Creek area was shown to be about 1.85 billion years.

In late 1998 a resource estimate was carried out by Hamish Paterson & Associates Pty Ltd on the Tapley Hill Formation mineralisation at the Emmie Bluff target as an update of an earlier approximate calculation. The resource was estimated using a polygonal method. Lower cut-off adopted was 0.5% copper and a minimum thickness of 2.5 metres was used. In situ bulk relative density appears to have been taken as 2.6. Based upon this work the Inferred Resource was estimated to be 25 million tonnes at 1.3% copper. A small proportion of this resource is outside the present tenement and it was considered that the resource within the current area is 24 million tonnes at 1.3% copper.

Down hole TEM was carried out in 1998 on MGD1 and MGD2 drilled at Emmie Bluff and Emu Bluff targets respectively. The response at Emmie Bluff was consistent with the known mineralisation. At Emu Bluff no response was detected probably due to distance from the target and lack of contrast with the host rock. The interpretation was

completed by Fullagar Geophysics Pty Ltd. The same organisation also modelled gravity data at Lunar Dam.

With the additional data generated by the programmes, modelling was undertaken on the prospects during 1999.

Fullagar Geophysics Pty Ltd carried out modelling of an area covering EL 2516 and the northern part of EL2639. The main focus of attention was a northnortheast trending shallow basement ridge. The three dimensional model was based on gravity and magnetic survey data as well as rock densities and the stratigraphic intercepts of drill holes. The available geophysical data were considered to be permissive for the postulated presence of an iron oxide hosted base metal – gold deposit. Two target areas were defined, one in the northeastern corner of EL2639 near Bottle Hill and the second in the northeastern corner of EL2516.

Modelling of a number of areas within the tenements was undertaken during 1999 by Adelaide Mining Geophysics Pty Ltd. In some instances the methodology involved computer simulation considering both magnetic and gravity data simultaneously whilst in other cases only one type of data was considered.

The Emmie Bluff area was modelled from magnetic and gravity data in early 1999. From this work three plug like bodies with mafic intrusive style properties were interpreted as plunging at a high angle to the northwest. A dense body with no magnetic susceptibility was considered to be present to the east flanked to the south by a magnetic dense body.

In early 1999 using gravity data an assessment was made of the effects of adopting different density corrections for an area covering the northeast corner of EL2639 and the adjacent portions of EL2516. Two gravity lows over topographic highs largely disappeared when the correction calculations used a density that was considered to be closer to the actual density of the hills. A gravity low to the east and a gravity high to the south, both on relatively flat ground, were largely unaffected by variations in the density corrections adopted. Further processing in late 1999 and early 2000 revealed a northwest trending residual gravity anomaly that was considered to coincide with a weak but similar residual magnetic anomaly as well as with elevated concentrations of copper in soils.

Modelling of the Yeltacowie area in the southern part of the area previously studied and which straddles the border of EL2639 and EL2516 near Yeltacowie Station was carried out by Adelaide Mining Geophysics Pty Ltd in early 1999. The three dimensional model based on magnetic and gravity data was considered to indicate a body at some 450 metres depth with a density higher than the host rocks.

In mid 1999 a study was carried out on the gravity and magnetic data for EL2567 to assess the depths to the tops of magnetic sources in the area. Depth estimates ranged from 100 metres to more than 600 metres.

In late 1999 following the collection of ground gravity data on EL2567, EL2639 and EL2516 an interpretation using these data and existing aeromagnetic data was carried out. As a result of this work nine anomalies were delineated that were considered not to be artifacts of the data processing. The distribution of the anomalies indicated a northnorthwest trend.

Further work by Adelaide Mining Geophysics Pty Ltd comprised an interpretation in late 1999 of gravity data from a survey for the Hunter Hill area in the northeastern part of EL2516. Anomalies generated by earlier work were down rated by the later interpretation. In the central part of the area covered, however, a northerly trending residual magnetic low was interpreted as magnetite destruction along a fault. Associated with the low were two residual gravity highs the more northerly of which coincides with the interpreted northern extension of the Cattle Grid Fault.

Elsewhere two eastnortheast trending residual magnetic highs have residual gravity highs at their western end.

Around the same time reprocessing was undertaken on gravity and magnetic data covering the Yeltacowie area in the northeastern part of EL2639. At Yeltacowie there was considered to be a robust gravity high coincident with a slight local weakening in the magnetisation. Both the gravity and magnetic data suggest a target with a northwest trend. Further west a northnortheast trending gravity high was defined approximately coincident with Elizabeth Creek. The southern part of this anomaly coincided with a residual magnetic low. The location is referred to as Kialla Dam.

Further modelling of the Kialla Dam target magnetic data was undertaken at the end of 1999. Depth to the magnetic sources was considered to be around 500 metres.

In early 2000 the effect of using different Bouguer corrections on gravity data was considered for the Hunter Hill area in EL2516.

Northern Area Exploration 1998

During 1998, partial extraction soil geochemistry was undertaken at the Emmie Bluff prospect in the northwest of EL2516. Samples from three traverses were taken at a 100 metre nominal spacing with at least 170 sites being sampled. A suite of 28 elements was determined. Although there was some variability in the data no coherent anomalies were discernible over the known mineralisation at depth.

MINING HISTORY

Copper deposits were discovered in the Mount Gunson area in 1875. From late in the nineteenth century until 1937 mining was carried out intermittently on a small scale. Total production for this period was around 2950 tonnes of dressed ore at 8% to 16% copper. A reverberatory furnace was erected in 1905 and a leaching plant in 1916 but neither operated successfully. During the period 1941 to 1943 mining operations resumed. Some 29 380 tonnes of ore were produced for shipment at an average grade of 3.5% copper.

From 1970 to 1971 mining was carried out mainly from the East Lagoon deposit but also to a limited extent from the West Lagoon and Main Open Cut deposits. Total production is given as 234 000 tonnes at 0.79% copper but other sources give up to 489 000 tonnes. Operations apparently ceased due to low metal prices and technical problems.

Mining at the Cattle Grid deposit commenced in 1974 and continued until 1986. Around 7.5 million tonnes of ore were mined during this period at an average grade of 1.9% copper mainly from the Cattle Grid deposit but with minor amounts from the Main Open Cut deposit.

Following on resource definition exploration that is briefly described in this report, mining of mainly oxide copper was carried out at the Main Open Cut, House and Gunyot deposits. Production commenced in 1987 and up to mid 1994 had amounted to 660 000 tonnes. Currently copper is produced by cementation from heap leaching of tailings and in situ leaching of low grade ore at the Cattle Grid deposit.

The Sweet Nell copper deposits were worked in the 1904 to 1907 period with overall production being around 90 tonnes of ore at 10% to 20% copper. Production from the old mines around Woocalla is reported to have been less than some 450 tonnes.

The manganese deposits at the Manganese Workings east of Pernatty Lagoon were worked intermittently from 1915 to 1949. Total production was around 30872 tonnes at 40% to 55% manganese. The bulk of production came from the 1940 to 1943 period.

PROSPECTIVITY

Broadly speaking there are two types of deposits that constitute targets in the Mount Gunson area. These are the large copper-gold-uranium deposits of the Olympic Dam type that occur in the Proterozoic Gawler Craton basement rocks and the copper-cobalt-silver mineralisation in Proterozoic platform cover rocks that is similar in style and age to the Central African Copper Belt deposits.

In the following account the basement prospects are considered first and then the sedimentary cover deposits.

In summary, however, the intensive exploration of this area over an extended period of time has resulted in a large number of cover sequence and basement targets that well warrant further exploration. The results to date strongly suggest that the area is highly prospective for base metal mineralisation.

Basement Targets

Six basement targets have been defined by Stuart based upon exploration and interpretation work carried out during 1999. The targets are in the general Elizabeth Creek and Hunter Hill areas in the northeastern part of EL2639 and EL2516.

The Yeltacowie target comprises a gravity anomaly coincident with the demagnetised portion of a magnetic unit. This can be interpreted as due to a zone of hematite alteration in a magnetite bearing unit such as is often associated with basement copper-gold mineralisation.

At Bottle Hill there is a gravity low that is also considered may represent hematite alteration. This target is immediately north of hole MGD5 drilled near Lunar Dam in 1998 by Stuart that intersected anomalous zinc values up to 1080 ppm in basement rocks and has a strong uranium hydrogeochemical anomaly.

The third target is at Barber Dam where there is another gravity anomaly to the northeast of a gravity low interpreted as a Hiltaba age granite.

The Kialla Dam target is located close to Elizabeth Creek where a gravity anomaly coincident with a local magnetic low is situated at the southern end of a northnortheast trending magnetic high.

In the Hunter Hill area there are two targets that have gravity highs associated with magnetic lows.

In the northwestern part of EL2516 at the Emmie Bluff prospect three deep core holes drilled during the Carpentaria Exploration Company Pty. Ltd and M.I.M. Exploration Pty. Ltd programmes of the 1987 to 1996 period intersected basement mineralisation. Two hematite altered horizons with associated base metals were intersected between 750 and 1100 metres depth. The upper horizon gave results for copper in the trace to 1.23% range whilst the lower horizon gave 0.4% to 0.68% copper. The mineralisation was present over considerable depth ranges. These holes also intersected below.

Deep stratigraphic hole PY3 that was drilled in 1981/82 intersected copper mineralisation in an altered volcanic sequence with magnetite. The mineralised interval extended from 1000 to 1250 metres depth with the maximum 2 metre sample result being 0.67% copper. This hole is in the same general location as a uranium anomaly returned from the analyses of water samples from drill holes in a programme that was undertaken in the 1970s.

Another deep stratigraphic hole that was drilled in 1986 to the east of Elizabeth Creek and north of Pernatty Lagoon bottomed in basement metasediments. These were mineralised below a breccia with a 14 metre mineralised zone having an average grade of 1.25% copper with the highest value being 1.55%. This hole PY8 also intersected mineralised Upper Proterozoic sediments: this aspect is described below.



Figure 12: Mount Gunson Project Mineral Deposits and Exploration Targets This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000



Figure 12A: Mount Gunson Project Mineral Deposits and Exploration Targets around the Mount Gunson Mining Centre This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000

Cover Sequence Targets

Turning to the deposits of the sedimentary cover sequence there is one point to consider with these. As a general rule many of the sedimentary rocks particularly the shales very often have geochemically elevated base metal contents associated with them. The potentially economic deposits are the higher grade parts of these generally mineralised horizons. The accepted mode of formation of this mineralisation is that it occurred in anaerobic closed or semi-closed depositional basins that are generally elongated as in the case of the MG14 deposit. In this circumstance it can be problematic as to what significance is to be attached to drill hole intersections of a few thousand ppm copper or other base metals. With the lack of surface exposure and the low drilling density an elevated base metal intersection in a drill hole can represent either the mineralised halo of a deposit or a marginally enriched area of a generally sub economic mineralised horizon. A further complication is that it was found that core drilling gave generally higher grade results than open hole drilling in the same material especially for the early work. This was considered to have been due to a combination of contamination and loss of fine material during the open hole drilling.

In these circumstances, in reporting the sedimentary cover sequence prospectivity a possibly low but safe criteria of at least 0.1% copper or other base metal content has been adopted. This criteria has been used even for mineralisation at considerable depth. The general tenor of the type of deposit that can be expected in this geological environment is probably sufficient to support an open cut deposit but not in general an underground operation. Few intercepts of the sedimentary sequence mineralisation were much higher than 2% copper. However, the significance of sedimentary sequence mineralisation may be indirect. It may represent the surface expression of base metals that have been remobilised from a deeper source and may thus be indicative of other mineralisation at depth. Note that the Emmie Bluff basement target area has mineralisation in the overlying Tapley Hill Formation at several hundred metres depth.

Of the large number of sedimentary cover prospects five of them have quantified resources whilst the others are still at the exploration stage.

At the Windabout deposit the mineralisation is confined to the Tapley Hill Formation where it occurs in a black calcareous shale. The resource was quantified in 1995/96 as 18.75 million tonnes at 0.96% copper and 0.05% cobalt and was categorised as an Indicated Resource.

The latest estimate of the MG14 resource was prepared in 1997 and was considered to be 1.1 million tonnes at 1.7% copper and 0.04 ppm cobalt. The mineralisation occurs in the Tapley Hill Formation. It is classified as an Indicated Resource.

The Inferred Resource at the Emmie Bluff deposit within the Tapley Hill Formation was estimated in 1998 by Hamish Paterson & Associates Pty Ltd as 24 million tonnes at 1.3% copper.

As a result of drilling at the Cattle Grid South deposit in 1994/95 period a resource of 700 000 tonnes at 1.7% copper was estimated to be present. The resource was categorised as an Inferred Resource.

Drilling in the Sweet Nell area by Stuart in 1994/95 resulted in the estimation of an Inferred Resource of 350 000 tonnes at 1.2% copper. The mineralisation occurs in the Tapley Hill Formation and was considered to be open to the south and east. It is worth noting that mud geochemical sampling in Ironstone Lagoon gave anomalous results in this area in mid 1972: the locations were immediately and well to the east of the Sweet Nell workings. A 1966 biogeochemical anomaly is also located east of Sweet Nell.

Considering next the sedimentary sequence targets for which no resource has been quantified these number more

than thirty and are described below in approximately north to south order across the property.

At Elizabeth Dam to the west of Emmie Bluff in the eastern part of EL2516 a hole drilled in 1975 intersected up to 2430 ppm copper.

In the upper part of Elizabeth Creek in the east central area of the northern portion of EL2516 a hole drilled by Carpentaria Exploration Company Pty. Ltd in 1990 intersected up to 0.20% copper.

A series of holes in the Elizabeth Creek area drilled in 1981 reportedly returned up to 2420 ppm copper but precise locations are not known.

Deep stratigraphic hole PY8 to the east of Elizabeth Creek intersected mineralised Upper Proterozoic sediments. The best copper intersection was 1250 ppm with the other base metals being up to 2100 ppm lead and 1.41% zinc at greater depths.

Near Yeltacowie Creek in the southeast part of EL2516 a hole drilled by Carpentaria Exploration Company Pty. Ltd in 1985/86 intersected up to 2350 ppm copper at depths of around 400 metres.

Although just outside the present EL2516 area, it is worth recording that a hole drilled in 1977 intersected up to 1280 ppm copper. The location is southeast of Hunter Hill on Salt Creek in the indentation to the EL2516 boundary.

Up to 0.15% copper was intersected in a hole northwest of Yeltacowie Homestead and east of Sherrys Dam. The drilling was carried out in 1976/77.

West of Lake Windabout three holes from a 1982 drilling programme intersected elevated base metal results from south to north of up to 3300 ppm copper, 2400 ppm lead and 3300 ppm lead respectively. A hole from a subsequent programme in 1983/84 to the east of the first drill hole and within Lake Windabout gave up to 0.37% copper. Later drilling by Stuart in 1994/95 on the eastern shore of Lake Windabout gave up to 5000 ppm copper in one of two holes.

West of the Windabout deposit with its quantified resource a hole drilled in 1978 intersected up to 2250 ppm copper.

Drilling in the 1977 to 1978 period gave eight holes with elevated copper values at a location south of the Windabout deposit. The best intersection was 2 metres at 4.18% copper. Another hole a short distance to the west intersected up to 1600 ppm copper. Later drilling by Stuart in this area gave three holes all with elevated copper results with the highest being 8500 ppm copper.

Stuart drilled at the West Lagoon deposit in 1994/95. The RAB holes intersected up to 4600 ppm copper.

The BM1 deep stratigraphic core hole drilled in 1982 and located around one kilometre southeast of the Mt Gunson hill intersected up to 3300 ppm lead in Tapley Hill Formation at relatively shallow depth.

A biogeochemical anomaly south of the airstrip was drilled in 1967. Two holes gave best results of 1.04% and 0.69% copper respectively.

Drilling within Pernatty Lagoon in 1971/72 reportedly intersected 1% copper mineralisation but the precise location does not appear to be extant.

A number of holes have intersected base metal mineralisation to the east of Bellamy Wells. Drilling in the 1976 to 1979 period gave best results in six holes ranging from 1350 ppm to 1.39% copper. One hole from a 1980 programme intersected up to 1900 ppm copper.

At Wirrappa to the northwest of Bellamy Wells, a hole drilled in 1978 gave up to 1550 ppm zinc with geochemically anomalous copper and lead results although these were less than 1000 ppm.

Three holes in the Birthday Siding area drilled in 1974 gave maximum copper results of 3500 ppm to 1.15% copper. Later drilling in the same area in 1975 and 1976 yielded eight holes with highest copper contents ranging from 1100 ppm to 0.6%. A subsequent short programme by Stuart in 1994/95 in this area gave a highest result of 3100 ppm copper.

A hole in the vicinity of the Manganese workings drilled in 1971 gave up to 0.23% copper. Relogging and resampling in 1979 of material from earlier holes gave up to 2600 ppm copper in Tapley Hill Formation from a hole in the Manganese workings area on the west shore of Pernatty Lagoon.

In the Woocalla area drilling in 1971 gave up to 0.22% copper from one hole.

In 1979 a series of holes were drilled in the Snakepit area. The best result from 14 geochemically anomalous holes was 0.15% copper.

Drilling in the Monalena area in 1998 by Stuart gave three holes with anomalous copper results with the highest being 8300 ppm. The mineralisation occurs in Woocalla Dolomite.

A 1976 hole drilled east of Scrubby Dam intersected up to 3900 ppm copper.

Drilling in 1971 gave up to 9000 ppm zinc in a hole on the southeast shore of Lake Blyth. To the west a hole from the same period gave up to 1291 ppm zinc at a location near Tobruk Dam and another hole to the east near Fly Camp Dam gave up to 1011 ppm lead. Around the same time another hole mid way between Lake Dutton and the Stuart Highway gave a maximum result of 1224 ppm copper.

A hole near Strawbridge Hill that was drilled in 1979 gave a best intercept of 2000 ppm lead.

Immediately north of Charlinga Homestead in 1975 a hole was drilled that intersected up to 2300 ppm copper

The Winniepinnie area was drilled by Stuart in 1998 on a geochemical anomaly. Mineralised Tapley Hill Formation shales were encountered in the holes with the highest copper result being 1700 ppm and with other elevated results being maxima of 12 000 ppm lead, 10 600 ppm zinc and 225 ppm cobalt. Note that anomalous rock geochemistry results with elevated copper and lead contents were obtained a short distance to the northeast in 1967 as is described earlier in this report.

West of Yalymboo Homestead elevated lead and zinc intercepts were obtained in Tapley Hill Formation in two holes in 1977. Maximum results were 680 ppm lead and 1880 ppm zinc.

Further south to the west of Bowen Hill another hole in 1977 gave up to 1180 ppm lead and 2700 ppm zinc.

West of Winniepinnie Dam a 1979 hole intersected up to 5250 ppm zinc. The location is south of Mosquito Tank.

East of Winniepinnie Dam in the Mancowie Wells area drilling in 1971 gave up to 1600 ppm copper and in 1973 to 1975 a hole intercepted up to 1100 ppm copper. In the same vicinity up to 3300 ppm copper was returned on analysis from a hole drilled in 1979.

In addition to the mineralised drill hole intercepts there are anomalous results from soil geochemical programmes that do not appear to have been further investigated.

In the Canegrass Dam area north of Gunyah Lake analysis of drill hole water samples gave anomalously high uranium results. Elevated copper and uranium results were also obtained from drill hole water samples at a location near the southern boundary of EL2099. A similar result was obtained to the west of Charlinga Homestead but this may be associated with the copper intercept obtained from a hole to the north of the homestead.

Anomalous gold results occurred in water samples taken from old drill holes in the vicinity of the junction of the Mount Gunson mining area access road with the Stuart Highway. The sampling programme was carried out by Stuart in the late 1990s.

A rock geochemistry programme carried out in 1967 gave a 100 ppm lead result from a location near the southern boundary of EL2516. Results of 380 ppm copper and 1550 ppm lead were obtained from a location to the east of Winniepinnie Dam.

PROPOSED EXPLORATION

The proposed exploration programme by Gunson Resources Limited is to concentrate on basement targets with relatively little work on sedimentary cover sequence targets.

Exploration of basement targets will initially be concentrated on the northeastern part of EL2639 and northern half of EL2516. Gravity surveys and geochemical surveys will be undertaken as well as the drilling of at least seven core holes to basement. Of the holes, two will be drilled at Yeltacowie and one each will be drilled at Bottle Hill, Barber Dam, Hunter Hill, Hunter Hill North and Kialla Dam. The estimated cost of this programme is \$750 000.

Cover sequence exploration will comprise some soil surveys and a review of previous work. Estimated cost of this programme is \$50 000.

COBURN

LOCATION AND ACCESS

The Coburn project area is situated approximately 1000 kilometres north of Perth and just south of Shark Bay in Western Australia. The tenements, which are contiguous and cover just over 1400 square kilometres, straddle the Shark Bay-Edel and Yaringa 1:250 000 map sheets and fall within the Gascoyne Sub-basin subdivision of the Carnarvon Basin.

The Coburn project area lies between latitudes $26^{\circ}27'30$ "S and $27^{\circ}00'00$ "S and longitudes $113^{\circ}15'00$ "E and $114^{\circ}15'00$ "E. It is exposed to a semi-arid climate with an average annual rainfall of 200-222 millimetres and an annual evaporation of 2000-2200 millimetres. As a result rainfall runoff into the bay and lowland areas is negligible. Currents flow northwards along the coast and the prevailing wind direction is from a southerly direction.

Access to the project area is via the sealed Northwest Coastal Highway, the major traffic route from Perth, via Geraldton, to the Overlander Roadhouse. From Overlander, there is a sealed turnoff that travels west and then southsouthwest for approximately 40 kilometres to the Hamelin Pool area before curving north up the Peron Peninsula for 73 kilometres to the town of Denham.

A two lane dirt road known as "Useless Loop Road" extends southwest from the southern part of the Peron Peninsula through the northwestern edge of E9/939 and past the northern edge of the Tamala target area. Access from this road into the Hamelin target area is via cleared station tracks and is accessible by four wheel drive vehicle. Access into the Tamala target area is more difficult as the tracks are no longer used and have become partly overgrown with vegetation. As a result, it was not possible to survey the Tamala target area and any mention is merely a synthesis of information available.

The Coburn project area consists of flat to undulating topography in the east which progresses into low hummocky terrain in the west over the western part of the Hamelin target area and the Tamala target area. Vegetation is of leafless acacia trees in parts and closer to Hamelin Pool is of dune scrub probably a result of the extreme salinity in the area. Eucalyptus trees and leafy acacia trees may be seen in clay rich areas that host water.

TENEMENTS

The project area consists of five applications for licenses ELA9/996, ELA9/957, ELA9/944, ELA9/943 and ELA9/942 over the Tamala target area and three granted licenses E9/939, E9/940 and E9/941 over the Hamelin target area. The Hamelin target area licenses were granted on the 18th of June 1998 for a period of five years. Negotiations are still being conducted over title to the Tamala target area, which lies on the Nanga pastoral lease within the Shark Bay World Heritage Area.

GEOLOGY

Regional Geology

The Coburn project area lies within the Carnarvon Basin, extending approximately 1000 kilometres in length from Geraldton to Karratha. The basin consists predominantly of Palaeozoic sediments and has been divided into sub-basins based on sediment age and basin trend. The Coburn project area is situated within the southern part of the Gascoyne Sub-basin which is aligned north-south and consists mainly of Silurian and Devonian sedimentary rocks up to 6000 metres thick. It is one of the largest structural units within the Carnarvon Basin.

Although the Gascoyne Sub-basin is dominated by Silurian and Devonian sediments, Shark Bay at this time was only developing as a barred hypersaline bay within a marine shelf environment and current physical orientation of the area did not begin to take shape until the Cainozoic Period. Palaeozoic sequences of the fluviatile to shallow marine Tumblagooda Sandstone and the Dirk Hartog Formation which consists of interbedded sandstone, mudstone, dolomite, anhydrite, limestone and halite are reported to underlie the Shark Bay area and were the probable source rocks for the heavy minerals at Coburn.

The Late Mesozoic Toolonga Calcilutite is a white weathering coccolith rich argillaceous calcilutite that disconformably overlies the Cretaceous Winning Group. This unit outcrops in the western part of the Coburn project area and is often referred to as "basement" as it is the widespread calcretised unit over which the unconsolidated sands lie.

Cainozoic sedimentation in the Shark Bay area has been influenced by worldwide eustatic sea level fluctuations during the Quaternary and more recently has also been attributed to tectonism that led to sea level stands on a localized scale.

Three well documented preserved notches in the Shark Bay area indicate high sea level stands during the major Pleistocene interglacial period and the final interglacial period and are termed the Dampier Marine Phase and the Bibra Marine Phase respectively. The first formed the well lithified beach ridges in the area while the second was responsible for less calcreted benches. The third marine transgression, known as the Holocene Marine Transgression, caused widespread flooding of the Shark Bay area. All three Quaternary transgressions indicate a sea level only a few metres higher than present.

Cainozoic sedimentation in Shark Bay is reported to have occurred in four main cycles based on time of deposition, three of which occurred in the Tertiary and the final in the Pleistocene and Holocene.

The Peron Sandstone, the oldest of the Pleistocene units, consists of red to reddish brown poorly consolidated quartz sandstone that occurs in the form of a series of large dunes and is attributed to formation by aeolian activity. It has been postulated that these sands have been derived from the ancestral Wooramel and the Palaeo Gascoyne Rivers that flowed south of the present rivers in the area southwest of Billabong. This unit is onlapped by the Tamala Limestone which is reported to occur on the western edges of E9/957 immediately west of the Tamala target area. Its main occurrence is on Dirk Hartog Island, Edel Land and the western edges of the Peron Peninsula where it consists of skeletai rich, variably consolidated calcarenite of aeolian origin.



Figure 13: Coburn Project Location and Geology

This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000

Flooding during the Mid Pleistocene Dampier Marine Phase enabled deposition of the Dampier Limestone, a fossil rich coquinite, as beach ridges and shallow marine deposits within interdune depressions of the Peron and Tamala Limestone.

Regression of the Dampier Marine Phase led to the formation of the Depuch Formation before the Bibra Marine Phase followed and deposited the Bibra Limestone in the final interglacial period of the Pleistocene. This is a beach ridge and shallow marine deposit exposed in the intertidal and supratidal zones of Shark Bay.

Red to reddish brown unconsolidated sands occur as dune and sand plain deposits over the large areas of the Peron Peninsula and occur extensively over the Coburn project area.

Alluvial sediments of Pleistocene age occur in the Shark Bay area and are of deltaic origin. These may be derived from the palaeodrainage systems in the area.

The Holocene Marine Transgression enabled sedimentation to continue in Shark Bay. With the creation of seagrass banks over the last four thousand years on Faure Sill to the east of the Peron Peninsula, tidal influx into the bay has become less significant and thus conditions have become hypersaline inhibiting faunal activity.

A prominent wave cut sea cliff marking the 120 metre RL fossil coastline extends from Kalbarri in the south to Carnarvon in the north. In the Coburn area, this feature lies to the east of the North West Coastal Highway and because melting of polar ice caps could only raise the present sea level by a maximum of 40 metres, it provides evidence that tectonism has played a significant role in shoreline activity since at least the Tertiary.

The Gascoyne Sub-basin is believed to deepen westward and the Palaeozoic sediments are block faulted and gently folded. This folding, which probably occurred in the Holocene, is reported to be attributed to post Miocene reverse movement along pre-existing faults. It occurs in the Hamelin Pool area as a synclinal downwarp and is also believed to be responsible for the morphology of the Shark Bay area.

The coastal morphology of the Shark Bay area has been attributed to a drowned coastline caused by northward tilting. More recent theories are that the peninsulas were formed by stacking of Cainozoic sediments on a preexisting structurally formed elevated landscape of Late Tertiary age. The recognition of the preserved 120 metre shoreline is believed to rule out the possibility of Quaternary regional tilting. A topographic expression to the SSE of the Peron Peninsula within the Coburn project area indicates that this peninsula is probably a low horst-like feature which existed as a ridge prior to the deposition of the Coburn sand sequence against and over it. The Edel Land Peninsula would have been drowned to enable preservation of the 75 metre RL.

The Zuytdorp Cliffs also support a fault controlled evolution for the Shark Bay Peninsula due to their linearity and the fact that they drop 100 metres into the sea. This probably represents west block down movement which has enabled preservation of mineral sands to the east in the Coburn project area.

The peninsulas in the Shark Bay area probably enhanced heavy mineral accumulation by influencing wave action and near shore currents.

Genesis of Heavy Mineral Sand Deposits in Western Australia

The most productive mineral sand deposits in Western Australia occur in bays which open to the northwest. Headlands that protrude from a straight shoreline act as a trap during the heavy mineral accumulation process Sediment source may be marine however bays that occur near modern or ancient river mouths are also considered significant.

The most favorable morphology for heavy mineral deposition, therefore, is in "J" shaped bay environments. Such morphology may be seen in the economic deposits at Yoganup and Eneabba. In such settings, sediment is transported in a northward direction by south to southwest prevailing winds. Sediment is then driven into the bay by north to northwest storms by aeolian and wave action and swirls around the loop of the "J" before coming to rest. Any headlands to the west will protect the marine sands.

The Coburn mineral sands deposit may have formed in this way with the proto Peron Peninsula and Edel Land acting as sequential traps for the sediment.

Transgressions and regressions are also good trapping mechanisms for mineral sands. The regressive phase enables fluvial deposition to occur in areas of stranded barrier systems from previous cycles. Transgressions bring a sand wedge of reworked sediments across the coastal plain. New barriers get incorporated into old barriers and these again act as traps for the heavy minerals. Transgressions need to be short so that preservation is ensured. Reworking by wind activity may also deposit a heavy mineral rich dune sequence.

Sediment sources for the Coburn Project Area are said to be from Palaeozoic sedimentary rocks as well as the proto Murchison which drained in the vicinity. The ancestral Wooramel River may also have played a part in this process.

Local Geology

The Coburn project area occurs on a regional dune sand sequence in a foredune - beach environment in the vicinity of the proto Murchison River estuary. This sequence lies on basement that dips towards the sea at 1 in 300 to the northnorthwest and striking northnortheast. The southsoutheast topographic expression of the Peron Peninsula within the area is believed to have formed a "]" shaped bay when the coast stood at 30 - 75 metre RL. The eastern side of this extension has produced anomalous samples. This 75 metre RL links the Hamelin and Tamala target areas. Within the latter, a wave cut platform between 30 and 50 metre RL indicates the presence of the Jurien lower Eneabba strands. This line of mineralisation may be found between 29 and 50 metre RL in the Hamelin target area. Above 75 metre RL, there is patchy Toolonga Calcilutite outcrop testifying to the erosion of earlier heavy mineral sand sequences.

The presence of the 120 metre sea cliff to the east of the North West Coastal Highway is inferred to tie in with the 120 metre palaeoscarp that bounds the Eneabba mineral field. Prospective anomalous heavy mineral zones have been discovered at 5, 10, 20, 40, 50, 65, and 75 metre contour RLs. These zones are interpreted to reflect the palaeomorphology of the Hamelin Pool bay. Any value of greater than 0.4% heavy minerals in surface sampling is considered to represent an anomalous value.

The system is interpreted as a beach ridge system on the basis of grain size analysis, stratigraphic location and the presence of a clayey sand basal lag. The anomalous dunes lie on the palaeocoast and have an eastnortheast trend.

Overlying sand bodies transgress the marine sands and contain anomalous heavy minerals in some areas. The boundary between the two types of sands is gradational. This is reported to be attributed to accumulation in a sheltered bay with periodic terrigenous input as seen by a fine grain size, significant silt content and low grade heavy mineral accumulations. Grain size mode is approximately 175 microns and the mean is 120 microns.

PREVIOUS EXPLORATION

Relevant Exploration Outside the Coburn Project Area 1969 to 1992

From 1969 until 1982, reconnaissance was conducted for mineral sands from Derby to Esperance. It was considered that the coastal sand dunes on the Peron Peninsula to the north of Denham contained 1.2 million tonnes of "Indicated and Inferred Ore" with 9% heavy minerals. Average mineral counts were favourable and showed assemblages of:

40 – 50%	llmenite
11%	Leucoxene
15%	Rutile
20%	Zircon

In 1977, International Nickel Australia Limited carried out broad spaced auger drilling totalling around 472 metres across a possible coastal sand plain believed to be the proto Murchison River. This area was to the south of the Coburn project area and consisted of extensive dunes with well rounded yellow sand showing trace to strong heavy mineral anomalies. An aerial photographic survey and an airborne magnetic and radiometric survey were also carried out however the best assay gained was 1% heavy minerals. This work recognised two possible shorelines in the north towards the Coburn project area. Evidence from water bore testing indicated favourable mineralogy and grain counts in the Winning Group sediments. As the company was looking for large tonnage and medium to high grades, the ground was dropped.

In 1985 the Geological Survey of Western Australia produced an evaluation of the mineral potential of the Carnarvon Basin. This report concluded that given the recent strand line deposits showed favorable mineralogy, exploration in older aeolian deposits within the Peron Sandstone seemed justified as this unit was responsible for anomalies within Cape Peron of up to 0.5% heavy minerals.

From 1986 to 1987, Westralian Sands Ltd explored for heavy mineral sands around 35 kilometres south of the Coburn project area on Quaternary sediments overlying the Tertiary Lamont Sandstone and the Cretaceous Toolonga Calcilutite and Alinga Formation. Surface sampling showed low heavy mineral yields however interesting suites with up to 49% zircon and 15% rutile were encountered. A programme of 169 aircore holes was completed which revealed a thick sequence of littoral sands and clays adjacent to the sea cliff and cut into the Toolonga Calcilutite. This was reported to indicate a maximum heavy mineral concentration of 3.8% with heavy mineral suites of:

56 - 60 %	llmenite
16 – 20 %	Zircon
8%	Rutile
4%	Leucoxene
0.5%	Monazite

Westralian Sands Ltd concluded that the low heavy mineral grade and deep burial did not justify further work being carried out.

The period from 1989 to 1992 saw several explorers take an interest in mineral sands in the district. Northeast of the Coburn project area, Geopeko Pty Ltd conducted 8 lines of RAB drilling to Cretaceous basement. No Tertiary marine sands or anomalous samples were uncovered. Geopeko also conducted an extensive aircore drilling program to the east of Overlander Roadhouse adjacent to a cliff line. This also failed to detect anomalous concentrations of marine sands.

To the east of Shark Bay in the Brown River delta sands other work was undertaken by a different explorer. A single traverse of closely spaced drill holes was carried out that failed to intersect anything of interest except an isolated result of 1.67% heavy minerals. A desktop exploration study over the Tamala target area of the Coburn Project was completed. A satellite image interpretation of Landsat MSS and NOAA data revealed parallel, linear and arcuate structures covered by sand plains and dunes. These were attributed to accretion on a fault-controlled coastline and no field work was done.

From 1989 to 1992, RGC Exploration Pty Ltd conducted exploration to the east and southeast of Billabong Roadhouse looking for heavy mineral deposits greater than 1.5 million tonnes at 0.3% rutile and zircon with substantial ilmenite. Previous exploration had shown the south Carnarvon Basin to host favourable assemblages and at Nerren Nerren the high value assemblage would enable low grades of heavy minerals to be economic. The study revealed a prograding shoreline sequence with possibilities of mineralisation. From 1991 to 1992, RGC drilled 289 aircore holes over this beach ridge system associated with the Murchison River however the best result was 2 metres at 0.7% heavy minerals and the project was abandoned.

In summary, the public records indicate that previous explorers, although active in the district at various times, had not tested the rather obvious target areas on the Stuart Coburn Project discussed below.

Exploration by Stuart 1998 to date

In January 1998, ground reconnaissance work was carried out on behalf of Stuart in an area west of a line joining Overlander Roadhouse and Kalbarri. Analysis of results indicated only areas below the 75 metre contour to be prospective for strand deposits with associated mineralised dunes as anything above that level had undergone erosion. As a result, two anomalies with six strand targets were delineated northwest of the Coburn homestead.

Follow up exploration was undertaken in April 1998 on the two anomalies on the Coburn and Hamelin pastoral leases. This included aerial photographic inspections, east-west traverse mapping and 500 metre spaced soil sampling. Fill in road traversing over the Coburn northwest anomaly revealed 0.5% heavy minerals occurring over a 3 kilometre distance in a 7 kilometre sand body with an upper strand level of about 75 metres. This work revealed a "J" shaped bay morphology. Traverse mapping over the Hamelin Pool anomaly revealed anomalous values of up to 1.18% heavy minerals.

Final follow up on this area included an aerial photograph interpretation and east-west traverse mapping on lines 10 kilometres apart with 1 kilogram soil samples collected. This work concluded that preservation of strands at greater than 75 metres was unlikely despite the presence of the 120 metre sea cliff to the south. South of Hamelin Pool, anomalous heavy mineral concentrations were found at levels corresponding to the 29 - 50 metre strands of the Jurien and Eneabba West areas while the area NW of Coburn homestead revealed heavy mineral concentrations about 70 metres above sea level with possibilities in the reworked sands.

This work led to the delineation of the prospective area and subsequent tenement applications were made over the Hamelin and Tamala target areas in May 1998.

In June 1998, a review was conducted of Stuart's Coburn mineral sands exploration. An extensive and apparently thick dune field was recognized within the Coburn project area which occurs on a sand sequence of about 80 metre RL. To the north, heavy mineral bearing Peron Sandstones were believed to underlie the sands and this was thus thought to be a favourable source for reworked heavy mineral sands. Overall, the area was believed to have potential for heavy mineral sand mineralisation and the eastern side of the area, associated with the scarp, was considered to be the most prospective. In late June, further ground traversing during which 3 kilogram samples were collected on a 1 kilometre by 10 kilometre grid was carried out on the eastern half of the area. Reconnaissance sampling was conducted on the western half of the area with traverse mapping of surficial sediments. Anomalous heavy mineral values were found east of the 80 metre contour which was thought to represent the eastern edge of the southeast extension of the Peron Peninsula topographic high. It was concluded that the heavy mineral anomaly in soils northwest of Coburn Homestead towards Hamelin Pool was favourable and widespread enough to be encouraging.

In July 1998, a one day helicopter assisted surface sampling program was undertaken over the southwest and western parts of the project area at the Tamala target area. In all 54 samples of 1 kilogram were collected 2 kilometres apart on E-W traverse lines 10 kilometres apart. Aerial geological mapping and interpretation of Landsat TM and aerial photographic features was also carried out. This work concluded that the Peron Peninsula was a low horst structure. Evidence for an Eneabba high transgression at 120 metres was obtained along with Jurien Eneabba West ievei fossil coasts at 30 to 50 metres RL. This work delineated the present Tamala target area.

The 75 metre basement contour was found to link the soil anomalies north west of Coburn homestead and south of Hamelin Pool as they related to the bay like feature associated with the eastern edge of the 75 metre headland. This level is also common to the Tamala target area. Grain size analysis and favourable mineral assemblages indicated a likely marine origin. The concentration of heavy mineral values in soil were consistent with those over concealed strands at the Eneabba North and Jurien South deposits.

Further samples were collected during December 1998 and confirmed that heavy minerals increased in percentage to the east.

Reconnaissance aircore drilling was carried out over the Hamelin target area in September 1999. This entailed 124 holes for 2340 metres being drilled along pastoral tracks about 10 kilometres apart. The hole spacing was 400 metres along east-west tracks and 800 metres along the north-south tracks.

A preliminary interpretation conducted on behalf of Stuart by Dunelabs Pty Ltd argued that anomalous heavy mineral concentrations occurred against basement at 20, 40, 60 and 75 metre RLs in what were probable marine sands. These marine sands were considered to be thin and overlain by a thicker sequence of wind blown sand or dune deposits which also contained heavy minerals. The area was thus interpreted to contain a potentially large low grade dune deposit, comparable to Stradbroke Island.

Of the 537 samples assayed, 332 showed values greater than or equal to 0.25% heavy minerals by sink float analysis with the highest result being 3.2%. Sample 116473 showed a favourable mineral assemblage of:

67.3%	Ilmenite
9.4%	Rutile
21.0%	Zircon
2.3%	Trash

The ilmenite showed significant alteration to leucoxene with mostly clean zircons. Grain size mode was between 100-175 micrometres.

Favorable grade analyses from drill holes are as follows:

Drill Hole	Heavy Mi	neral %
Drill Hole	Range	Average
CBC 106	0.69 - 2.3	1.51
CBC 72	1.01 - 1.59	1.33
C3C 75	0.76 - 1.66	1.33

Grain counts on CBC 106 material confirmed the likelihood of the 5 metre strand system evolving in a younger dune environment as a result of size analysis and high proportions of light heavy minerals. Grain counts on samples from hole CBC 57 showed a transition from the lower to upper section with the lower having higher ilmenite, leucoxene and rutile with lower zircon values. Grain counts on the 40 metre system in holes CBC 65 (33-34m) and CBC 67 (44-45m) showed a regional pattern of fine grains with high zircon, moderate rutile and strongly altered ilmenite with moderate leucoxene.

Slime content of the analysed samples was found to average 1.77% with a range from 0.1-10.2 %. The higher slime content was found to come from the upper calcareous zone. Laterite cements were found to be absent with no induration encountered in the bulk of the drill holes.

Analysis of ilmenite concentrates was carried out by Oretest Laboratories Pty Ltd in 1999. The results indicated that the primary ilmenite was typical of most Western Australian ilmenites while the TiO_2 content was slightly higher than the Eneabba and Capel primary ilmenites. The Uranium and Thorium levels were reported to be similar to the Capel primary ilmenites and considerably lower than levels encountered in the Eneabba deposits.

Mason Geoscience Pty. Ltd. conducted mineralogical analyses of nine heavy mineral sand samples which represented 1 bulk heavy mineral sample from hole CBC 56 (36 - 37m) and 8 heavy mineral sized fractions from CBC 57 (11-19m and 31-38m). They observed that altered ilmenite dominated the heavy mineral suite in all the samples examined. The bulk sample contained 93% of economically important heavy minerals, comprising 56% ilmenite, 33% zircon and 4% rutile. Secondary coatings on mineral grains were absent or developed in only a minor amount.

PROSPECTIVITY

The Coburn project area, which contains the Hamelin and Tamala target areas, has been interpreted as a foredunebeach environment consisting of a series of sub parallel fossil beaches at 5, 10, 20, 40, 50, 65 and 75 metre RLs younging progressively towards the present coast. A heavy mineral bearing sand dune sequence overlies these fossil beaches. The dunes follow an eastnortheast direction which is consistent with the palaeocoast dune set.

The palaeocoast consists of two "J" Shaped bays. These have historically been found to be a productive morphology in the accumulation of heavy minerals and both Eneabba and Yoganup mineral fields developed along "J" Shaped bays. The Peron Peninsula and Edel Land have acted as barriers so that the heavy minerals have been able to accumulate and remain preserved or be reworked back into the local system, higher up in the sequence. The proto Murchison River estuary also drained into the vicinity suggesting possible fluvial inputs of heavy minerals as well.

The presence of the 120 metre scarp south and east of the Project Area shows the Eneabba high sea level also occurred in this area. Despite this level being present, only those strandlines less than the 75 metre RL have been found to be preserved. The Jurien- Eneabba West sea level strand was also found to be represented in the Tamala target area further confirming the likelihood of similarities with these mineral deposits.

Evidence suggests that the most eastern marine section (75 metres) may be thinner than normal with periodic terrigenous input as a result of fine grain size of around 100-175 microns, silt and an extensive low grade heavy mineral accumulation.

The heavy mineral assemblages show low levels of slime, no induration and ilmenite having a high TiO_2 content.

Exploration is at an early stage however results have been favourable. Further drilling is expected to reveal whether

ribbon-like strand sequences which are typically 80 - 200 metres wide, occur.

Estimated in situ values include:

50m strand:	6m at 1.7%
40m strand:	1.9% from CBC 65 (34-35m) and
	CBC 67 (44-45m)
5m dune:	27m at 1.4%
5m strand:	6m at 2.1%

No drilling has been possible to date on the Tamala target area, which lies within the Shark Bay World Heritage Area but the Hamelin target area outside the World Heritage Area is sufficiently large to host one or more economic heavy mineral deposits.

PROPOSED EXPLORATION

Future exploration to be carried out by Gunson Resources Ltd has two intentions for the Hamelin target area. The first is to show the continuity of the thick, low grade intersections revealed during the widely spaced scout drilling so that the potential for a low cost/high margin dredging operation similar to that at the North Stradbroke Island deposit near Brisbane can be established. The second is to test beneath fossil sand dunes for narrower, high grade strand deposits. An estimated \$1 450 000 will be spent on this area in the next two years. The work will include soil sampling, an aerial photographic survey, second pass drilling, laboratory test work, infill drilling, detailed drilling, large diameter drilling, a scoping study and an environmental baseline study. If the work programme turns out to be favourable then a preliminary feasibility study will be undertaken.

The Tamala target area occurs within the World Heritage Area and if exploration access is granted during the year 2000 then an expenditure of \$250 000 is proposed to include soil sampling, an aerial photographic survey, scout drilling, botanical studies and laboratory test work.

MOUNT TABOR

LOCATION AND ACCESS

The Mt Tabor project is situated some 130 kilometres northeast of Augathella and approximately 200 kilometres northwest of Roma in central Queensland. The project covers the Mt Manganese cobalt resource and lies on the Eddystone 1:250 000 map sheet. It is bounded by latitudes 147°34'00"S and 147°35'00"S and longitudes 25°02'00"E and 25°03'51"E.

Access to the area is via the Augathella to Carnarvon Range road. This road consists of around 32 kilometres of sealed road from Augathella which changes to a graded dirt road for the remaining 100 kilometres or so. Access to the Mt Manganese prospect from this road is by a cleared farm track and is easily accessible by four wheel drive vehicle.

The area has an annual rainfall of around 150 centimetres with well over half occurring over the summer months. Vegetation is predominantly gum trees, conifers and regalo-acacias with grasses. Changes in vegetation are attributed to lithological changes.

Drainage in the project area consists of the Murphy Creek bordering the east of EPM8887 and the Dooloogarah Creek to the north.

The project area is at around 700 metres above sea level. The area is mostly flat with isolated hills up to 200 metres high dotting the area. This is a result of a gradual and undulating increase of topography from Augathella.

TENEMENTS

The Mt Tabor project area consists of a six square kilometre exploration permit EPM8887 which surrounds a 35 hectare application for a Mineral Development Licence MDL240 over the Mt Manganese resource. Stuart has held an interest in and managed the exploration on EPM8887 since 1993.

GEOLOGY

Regional Geology

Sequences hosting mineralisation in the Mt Tabor area are Jurassic and Tertiary sediments intruded by basalt plugs and sills.

The rock sequence occurs on the eastern margin of the Eromanga Basin, a Jurassic-Cretaceous sequence largely consisting of gently dipping fluvial and marine clastic sedimentary rocks.

Tertiary igneous rocks show erosional resistance relative to their country rocks thus forming peaks. They consist of the Tabor Gabbro, an olivine gabbro occurring southeast of Mt Hopeless as a basin shaped sill along with olivine basalt flows, sills and plugs in the Mt Manganese and Murphy Tableland areas. Laterite development over the mineralised zones is common.

Metaquartzite or silcrete are reported to occur beneath the base of the basalt. Quaternary colluvium, alluvium and soils cover some parts of the above sequences.

Local Geology and Mineralisation

The Mt Manganese area consists of a Tertiary basaltic plug that is part of a northwest trending line of similar plugs, with associated basalt flows that form a small resistant peak. This is surrounded by small scarps and bluffs of manganiferous sandstone and grits.

Extending around 300-450 metres northwest of the main peak, there are three mound-like outcrops aligned with the summit of Mt Manganese. These outcrops contain the cobalt mineralisation in manganese wad at Mt Manganese Prospect. Altogether around nine outcrops occur in the vicinity but the most cobalt rich are Outcrops 2, 3 and 4 which extend along a ridge northnorthwest from Mt Manganese.



Figure 14: Mount Tabor Project Location and Geology. This illustration was prepared for Mackay & Schnellmann Pty Limited for inclusion in this Prospectus dated 15 March 2000

In three dimensions, the cobaltiferous manganese deposits form cylindrical shaped bodies within host sandstone which often taper downwards from semi circular outcrops between 10 and 20 metres in diameter. The best cobalt grades appear to be close to the surface.

PREVIOUS EXPLORATION

Early Exploration

References to cobalt occurrences in the Mt Manganese locality extend back to 1952 when a station hand first submitted a sample from the manganese wad around Mt Bally Lethbridge to the Queensland Geological Survey. The sample was analysed and reported to consist of 38.9% manganese and 2.4% cobalt.

In 1978, Mineral Deposits Limited (MDL) took out an Authority to Prospect over a large area covering the present EPM8887 and its surrounds as far northeast and including Mt Emily and as far southwest but excluding Mt King. By 1979 the area had been reduced by half. A subsequent renewal of half of this area was applied for in 1981 however this was withdrawn and a decision was made for full relinquishment of the Authority to Prospect in 1982.

Exploration over the area presently covered by EPM8887 by MDL from 1978 began with an aerial and vehicle survey and geological mapping. Geochemical reconnaissance sampling for 16 samples from the area was carried out but it was concluded that only Mt Manganese contained high enough primary cobalt values to allow sufficient secondary supergene enrichment although other manganiferous sandstones adjacent to basalt were also found to contain cobalt values up to 230 ppm. The highest value returned from the Mt Manganese area was 1.28% cobalt.

Six of the outcrops around Mt Manganese were rock chip sampled with all samples from each respectively combined. Outcrop 4 returned a value of 2.89% cobalt and the lowest value from Outcrop 6 of 0.11% was reanalysed and returned a result of 2.7% cobalt.

Two programmes of percussion drilling were carried out between 1980 and 1981 consisting of at least 61 holes totalling 1091 metres with down hole sampling at 1.5 metre intervals. Drilling at Outcrops 3 and 4 showed the best analytical results of 1.77% and 1.5% cobalt respectively.

Drilling results revealed that the outcrops were discrete bodies of mineralisation but that some mineralisation had occurred in the sandstone country rock underlying the lateritic outcrop. As a result of this work the resource estimate was 72 793 tonnes at 0.3% cobalt at a cutoff of 0.05% or 24 100 tonnes at 0.6% with a 0.25% cutoff.

A composite sample taken from Outcrop 3 over 32 metres returned results of 4.2% cobalt with 32% manganese. In 1980, a bulk sample from this Outcrop was sent to CSIRO for metallurgical testing.

In 1983 another explorer undertook work covering the area explored by MDL. A reinterpretation was carried out of MDL's data and it was believed that the cobalt anomalous lateritic outcrops were surface enrichments of at least two northwest striking zones of mineralisation. One of these zones was considered to be 170 kilometres long, approximately 10 to 20 metres wide, around 25 metres deep and covering Outcrops 2, 3 and 4.

During the last half of 1983, a field programme was undertaken consisting of geological mapping and stream sediment and soil geochemistry. The mapping delineated another basalt outcrop with a minor associated manganiferous sandstone that was called Alpha and that is located to the north of Mt Manganese.

Stream sediment sampling proved ineffective in the area due to poor surface runoff and the small scale of the

mineralisation. Values obtained from creeks draining mineralised areas were 25 to 40 ppm cobalt while those from creeks draining non-mineralised areas were 5 to 30 ppm cobalt making interpretation difficult.

The soil survey consisted of two lines perpendicular to strike. One line, between Outcrops 2 and 3 gave a cobalt anomaly of 495 ppm adjacent to known mineralisation but this was not consistent with the copper and zinc results. Line 2, 40 kilometres to the northwest of Outcrop 4, was reported to be beyond the mineralised area. At this time 6 drill hole locations were also marked out.

From the work carried out during these 6 months, the mineralised outcrops were considered to be localised and caused by the intersection of northwest trending fractures with minor easterly trending fractures and therefore not as extensive as previously thought.

A resource calculation was conducted in 1984 and resulted in a "Probable Resource" of 62 000 tonnes at 0.25% cobalt which at best would give 125 000 tonnes at 0.25% cobalt if Outcrops 4 and 5 were similar in mineralisation to Outcrops 2, 3 and 4.

The property was relinquished in January 1985 despite only limited exploration work having been carried out.

Queens Road Mines and Stuart 1992 to date

In 1992 and 1993, three exploration permits were taken out in the Mt Tabor area, one of which was EPM8887 covering the Mt Manganese resource. This licence was granted to David Clarke, the principal of Queens Road Mines, for a two year period in July 1992. Stuart took up a 20% interest in 1993 with the right to acquire the remaining 80% by issuing shares to David Clarke.

Initial exploration by Queens Road Mines (QRM) noted that the manganese-cobalt mineralisation style in the Mt Tabor area was unusual compared to known types of cobalt mineralisation. Cobalt in this area was found to be associated with outcropping manganiferous sandstone and iron oxides in a weathering profile crosscutting early Jurassic sediments. This mineralisation was considered to be enhanced by a later Tertiary weathering profile at Mt Manganese, which led to accumulation in brecciated sandstone joint blocks resulting in a manganese wad deposit. Mineral concentrations were inferred to occur in the upper pallid zone of the weathering profile.

Work carried out by QRM during 1993 confirmed rock chip sampling during previous exploration by MDL and led to the discovery of ore grade outcrops at Mt Bally Lethbridge, Mt Gould and Mt Emily in addition to Mt Manganese. Reconnaissance soil sampling comprising around 20 samples taken over the Mt Manganese area did not reveal any further outcrops of manganese wad and analyses of sheared hematitic shales in the Mt Gould and Mt Bally Lethbridge areas did not give elevated results.

Exploration undertaken from 1993 to 1994 consisted of prospecting, geological reconnaissance and drilling by Stuart.

An aerial photographic interpretation was conducted over the Mt Manganese area to map regional joints and fractures and to delineate other possible target areas resembling Mt Manganese. This interpretation revealed the existence of four main fracture sets occurring across the area, two of which have formed structural corridors. These included:

ENE trends forming 5 corridors. NW trending fractures forming 4 corridors. NNE trending fractures. NNW trending fractures.

The first was reported to indicate a spatial association of mineralisation with the basalt plugs of Mt Emily, Mt Bally Lethbridge and Mt Manganese through the Mt Drummond

corridor. One corridor from the second set was interpreted to contain Mt Manganese and a fracture from the third to intersect it.

The intersection of all four lineaments was interpreted to be the control on mineralisation at Mt Manganese.

Ground geophysical testing across Mt Manganese using a gamma ray scintillation counter revealed a moderate radiometric response of twice background over the manganese outcrops. Ground magnetic surveying however, was proven ineffective.

RAB drilling carried out at Mt Manganese consisted of 139 holes for around 4975 metres in the second half of 1993. This was undertaken in order to compare results to those previously obtained by MDL drilling, to test for both lateral and depth extensions of the mineralisation and to test recent outcrop discoveries of that time. Four metre composites were taken and sections greater than 0.05% cobalt were reanalysed at 1 metre intervals.

Results from this drilling were interpreted to show that mineralisation was controlled by jointing and stratigraphy forming higher and lower grade mineralisation respectively. At Mt Manganese, both steep dipping and sub-horizontal mineralisation controls existed giving high and low grade mineralisation. The high grade material indicated possible joint control with around one third of all holes showing cobalt grades of greater than 0.05% with mineralisation occurring to a depth of probably 50 metres.

An interpretation of the drilling data at Mt Manganese was carried out in 1993. Samples collected from the Mt Manganese programme were deemed unsuitable for rigorous geological interpretation. The programme was designed to target depths to 60 metres, however it only averaged 35 metres due to the presence of large cavities. Those drill holes that continued through the cavity to depth encountered lower grade mineralisation at the base of the pallid zone where an interpreted zone of macroporosity was believed to extend even deeper than the pallid zone and to have potential for associated mineralisation.

It was interpreted that with manganese below cavities being encountered at the main outcrops and between Outcrops 3 and 4, the mineralisation was probably continuous between those outcrops. It was thought that if the macroporosity zone did extend deeper below the pallid zone then there was potential for a sheet like body of cobalt mineralisation below the pallid zone.

In all, 26 holes intersected anomalous values at greater than 30 metre depths, the deepest intersection being 10 metres at 0.18% cobalt between 46 to 56 metres in drill hole MM24.

During 1994 to 1995, an airborne magnetometry and radiometry survey over 1400 square kilometres and at 100 metre line spacing was flown over Mt Manganese and Mt Gould. The total magnetic intensity data was reported to reveal basaltic eruptive centres with some showing spatial association with cobalt mineralisation. However the survey did not directly identify cobalt mineralisation. Instead, geological features associated with cobalt occurrences were revealed and this reinforced the idea that the main mineralisation occurred on features trending northnorthwest. No new mineralisation was found to occur in the area however the Alpha anomaly north of Mt Manganese was better defined. The radiometric technique was proven ineffective in this locality.

Mt Black, to the southwest of Mt Manganese, was relinquished in late 1994 followed by the tenement covering the Carnarvon Prospect in 1996 after drilling did not reveal cobalt mineralisation. The tenement adjoining EPM8887 to the north was also reduced by half.

During 1995 to 1996, work carried out on the Mt Manganese prospect included a review of all exploration data and metallurgical test work. Since 1996, only minimal work has been carried out on EPM8887 as MDL240 was still pending. Work included a site visit to Mt Manganese to collect samples for metallurgical test work.

PROSPECTIVITY

Previous explorers drilled Mt Manganese Prospect to around 20 metre depths and defined a resource of 72 793 tonnes at 0.3% cobalt with a 0.05% cutoff or 24 100 tonnes at 0.6% with a 0.25% cutoff.

More recent drilling by Stuart has shown that the brecciated pipes extend to a depth of around 50 metres. A resource was estimated as 115 000 tonnes at 0.18% cobalt in 1995.

If the mineralisation has a lateral extent at depth between the outcrops related to the macroporosity then a larger resource may exist but this seems unlikely

PROPOSED EXPLORATION

Future work to be carried out on this project is to complete metallurgical testing so that project financing for a tribute operation can be arranged. A total of \$30 000 is predicted to be spent on collecting samples for the test work with the remaining costs to be incurred by a tribute miner.

ONSLOW

LOCATION AND ACCESS

The Onslow project is approximately 60 kilometres south of the town of Onslow in the Minderoo Station area. It lies on the Yanrey-Ningaloo 1:250 000 map sheet.

The area is bounded by latitudes $22^{\circ}13'00''S$ and $22^{\circ}5'00''S$ and longitudes $114^{\circ}57'00''E$ and $115^{\circ}3'00''E$. Average rainfall is between 200 and 300 mm with annual evaporation of up to 2400 mm. The area is exposed to a summer wet season.

Access to the area is via the sealed Old Onslow Road from Onslow, which runs south for approximately 40 kilometres until the Twitchen Road turn off. Twitchen Road is a two lane dirt road through Minderoo Station and the northeastern edges of exploration licence application, ELA8/1150. A few station tracks occur within the project area.

Drainage consists of a northnorthwest trending parallel river system. The Ashburton River passes along the northeastern edge of the tenement.

Topography in the area is flat with small ridges of sand and occasional low hills. Gum trees line watercourses and acacia and spinifex are common throughout but do not constitute thick vegetation cover.

TENEMENTS

The project area consists of ELA8/1150 covering an area of 64 square kilometres. Two prospects, Minderoo North and Minderoo South, which correspond to the previously explored prospects of Whiting and Snapper respectively, lie within ELA8/1150.

GEOLOGY

The area lies on the contact between the Peedamullah Shelf of the North Carnarvon Basin in the northwest and the underlying basement of the Capricorn Orogen which crops out to the southeast. Details of the Carnarvon Basin are described under the Coburn report section.

The Peedamullah Shelf is a northeast trending sedimentary basin consisting of Phanerozoic sediment sequences. To the east, rocks of the basement Capricorn Orogen crop out and consist of Gascoyne Complex rocks that are tectonically interleaved with the Ashburton Basin rocks further north.



Figure 15: Onslow Project Location and Geology

The Charles is a superprise of the system of the second by Prederic Rector Physical Arts Ampletones (Med 1). When 1990

Peedamullah Shelf Cover Sequence

The Peedamullah Shelf consists of a sequence of sedimentary rocks, mainly sandstone, shales and limestones ranging in age from Ordovician to Cainozoic. Extensive faulting and some folding of the older sedimentary units has taken place. These rocks will not be described further as they are not the focus of the proposed exploration programme.

Basement

The basement rocks in the area comprise a northwesterly trending sequence of Gascoyne Complex units. Around 5-7 kilometres southeast of the Onslow project area these rocks crop out and consist of metamorphosed Proterozoic sediments and volcanic rocks and granitoids. To the north, the basement rocks pass into the Ashburton Basin sequence that shows a decrease in metamorphic grade. The Morrissey Metamorphics of the Gascoyne Complex are partially tectonically interleaved with the Ashburton Basin rocks.

The Gascoyne Complex has been divided into five groups as a result of rock type and structure. Only Zone E is thought to occur in ELA8/1150 and consists of granitoid plutons of the Minnie Creek Batholith and metasediments. Here, repeatedly deformed Morrissey Metamorphics have been intruded by S and I type granitoids and the schistose country rock has become migmatised as a result. The metamorphic grade decreases to the north from amphibolite to greenschist facies passing into the Ashburton Formation.

To the north, the Ashburton Basin occurs and is represented by the Wyloo Group with an age range reportedly from 2.5 to 1.6 billion years. The Wyloo Group consists of a sequence of sediments, dolomites and mafic and felsic volcanics with minor banded iron formation.

General

As can be seen the tenements lie on the junction of three major units namely the Peedamullah Shelf, the Gascoyne Complex and the Ashburton Basin sequence. No subsurface exploration has been carried out on the Minderoo North and Minderoo South targets. However plutonic units occurring in the Gascoyne Complex rocks to the east and south east of ELA8/1150 are reported to have included large porphyritic adamellite with and without magnetite, smaller granites of pink colour and dykes of granite with pink pegmatites and pink aplites which cross cut the porphyritic adamellite. These rocks form part of the Minnie Creek Granite Supersuite which is believed to be similar in age and style to granites in the Tennant Creek, Tanami and Pine Creek provinces of the Northern Territory It has been noted that the Minnie Creek Supersuite is both oxidised and fractionated and is associated with a few small gold and copper prospects in the southeast of the Gascoyne Complex. The copper potential of the Minnie Creek Supersuite has been rated as moderate and the gold potential as high.

Metasediments were found to crop out rarely but included meta arkose, quartzite, phyllite and metagreywacke with magnetite bands and banded iron formation rich in magnetite. Mafic units were found to include dolerite and amphibolite as well as pyroxenite-serpentinite intrusives.

The structure of the area includes granite-doleritepegmatite-quartz shear zones up to 15 metres wide with a subvertical dip and striking northerly. Foliated granites show alteration to biotite-quartz-feldspar-magnetiteepidote while pegmatoids show feldspar-quartz-epidotesericite alteration assemblages. Those granites that underwent mylonitisation have epidote, hematite-biotite and tourmaline alteration. Minor folding was seen to occur and trends northwesterly where observed around 60 kilometres east of the current tenement application.

PREVIOUS EXPLORATION

Exploration work is known to have been carried out during the 1970s and 1980s over the present tenement area and also to the north, east and south. Exploration activities comprised rotary drilling, down hole geophysical logging, air photography interpretation and geophysical surveys including gravity, radiometrics, magnetics and electrical sounding.

The area was believed to be prospective for sediment hosted uranium mineralisation in the cover sequence formed as a result of the leaching of uranium from radiogenic granites by meteoric water and groundwater. The rocks targetted were the Cretacaceous Winning Group sediments which had infilled palaeochannels that had bisected Lower Proterozoic granites and metasediments.

Although the main emphasis was on exploration for uranium deposits, other elements including base metals were in many instances also determined on samples. As a result of these work programmes, geochemically anomalous uranium results were obtained from palaeochannels in a number of locations and resources were defined at locations outside the present tenement area. However, no significant results were obtained for elements other than uranium. The relevance of this work to the current interest in the tenement is the basic geological data that was generated.

Other exploration is reported to have been carried out in the vicinity of the project area probably in the 1980s. To the southeast in Lower Proterozoic basement terrain, stratiform base metal deposits were targetted for lead, silver and gold.

Regional Exploration 1994 to 1997

In 1994 exploration was undertaken in an area between Mt Minnie and the coast for iron oxide associated copper and gold mineralisation, thought to be associated with covered basement magnetic anomalies. These anomalies were believed to be caused by magnetite rich rocks within basement metamorphic sequences that correlated with the Morrissey Metamorphics and Ashburton Formation of the Capricorn Orogen. This orogenic sequence had been intruded by various magnetite rich granitoids and covered by post Jurassic sediments of the Peedamullah Shelf that thicken in a westerly direction with near outcropping basement in the east of the area covering ELA8/1180. Although the area contained a number of small, abandoned copper and lead-silver mines as well as gold and coppergold deposits, no previous exploration had been carried out in the buried basement rocks and so a program was designed to explore this sequence and called it the "Onslow Project'

During 1994/95 work carried out on the "Onslow Project" covered parts of the current tenement area within two old tenement groups plus extensive areas to the northeast, east and southeast. As a result, the present tenement ELA8/1150 area was covered by two separate old tenements, both of which were group reported under separate report status. This situation has made it difficult to relate the geology and exploration results of one old tenement group to the other.

Previous exploration data were analysed and reprocessed to construct depth to basement maps. The latter process included analysis of the following data sets: drill hole data and comparison with geophysical data to aid interpretation; electrical soundings; remodelled magnetic data and comparison with BMR findings; seismic profiles; and onshore seismic lines shot by petroleum explorers to define the edge of the Peedamullah Shelf and Robe River Channels. Any ambiguous drill holes were physically located and the chip piles were sampled. These data showed the variable thickness of the overlying sediments progressing northwest and indicated up to 400 metres of cover over the northwestern area of ELA8/1150 as well as the presence of basement rocks that were cut by northwest trending palaeochannels.

Interpretation of the BMR aeromagnetic data at 1600 metre line spacing showed east-west to westnorthwest structures southeast of ELA8/1150 indicating a deep crustal structure. In the vicinity of the tenement, numerous magnetic highs along or adjacent to northeast trending faults were evident. These highs were coincident with the intersection of weaker, northwest trending structures with the northeast corridor. They deepen and broaden to the west, indicating west block down normal movement on northeast trending structures which possibly relates to Jurassic rifting and consequent opening of the Carnarvon Basin. Northnorthwest and north trending magnetic breaks were also apparent in the area and occur parallel to structures in the east that are believed to relate to the northern extension of the Darling Fault System.

To the east of ELA8/1150, in the central area of the "Onslow Project", intense structuring in a northerly direction associated with the extension of the Darling Fault system amalgamates with northeast trending structures of the western Ashburton Basin.

Gravity and magnetic data from previous explorers were added to the survey coverage.

During 1994, an aerial magnetic and radiometric survey was flown over the current tenement area and to the southeast at 400 and 200 metre line spacing. From initial interpretations, four targets were delineated to the northeast of ELA8/1150 for ground follow up. Ground magnetics, 200 metre loop TEM and 100 metre dipole IP were then carried out. A regional gravity survey was also undertaken which covered part of ELA8/1150. Stations were collected at 1 and 2 kilometre intervals.

In the southeast of ELA8/1150, the Koordarrie area was inferred to straddle the western side of a northeast trending gravity ridge. To the east, gravity lows suggested granite intrusives while lows to the west of the ridge indicated thick Cretaceous cover. This ridge or corridor indicates less volume of granites northwards with metamorphic rocks being better preserved. The northeast ridge also indicated westnorthwest to northwest fault activity as well as northerly trends.

Work well to the east also indicated a major gravity high in the Mt Minnie area probably due to a mafic underplate at the base of the crust. Gravity lows to the south of this were interpreted to be granite intrusives and tied in well with the magnetic information.

Four dominant structural orientations were also recognised across the area. These are: north-south lineaments through the Mt Minnie area well to the east of ELA8/1150 corresponding with the Darling Fault System trend; various northwest to westnorthwest lineaments possibly linked with continental lineaments; east-west lineaments corresponding with BMR aeromagnetic discontinuities to the southeast of ELA8/1150; and northeast lineaments corresponding with the western side of a gravity ridge which represent the northeast magnetic corridor and likely the Peedamullah Shelf. Three of these structures were reported to occur in the vicinity of ELA8/1150.

Some of the gravity anomalies coincided with magnetic features.

In 1995, further aeromagnetic data were acquired. A combined 1:100 000 geological interpretation using their data and earlier gravity, bottom of hole geology and geological mapping data was then undertaken. Significant findings of this interpretation are detailed below. Some of the targets generated by this work were later explored by drilling.

The northern section of ELA8/1150 showed sub-parallel westnorthwest striking linear anomalies within surrounding areas of weak to moderate magnetic response. The linear features were considered likely to indicate magnetite bearing schists, iron formations and amphibolite. The units were folded in a north trending direction and deflect around an area of weaker response interpreted as a granite stock. This stock and country rock are cross cut by a westnorthwest trending fault while the magnetite bearing metasediments show northwest and north faulting. Faults striking to the northeast are probably west block down and as a result the magnetic source deepens westward.

On the southeast border of ELA8/1150, a series of strong globular magnetic responses occur and lie close to two interpreted non magnetic stocks which have intruded extensive magnetite rich granitoids. These are believed to be magnetite rich skarns possibly surrounded by remnant metasediments. All are cross cut by a northnorthwest trending magnetic dolerite dyke showing northeast and northnorthwest faulting.

Elsewhere around 50 kilometres northeast of ELA8/1150, comparison of existing drill hole data with the interpretation showed strong linear responses to be indicative of stratigraphic or pseudostratigraphic ironstones produced by magnetite metasomatism along strike parallel shear zones within metasediments or metavolcanics. The drill hole information indicated quartzite, metasiltstone and phyllite to be present in the area.

East of the Ashburton River, weak to strong magnetic signatures are indicative of magnetic adamellite plutons which have further been intruded by smaller fractionated plutons and are separated by granite pegmatites and schists. These signatures represent peripheral magnetite development about the pluton which has also accumulated in the surrounding metasedimentary country rocks.

Around 20 kilometres eastnortheast of ELA8/1150 in the Oyster anomaly area an antiform of plunging metasediments striking westnorthwest is cross cut by north to northeast faults that correspond with gravity and magnetic data. Within a dilational zone, caused by a major cross cutting northnortheast fault, a body of magnetite alteration is reported to exist. Further north similar anomalies are also reported.

Eastnortheast of ELA8/1150, muscovite with or without chlorite schist over high and low magnetic areas indicates a thin roof zone above magnetite bearing and fractionated granitoids.

Following this major interpretation, aerial photographs and Landsat TM imagery were obtained for assisting a geological mapping and prospecting exercise. This work generated lithological information about the outcropping geology.

In 1995/96, a geophysical target around 5 kilometres southeast of the current area was explored by drilling. The exploration was unsuccessful in terms of intersecting anomalous base metals. The work demonstrated the presence of granite intrusives with possibly associated alteration such as muscovite and carbonate.

In 1996, an aeromagnetic survey was flown over a tenement roughly 20 kilometres to the south of ELA8/1150 at 400 metre line spacing.

From that time it was decided to focus on the northwest trending magnetic response targets for iron formation hosted gold deposits.

During 1995/96, the northern part of the ELA8/1150 area under a separate reporting area had no work done on it. Instead, work was concentrated on other prospects to the east delineated from gravity and magnetic data. Around 60 kilometres eastnortheast of ELA8/1150, drilling of a geophysical target intersected schists, amphibolite and granitoids with anomalous gold, copper and arsenic in two RC holes.

At the Lobster target, 40 kilometres northeast, in a pair of northwest trending anomalies, elevated copper was intersected in foliated diorite and mafic rocks in three of seven RC holes. The best copper assay was found to be 2900 ppm at 68-70 metres within an interval of 22 metres with greater than 500 ppm copper with anomalous gold and silver. This interval consisted of texturally late, coarse grained magnetite that was interpreted to have introduced both the copper and iron in the same hydrothermal event.

At the Oyster target, around 20 kilometres northeast, the anomaly consisted of a westnorthwest elongate elliptical annular magnetic body with a central bullseye, cut by northeast and north trending faults and consisting of metasediments or metavolcanics in a doubly plunging antiform. A separate magnetic anomaly exists to the northeast where a northeast fault intersects a westnorthwest structure. Minor alteration and iron metasomatism were recorded in diamond drill holes and granitic dykes from another drill hole contained pyritic selvages and trace chalcopyrite. Best copper assays were 540 and 370ppm. Drill holes were located in the centre of the geophysical anomaly.

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From 1996 to 1997, a reassessment was undertaken of aeromagnetic data over four anomalous areas defined from previous interpretations. One, then called Snapper, occurs within ELA8/1150, while three others occur to the south and southeast. A major north-south sinistral fault interpreted to occur across the present area indicated possible settings for ironstone hosted gold.

In August 1996, a gravity survey was undertaken over the Snapper prospect in an area interpreted to be a demagnetised iron formation, possibly mineralized banded iron formation, adjacent to a magnetic iron formation and formed by dragging iron formation into a sinistral northsouth trending fault. This survey consisted of 85 gravity stations over four traverses with a number of scattered measurements.

Interpretations of this data indicated an intense magnetic high adjacent to a fold nose. One limb progresses into a southeast trending stratigraphic magnetic high while the other trends south. The drag fold of iron formation is interpreted from the fold hook and believed to extend 20 kilometres south to another prospect. The Snapper prospect was divided into two areas, one called Snapper (1) within the Gunson Resources Ltd area and now designated Minderoo South and the other Snapper (2) which occurs just to the southwest of ELA8/1150.

Snapper (1) occurs at the northwest end of an arcuate series of northwest trending highs and is adjacent to a northeast trending break in the magnetic high. To the south, the magnetic response is lower. The northeast break is interpreted to represent a fault, down thrown to the south. The anomaly in the northwest therefore was believed to sit at a higher level. The magnetite rich metasediments surrounding the anomaly appear to have been folded. It was suggested from gravity data that the magnetic source consists of high density material and was therefore iron rich.

Initially it was inferred that the fold nose was a structural weakness with enhanced porosity that was once exposed to alteration fluids because the magnetic signature drops off around the nose, although a hint of magnetism is still present. The results from the 1996 gravity survey indicated that dense non magnetic material continues around the fold nose, with a much larger gravity anomaly about a kilometre to the southeast.

The magnetic data for the folded unit was modelled and this revealed non-uniformity along strike and deep sources of at least 300 metres with southerly dips between 50 and 70 degrees. Density modelling suggested four non magnetic bodies occurred, three of which indicated regional trends. One of these bodies was found to sit conformably and adjacent to the most magnetic bodies in the model. This also indicated a depth of more than 300 metres with a density only marginally different from the country rock.

The Snapper (2) anomaly bordering the southwestern margin of ELA8/1150 consists of a local magnetic high with a lesser high to the east and has similar magnetic intensities to Snapper (1). The features are reported to appear elongated and may indicate strike limited segments of magnetic stratigraphy as in Snapper (1). Modelling of the data suggested depths of more than 400 metres to the magnetic source. The plunge of various bodies is believed to be 70 degrees to the southwest and vertical in areas of a lesser magnetic response. No gravity data were available over this area.

In late 1996, a soil geochemistry program was conducted over the Snapper (1) prospect. Five lines were completed, totaling 70 samples. Anomalies were reportedly explained by the occurrence of basement faults, changes in basement rock type or correlated increases between manganese and other elements. These conclusions, together with the depth to the target, contributed to no more work being carried out by the explorer.

At the prospect directly south, the interpreted drag fold containing iron formation showed bulk soil gold values up to 10 ppb and two high halogen anomalies 1.6 kilometres apart also reflected in 30 other elements. The northern halogen anomaly was believed to be fault induced while the southern one was thought not to be a fault.

Southsoutheast around 20 kilometres away, three single sample halogen peaks follow the magnetic high axis and did not appear to relate to faults. Two multi-element anomalies relate to manganese and were thought to be caused by scavenging while 20 kilometres eastsoutheast of ELA8/1150 no anomalies were associated with the magnetic peak and previous unfavorable drilling results.

The Snapper (1) prospect, along with three prospects to the southeast were dropped in 1997. Work undertaken at Snapper (1) included closely spaced gravity and magnetic surveys and five lines of enzyme leach geochemistry that showed anomalies said to be caused by faults and lithofacies changes.

In August 1996, a gravity survey was also undertaken at the Whiting Prospect, now known as Minderoo North, within ELA8/1150 over a magnetic high adjacent to an uplift fault. This survey included 54 gravity stations taken on 200 metre centres. The prospect consisted of a magnetic high on the northwest end of a likely stratigraphic magnetic high trend. Although only modelled for depth to basement reasons at first, the prospect was subsequently upgraded.

The gravity data indicated the main high to be coincident with the magnetic high but occurring at a shallower depth. The magnetic source depths were interpreted to be between 300 and 500 metres, the latter being intensely magnetised with magnetite concentrations estimated at greater than 30 per cent. The gravity, however, showed dense material over the magnetic source occurring within 200 metres of the surface.

Isolated magnetic highs in the vicinity to the northeast and east of Whiting were targetted to gain an understanding of the source depths over the area at that time. No high concentrations of magnetite were found at these anomalies and depths to source ranged from 200 to 400 metres. Two other geophysical anomalies to the east were modelled. It was interpreted that northwest faulting occurred with shallow depth to source. The northwest fault was inferred to have acted as a conduit for circulating magnetite destructive alteration fluids.

An RC drilling program was carried out over the Lobster target beyond ELA8/1150 to the eastnortheast and at three other prospects. In all 42 holes were drilled at Lobster for 2720 metres which comprised geochemical drilling to test the interpretation of a magnetic complex surrounding a copper mineralized magnetic high. Ten holes were on a 400 by 300 metre grid to test the extent of copper mineralisation in the vicinity of the Lobster prospect found the previous year, while the rest were on an 800 metre by 1.6 kilometre grid. The basement depth ranged from 12 to 119 metres and the basement rock type around previously defined copper mineralisation was found to be weakly deformed gabbro with pyroxenite and granitoids. The original Lobster area was found to be a mafic igneous complex. The igneous rocks were considered to be emplaced in a syn or post-orogenic setting. The mafic and ultramafic rocks showed clay and rarely carbonate weathering profiles up to 20 metres thick. In the oxidised samples, evenly disseminated pyrite was found to occur with copper concentrations up to 630 ppm and in the fresher samples fine grained sulphide was present with the hematite. These sulphides were attributed to igneous features rather than a mineralising event.

In late 1996, 263 enzyme leach soil samples were taken in 12 traverses over Whiting, Lobster and two other prospects. The Whiting sampling consisted of 2 line kilometres on a 100 metre by 500 metre grid over an isolated and coincident gravity and magnetic high, the former showing a shallower depth to source than the latter. The southern line yielded a broad low amplitude base metal peak and follow up soil sampling was considered but not implemented.

Samples taken over the Lobster anomaly, which is at the southern end of a north-south sinistral fault extending from Peedamullah, did not show any anomalies that represented anything other than basement rock changes. Samples were also taken over the area of copper mineralisation with the largest anomalies occurring over a northwest trending basement fault. It is reported that the fifth highest soil anomaly corresponded with the maximum drill assay of 740 ppm copper. Over the known copper sulphide mineralisation it was believed that either only noise was detected or that there was little mineralisation as seen by drilling.

In 1997, the tenements that contained Minderoo North and Minderoo South prospects were dropped. However, the exploration of the geophysical targets nearby had generated elevated base metal and gold results in geologically favorable environments although none that were considered worth follow up under the circumstances. The two geophysical anomalies within the present ELA8/1150 were not drilled and therefore constitute valid exploration targets.

PROSPECTIVITY

The Onslow project area is deemed prospective for Olympic Dam style mineralisation. Such mineralisation occurs in Proterozoic terrain associated with granitic intrusives. Brecciation and hematisation of the intrusive and country rock has occurred with associated copper-golduranium mineralisation.

Recent work has indicated anomalous copper throughout the area to the northeast, east and southwest of the current tenement area. Those discussed earlier in this report fall roughly within a 60 kilometre radius. Within the present area there are two strong geophysical targets that have never been explored at depth. These geophysical targets have a noticeable northwest trend and are interpreted to be cut by north-south and northeast orientated faults.

The formerly explored area, which covers the Minderoo South prospect occurs across a northeast trending gravity ridge. Gravity lows occur to the east which suggest favourable granitic rocks of the Minnie Creek Supersuite.

From a regional perspective, the anomalies generally occur following a northeast trend. Of relevance to the present area, Minderoo North and South are on a lineament that extends well to the northeast where the Lobster and Oyster targets are situated.

Oyster and Minderoo South anomalies appear to lie within folded metasediments. On drilling the Oyster anomaly was shown to cover minor alteration, iron metasomatism and pyritic selvages around granitic dykes. Drilling intersected up to 540 ppm copper in the bullseye. Holes were probably not optimally located to test this target.

Minderoo South anomaly is interpreted to consist of demagnetised iron formation adjacent to a fold that has been dragged into a north-south sinistral fault. The gravity interpretation suggested dense non-magnetic-material like sulphides or hematite and a much larger gravity high occurs about a kilometre to the southeast.

The Lobster anomaly near ELA8/1150 occurs in foliated diorite and mafics within texturally late magnetite of hydrothermal origin. Of 7 RC drill holes, 3 intersected anomalous copper, the best result being 2900 ppm at 68-70 metres within 22 metres of greater than 500 ppm. Only the surrounding areas showed less than 630 ppm, with geochemistry indicating the fifth highest anomaly correlating with the highest drill hole intersection of 740 ppm.

The Minderoo North anomaly was interpreted to contain a magnetite concentration of 30% with dense material overlying it within 200 metres of the surface.

Considering the favorable tectonic setting, the close vicinity of outcropping Gascoyne Complex granites and the northeast corridor of the Peedamullah Shelf, the metamorphic grade and the granite intrusives to the east of the northeast gravity ridge that are close to or within the area, the two targets in ELA8/1150 are considered prospective for magnetite destructive copper and polymetallic mineralisation.

The anomalies on the northeast trend on the margin of the Peedamullah Shelf gave more encouraging results than exploration of other anomalies to the southeast on the northwest trend. Both Minderoo North and Minderoo South geophysical anomalies are on the prospective northeast trend.

It is finally worth mentioning that no drilling was carried out on either the Minderoo North or Minderoo South prospects and that the Minderoo North area in particular seemed to be dropped as a result of the poor economic climate.

PROPOSED EXPLORATION

Gunson Resources Ltd propose to advance to the drilling stage as quickly as possible because most geophysical targeting has already been completed. Soil sampling and IP surveys will be undertaken with a geophysical interpretation. Diamond drilling is then planned for the two targets consisting of two holes each. The programme is expected to cost around \$200 000.

MARTIN REYNOLDS

GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

AAS	Atomic Absorption Spectrometry, a method of chemical analysis
accretion	the gradual extension of land through geological time
acid	a loose term for igneous rocks in which high silica minerals dominate
adamellite	quartz bearing monzonite
Adelaidean	a time period from 870 to 570 million years ago
aeolian	of or formed by the action of wind
aerial photography	photographs of the earth's surface taken from an aircraft syn. aerophotography
aeromagnetic survey	a survey made from the air for the purpose of recording magnetic survey data on rocks syn. aeromagnetometry
aircore	a rotary drilling technique that uses compressed air to cut a core sample and return fragments to surface inside the drill rods
alluvium	a sediment deposited by water
alteration	applied to rock forming minerals that have been chemically changed
amphibole	a group of dark iron magnesium silicate minerals
amphibolite facies	metamorphism under moderate to high temperatures and pressure
amphibolite	a metamorphic rock consisting of amphibole and plagioclase
anaerobic	no free oxygen
ancestral	applied to an ancient river system that predates a more recent river system
anhydrite	a mineral composed of calcium, sulphur and oxygen $CaSO_4$
anomaly	value higher or lower than expected often outlining a zone of potential exploration interest but not necessarily of commercial significance <i>adj. anomalous</i>
anticline	a fold where the rock strata dip outwards away from the axis ant. syncline adj. anticlinal
antiform	an anticline in strata where the stratigraphy is not known
aplite	a light coloured fine grained igneous rock of moderate depth
aquifer	a permeable rock formation that allows the passage of ground water
arcuate	curved
argillaceous	pertaining to a sedimentary rock composed of clay sized particles
,	
arkose	feldspar rich sandstone
arkose auger	feldspar rich sandstone a screw-like tool used to obtain shallow samples
arkose auger banded iron formation	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica
arkose auger banded iron formation barite	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄
arkose auger banded iron formation barite basal lag	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence
arkose auger banded iron formation barite basal lag basalt	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i>
arkose auger banded iron formation barite basal lag basalt base metal	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc
arkose auger banded iron formation barite basal lag basalt base metal basement high	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface
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arkose auger banded iron formation barite basal lag basalt base metal basement high basement basic basin batholith	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive
arkose auger banded iron formation barite basal lag basalt base metal basement high basement basic basin batholith bed	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer
arkose auger banded iron formation barite basal lag basalt base metal basement high basement basic basin batholith bed bedrock	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material
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arkose auger banded iron formation barite basal lag basalt base metal base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral
arkose auger banded iron formation barite basal lag basalt base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves
arkose auger banded iron formation barite basal lag basalt base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve blind	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves applied to mineralisation or a deposit meaning not visible at surface
arkose auger banded iron formation barite basal lag basalt base metal base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve blind block faulting	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves applied to mineralisation or a deposit meaning not visible at surface the division of the earth's crust in to blocks at different elevations by faulting
arkose auger banded iron formation barite basal lag basalt base metal base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve blind block faulting block model	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves applied to mineralisation or a deposit meaning not visible at surface the division of the earth's crust in to blocks at different elevations by faulting a tonnage and grade model of a mineral deposit that is reported in terms of blocks of standard sizes.
arkose auger banded iron formation barite basal lag basalt base metal base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve blind block faulting block model breccia	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves applied to mineralisation or a deposit meaning not visible at surface the division of the earth's crust in to blocks at different elevations by faulting a tonnage and grade model of a mineral deposit that is reported in terms of blocks of standard sizes. a coarse grained rock of angular broken rock fragments cemented together <i>adj.</i> <i>brecciated</i>
arkose auger banded iron formation barite basal lag basalt base metal base metal basement high basement basic basin batholith bed bedrock biogeochemical biotite bivalve blind block faulting block model breccia	feldspar rich sandstone a screw-like tool used to obtain shallow samples a rock type with alternating bands of iron rich minerals and silica a barium sulphate mineral BaSO ₄ a residual accumulation of coarse grained material on a surface and at the base of a sedimentary sequence a fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals <i>adj. basaltic</i> a metal inferior in value to precious metals e.g. copper, lead, zinc an old topographically elevated area of the basement surface a much older harder rock surface underlying more recent deposits pertaining to igneous rocks containing between 45% and 52% silica with a high proportion of mafic minerals as opposed to acid rocks a low area of the earth's crust in which sediments accumulate a very large intrusive individual sedimentary layer any solid rock underlying unconsolidated material a geochemical survey technique where the sampling medium is plant material a dark mica mineral an organism having a shell with two distinct halves applied to mineralisation or a deposit meaning not visible at surface the division of the earth's crust in to blocks at different elevations by faulting a tonnage and grade model of a mineral deposit that is reported in terms of blocks of standard sizes. a coarse grained rock of angular broken rock fragments cemented together <i>adj.</i> <i>brecciated</i>

bulk density	the density of a substance including the natural voids
bulk relative density	the relative density of a substance including the natural voids
bulk sampling	a large sample taken from a deposit usually for metallurgical purposes
Cainozoic	the division of geological time extending from 65 million years ago to the present
calcarenite	a limestone with predominantly detrital calcite particles of sand size
calcareous	said of a rock containing calcium carbonate CaCO ₂
calcilutite	a limestone with predominantly detrital calcite particles of silt and/or clay size
calcite	a mineral composed of calcium, carbon and oxygen CaCO.
calcrete	a hard pap layer in which surface debris is cemented by calcium carbonate
	a down hole geophysical logging technique whereby the diameter of the hole is
Caliper logging	continuously measured
Carboniferous	a time period from 345 to 280 million years ago
chalcocite	a copper sulphide mineral Cu ₂ S
chalcopyrite	a copper-iron sulphide mineral, an important ore of copper CuFeS ₂
chlorite	a group of usually greenish minerals
churn drilling	a drilling technique whereby the rock is broken up by the reciprocating action of a bit suspended from a cable
clast	a fragment produced by physical weathering adj. clastic
clay	particles of less than 0.0039 millimetres often but nor always composed of clay minerals
coccolith	a microscopic calcareous fossil fragment
colluvium	alluvium transported only a short distance before deposition
colorimetric	an analytical technique whereby a concentration is determined by comparing the colour of a solution with standards
comagmatic	pertaining to igneous rocks considered to derive from a common parent magma
conformable	beds deposited upon one another in uninterrupted sequence adj. conformably
conglomerate	sedimentary rock formed by the cementing together of rounded water-worn pebbles, distinct from breccia
coquina	a deposit composed of transported and deposited calcareous fossil fragments
coquinite	the rock derived from a coquina
core drilling	a drilling technique whereby a continuous cylindrical sample is produced
country rock	the rock enclosing a mineral deposit or an igneous intrusive
cover	applied to rocks or a sequence of rocks that overlie older rocks usually basement
Cretaceous	a time period from approximately 135 to 65 million years ago
crop out	applied to rocks that are exposed at the earth's surface noun outcrop
cross bedded	sedimentary beds inclined with respect to the horizontal formed by the migration of bed forms such as dunes and ripples
crust	the outermost part of the earth adj. crustal
CSAMT survey	Controlled Source Audio Magneto Telluric, a geophysical survey exploration technique
cut-off	an upper or lower limit generally of grade applied during the estimation of a Resource or Reserve
dacite	a fine grained igneous rock consisting essentially of quartz, more plagioclase than alkali feldspar and mafic minerals
delta	the large generally triangular area of sediments deposited at the mouth of a river <i>adj. deltaic</i>
detrital	said of material derived from the mechanical disintegration of a parent rock
Devonian	a division of geological time from 410 to345 million years ago
diamond or diamond core drilling	rotary drilling using diamond impregnated bits to produce a continuous core sample of rock
dilation	deformation with change in volume but not shape adj. dilational
diorite	an intrusive rock intermediate in composition between acid and basic
disconformity	an unconformity where the rock strata below are still essentially horizontal <i>adj. disconformable</i>
dolerite	a medium grained intrusive rock mainly composed of feldspar and pyroxene
dolomite	a calcium magnesium carbonate mineral $CaMg(CO_3)_2$ adj. dolomitic
downwarp	a regional area of the earth's crust that has subsided
drag fold	a minor fold
drowned coastline	a coastline that has subsided relative to the sea

duricrust	the hard crust at the near surface of a soil in a semiarid climate
dyke	a tabular intrusive body of rock that cuts across bedding
electrical sounding	a geophysical exploration technique
EM survey	Electromagnetic survey, a method of measuring the alternating magnetic fields associated with electrical currents artificially or naturally maintained in the subsurface
epidote	a greenish silicate mineral
erosion	the wearing away of the earth's crust by physical and chemical means
eustatic	pertaining to world wide changes of sea level over geological time
extrusive	an igneous rock that has been erupted on to the earth's surface
facies	pertaining to the geological or depositional environment as shown by the rock, mineral or fossil content
fault	a fracture in rocks on which there has been movement on one of the sides relative to the other and parallel to the fracture $% \left({{{\mathbf{r}}_{i}}^{2}} \right)$
faunal	pertaining to animal life
feldspar	an abundant group of rock forming silicate minerals in which calcium, sodium and potassium are in combination with aluminium
felsic	a loosely used group name for light coloured silicate minerals that are poor in iron and magnesium and for rocks in which these minerals are abundant
fluvial	of or found in rivers adj. fluviatile
fluvioglacial	melt water streams flowing from wasting glacier ice also the geological environment and land forms produced by such streams
foliation	the planar arrangement of features in a rock adj. foliated
footwall	the wall rock below an inclined vein or fault
foredune	a coastal dune parallel to the shore line stabilised by vegetation
fossil beach	a previously formed beach deposit preserved by geological processes that is no longer in a beach environment
fossil dune	a previously formed dune preserved by geological processes
fossiliferous	containing fossils
fractionation	the concentration of chemical elements during crystallisation of a magma adj.
	nactionated
gabbro	a dark coloured basic igneous intrusive rock
gabbro gamma ray logging	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured
gabbro gamma ray logging geochemistry	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i>
gabbro gamma ray logging geochemistry geophysics	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i>
gabbro gamma ray logging geochemistry geophysics geostatistical	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited
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gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glaciation glaciolacustrine	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i>
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glaciation glaciolacustrine glauconite graben	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or solts <i>adJ. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i>
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i>
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite granitoid gravity survey	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a geophysical survey technique using a gravimeter to measure the force of gravity at locations within an area
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacialon glaciolacustrine glauconite graben granite granitoid gravity survey greensand	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a greenhysical survey technique using a gravimeter to measure the force of gravity at locations within an area a greenish coloured sand generally containing glauconite
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glacialon glaciolacustrine glauconite graben granite granitoid gravity survey greensand greensand greenschist facies	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a grophysical survey technique using a gravimeter to measure the force of gravity at locations within an area a greenish coloured sand generally containing glauconite metamorphism under moderate temperatures
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite granite granitoid gravity survey greensand greenschist facies greywacke	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a grophysical survey technique using a gravimeter to measure the force of gravity at locations within an area a greenish coloured sand generally containing glauconite metamorphism under moderate temperatures a dark poorly sorted coarse grained sandstone
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite granitoid gravity survey greensand greenschist facies greywacke grit	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a greenish coloured sand generally containing glauconite metamorphism under moderate temperatures a dark poorly sorted coarse grained sandstone a coarse grained sandstone generally composed of angular fragments
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glaciolacustrine glauconite graben granite granitoid gravity survey greensand greenschist facies greywacke grit halite	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a greenish coloured sand generally containing glauconite metamorphism under moderate temperatures a dark poorly sorted coarse grained sandstone a coarse grained sandstone generally composed of angular fragments a sodium chloride mineral NaCl
gabbro gamma ray logging geochemistry geophysics geostatistical geosyncline geotechnical gibber plain glacial glacial glacial glaciolacustrine glauconite graben granite granitoid gravity survey greensand greenschist facies greywacke grit halite halo	a dark coloured basic igneous intrusive rock a down hole geophysical logging technique whereby the natural gamma radiation from the rocks is measured the study of the variation of chemical elements in rocks or soils <i>adj. geochemical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the study of the earth by quantitative physical methods <i>adj. Geophysical</i> the statistical study of grade etc especially of a mineral deposit a large linear trough on the earth's surface in which sediments or volcanic rocks are deposited pertaining to the study of the mechanical properties of rocks and soils for engineering application a desert plain strewn with pebbles pertaining to glaciers erosion due to the action of glaciers pertaining to lakes associated with glaciers a green hydrous silicate mineral containing potassium and iron <i>adj glauconitic</i> a large down thrown crustal block bounded by faults opposite of horst a coarse grained igneous rock consisting essentially of quartz and more alkali feldspar than plagioclase <i>adj. granitic</i> a greenish coloured sand generally containing glauconite metamorphism under moderate temperatures a dark poorly sorted coarse grained sandstone a coarse grained sandstone generally composed of angular fragments a sodium chloride mineral NaCl in geochemistry the low grade area surrounding a deposit

hematisation	the process whereby iron generally hematite is introduced in to a rock adj. hematised
hematite	a naturally occurring iron oxide Fe2O3 adj. hematitic
Holocene	a time period from approximately 10 000 years ago to the present
horst	a large uplifted crustal block bounded by faults opposite of graben
HQ3	a size of core around 61 millimetres nominal diameter
hydrogeochemistry	the geochemistry of ground water
hydrothermal	of or pertaining to hot water
hypersaline	very saline
I type granite	a granite derived from igneous source rocks
ICP	Inductively Coupled Plasma, an analytical technique
igneous	rocks formed by crystallisation from molten material
ilmenite	oxide of iron and titanium FeTiO
Indicated Resource	the middle assured category of resource
inducation	the hardening of a rock by geological processes
Informed Recourse	the last assured category of resource
	an airborne FM geophysical survey exploration technique
intruit survey	an anothe Livi geophysical survey exploration rechnique
intergiaciat	pertaining to the period of time between two successive periods of intense glaciation
ΙΠΤΕΓΓΙΟΑΙ	marks syn. littoral
intrusive	a body of igneous rock that was intruded whilst molten in to the earth's crust
IP survey	Induced Polarisation, a geophysical survey technique
joint	a rock fracture with no displacement
Jurassic	a time period from approximately 212 to 142 million years ago
kaolin	a group of soft non plastic usually white clay minerals derived from the decomposition of aluminous minerals <i>adj. kaolinitic</i>
kaolinite	a mineral of the kaolin group
kriging	a geostatistical method for interpolating grade etc in a mineral deposit
lacustrine	pertaining to lake waters
laminated	very finely bedded, often found in shales
Landsat	imagery of the earth's surface taken from a satellite
laterite	red residual soil or rock developed in humid tropical or sub tropical regions with good drainage; it contains concentrations of insoluble residual elements such as iron and aluminium
leucoxene	a general term for alteration products of ilmenite
limestone	a sedimentary rock composed mainly of calcium carbonate
lineament	a naturally occurring major linear feature in the earth's crust often associated with mineral deposits
lithified	converted from a sediment to a solid rock
lithogeochemistry	the geochemistry of rocks adi. lithogeochemical
littoral	pertaining to that part of the marine environment between the high tide and low tide marks <i>syn. intertidal</i>
macro	a prefix meaning large
mafic	a loosely used group name for dark coloured silicate minerals that are rich in iron and magnesium and for rocks in which these minerals are abundant
magnetic survey	a survey made to record variations in the earth's magnetic field syn. magnetometry
magnetic susceptibility	the ratio of induced magnetisation to the strength of the magnetic field that causes it
magnetite	a naturally occurring iron oxide Fe_3O_4
mean	arithmetic average
Measured Resource	the most assured category of resource
Mesozoic	a time period from 225 to 65 million years ago
meta	a prefix meaning that the rock type has undergone metamorphism
metamorphism	the mineralogical, structural and chemical changes induced within solid rocks through the actions of heat, pressure or the introduction of new chemicals <i>adj. metamorphism</i>
metasomatism	the introduction of chemicals in to a rock often without changes in volume or texture
meteoric water	water of recent atmospheric origin
mlcrofossil	a microscopic fossil

migmatite	a rock with large scale bands of differing composition adj. migmatised
mineral sands	in economic geology those sediments containing potentially valuable minerals
mineral	a naturally occurring chemical compound that is a constituent of a rock or sediment
mineralisation	in economic geology the introduction of valuable elements in to a rock body or the result of such introduction
mineralogy	the study of minerals adj. mineralogical
Miocene	a time period from 24 to 5 million years ago
monazite	a rare earth phosphate mineral (CeLaNdTh)(PO_4SiO_4)
monzonite	an intrusive rock with approximately equal amounts of alkali and plagioclase feldspar with little or no quartz
MSS	Multi Spectral Scanner, a type of Landsat imagery with resolution of around 80 metres
mudstone	an indurated mud
muscovite	a generally colourless mica mineral
mylonite	deformation of a rock by pressure applied in a definite direction without chemical changes to the minerals
neutron logging	a down hole geophysical logging technique whereby the number of neutron is measured when the rocks are bombarded by a neutron source
NOAA	National Oceanic and Atmospheric Administration, a type of satellite imagery with resolution of around one kilometre
NQ	a size of core around 45 millimetres nominal diameter
olivine	an olive green to brown silicate mineral
onlap	successive transgressions by overlying sedimentary units
oolith	a small spherical accretionary body in a sedimentary rock adj. oolitic
open hole drilling	a drilling technique where the hole is not cased
Ordovician	a time period from 500 to 440 million years ago
orientation	the application of an exploration technique on a trial basis generally to an area of known characteristics as a preliminary to the systematic application of the technique
orogen	a linear or arcuate region that has been subjected to folding and other deformation adj.
	orogenic
outcrop	orogenic the surface expression of a rock layer
outcrop outlier	orogenic the surface expression of a rock layer an isolated area of rock surrounded by older rocks
outcrop outlier palaeo	orogenic the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature
outcrop outlier palaeo Palaeocene	orogenic the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago
outcrop outlier palaeo Palaeocene Palaeozoic	a time period from 590 to 248 million years ago
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone	a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature <u>a time period from 66 to 58 million years ago</u> a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature <u>a time period from 66 to 58 million years ago</u> a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i>
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature <u>a time period from 66 to 58 million years ago</u> a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i>
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature <u>a time period from 66 to 58 million years ago</u> a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform Pleistocene	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks a time period from 3 million to 10 000 years ago
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform Pleistocene plug	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks a time period from 3 million to 10 000 years ago a vertical pipe like intrusive generally the feeder system for a former volcano
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform Pleistocene plug pluton	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks a time period from 3 million to 10 000 years ago a vertical pipe like intrusive generally the feeder system for a former volcano a generally deep igneous intrusion <i>adj. plutonic</i>
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform Pleistocene plug pluton porphyry	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks a time period from 3 million to 10 000 years ago a vertical pipe like intrusive generally the feeder system for a former volcano a generally deep igneous intrusion <i>adj. plutonic</i> an igneous rock with a comparatively fine grained matrix and scattered coarse mineral crystals <i>adj. porphyritic</i>
outcrop outlier palaeo Palaeocene Palaeozoic pallid zone pathfinder pegmatite pegmatoid pelagic percussion drilling periglacial petrography petrology Phanerozoic phyllite pipe platform Pleistocene plug pluton porphyry	the surface expression of a rock layer an isolated area of rock surrounded by older rocks a prefix relating to a past, ancient or fossil feature a time period from 66 to 58 million years ago a time period from 590 to 248 million years ago a bleached weathering horizon often below laterite in geochemistry an element associated with the element being sought and that can be more easily detected an exceptionally coarse grained igneous rock with interlocking crystals and usually present as dykes an igneous rock similar to a pegmatite but without the interlocking crystals pertaining to the deeper parts of a lake rock drilling carried out by the hammering action of a pneumatically driven drill bit pertaining to the immediate margins of glaciers the microscopic study and description of rocks <i>adj. petrographic</i> the study of rocks in the fullest sense <i>adj. petrological</i> a time period from 580 million years ago to the present an intermediate grade metamorphic rock a vertical conduit in the earth usually associated with a volcano that part of a continent covered by flat lying mainly sedimentary rocks a time period from 3 million to 10 000 years ago a vertical pipe like intrusive generally the feeder system for a former volcano a generally deep igneous intrusion <i>adj. plutonic</i> an igneous rock with a comparatively fine grained matrix and scattered coarse mineral crystals <i>adj. porphyritic</i> parts per billion, a measure of concentration
the part of a hole drilled down to the depth at which core drilling is to commence and precollar where some other technique is used metamorphism in response to higher pressures and temperatures than those previously prograde present a time period from 2400 to 570 million years ago Proterozoic a prefix meaning a precursor stage to or of proto a mineral composed of iron and sulphur FeS2 adj. pyritic pyrite pyroclastic clastic rocks that result from explosive volcanic activity a dark rock forming silicate mineral pyroxene an ultramafic plutonic rock mainly composed of pyroxene pyroxenite a very common mineral composed of silicon and oxygen SiO₂ quartz quartzite a rock composed predominantly of quartz a time period from 1.8 million years ago to the present Quaternary RAB Rotary Air Blast, a rotary drilling technique that uses compressed air to clear the drill bit of cuttings and return them to the surface radiolarite a hard siliceous rock composed predominantly of fossils of radiolaria adj radiolarion a geophysical survey technique whereby measurements are made of ambient radiation radiometric survey that may be indicative of different rocks, ores etc syn. radiometry Reverse Circulation, a rotary percussion drilling technique in which the samples are RC returned to the surface inside the drill rods minimising contamination red bed a sedimentary sequence predominantly red due to the presence of iron oxide the variegated unconsolidated material that overlies bedrock regolith retreat of the sea from land areas regression relative density the ratio of the density of a substance divided by the density of water syn. specific gravity reserve that part of a resource that can be mined, treated and sold at a profit pertaining to a geophysical data set where regional trends have been removed residual a geophysical survey technique in which the resistance of the earth is measured by resistivity survey means of an introduced electrical current material for which quantitative estimates are based largely on broad knowledge of the resource geological character of the deposit for which there are relatively few samples or measurements a fault where the hanging wall has moved upward relative to the footwall reverse fault igneous rocks intermediate between rhyolite and dacite rhyodacite acid igneous rocks the extrusive equivalent of granite rhyolite small anomalous mineral sand sequences between larger strand sequences and usually ribbon sequence around 150 metres wide RI Relative Level, a method of quantifying elevations relative to a local datum a drilling technique involving simultaneous hammering and rotation action by a bit rotary percussion rutile titanium dioxide mineral TiO₂ a granite derived from sedimentary source rocks S type granite unconsolidated sediment formed by fragments between 0.06 and 2.0 millimetres in sand diameter a sedimentary rock usually composed essentially of sand sized grains sandstone scarp a line of cliffs formed by faulting or erosion a geophysical technique whereby the natural radiation of rocks is measured using a scintillometry scintillometer a type of grass that grows in the sea usually on banks and prevalent in the Shark Bay seagrass area over the last 4000 years solid material whether mineral or organic that has been moved from its position of origin sediment and redeposited adj sedimentary the processes by which a sediment is formed sedimentation seif a very large elongated sand dune a geophysical survey technique designed to detect underlying changes in rock type and seismic survey structure by measuring the passage of seismic waves from one medium to another of differing density a laminated sediment in which most particles are clay size or less than 0.0039 shale millimetres silica silicon dioxide SiO₂

sill a tabular intrusive body of igneous rock that is conformable with the layers it intrudes silt unconsolidated sediment formed by fragments between 0.0039 and 0.06 millimetres in diameter a sedimentary rock usually composed essentially of silt sized grains siltstone Silurian a time period from 440 to 400 million years ago slime particles of less than 44 microns soil sampling survey a geochemical exploration technique where soil is the sampling medium SP Self Potential, a geophysical technique whereby naturally produced electrical potentials are determined stacking descriptive of the accumulation of deposits on top of one another stand a period of geological time during which sea level remains constant strand the deposits laid down during a sea level stand stratigraphy the composition of a sequence of stratified rocks adj. stratigraphic a geochemical exploration technique where stream sediments are the sampling stream sediment geochemistry medium strike the direction of a horizontal line in the plane of an inclined sedimentary layer, fault or other planar surface perpendicular to the direction of dip a structure produced by sediment trapping by algae adj. stromalitic stromatolite structure the general arrangement of rock masses in an area resulting from folding, faulting etc adj. structurally sub crop the near surface presence of a concealed rock layer supratidal pertaining to the shore area above the high tide level surficial pertaining to the surface of the earth syenite an intrusive igneous rock containing alkali feldspar, minor plagioclase, mafic minerals and minimal quartz syncline a fold where the rock strata dip inwards towards the axis ant. anticline adj. synclinal tectonism the major structural processes forming faults and folds in the earth's crust TEM survey Transient Electromagnetic survey, a type of EM survey terrigenous derived from the land Tertiary a time period from 65 to 1.8 million years ago thermoluminescence applied to substances that emit light when heated, used in age dating of rocks tillite lithified sediments formed beneath a glacier titration a laboratory technique used in chemical analysis TM Thematic Mapper, a type of Landsat imagery with resolution of around 30 metres transgression advance of the sea onto land areas verb transgress materials other than those that are being sought trash unconformity a position in a sedimentary sequence where there is a lack of continuity in adjacent rock strata caused by a time break in sedimentation adj. unconformable variogram the calculated geostatistical measurement of the spatial variability of a deposit vein a tabular or sheet like mineral filled fracture adj. veined volcanic a rock originating from volcanic activities adj. volcanic weathering a process of change to rocks brought about by their exposure to oxygen and water X-ray diffraction analysis a technique used in the investigation of the structure of crystalline substances XRF X-Ray Fluorescence, a method of chemical analysis zircon A zirconium silicate mineral ZrSiO₄

INDEPENDENT ACCOUNTANT'S REPORT

The Directors Gunson Resources Limited 9 Havelock Street WEST PERTH WA 6005

10 March 2000

Subject: Independent Accountant's Report

Dear Sirs

1. Introduction

We have prepared this report for inclusion in a prospectus to be dated on or about 15 March 2000 ("the Prospectus") to be issued by Gunson Resources Limited ("the Company") in relation to the issue of 17,500,000 fully paid ordinary shares in the Company at an issue price of \$0.20 each.

Expressions defined in the Prospectus have the same meaning in this report.

The nature of this report is such that it should be given by an entity which holds a dealer's licence under the Corporations Law. PricewaterhouseCoopers Securities Ltd is wholly owned by the partners of PricewaterhouseCoopers and holds the appropriate dealer's licence.

2. Scope of Report

You have requested PricewaterhouseCoopers Securities Ltd to prepare an independent accountant's report covering the following financial information:

- (a) an unaudited statement of profit and loss for the period from incorporation to 29 February 2000; and
- (b) an unaudited statement of assets and liabilities as at 29 February 2000 together with an unaudited proforma statement of assets and liabilities as at 29 February 2000 as it would appear assuming that certain subsequent transactions had taken place at that date.

A copy of this financial information is included in Appendix A of this report. A copy of the significant accounting policies adopted in the preparation of the financial information is included in Appendix B of this report.

Given the Company's incorporation on 23 December 1999, the directors are yet to prepare financial statements for the Company. Notwithstanding that financial statements have not yet been prepared, the directors of the Company are responsible for ensuring that the Company keeps such accounting records as correctly record and explain the Company's transactions and its assets and liabilities. It is these accounting records which form the basis of the financial information addressed by this report.

We have conducted our review of the financial information in accordance with Auditing Standard AUS902 "Review of Financial Reports". As part of our review, we made such inquiries and performed such procedures as we, in our professional judgement, consider reasonable in the circumstances including:

- (a) analytical review of the financial information;
- (b) comparison of consistency in application of applicable Accounting Standards and accounting policies;
- (c) review of accounting records, work papers, and other documents;
- (d) inquiry of directors and management and others.

Our review for the purposes of this report was substantially less in scope than that of an audit examination, conducted in accordance with Australian Auditing Standards, the purpose of which is the expression of an opinion on financial statements taken as a whole. Accordingly, we do not express such an opinion.

PricewaterhouseCoopers Securities Ltd ACN 003 311 617 Holder of dealer's licence No 11203

256 St George's Terrace PERTH WA 6000 GPO Box D198 PERTH WA 6840 Telephone (08) 9238 3000 Facsimile (08) 9238 3999 DX 77 Perth

PRICEWATERHOUSECOOPERS 🛛

3. Opinion

Based on our review, which is not an audit, nothing has come to our attention which causes us to believe that the financial information included in this report does not fairly represent:

- (a) the unaudited statement of assets and liabilities as at 29 February 2000; and
- (b) the unaudited proforma statement of assets and liabilities as at 29 February 2000 as it would appear assuming that certain subsequent transactions had had taken place at that date as presented in Appendix A to this report.

4. Subsequent Events

To the best of our knowledge and belief, there have been no material items, transactions or events outside the ordinary course of the Company's business that have occurred subsequent to 29 February 2000 which are not otherwise disclosed in this Prospectus and require comment upon, or adjustment to, the information referred to in this report or which would cause such information to be misleading or deceptive.

Yours faithfully

JMC Pope Authorised Representative

APPENDIX A

Unaudited Financial Statements and Notes Thereto

STATEMENT OF PROFIT AND LOSS

The Company has not earned any profits or incurred any losses from the date of incorporation to 29 February 2000. The Company has not commenced operations other than entering into the contracts and other arrangements mentioned on pages 89 to 93 of this Prospectus.

	Note	Balance as at 29 Feb 2000 \$	Adjustments Refer Note A1 \$	Proforma \$
CURRENT ASSETS Cash		1	3,403,500	3,403,501
NON-CURRENT ASSETS Acquired exploration assets at cost			2,573,600	2,573,600
NET ASSETS		1	5,977,100	5,977,101
SHAREHOLDERS' EQUITY Share capital	A2	1	5,977,100	5,977,101
TOTAL SHAREHOLDERS' EQUITY		1	5,977,100	5,977,101

The statements of assets and liabilities above should be read in conjunction with notes A1 to A3 which follow and the summary of significant accounting policies set out in Appendix B to this report.

APPENDIX A

Unaudited Financial Statements and Notes Thereto (continued)

A1. PROFORMA ADJUSTMENTS

The proforma balance sheet of the Company has been prepared on the basis that the following transactions (which have taken place or are proposed to take place between 1 March 2000 and the issue of shares pursuant to the Prospectus) had occurred as at 29 February 2000:

- (a) The issue of 12,268,000 new fully paid ordinary shares at an issue price of \$0.20 each to Stuart as consideration for the following three mineral projects;
 - (i) Mt Gunson Copper Project (South Australia);
 - (ii) Mt Tabor Cobalt Project (Queensland); and
 - (iii) Coburn Heavy Mineral Sands Project (Western Australia).
- (b) The issue of 2,500,000 new fully paid ordinary shares at an issue price of \$0.20 each to Billiton Exploration.
- (c) The issue of 17,500,000 new fully paid ordinary shares at an issue price of \$0.20 each to the public.
- (d) The payment and write off against share capital of:
 - (i) half of the costs in obtaining shareholder approval from Stuart in relation to the transfer of the mineral assets as per (a) above, estimated to amount to \$66,500.
 - (ii) prospectus preparation fees and related costs, including geologists, solicitors, accountants, printing and other prospectus preparation costs totalling approximately \$235,000; and
 - (iii) underwriter fees in the amount of \$175,000 being 5% of the share capital to be raised in (c) above;
- (e) The payment of stamp duty in relation to the transfer of the mineral assets as per (a) above, estimated to be \$120,000.

Note	Balance as at 29 Feb 2000 \$	Adjustments Refer Note A1 \$	Proforma \$
	1	5,977,100	5,977,101
	No. of Shares \$	Issue Price \$	Total \$
	5	0.20	1
	12,268,000	0.20	2,453,600
	2,500,000	0.20	500,000
	17,500,000	0.20	3,500,000
	_	-	(476,500)
	32,268,005	_	5,977,101
	Note	Balance as at 29 Feb 2000 Note \$ 1 1 No. of Shares \$ 5 12,268,000 2,500,000 17,500,000 - 32,268,005 -	Balance as at 29 Feb 2000 Adjustments Refer Note A1 Note 1 5,977,100 No. of Shares \$ Issue Price \$ 1 5 0.20 12,268,000 0.20 2,500,000 0.20 17,500,000 0.20 - - 32,268,005 -

A2. SHARE CAPITAL

A2. SHARE CAPITAL (continued)

Future Share Issues

As detailed on page 92 of the Prospectus, the Company has agreed to issue of 400,000 new fully paid ordinary shares at an issue price of \$0.20 each to Adelaide Mining Geophysics Pty Ltd as consideration for the Onslow Copper Project. The issue of these shares is conditional upon, amongst other things, the grant of the Onslow Tenenment which is not expected to occur before the Company lists. The transaction has not been included in the proforma adjustments.

Managagement Options

As detailed on page 93 of the Prospectus, the Company has agreed to issue 3,500,000 A Class Management Options and 3,500,000 B Class Management Options. Each option will be convertible into one fully paid ordinary share, at an exercise price of \$0.20 for A Class options and \$0.25 of B Class options, at any time on or before the expiration of five years from the date of issue.

A3. COMMITMENTS FOR EXPLORATION EXPENDITURE

In order to maintain current rights of tenure to exploration and mining tenements, the Company is committed to meet the prescribed conditions under which the tenements were granted. Minimum annual expenditure commitments, as at 29 February 2000, on the mineral assets to be transferred as per Note A1(a) of this report, amount to \$708,480. These obligations, which are subject to renegotiation upon expiry of the leases, are not provided for in the statement of assets and liabilities.

Summary of Significant Accounting Policies

The financial information included in this Report has been prepared in accordance with generally accepted accounting principles applied in Australia for inclusion in such a prospectus. Set out below are the significant accounting policies adopted in the preparation of the financial information included in this Report.

The financial information included in this Report is prepared in accordance with the historical cost convention.

B1. Acquisition of Assets

The cost method of accounting is used for all acquisitions of assets regardless of whether shares or other assets are acquired. Cost is determined as the fair value of the assets given up, shares issued or liabilities undertaken at the date of acquisition plus costs incidental to the acquisition. Where shares are issued in an acquisition, the value of the shares is determined by having reference to the fair value of the assets or net assets acquired, including goodwill or discount on acquisition where appropriate.

B2. Exploration and Evaluation Expenditure

Exploration and evaluation expenditure acquired by or on behalf of the entity is accumulated separately for each area of interest.

Identified exploration assets acquired from another company are recognised as assets at their cost of acquisition, as determined by AASB 1015 Accounting for the Acquisition of Assets. Exploration assets acquired will be reassessed on a regular basis and these costs are carried forward provided that at least one of the following conditions is met:

- (a) such costs are expected to be recouped through the successful development and exploitation of the area of interest, or alternatively, by its sale; or,
- (b) exploration activities in the area of interest have not yet reached a stage which permits a reasonable assessment of the existence or otherwise of recoverable mineral resources, and active and significant operations in relation to the area are continuing.

Exploration expenditure which fails to meet at least one of the conditions outlined above is written off.

Acquired exploration assets are not written down below acquisition cost until such time as the acquisition cost is not expected to be recovered.

Expenditure is not carried forward in respect of any area of interest/mineral resource unless the company's right of tenure to that area of interest are current.

B3. Share issue costs

The transaction costs directly related to the issue of equity securities are offset against the proceeds of the issue.

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SOLICITOR'S REPORT

9 March 2000

The Directors Gunson Resources Limited Ground Floor 9 Havelock Street WEST PERTH WA 6005

Dear Sirs

Report on Tenements and Native Title

This Report has been prepared for inclusion in an Initial Public Offering Prospectus dated on or about 15 March 2000 issued by Gunson Resources Limited ACN 090 603 642 (**'Company**'). The Prospectus relates to an offer of 17,500,000 ordinary shares in the Company, for subscription at an issue price of \$0.20 per share payable in full on application.

Scope of Instructions

We have been asked to:

- conduct searches of and briefly outline the rights conferred by:
 - (a) the existing mining tenements of Stuart Petroleum NL ACN 059 146 226 ('**Stuart**') to be acquired by the Company; and
 - (b) the Exploration Licence Application 08/1150 in WA to be acquired by the Company from Adelaide Mining Geophysics Pty Ltd ACN 085 429 698 ('**Adelaide Mining**'); and
- conduct searches of and summarise the effect upon such tenements, of any native title claims over the subject land.

Schedule of Mining Tenements

Part A of the Schedule of Mining Tenements ('**Schedule**') forming part of this Report, is an accurate statement of:

- (a) the mineral tenements and applications for mineral tenements which the Company has agreed to acquire ('**Mineral Tenements**') at the date of signing this Report; and
- (b) any native title claims that may affect those Mineral Tenements.

Part A of the Schedule is based upon searches of publicly available records held by the National Native Title Tribunal ('**NNTT**'), Primary Industries and Resources SA ('**PIRSA**'), the WA Department of Minerals and Energy and the Queensland Department of Mines and Energy, conducted in December 1999 and January and March 2000. There are no material matters or events subsequent to those searches, except as disclosed in this Prospectus, that have come to our attention during the course of our enquiries, which would cause the information included in this Report to be materially misleading.

Dean C Davies Charles C A Binks Richard J Pash Neville W Martin Ewan J Vickery Paul D Bear Peter C Heinrich Robyn M Pak-Pov Andrew D Short Neil I. Strawhridge Peter G Chester Neil Gordon Gregory M May Svbeila G M Blencowe Guy C Biddle F Adrian Swale David W Fidler Stephen B Williams Clavton D Wohling Jennifer F Tobin Graham D Edmonds-Wilson Candida J D'Arcy Michael J Liebich Brian F Austin Andrew G Hodge

Partners

Senior Associates

Patricia M Ross Paul N Dugan Paul J Ingram Kent M Grey William J McAuliffe Cynthia P Hynes Kristina F McGeehan Scott C Aitken Sathish K Dasan

Conveyancers Denise Crosby

Consultants John G Branson Penelope A Eldridge

MINTER ELLISON GROUP AND ASSOCIATED OFFICES SYDNEY MELBOURNE BRISBANE CANBERRA ADELAIDE PERTH GOLD COAST LONDON NEW YORK HONG KONG AUCKLAND WELLINGTON CHRISTCHURCH JAKARTA SINGAPORE On the basis of these searches, we are satisfied that, subject to the qualifications and assumptions set out in Part D of the Schedule, the Company has the rights to acquire the Mineral Tenements described in Part A of the Schedule.

Native Title

The decision of the High Court of Australia in *Mabo and Others v The State of Queensland* in 1992 recognised that the concept of Aboriginal native title to land had survived the Crown's acquisition of sovereignty. Native title is the term given to the collection of rights held by certain Aboriginal peoples to use lands in accordance with their traditional customs and laws.

The land comprising the Mineral Tenements may be affected by native title. If affected, native title legislation may impact upon the grant of the relevant licences for the Mineral Tenements and the subsequent operations on those tenements.

Native Title Legislation

The Commonwealth *Native Title Act 1993* ('**NTA**') came into operation nationally in January 1994. The *NTA* regulates dealings with native title lands. The *NTA* was substantially amended in 1998 in response to the 1996 decision of the High Court of Australia in *Wik Peoples v The State of Queensland*. The *NTA* and 1998 amendments establish and clarify the rights of government, native title and non-native title parties in dealings with native title lands.

WA has not yet enacted its own native title legislation. Accordingly, tenements granted in WA after January 1994 that affected native title remained inactive until the requirements of the *NTA* were met. New tenements will now not be granted in WA until the *NTA* is complied with.

In Qld, holders of, and those interested in acquiring tenements, must meet the requirements of both the *Native Title (Queensland) Act 1993 ('QLDNTA')* and the *NTA*. The *QLDNTA* commenced in 1993. The *QLDNTA* does not create a separate scheme to the *NTA* for validly granting tenements. Instead the *QLDNTA* establishes a state-based mechanism for deciding claims to native title that are complementary to, and consistent with, the mechanisms established by the *NTA*.

SA native title legislation ('**SA legislation**') (which was fully operational by mid-1996), provides an alternate and complementary state-based system for certain procedures under the *NTA* ('**SA Scheme**'). The SA Scheme largely replaces the operation of the *NTA*'s '*right to negotiate*' provisions in SA. The *NTA* still applies to the extent that the SA Scheme does not.

The SA legislation included, amongst other things, amendments to the SA *Mining Act 1971* ('**SA Mining Act**') (Part 9B), establishing specific provisions for land access and separate '*right to negotiate*' procedures for mining operations on native title lands in SA.

NTA

The NTA recognises and protects native title under the laws of Australia, and provides a legislative scheme for:

- clarifying how native title is validly extinguished;
- walidating previously invalid acts in relation to native title lands occurring prior to the NTA;
- authorising valid acts in relation to native title lands occurring after the commencement of the NTA;
- prescribing the negotiating process to be carried out between government, native title and non-native title parties for certain future uses of native title lands; and
- providing a mechanism for the payment of compensation to native title parties for the extinguishment or impairment of native title rights.

Extinguishment of Native Title

The common law of Australia provides that upon acquisition of sovereignty by the Crown, native title became vulnerable to extinguishment by legislative or executive actions of government which manifested a clear and plain intention to extinguish native title. Valid alienation of land by the Crown, such as the granting of an interest which is wholly or partially inconsistent with a continuing right to enjoy native title, extinguishes native title to the extent of any inconsistency. Grants of freehold interests in land will have extinguished native title.

As a result of the 1998 amendments, the *NTA* now provides that '*previous exclusive possession acts*' (including grants of freehold or leasehold interests that conferred exclusive possession on the holder) will have completely extinguished native title. By contrast, '*previous non-exclusive possession acts*' (including grants of leasehold interests that conferred non-exclusive possession on the holder, such as many pastoral leases) will only have extinguished native title to the extent of any inconsistency between the native title rights and the rights conferred under the grant.

We have not been instructed by the Company to conduct, and understand that the Company has not otherwise conducted, the extensive historical land tenure, anthropological and ethnographic research which would be necessary in order for the Company to form an opinion as to whether:

- anative title over the Mineral Tenements is, or is likely to have been, extinguished; or
- the grant of the relevant licences over the Mineral Tenements would operate to preclude the continued enjoyment of any native title rights to those lands.

Searches of registers maintained by the NNIT and Federal Court of Australia (in relation to procedures under the *NTA* in SA, WA and Qld) and the SA Environment, Resources & Development Court and Supreme Court of South Australia (in relation to procedures under the SA Scheme) do not disclose any determinations that any native title over any of the Mineral Tenements has been extinguished.

'Future Acts'

Under the *NTA*, the grant of an interest in land after 1 January 1994 will generally be a '*future act*' if the grant extinguishes native title or is wholly or partly inconsistent with native title.

Only certain future acts affecting native title are permitted under the *NTA*. These include activities authorised under indigenous land use agreements with native title parties which comply with the *NTA*, or where compliance with legislative procedures indicates an absence of native title. All future acts which are not permitted by the provisions of the *NTA* are invalid.

Certain grants of Mineral Tenements to Stuart and Adelaide Mining will have constituted future acts under the *NTA*. The *NTA* prescribes a '*right to negotiate*' procedure in instances where '*rights to mine*' are granted. Tenements granted in WA and Qld after 23 December 1996 are future acts. Accordingly, the granting of tenements in WA and Qld will have been validated if the procedures in the *NTA* were followed.

In SA, tenements granted after 1 January 1994 are future acts under the *NTA*. However, if the granting of the tenement occurred after 17 June 1996 the SA Scheme must be followed to validate the operation of the tenements, as opposed to following the *NTA* procedures.

Under the *NTA* procedure, the party responsible for the future act (in this case the government) must initiate negotiations to obtain the agreement of relevant native title parties to the carrying out of the proposed future act on the native title lands. The *NTA* prescribes certain time limitations on negotiations, beyond which any of the negotiation parties is able to apply to the relevant arbitral body for a determination whether or not the proposed act can be done on the native title lands.

Validating WA and Qld Mineral Tenements Pursuant to the NTA

Under the *NTA*, the grant of the WA and Qld Mining Tenements will only be valid if the future act procedures, and in particular the '*right to negotiate*' process, have been complied with.

The timing of grants of the Mineral Tenements is dependent upon the outcome of the negotiation process. If negotiations with native title parties are successful, it is possible for the grants to be made after an agreement is concluded between the parties. If, however, negotiations are not successful within 6 months of the '*notification date*' specified by the WA and Qld Governments when initiating the right to negotiate process, then any party to the negotiation may apply to the relevant arbitral body for a determination under the *NTA*.

The arbitral body for these purposes is the NNTT, and it is required to make a determination either that:

- the grant of the WA and Qld Mineral Tenements must not be made; or
- the grant of the WA and Qld Mineral Tenements may be made; or
- the grant of the WA and Qld Mineral Tenements may be made subject to conditions (not including conditions as to profit, income or product sharing from operations conducted under the WA and Qld Mineral Tenements), which must be complied with by any of the parties.

The determination process must be concluded as soon as practicable, but if it is not concluded within 4 months of the date of application to the NNTT, the relevant Commonwealth Minister may issue an urgency notice requesting the determination to be made within 6 months of that application date. If the NNTT does not make a determination within the further time specified, the Commonwealth Minister may make the determination (taking into account, amongst other things, the interests of the state).

The Commonwealth Minister may also over-rule any determination made by the NNTT within 2 months after the making of the determination, if it is in the national interest or is in WA or Qld's interest.

WA Tenements

Exploration Licences ('EL's) are issued subject to standard terms and conditions contained within the WA *Mining Act* 1978 ('WA *Mining Act*') (Division 2 of Part IV) including payment of rent and minimum expenditure and reporting conditions, or such other terms and conditions determined by the relevant WA Minister responsible for administering the legislation.

ELs may be issued for an area not exceeding 70 '*blocks*' (a term which is defined in the *WA Mining Act*), for an initial term of 5 years, renewable at the Minister's discretion for two successive periods of one or two years respectively. There are limited provisions for further extensions.

At the expiration of the third and fourth years of an EL respectively, at least half of the number of blocks then comprising the area of the tenement must be surrendered (with limited availability for Ministerial exemption from compliance).

Subject to compliance with the terms and conditions of an EL during its currency, the licence holder has a priority interest in the granting of Mining Leases and General Purpose Leases over the area of the EL. A grant of an EL in WA that affects native title is not effective until the requirements of the *NTA* are met.

The WA government initiated native title proceedings pursuant to the *NTA* for all WA Mineral Tenements (using the procedure explained above). Public notification pursuant to section 29 of the *NTA* commenced on 25 November 1998 for the three ELs granted to Stuart and the four Exploration Licence Applications ('ELA's) 09/942, 09/943, 09/944 and 09/957. Public notification for ELA 09/996 commenced on 1 December 1999. Accordingly the notification period for that ELA ends on 1 April 2000. Public notification for ELA 08/1150 commenced on 15 December 1999. Accordingly the notification period for that ELA ends on 15 April 2000.

The three ELs have been validly granted by the Western Australian government (see Part A of the Schedule of Mineral Tenements). Native title objections to the granting of the three tenements were dismissed by the NNTT on 5 May 1999. By 24 May 1999 the remaining objections were withdrawn from the NNTT. Accordingly, having resolved all matters relating to the tenements, the tenements were granted to Stuart on 18 June 1999.

As at 7 March 2000, applications for the remaining six tenements were pending. The WA Department of Minerals and Energy advised that the pending status of ELAs 09/942, 09/943, 09/944 and 09/957 do not relate to native title issues. All native title objections to the granting of the four tenements were either dismissed or withdrawn by 24 May 1999.

The notification periods for ELAs 09/996 and 08/1150 have not yet ended. Accordingly, native title claimants continue to hold the right to lodge objections. As a result, the two tenements cannot be granted until the notification period ends. As at 7 March 2000 no native title claimant objections had been lodged against the granting of those tenements.

Queensland Tenements

Exploration Permits for Minerals

The holder of an Exploration Permit for Minerals ('**EPM**') under the Qld *Mineral Resources Act 1989* obtains a right of entry on to the specified land for the purposes of undertaking exploration activities for specified minerals, subject to certain specified obligations regarding notice of entry on to land and payment of compensation for damage.

An EPM grants to the holder an exclusive right to explore for minerals specified in the grant, within the area of the licence. The holder of an EPM also has a priority right to the grant of a MDL or Mining Lease over the subject land.

An EPM is granted for an initial term (determined by the relevant Qld Minister) of up to 5 years, subject to a right of renewal, which may be granted at the discretion of the Minister. The total period of the initial term and any renewal must not exceed 5 years (unless determined otherwise by the Minister).

The *QLDNTA* was enacted as Qld legislation complementary to the provisions of the *NTA*, and provides for the validation of any acts or grants attributable to the Qld Government that were invalid because of native title. To the extent that any grants of mineral tenements were invalid due to native title, they have now been validated as '*past acts*' subject to the provisions of the applicable legislation.

Mineral Development Licence

The rights granted to the holder of a Mineral Development Licence ('**MDL**') are substantially similar to those granted to the holder of an EPM. The holder of a MDL may, however, carry out specified activities on the land which relate to the evaluation and economic development of an ore body (including such things as geological, geophysical or geochemical programs, and mining feasibility studies etc).

Once granted, no other mineral tenement may be granted in respect of the specified minerals over the land the subject of a MDL. The holder of a MDL also has a priority right to the grant of a Mining Lease under the Queensland legislation. The Minister may direct the holder of a MDL to apply for a Mining Lease at any time if the Minister believes that actual mining operations should commence on the land.

A MDL can be granted for an initial term of up to 5 years, or such longer period as the Minister determines. MDLs may be renewed, but any such renewal is at the discretion of the Minister.

The current interests

Gunson has agreed to acquire from Stuart two mining interests in Qld. The first interest, EPM 8887, was granted on 15 July 1992. This tenement falls under a category of acts termed '*Category C – Past Act*'. Category C – Past Act is defined in the *NTA* to mean an act done before 1 January 1994 involving a grant of a mining lease. The EPM was granted by the Qld government. The *QLDNTA* validates Category C Past Acts made by the Qld government.

As a result, the granting of the EPM is validated. However, the validation does not extinguish native title. Instead, the native title rights and interests continue to exist but have no effect in relation to the operation of the tenement whilst the tenement is granted. After the EPM has expired and is not renewed, the rights and interests of any native title holders may have full effect.

The second Interest is an application for a MDL. The application for MDL 240 was lodged on 4 July 1996 and the tenement has not yet been granted.

Compensation

In summary, the *NTA* provides for a right of compensation in favour of affected native title parties to the extent that the future acts affect native title.

At the date of this Report, it is not possible to assess if compensation will be payable to native title parties in relation to any grants of the Mineral Tenements made by the WA or Qld governments using the *NTA* procedure. Compensation payable is dependent upon whether native title exists over the areas of the grants, and the extent to which the grants extinguish or impair the relevant native title parties' rights to the continued enjoyment of their traditional rights over the lands comprised within the grants. Compensation may be payable in relation to grants in WA and Qld.

Although the WA and Qld Governments are likely to be directly responsible for any compensation liability that could arise under the *NTA*, the liability may be passed on (either directly or indirectly) to the holder of the WA or Qld Mineral Tenements.

It is reasonable to assume that any compensation would be dealt with under the 'right to negotiate' process.

The SA Scheme - Part 9B of the Mining Act

ELs are issued subject to a standard schedule of general exclusions and conditions pursuant to the SA Mining Act.

Under the SA Mining Act, an EL may be issued over an area not exceeding 2,500 square kilometres, and for a term of up to five years inclusive of any renewal period. Renewal of an EL is subject to the discretion of the

Minister responsible for the administration of the SA Mining Act. Upon a renewal, the Minister may vary an EL by amending the terms and conditions of the licence, or by reducing the area of the licence.

The grant of an EL authorises the licensee to carry out exploratory operations of a kind described in the licence. Under Part 9B of the *SA Mining Act*, a grant of an EL confers no right to carry out '*mining operations*' (including prospecting, exploring or mining for minerals) on native title land unless:

- (a) the mining operations do not affect native title;
- (b) a declaration is made under a law of the State or the Commonwealth that the land is not subject to native title; or
- (c) an agreement or determination authorising the mining operations is made under Part 9B of the SA Mining Act.

Part 9B of the SA Mining Act commenced operation on 17 June 1996 and applies to all grants of mineral tenements made in SA following that date.

The negotiation procedures pursuant to Part 9B are initiated by giving notice to:

all relevant native title parties;

- the Environment Resources and Development Court ('ERD Court'); and
- the SA Minister for Minerals and Energy ('**Minister**'), the SA Attorney General and the Commonwealth Minister for Aboriginal Affairs.

Where there are no *registered* native title parties with whom to negotiate, at the expiration of two months from the date of service of the notice, an applicant may apply to the ERD Court for a summary determination, and the ERD Court may make an appropriate determination.

An agreement authorising mining operations on native title land may:

- (a) authorise a particular mining operator ('individual authorisation');
- (b) extend to future exploration activities/production tenements ('conjunctive authorisation'); or
- (c) authorise a specified class of mining operations to carry out a specified class of mining operations ('**umbrella authorisation**').

Where native title parties are claimants to (rather than registered holders of) native title land, the agreement cannot extend to future production tenements, and any umbrella authorisation cannot exceed 10 years.

Two months after giving notice to all potential native title holders (if there are native title parties in relation to the land), an application can be made to the ERD Court for a determination, which will (if granted) be limited to an individual authorisation.

Alternatively, companies can apply immediately to the ERD Court for a declaration that land is not subject to native title, under the *Native Title (South Australia) Act 1994 ('NTSA Act')*.

If native title holders or claimants exist and an agreement is not reached within a *'relevant period'*, an application could be made to the ERD Court for a determination. A *'relevant period'*, in the case of exploration activities, is 4 months from the time negotiations commenced, or in any other case, 6 months from the time negotiations commenced. Where the likely impact of mining operations is minimal, an expedited procedure is available.

The SA Tenements

The SA Scheme affects ELs 2639, 2516 and EL 2567. Grants of ELs made prior to 17 June 1996, and renewals of ELs granted prior to that date are regulated by the provisions of the *NTA* rather than Part 9B of the *Mining Act*.

EL 2099 was granted on 4 August 1995. The *NTA* allows for the validation of 'Intermediate Period Acts' that were made between 1 January 1994 and 23 December 1996. The *NTA* validates such acts but the act is subject to the 'non extinguishment principle' explained above. The *NTA* will only recognise the validation of the Intermediate Period Act if a state native title law exists to validate any Intermediate Period Act made by state governments. SA has not legislated for the validation of 'Intermediate Period Acts'. Accordingly the granting of EL 2099 is classified as a 'Future Act' pursuant to the *NTA*.

In relation to EL 2099 and EL 1946 (since replaced by EL 2639) Stuart and the SA Government have entered into a 'safety net agreement' under Section 84A of the SA Mining Act, under which Stuart holds a preferential right to the grant of a new tenement if either of the ELs is, in the future, found to be wholly or partially invalid due to circumstances beyond Stuart's control. Any invalidity of the ELs due to the SA Government's non-compliance with native title procedural requirements enables Stuart to request the grant of new ELs under the provisions of Part 9B of the SA Mining Act. Stuart's rights and obligations under these agreements may be assigned to the Company by Stuart with the consent of the Minister.

In 1998 Stuart initiated the negotiation process with native title parties with respect to ELs 1946, 2099, 2248 and ELA 38/98 (now EL 2516) in accordance with Part 9B of the *SA Mining Act*. Final agreements with native title parties at the date of signing this Report have not been negotiated.

Native Title Claims

Searches carried out on 7 March 2000 of publicly available information appearing on the NNTT's Native Title Register, as well as enquiries made of PIRSA, WA Department of Minerals and Energy and Qld Department of Mines and Energy, reveal that a number of native title claims have been lodged over lands either wholly or partially comprising the Mineral Tenements. The relevant native title claims are listed in Part A of the Schedule.

Under the 1998 amendments to the *NTA*, registered native title claims are required to undergo a revised registration test to ensure that only meritorious claims are afforded procedural rights to negotiate. At the date of this Report, the process was still being completed, and may result in the amalgamation of some registered native title claims, particularly in instances where separate claims have common claimants and overlapping boundaries.

At the date of this Report, it is not possible to ascertain the outcome of the revised registration test or the effect it may have on the native title claims described in this Report. Nor can an opinion be formed as to the likelihood for success of any of these native title claims, or the effect they may have on the Company's proposed operations over the Mineral Tenements.

Aboriginal Sites of Significance

Both State and Commonwealth Aboriginal heritage protection laws apply in WA, Qld and SA.

The provisions of WA, Qld and SA Aboriginal heritage protection legislation applicable to the Company's operations on the Mineral Tenements in each of those States is summarised in Part B of the Schedule.

The Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act, 1984 ('AHPA') is of national application, and hence applies in SA, WA and Qld. The purposes of the AHPA are the preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginals in accordance with Aboriginal tradition.

An important feature of the *AHPA* is the capacity of the relevant Commonwealth Minister to make declarations for the protection and preservation of an area. There is also capacity for emergency declarations to be made. These declarations have the potential to halt exploration operations in cases where Aboriginal areas, objects or remains are encountered anywhere within SA, WA or Qld.

Rehabilitation of Land

Statutory requirements in SA, WA and Qld, require tenements to be rehabilitated.

The provisions of WA, Qld and SA environmental protection legislation applicable to the Company's operations on the Mineral Tenements in each of those States is summarised in Part C of the Schedule.

Disclosure of Interest

Mr N W Martin, a Director of Stuart, is also a Partner of the Adelaide office of Minter Ellison.

Mr J G Branson, also a Director of Stuart, is retained as a Consultant to the Adelaide office of Minter Ellison.

Minter Ellison has been instructed by the Company to prepare this Report, and will be paid fees at normal commercial rates for work performed in relation to this matter. Minter Ellison have also advised Stuart on various commercial matters and have been paid normal commercial rates for that advice.

Conclusion

Our preparation of this Report, relating to the Mineral Tenements as well as native title issues, has relied upon:

- information available upon public enquiry from records established and maintained by the NNTT, Federal Court of Australia, ERD Court and Supreme Court of South Australia and the Supreme Courts of WA and Qld; and
- information available from SA, WA and Queensland Government offices,

(which information we have not sought to independently verify). In reliance upon this information, we believe this Report does not contain anything which is false in a material particular or which is materially misleading in the form and context in which it appears.

Consent

Minter Ellison has given and has not, before the lodgement of this Prospectus, withdrawn its consent to the issue of the Prospectus with this Report included in the form and context in which it appears.

Yours faithfully MINTER ELLISON

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Jennifer F Tobin Partner

Contact: Jennifer Tobin (08) 8233 5414 E-mail: jennifer.tobin@minters.com.au

PIRSA has agreed on various conditions to amalgamate the expenditure commitments of the 4 ELs, for the year ending 30 June 2001, to a minimum of \$500,000 and to forgive the expenditure commitments of those ELs for the year ending 30 June 2000. The conditions are that the Company successfully complete its cabital raising by mid 2000, and the size of the total area held under those ELs be reduced by 15% on or before 30 June 2001. Registered native title determination application; yet to undergo rengistration test. Application failed the registration test: application struck off the register of native title claimants. ELAs relate to land within the Shark Bay World Heritage Property Area and the process of a grant of an EL over land within that area is subject to special administrative arrangements. Applied for by David Brian Clarke for and on behalf of Stuart. David Brian Clarke signed a Declaration of Trust in favour of Stuart concerning both EPM 8887 and MDL 240. SC 95/4***, SC 96/4, SC 99/2, SC 99/3** SC 95/4***, SC 96/4, SC 99/2 SC 96/4, SC 99/2, SC 99/3** **Native Title Claims** SC 95/4 ***, SC 96/4, SC 99/2, SC 99/3** WC 96/111 WC 98/17 WC 96/111 WC 98/17 WC 96/111 WC 96/111 WC 96/111 WC 96/111 WC 96/111 QC 97/23*1 QC 97/23* WC 98/17 WC 99/45 \$176.20 (annual rent) \$2,000 (annual expenditure commitment) \$5,768 (anticipated annual rent) plus an unknown expenditure commitment \$5,600 (anticipated annual rent) plus an unknown expenditure commitment \$5,040 (anticipated annual rent) plus an unknown expenditure commitment an unknown expenditure commitment \$1,895 (anticipated annual rent) plus an unknown expenditure commitment \$1,760 (anticipated annual rent) plus an unknown expenditure commitmen \$5,768 (anticipated annual rent) plus \$210,000 over the 2 year EL term* \$5,768 (annual rent) and \$63,000 (annual expenditure commitment) \$5,768 (annual rent) and \$63,000 (annual expenditure commitment) \$5,768 (annual rent) and \$63,000 (annual expenditure commitment) Annual Rentals/Statutory Expenditure Commitments \$170,000 annual expenditure* \$140.000 annual expenditure \$85,000 annual expenditure* block represents approximately 2.8 sq. kms. N/A Stuart Petroleum NL R Þ Stuart Petroleum NL Adelaide Mining Geophysics Pty Ltd David Brian Clarke David Brian Clarke Stuart Petroleum Stuart Petroleum Registered **** Holder/g Applicant (unless specified Area (sq. km) 70 blocks (+) 70 blocks (+) 70 blocks (+) 70 blocks (+) 22 blocks (+) 63 blocks (+) 70 blocks (+) 70 blocks (+) 23 blocks(+) otherwise) Ja 620.92 | 35 ha 1439 1206 +) 765 568 Schedule of Mineral Tenements in South Australia – Mount Gunson Project 26 November 2000 2 September 2000 Schedule of Mineral Tenements in Western Australia – Onslow Project Expiry/ Renewal Date Schedule of Mineral Tenements in Western Australia – Coburn Project Schedule of Mineral Tenements in Queensland – Mount Tabor Project 3 August 2000 17 June 2004 17 June 2004 17 June 2004 14 July 2000 3 May 2000 A/A MA N/A AN N/A N/A N/A 27 November 1998 3 September 1999 4 August 1995 **Date Granted** 18 June 1999 18 June 1999 18 June 1999 15 July 1992 4 May 1998 N/A N/A N/A N/A N/A N/A N/A Granted/ current Granted/ current Granted/ current Granted/current Granted/current Granted/current Granted/current Application Application Application Application Application Application Application Granted Name/Location Status Mount Gunson Bowen Hill Yeltacowie Minderoo Mt Tabor Woocalla Mt Tabor Coburn Coburn Coburn Coburn Coburn Coburn Coburn Coburn ELA 08/1150 ELA 09/943 NOTE: NOTE: NOTE: NOTE: ELA 09/942 ELA 09/944 **** NOTE: ELA 09/996 Tenement EPM 8887 ELA 09/957 EL 09/939 EL 09/940 EL 09/941 240 EL 2516 EL 2099 EL 2639 EL 2567 MDL * * * * * * * *

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Part B - Aboriginal Heritage Protection Legislation

1. Western Australia

- (a) In WA, the *Aboriginal Heritage Act, 1972* and the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* apply to the protection of sites and objects of significance to Aboriginal tradition in WA.
- (b) The *Aboriginal Heritage Act, 1972* was enacted to protect sites and objects having a cultural, sacred or historical relevance to Aboriginal peoples. Section 17 of that Act provides that a person who:
 - (i) excavates, destroys, damages, conceals or in any way alters an 'Aboriginal site'; or
 - (ii) in any way alters, damages, removes, destroys, conceals or who deals in a manner not sanctioned by relevant custom, or assumes the possession, custody or control of, an object on or under an Aboriginal site,

commits an offence.

- (c) An 'owner' of land (including an exploration licence) may apply to the relevant WA Minister for consent to use land for a purpose which would be likely to cause the commission of an offence under Section 17. If the Minister's consent is given, then no actions by the land 'owner' will constitute an offence under that Act, provided they are consistent with the terms of the consent.
- (d) It is a defence in criminal actions under that Act that the person charged either did not know or could not reasonably have been expected to know of the existence of a site or object protected by the Act.
- (e) The WA legislation also makes provision for the maintenance of a Register of Aboriginal Sites to record details of protected areas, Aboriginal cultural materials and places and objects to which the legislation applies. People having knowledge of the existence of places or objects to which the Act applies are obliged to report that knowledge for entry on the Register of Aboriginal Sites.
- (f) The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is aimed at the preservation and protection from desecration of significant aboriginal areas and significant aboriginal objects. An area or object is taken to be desecrated if it is used in a manner inconsistent with aboriginal traditions.

2. Queensland

- (a) Aboriginal traditional or cultural heritage may be protected by the Queensland Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987, which protects any evidence of human occupation of at least 30 years of age which is of prehistoric or historic significance ('Queensland Estate'). This legislation also provides for the designation of landscape areas and a register of items of the Queensland Estate.
- (b) It is an offence to take, destroy, damage, deface, excavate, expose, conceal or interfere with an item of Queensland Estate, or to interfere with or trespass on to a designated landscape area.
- (c) Permits are able to be obtained under this legislation to conduct surveys of the Queensland Estate to identify any items that may be affected by a proposed development or activity. While there is no obligation under the legislation to conduct such a survey, the Queensland Department of Mines and Energy may require a survey to be conducted prior to the undertaking of mineral exploration activities.
- (d) This legislation is currently under review in Qld, and a new legislative regime may be introduced, containing specific obligations to cultural heritage surveys.
- (e) The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* also applies to the protection of sites and objects of significance to aboriginal tradition in Qld.

3. South Australia

- (a) The SA *Aboriginal Heritage Act 1988* ('**SAAHA**') provides for the protection and preservation of Aboriginal heritage in SA. The *SAAHA* applies to land the subject of a licence granted under the *Mining Act*.
- (b) The Company must observe the provisions of the SAAHA in relation to operations on its SA Mining Tenements. Sites of significance to Aboriginal people on SA lands are identified in a register maintained pursuant to the SAAHA, however this register is not exhaustive, and other undiscovered and unregistered sites may exist on lands, including lands the subject of Mineral Tenements acquired by or granted to the Company.
- (c) Discovered Aboriginal sites, objects or remains must be reported to the relevant SA Minister. It is an offence not to carry out that reporting procedure in the event that Aboriginal sites, objects or remains are discovered. It is also an offence to damage any Aboriginal object, or disturb, interfere with or remove any Aboriginal object or remains. The Company must ensure that it complies with these obligations, and that may include consultations with Aboriginal people.

Part C – Environmental Protection Legislation

1. Western Australia

- (a) In WA, the principal obligations for the rehabilitation of land in relation to mining and exploration activities appear in the *WA Mining Act* and in the terms and conditions relating to the tenement grants. Other obligations also arise under the WA *Environmental Protection Act 1986*.
- (b) Under the *WA Mining Act* Exploration Licences are deemed to be granted subject to a condition that the tenement holder is required to fill in, or make safe, all holes, pits, trenches and other disturbances to the surface of the land made during prospecting or exploratory operations, which are likely to endanger the safety of people or animals.

2. Queensland

- (a) The holder of an exploration or mineral tenement in Qld is required to provide for the control of the impact on the environment of the activities undertaken on the lands comprised in the tenement and must rehabilitate the surface of affected land.
- (b) The holder of an exploration or mineral tenement can be required by the relevant Qld Minister to:
 - (i) provide an environment management plan in respect of proposed activities; and
 - (ii) minimise the effect of exploration or mining operations on the environment (including land degradation, and air and water pollution), and to comply with specified codes of conduct or practice.
- (c) The holder must undertake progressive rehabilitation of any disturbance to the land (including the filling of any excavations), unless the Minister approves otherwise. On the expiry of exploration and mineral tenements, the holder is required to submit a final rehabilitation report to the Minister for approval.
- (d) The Qld Government proposes that the environmental regulation of mining operations be administered in the future under the Queensland *Environment Protection Act*, however as at the date of this report, it was not possible to ascertain the timing or the likelihood of the introduction of the proposed changes.

3. South Australia

- (a) The SA Mining Act and associated Regulations make general provision for the regulation of activities on mining tenement lands.
- (b) In addition, the SA *Environment Protection Act 1993* ('*EPA*') imposes a wide range of obligations on land owners to ensure compliance with various environmental standards. Whilst not expressly stated within the terms of the *EPA*, these standards appear to extend to land held within mining tenements granted under the *SA Mining Act*.

Part D - Assumptions and Qualifications

1. Assumptions

In this Report, we have assumed that:

- (a) the information provided to us by PIRSA, the WA Department of Minerals and Energy and the Qld Department of Mines and Energy for the Mineral Tenements is correct and up to date as at 14 January 2000 the date at which the final searches were performed;
- (b) the information provided to us by PIRSA, the WA Department of Minerals and Energy, the Qld Department of Mines and Energy and the NNTT relating to the Native Title claimants is correct and up to date as at 7 March 2000, the date at which the final searches were performed;
- (c) the information provided to us by the Company is correct and up to date;
- (d) the Mineral Tenements (other than those identified as under application) have been validly granted and (where applicable) validly renewed (subject to the comments in this Report regarding native title);
- (e) all seals and signatures on the documents we have reviewed are authentic;
- (f) all copies of documents submitted to us are complete and conform to the original documents; and
- (g) all documents reviewed were validly executed and are binding on the parties to them and comprise the entire agreement of the parties in relation to the subject matter.

2. Qualifications

The following qualifications apply to this Report:

- (a) only publicly available records have been searched at NNTT, PIRSA, the WA Department of Minerals and Energy and Qld Department of Mines and Energy; and
- (a) the ELAs referred to in Part A of the Schedule in connection with the Coburn Project in WA have not been granted to the Company at the time of this Report and will not be able to be granted until any applicable native title requirements are met, and restrictions applicable to World Heritage Properties satisfied.



SUMMARY OF MATERIAL AGREEMENTS

Documents Available for Inspection

Copies of the material agreements set out below, and the Constitution of Gunson Resources, may be inspected free of charge during normal business hours at the registered office of Gunson Resources for twelve months after the issue of this Prospectus.

The Directors are of the opinion that the following contracts are material to the continuing operations of Gunson Resources or otherwise are relevant to potential investors in the Company.

1. UNDERWRITING AGREEMENT

Set out below are the conditions precedent contained in the Underwriting Agreement together with the provisions which give rise to a right of the Underwriter to terminate the Underwriting Agreement:

"2. AGREEMENT TO UNDERWRITE

- 2.1 The Underwriter agrees to underwrite the whole of the Offer on the terms and conditions set out in this Agreement.
- 2.2 The Underwriter is entitled to appoint such sub-underwriters as it may think fit on such terms and conditions not inconsistent with the terms of this Agreement as it may in its absolute discretion determine. The Underwriter will bear and pay all sub-underwriting fees.
- 2.3 The obligation of the Underwriter to underwrite the Offer is subject to the following conditions precedent:
 - (a) the lodgement with ASIC of the Prospectus by 17 March 2000
 - (b) the granting of permission by ASX for the admission of the Company to the Official List of ASX and for official quotation of the Underwritten Shares offered under the Prospectus;
 - (c) none of the events referred to in Clause 12.1 having occurred; and
 - (d) where the Prospectus is to be distributed electronically, certification that ASIC has granted relief to the Company in relation to the electronic Prospectus and the distribution of such Prospectus pursuant to s741 of the Corporations Law.
- 2.4 The conditions precedent are for the benefit of the Underwriter who may waive any of them by notice in writing to the Company at any time before the Closing Date."

"12. RELIEF OF UNDERWRITERS' OBLIGATIONS

- 12.1 If any one or more of the following events occurs after the date of this Agreement and before the Underwriter's Payment Date the Underwriter may by written notice to the Company and without cost or liability to the Underwriter terminate or cancel this Agreement immediately and be relieved of all its obligations under this Agreement:
 - (a) the Prospectus is not lodged with ASIC by 17 March 2000;
 - (b) the Ordinaries Index Number is at any time more than 10% below its level as at the close of business on the Business Day immediately preceding the date of this Agreement;
 - (c) the All Resources Index Number is at any time more than 10% below its level as at the close of business on the Business Day immediately preceding the date of this Agreement;
 - (d) permission is not granted by ASX for official quotation of the Underwritten Shares under the Prospectus or of any fully paid ordinary Shares on issue within 14 days of the close of the issue;
 - (e) any circumstance arises after the Prospectus is lodged, the consequence of which is either that the Company is required by the Corporations Law or ASIC to repay the money received from applicants or to offer applicants an opportunity to withdraw their application and receive a refund of the application monies paid;
 - (f) ASIC gives notice of its intention to hold a hearing in relation to the Prospectus pursuant to Section 739(2) of the Corporations Law or makes an order under Section 739(1) or Section 739(3) of the Corporations Law;

- (g) Subject to the provisions of Clause 12.2:
 - the Company makes default under or is in breach of any provision of this Agreement (whether or not the same is expressed to be a condition) which is not capable of remedy, or if capable of remedy, is not remedied within 10 business days after it has occurred;

GUNSON RESOURCES LIMITED

- (ii) any warranty or representation the Company in this Agreement is not true or ceases to be true;
- (iii) any change occurs in the financial position or prospects of a Relevant Corporation;
- (iv) a Relevant Corporation contravenes any provision of its constitution, the Corporations Law or any other applicable legislation, or the requirements of ASIC or ASX;
- (v) there is an outbreak of hostilities, whether war has been declared or not, actively involving any one of Australia, the United Kingdom, the United States of America, the Commonwealth of Independent States (except for existing hostilities or renewal of existing hostilities between or amongst such Independent States) the Peoples Republic of China, Japan or Indonesia;
- (vi) an Officer of a Relevant Corporation is charged with an indictable offence relating to any financial or corporate matter;
- (vii) any material statement in the Prospectus is found to be or becomes misleading or deceptive or there is found to be a material omission from the Prospectus or any forecast or projection in the Prospectus becomes untrue or unlikely to be met in accordance with its terms;
- (viii) any of the Material Agreements is terminated or substantially modified;
- (ix) the Australian Government or the government of any State or Territory or any responsible Minister of such government or the Reserve Bank of Australia adopts or announces:-
 - A. any changes in fiscal or monetary or taxation policy which would or would be likely to materially and adversely affect companies generally or any Relevant Corporation in particular, or investment in shares or units in trusts in Australia, or the Company in particular, including, without limitation, any change which would or would be likely to materially and adversely affect yields on Commonwealth of Australia public loans or semi-government, public or private loans or to restrict borrowings by corporations generally; or
 - B. any law or prospective law or other measure having or likely to have the effect of prohibiting capital issues, company profits or foreign investments;
- (x) the imposition of any Federal or Queensland State Government restrictions on the level of foreign participation in the Offer other than as contained in the Relevant Legislation or in any other legislation currently in force affecting the operations of any Relevant Corporation;
- (xi) any amendment or any announcement of a proposed amendment to any of the Relevant Legislation;
- (xii) it transpires that any of the due diligence results or any part of the verification material was misleading or deceptive or that there was a material omission therefrom;
- (xiii) there occurs in relation to the Prospectus an event for which in the opinion of the Underwriter Section 719 of the Corporations Law requires the lodgement of a supplementary or replacement Prospectus;
- (xiv) any person gives a notice under Section 730 or Section 733(3) of the Corporations Law in relation to the Prospectus;
- (xv) an event listed in Section 652(1) or (2) of the Corporations Law occurs in respect of any Relevant Corporation;
- (xvi) it transpires that the Prospectus does not contain all such information as investors and



their professional advisers would reasonably expect to find in the Prospectus for the purposes of making an informed assessment of:

- A. the assets and liabilities, financial position and performance, profits and losses and prospects of the Company; and
- B. the rights and liabilities attaching to the shares;
- (xvii) a supplementary or replacement Prospectus is required to be lodged with ASIC for any of the reasons referred to in Section 719 of the Corporations Law and the Company fails to lodge a supplementary or replacement Prospectus in such form and content and within such time as the Underwriter may reasonably require;
- (xviii) any person who has previously consented to the inclusion of its, his or her name in the Prospectus or to be named in the Prospectus, withdraws that consent;
- (xix) any information supplied at any time by the Company or any person on their behalf to the Underwriter in respect of any aspect of the Offer is or becomes misleading or deceptive;
- (xx) there is any material contravention by a Relevant Corporation or an Officer of a Relevant Corporation of any provision of the Corporations Law, the Relevant Legislation or the obligations of any Relevant Corporation under any of the Material Agreements;
- (xxi) a resolution is passed or an order made by a Court of competent jurisdiction for the winding up of any Relevant Corporation, other than an order for the purpose of reconstruction of amalgamation made with the prior consent of the Underwriter;
- (xxii) a receiver or receiver and manager is appointed to all or any part of the assets or undertaking of any Relevant Corporation;
- (xxiii) any Relevant Corporation enters into any scheme of arrangement with its creditors or any class of them or indicates its intention to do so;
- (xxiv) any Relevant Corporation suspends payments of its debts or is unable to pay its debts, or is insolvent within the meaning of Section 95A of the Corporations Law;
- (xxv) any Relevant Corporation is placed under official management or an official manager is appointed;
- (xxvi) a provisional liquidator is appointed to any Relevant Corporation;
- (xxvii) an inspector is appointed pursuant to the Corporations Law to investigate all or any part of the affairs of the Relevant Corporation;
- (xxviii) a Relevant Corporation ceases or threatens to cease business as it is being carried on at the date of this Agreement;
- (xxix) a Relevant Corporation grants a security in favour of any person who is not its security holder at the date of this Agreement;
- (xxx) without the prior consent of the Underwriter a Relevant Corporation amends its constitution or takes any action to reduce its share capital other than by the redemption of redeemable preference shares;
- (xxxi) the Company fails to furnish a certificate in accordance with the requirements of Clause 7.1.
- 12.2 The occurrence of any event listed in paragraph (f) of Clause 12.1 will not entitle the Underwriter to terminate this Agreement unless, in the opinion of the Underwriter reached in good faith, the event has or could have a materially adverse effect on the outcome of the Offer or could give rise to a liability of the Underwriter under the Corporations Law.
- 12.3 Failure by the Underwriter to terminate this Agreement in accordance with Clause 12.1 as a result of the occurrence of any one or more of the events referred to shall not preclude the Underwriter from exercising its right under that Clause in respect of any subsequent occurrence whether of the same or a different event.
- 12.4 Upon the exercise of its rights to terminate this Agreement under Clause 12.1, the Underwriter shall notify ASX immediately."



2. Stuart Tenements Acquisition Agreement

By an agreement dated 24 February 2000 made between Gunson and Stuart the Company agreed to acquire from Stuart the Stuart Mineral Tenements for a price of \$2,453,600 to be satisfied by the issue of 12,268,000 shares in Gunson to Stuart. The agreement is conditional upon the Issue being successful and the Stuart Shareholders approving the agreement by resolution to be passed at the Stuart Shareholders Meeting and appropriate ministerial approvals being obtained under the Mining Act (SA), the Mining Act (WA) and the Mining Act (QLD).

3. Onslow Agreement

By an agreement dated 21 February 2000 made between Gunson and Adelaide Mining Geophysics Pty. Ltd. Gunson agreed to acquire from Adelaide Mining Geophysics Pty. Ltd. the Onslow Tenements by the issue of 400,000 Shares in Gunson.

This agreement is conditional upon:

- (a) Gunson having been admitted to the Official List of ASX on or before 30 June 2000;
- (b) The grant of the Onslow Tenement on or before 30 September 2000; and
- (c) Ministerial consent under the Mining Act (WA) to the transfer of the Onslow Tenement to the Company being obtained on or before 31 March 2001.

It is considered likely that the Onslow Shares will on issue be classified as 'restricted securities' by ASX and under the Onslow Agreement Adelaide Mining Geophysics Pty Ltd agrees to comply with any such restrictions that may be imposed.

4. Reimbursement Agreement

By an agreement dated 24 February 2000 made between Gunson and Stuart, Stuart agreed to pay certain costs and expenses associated with the Issue on terms that require reimbursement of those costs and expenses at Completion currently estimated at \$301,500 which includes \$66,500 being one half of the estimated costs of Stuart's In Specie Distribution.

5. Billiton Subscription Agreement

By this agreement dated 23 February 2000 made between Billiton Exploration and Gunson, Billiton Exploration agreed to subscribe for 2,500,000 shares at an issue price of 20 cents per share (\$0.5 million), conditional upon:

- (a) Gunson being granted permission by the ASX for the quotation of all issued shares in Gunson;
- (b) Gunson obtaining the approval of its shareholders to:
 - (i) the Issue, or being legally able to make the Issue without that approval,
 - (ii) this Subscription Agreement; and
 - (iii) the execution and delivery by Gunson of any further agreements that are contemplated by or required to give effect to the Billiton Subscription Agreement (including the Mt Gunson Joint Venture Agreement, the Mt Gunson Deed of Cross Charge and the Marketing Agreement);
- (c) Gunson receiving applications and subscriptions for Shares, from parties other than Billiton Exploration totalling \$1,000,000 as part of the Issue;
- (d) as at the date of satisfaction or waiver by Billiton Exploration of the condition precedent in (b) above, the persons comprising Gunson's minerals exploration team remaining employees of or contractors to Gunson and not having given a notice to the contrary;
- (e) the Shares subscribed for by Billiton Exploration not exceeding 15% of the issued share capital of Gunson at 30 June 2000 (or such other date as the parties may agree);
- (f) Gunson holding or being granted exploration licences over all parts of the Mount Gunson Tenements; and
- (g) Gunson entering into such Work Clearance Agreements with Traditional Owners (or their representatives) as may be necessary to permit Gunson to conduct the Initial Mount Gunson Program.



6. Billiton Joint Venture Agreement

This joint venture agreement dated 23 February 2000 made between Gunson and Billiton Exploration provides for Billiton Exploration (or its nominee), on completion of the expenditure of \$800,000 by Gunson Resources to have the option to either:

- (a) sole fund the next \$2.5 million of the Mt Gunson Joint Venture expenditure within 2 years from the exercise of its option, to earn a 51% interest; or
- (b) to withdraw and retain no interest (other than as a shareholder of Gunson)

and once Billiton Exploration (or its nominee) has spent \$2.5 million, it has the option to increase its interest in the Mt Gunson Joint Venture by an additional 19% by sole funding a further \$3.5 million of Mt Gunson Joint Venture expenditure within 3 years from the date of its election to do so.

7. Mt Gunson Deed of Cross Charge

Upon the commencement of the Mt Gunson Joint Venture, Gunson and Billiton Exploration are respectively obliged to grant to the other a first ranking fixed charge over the party's right, title and interest, both present and future in the Mount Gunson Tenements and certain other property and as a floating charge on the balance of the 'Secured Property' consisting of:

- (a) a party's Percentage Interest from time to time;
- (b) a party's right, title and interest, present and future, in Mineral Product; and
- (c) that Party's right, title and interest, present and future, in the Marketing Agreement (in the case of Gunson), the Sales Contracts and the Sales Proceeds.

8. Mt Gunson Marketing Agreement

Under this Agreement Gunson appoints Billiton Exploration as its exclusive agent for the purpose of marketing Gunson's share of mineral products from joint ventures to which both Billiton Exploration and Gunson are parties.

9. Service Agreement

By an agreement dated 15 March 2000 between Gunson and Mr David Harley, Mr Harley agreed to be engaged as its Managing Director for a term of 5 years with effect from 15 March 2000 for an annual salary of \$160,000 plus superannuation entitlements in accordance with the minimum conditions payable under the Superannuation Guarantee (Administration) Act 1992 (Commonwealth). The Company reserves the right to terminate this Agreement in the event that the Issue is unsuccessful.

10. Management Options

The Company has agreed, subject to Completion occurring to grant and issue the following Management Options:

	A Class	B Class
	Exercise Price ~ 20 cents	Exercise Price – 25 cents
W H Cunningham	125,000	125,000
D N Harley	2,500,000	2,500,000
P C Harley	500,000	500,000
H L Paterson	150,000	150,000
R Hamilton	150,000	150,000
J Hanneson	75,000	75,000
	3,500,000	3,500,000

The terms of issue of the Management Options will be:

- (a) The exercise price of each A Class Management Option is 20 cents cash.
- (b) The exercise price of each B Class Management Option is 25 cents each.
- (c) Any shares pursuant to the exercise of any of the Management Options will be issued on the same terms as all of the other Shares that are issued pursuant to this Prospectus, and will rank in all respects on equal terms with the other existing Shares.

(d) The Management Options are exercisable at any time after the date of grant and prior to the expiry date which will be 5 years after the date of the grant.

GUNSON RESOURCES LIMITED

- (e) A Management Option will not entitle the holder to participate in any new issue of Shares by the Company unless it has been exercised prior to the relevant record date.
- (f) If the relevant person ceases to be a Director or employee of the Company those of the Management Options held by him (or his nominee) which have not been exercised at the expiry of 12 months after the date of cessation of his directorship or employment will, unless the Directors of the Company resolve otherwise, lapse.
- (g) Some or all of a Manager's Options may be exercised at any time or times prior to the expiry date provided that no less than 5,000 Management Options are exercised at any one time.
- (h) A change in the exercise price of a Management Option or a change in the number of Shares over which a Management Option can be exercised is only permitted:
 - (i) In the case of a pro rata issue to the holders of Shares (except a bonus issue) the exercise price of each Management Option shall be reduced in accordance with the formula contained in ASX Listing Rule 6.22.2;
 - (ii) In the case of a bonus issue to the holders of Shares the number of Shares over which each Management Option is exercisable shall be increased by the number of Shares which the holder of the Management Option would have received if the Management Option had been exercised before the record date for the bonus issue.
- (i) Each of the Management Options is freely transferable.
- (j) No application will be made by the Company to seek to have official quotation granted in respect of any of the Management Options. However, application will be made by the Company to ASX for permission for quotation to be granted in respect of Shares issued upon exercise of any of the Management Options in the manner required by the Listing Rules.
- (k) Should the Company reorganise its capital then the Management Options shall be reorganised to the extent necessary to comply with the ASX Listing Rules applying to that reorganisation of capital at that time.



ADDITIONAL INFORMATION

Interests of Directors and Experts

Except as set out below or elsewhere in this Prospectus, no Director or proposed director of the Company or Professional or promoter of Gunson or stockbroker or underwriter of the Issue holds at the date this Prospectus is lodged with ASIC or held at any time during the last 2 years any interest in the formation or promotion of Gunson Resources, or in any property acquired or proposed to be acquired by Gunson Resources in connection with its formation or promotion or the offer of the Shares, or in the offer of the Shares, and no amounts have been paid, or agreed to be paid by any person and no benefits have been given or agreed to be given by any person to a Director or proposed director to induce him to become, or to qualify as, a Director or for services provided by any Director or proposed Director of the Company, or Professional or promoter of Gunson or stockbroker or underwriter to the Issue in connection with the promotion or formation of Gunson Resources or the offer of the Shares.

Management Options

As detailed on page 93 of this Prospectus:

- W H Cunningham will be granted 250,000 of the Management Options at Completion;
- D N Harley will be granted 5,000,000 of the Management Options at Completion;
- P C Harley will be granted 1,000,000 of the Management Options at Completion.

Directors' Fees

The Company's Constitution provides for the payment of remuneration to Non-Executive Directors as may be fixed by an ordinary resolution of shareholders. Until so determined, the total amount of Directors' fees which may be divided among the Non-Executive Directors is set at a maximum of \$100,000 per annum.

Expert Fees

Mackay & Schnellmann Pty Limited have acted as the Independent Consulting Geologists and were involved in the preparation of and authorised the issue of the Independent Geologist's Report on pages 24 to 71 of the Prospectus. An amount of approximately \$58,000 is payable for the preparation of that Report.

Price waterhouseCoopers are the auditors of the Company and will be paid professional fees for performing that function which the Company estimates will total \$10,000 per annum.

PricewaterhouseCoopers Securities Ltd has prepared the Independent Accountant's Report included in the Prospectus and performed work in relation to due diligence enquiries concerning the financial information in the Prospectus. It will be paid professional fees by the Company for these services of approximately \$20,000.

Minter Ellison will receive fees of approximately \$15,000 for their Solicitors Report contained in this Prospectus. In addition Minter Ellison will receive approximately \$51,000 in fees for acting as solicitors to the Issue. Mr Neville Martin is a partner of the Adelaide office of Minter Ellison and Mr John Branson is a consultant to that firm. Both Messrs Martin and Branson are directors of Stuart and are (through associated entities) the holders of options to subscribe for shares in Stuart. Mr Martin and a related company Houmar Nominees Pty Ltd are shareholders in Stuart and will therefore participate in the Stuart Distribution In Specie.

Except as otherwise disclosed in this Prospectus no expert whose report appears in this Prospectus and no Director has:

- (a) any Shareholding in the Company;
- (b) the right (whether legally enforceable or not) to subscribe for Shares in the Company, and
- (c) the right (whether legally enforceable or not) to nominate any persons to subscribe for Shares in the Company.

Consents and Disclaimers of Responsibility

The following have given their written consent to the issue of this Prospectus with their respective reports or references to their reports and to them and to statements made by them or attributed to them being included, in the form and context in which they are included, and have not withdrawn their consent before lodgement of this Prospectus:

1. PricewaterhouseCoopers Securities Ltd has consented in writing to the inclusion of the Independent Accountant's Report in the form and context in which it is included and to be named in this Prospectus in the form and context in which it is included and has not withdrawn its consent before the lodgement of this Prospectus. PricewaterhouseCoopers Securities Ltd has neither caused nor authorised the issue of this Prospectus and has neither made, nor caused to have made, any statement in this Prospectus other than in the Independent Accountant's Report.

GUNSON RESOURCES LIMITED

- 2. PricewaterhouseCoopers has consented in writing to be named in this Prospectus in the form and context in which it is named and has not withdrawn its consent before the lodgment of the Prospectus. PricewaterhouseCoopers has neither caused nor authorised the issue of this Prospectus and has neither made, nor caused to be made, any statement in this Prospectus.
- 3. Mackay & Schnellmann Pty Limited has acted as the Independent Consulting Geologist and was involved in the preparation of and authorised the issue of the Independent Geologist's Report on pages 24 to 71 of the Prospectus. An amount of approximately \$58,000 is payable for the preparation of these Reports. Apart from the Independent Geologist's Report Mackay & Schnellmann Pty Limited does not make, or purport to make, any statement in this Prospectus other than those contained in the above Report and is not responsible for any other statement. Mackay & Schnellmann Pty Limited has given its written consent to the issue of this Prospectus containing the Independent Geologist's Report dated 9 March 2000 in the form and context in which it is included, and has not withdrawn its consent prior to the lodgement of this Prospectus with the ASIC.
- 4. Morgan Corporate Limited is acting as Underwriter and has given its written consent to being named in this Prospectus as the Underwriter to the Issue and has not withdrawn its consent prior to the lodgement of this Prospectus with ASIC. For the purpose of the Corporations Law, notwithstanding that it may be referred to elsewhere in this Prospectus, Morgan Corporate Limited did not authorise or cause the issue of this Prospectus and was not involved in the preparation of this Prospectus other than those sections of this Prospectus disclosing information on the Underwriter, the Underwriting Agreement and the disclosure of its interest in this Prospectus and the Issue.
- 5. Morgan Stockbroking Limited is acting as sponsoring broker and has given its written consent to be named as sponsoring broker and has not withdrawn its consent prior to lodgement of this Prospectus with ASIC. For the purpose of the Corporations Law, notwithstanding that it may be referred to elsewhere in this Prospectus, Morgan Stockbroking Limited did not authorise or cause the issue of this Prospectus and was not involved in the preparation of this Prospectus.
- 6. Computershare Registry Services Pty Limited have given their written consent to be named in the Corporate Directory section of this Prospectus as the Share Registry of the Company for the issue and have not withdrawn their consent prior to the lodgement of this Prospectus with the ASIC. For the purposes of the Corporations Law, Computershare Registry Services Pty Limited did not authorise or cause the issue of this Prospectus and do not accept any liability to any person in respect of any false or misleading statement in, or omission from, any part of this Prospectus.
- 7. Minter Ellison has acted as legal adviser to Gunson Resources and was involved in the preparation of and authorised the issue of the Solicitors' Report on pages 77 to 88 of this Prospectus. Minter Ellison will receive the sum of \$15,000 for the preparation of the Solicitors' Report and will receive from the Company payment at normal commercial rates for legal advice provided to the Company. Apart from the Solicitors' Report, Minter Ellison does not make, or purport to make, any statement in this Prospectus and is not responsible for any other statement. Minter Ellison has given its written consent to the issue of this Prospectus containing the Solicitors' Report dated 9 March 2000 in the form and content in which it is included and has not withdrawn its consent prior to lodgement of this Prospectus with ASIC.
- 8. To the extent that statements in this Prospectus are attributed to Stuart it has given its written consent to the issue of this Prospectus including those statements and references to it in the form and context in which they are included.
- 9. The Companies and persons referred to in the Independent Geologist's Report have respectively given their written consent to being named in the Prospectus, to statements made by them or attributed to them being included in the Prospectus in the form and context in which they are included, and have not withdrawn their consent prior to lodgement of this Prospectus.



Companies and persons referred to in the Independent Geologist's Report means those persons referred to in the Independent Geologist's Report to whom a statement is attributed namely:

Adelaide Mining Geophysics Pty Ltd, Carpentaria Exploration Company Pty Ltd, David Brian Clarke trading as Queens Road Mines, Cooperative Research Centre for Landscape Evolution and Mineral Exploration, Dunelabs Pty Ltd, Fullagar Geophysics Pty Ltd, Geopeko Pty Ltd, F J Hughes & Associates, Inco Technical Services Limited, Mason Geoscience Pty Ltd, MIM Exploration Pty Ltd, Mineral Deposits Ltd, Ore Reserve Evaluation Services, Oretest Pty Ltd, Hamish Paterson & Associates Pty Ltd, RGC Exploration, Searchtech Pty Ltd, Robert Neville Smith, Snowdens Mining Industry Consultants, Southern Geoscience Consultants Pty Ltd, Stuart Petroleum NL, Westralian Sands Pty Ltd.

Consents

The Company will cause a true copy, verified by statement in writing, of the consents of the persons, firms and companies listed above to be deposited at the registered office of the Company within seven days after lodgement of this Prospectus, and shall keep each such copy for a period of at least twelve months after the lodgment of this Prospectus for inspection by any person without charge.

Chess

The Company will apply to participate in the Clearing House Electronic Sub-register System ("CHESS"), operated by ASX Settlement and Transfer Corporation Pty Ltd (ASTC), in accordance with the ASX Listing Rules and the Securities Clearing House (SCH) Business Rules. Under this system the Company's register of members will be totally uncertificated and no share certificates will be issued. Instead, shareholders will receive a statement of their holdings in the Company. If an investor is broker sponsored ASTC will send the investor a CHESS statement. The CHESS statement will set out the number of shares allotted under the Prospectus and give details of the shareholder's Holder Identification Number (HIN). If an investor is registered on the Issuer Sponsored Sub-register, the holding statement will be issued by the Company's share registry and will contain the number of shares allotted under the Prospectus and the shareholder's Securityholder Reference Number (SRN). A CHESS or Issuer Sponsored statement will be sent to shareholders at the end of any calendar month during which the balance of their holdings change.

Constitution

Copies of the Constitution of the Company are available for inspection at the Company's registered office during normal business hours and will be available for at least twelve months after the date of this Prospectus.

Commissions

Underwriting will be paid out of the proceeds of the Issue as set out elsewhere in this Prospectus. No other amount has been paid within the two years preceding the date of this Prospectus or is payable as a commission for subscribing or agreeing to procure subscriptions for any shares in or debentures of the Company. No Director, promoter or expert in the Company has received or is entitled to receive such commission or any part thereof.

Dividends

The policy of the Company is to maximise returns to shareholders whilst conserving sufficient funds:

- to build a strong capital base to support the risks inherent in the business undertaking; and
- to adequately fund exploration programs.

The Directors at the present time cannot give any assurances as to the future dividend policy or the extent of future dividends or distributions as these are dependent upon future earnings, the financial and taxation position of the Company and other factors.

In declaring future dividends, the Directors will have regard to Gunson Resources Limited's earnings, its overall financial condition and other relevant factors.

Litigation

The Company is not engaged in any litigation at the date hereof and is not aware of any threatened litigation.

Taxation

Investors should seek and rely on their own advice with respect to the taxation implications of investing in the Company's Shares.



Overseas Applicants

This Prospectus does not constitute an offer in any place in which, or to any person to whom, it would not be lawful to make such an offer.

Issue Expenses

The total estimated amount of the expenses of the issue is \$476,500, comprising:	\$
ASX Listing and ASIC lodgement fees	12,000
Accountant's Report fee	20,000
Prospectus Consultant's fee	20,000
Independent Geologist's fee	58,000
Legal fees	60,000
Printing, mailing and associated costs	20,000
Solicitor's Report fee	15,000
Stuart distribution in specie expenses (50%)	66,500
Other fees	30,000
	301,500
Underwriting fee	175,000
	476,500

Application Moneys

In accordance with Section 722 of the Corporations Law all subscription moneys for Shares offered for subscription under this Prospectus shall before the allotment and issue of Shares pursuant to this Prospectus be held by the Company in a trust bank account established for the purpose of depositing application moneys received pursuant to this Prospectus.

Summary of Rights Attaching to Shares

The following are the more important rights, privileges and restrictions which the Shares offered for subscription by this Prospectus (and the existing Shares already on issue in the Company) will carry. The rights are subject always to the Constitution of the Company:

General Meetings

Each Shareholder is entitled to receive notice of all general meetings of the Company. Shareholders will also be entitled to any additional notices, accounts and other documents required to be given to Shareholders pursuant to the Constitution, the Corporations Law and the Listing Rules.

Voting Rights

Shareholders are entitled to attend the general meetings in person or by proxy, representative or attorney and will be entitled to vote on a show of hands and, on poll, one vote for each Fully Paid Share held.

Dividends

Dividends declared by the Company will be paid on all Shares in proportion to the amount of capital paid up or credited as paid up in respect of such Shares. The Company may resolve that dividends will be paid to Shareholders by distributing or transferring specific assets, including fully paid shares in, or debentures of any other corporation.

Issue of Shares

The allotment and issue of any additional Shares in the capital of the Company is under the control of the Directors. Subject to any restrictions imposed by the Constitution, the *Corporations Law* and the Listing Rules, the Directors may at any time issue such number of Shares as ordinary Shares or shares of a named class or classes and with such preferred, deferred or other special rights or such restrictions whether with regard to dividend, voting, return of capital, or otherwise, and whether as preference shares that are at the option of the Company liable to be redeemed, as the Directors shall, in their absolute discretion determine.

Transfer of Shares

Shareholders will be permitted to transfer their Shares. The Company will not generally refuse to register or give effect to any transfer in registrable form of a fully paid or partly paid security issued by the Company on the Official List of the ASX. The Company may refuse to register transfers of Shares where:



- permitted by the Listing Rules;
- an Australian law is or will be contravened; and
- the Shares are considered as 'Restricted Securities' during the escrow period (subject to the Listing Rules and ASX).

Winding Up

Subject to the rights of the Shareholders (if any) entitled to shares with special rights in a winding up, all moneys and property that are to be distributed amongst Shareholders on a winding up, will be distributed in proportion to the Shares held by them respectively, subject to any amounts unpaid on the Share.

DIRECTORS' REPORT

The Directors of the Company report that after due enquiry by them, in relation to the interval between 29 February 2000 (being the last date to which accounts have been prepared and used in the preparation of the Investigating Accountant's Report), and the date this Prospectus was signed, they have not become aware:

- (a) of any circumstances which in their opinion materially have affected or will affect the trading or profitability of Gunson Resources or of the value of the assets of the Company, and
- (b) of any contingent liabilities of Gunson Resources additional to those contingent liabilities appearing in the Prospectus.

The issue of this Prospectus was authorised by a resolution of Directors on 15 March 2000.

This Prospectus, including the Director's Report in the form and context in which it appears, has been signed by the Directors whose names appear below.

Signed by the Directors on 15 March 2000.

W H Cunningham

No. ly

D N Harley



P C Harley



GLOSSARY AND DEFINITIONS

In this Prospectus, unless the context otherwise requires:

'\$' All dollar amounts are in Australian dollars.

All references to time are to Perth Time.

'ASIC' means the Australian Securities and Investments Commission;

'ASX' means Australian Stock Exchange Limited ACN 008 624 691;

'Billiton' means a company incorporated in the United Kingdom;

'Billiton Group' means Billiton plc and its affiliated companies;

'Billiton Subscription Agreement' means the agreement dated 23 February 2000 between the Company and Billiton Exploration described at page 92 of this Prospectus;

'Billiton Exploration' means Billiton Exploration Australia Pty. Ltd. ACN 002 542 145;

'Billiton Shares' means the 2,500,000 Shares to be subscribed for by Billiton Exploration at a cost of \$500,000 pursuant to the Billiton Subscription Agreement;

'Board' and 'Board of Directors' means Board of Directors of Gunson Resources Limited;

'Capital Reduction' means the capital reduction to be undertaken by Stuart by way of the In Specie Distribution;

'**Closing Date**' means 19 April 2000 or such other date as determined by the Underwriter in conjunction with the Directors;

'**Coburn Tenements**' and '**Coburn Project**' means ELs 09/939, 09/940, 09/941 and ELAs 09/942, 09/943, 09/944, 09/957 and 09/996;

'Company' or 'Gunson Resources' or 'Gunson' means Gunson Resources Limited ACN 090 603 642;

'Completion' means completion of the issue of Shares under this Prospectus which will occur as soon as is practicable after the Closing Date subject to the satisfaction of the conditions described on pages 20 and 21 of this Prospectus;

'Directors' means the directors of the Company;

'DME' means the Western Australian Department of Minerals and Energy, constituted pursuant to the *Mining Act (WA)*;

'EL' means Exploration Licence granted pursuant to the *Mining Act (SA)* and *Mining Act (WA)*, which enables exploration and prospecting in a designated area;

'**ELA**' means Exploration Licence Application submitted pursuant to the *Mining Act (WA)*, which will, if granted, enable exploration and prospecting in a designated area;

'EPM' means Exploratory Permit for Minerals granted pursuant to the Mining Act (Qld);

'Form(s)' means Application Form(s) appearing in this Prospectus;

'**graticular block**' means an area encompassed by one minute of latitude and one minute of longitude, more fully described in the *Mining Act (WA)*;

'**In Specie Distribution**' means the distribution of up to 12,268,000 Shares to Stuart Shareholders which, subject to the approval of Stuart Shareholders at the Meeting, will occur at Completion by way of a return of capital to Stuart Shareholders under the terms of which:

- (a) if all of the 3,700,000 options on issue by Stuart at the date of this Prospectus are exercised prior to the relevant record date all of the 12,268,000 Stuart In Specie Shares will be distributed;
- (b) if none of the 3,700,000 options on issue by Stuart at the date of this Prospectus are exercised prior to the relevant record date 11,528,000 of the Stuart In Specie Shares will be distributed;
- (c) Stuart will therefore retain between 0 and 740,000 of the Stuart In Specie Shares at Completion depending upon the precise number of such options that are exercised;

'Issue' means the issue of shares pursuant to this Prospectus;

'Issuer Sponsored Sub-Register' means the issuer sponsored sub-register maintained on behalf of the Company by the share registry;

'Listing Rules' means the listing rules of ASX as issued by ASX from time to time;



'**Management Options**' means 7,000,000 options to subscribe for Shares which at Completion will be granted by the Company to the persons and on the terms described at pages 93 and 94 of this Prospectus;

'Meeting' means the general meeting of Stuart's shareholders convened for 27 March 2000;

'**Mineral Assets**' means the Mount Gunson Tenements, the Coburn Tenements, the Mount Tabor Tenements and the Onslow Tenement;

'**Minimum Condition**' means the requirement under the Listing Rules that in order for a company to be eligible for admission to the Official List of ASX it must have at least 400 and in certain circumstances, at least 500 registered holders of its main class of shares;

'Mining Act (SA)' means the South Australian Mining Act, 1971 (as amended);

'Mining Act (WA)' means the Western Australian Mining Act, 1978 (as amended);

"Mining Act (Qld)" means the Queensland Mineral Resources Act, 1989 (as amended);

'**MDL**' means Mineral Development Licence granted pursuant to the *Mining Act (Qld)* which enables specified activities in a designated area;

'**Mt Gunson Joint Venture**' means the joint venture contemplated under the Mt Gunson Joint Venture Agreement;

'**Mt Gunson Joint Venture Agreement**' means the joint venture agreement dated 23 February 2000 made between Gunson and Billiton Exploration;

'Mount Gunson Tenements' and 'Mount Gunson Project' means Els 2099, 2516, 2567 and 2639;

'Mount Tabor Project' means EPM 8887 and application for MDL 240;

'**Onslow Agreement**' means an agreement dated 21 February 2000 between Gunson and Adelaide Mining Geophysics Pty Ltd;

'Onslow Shares' means 400,000 Shares to be issued under the Onslow Agreement;

'**Onslow Tenement**' and '**Onslow Project**' means the exploration licence which may be granted pursuant to ELA 08/1150;

'PIRSA' means the South Australia Department of Primary Industry and Resources SA;

'Professional' means a person named in this Prospectus as performing a function or a professional advisory or other capacity in connection with the preparation or distribution of the Prospectus;

'Project areas' means the areas covered by the Tenements;

'Prospectus' means this Prospectus;

'Restriction Agreement' in the context of this Prospectus, means the right of ASX for a certain period of time, to restrict dealings in some or all of the shares issued prior to the date of this Prospectus pursuant to Chapter 9 of the Listing Rules;

'**Share**' means a fully paid ordinary share in the capital of the Company and '**Shareholder**' has a corresponding meaning;

'Stuart' means Stuart Petroleum NL ACN 059 146 226;

'**Stuart Tenements**' means the Mount Gunson Tenements, the Coburn Tenements and the Mount Tabor Tenements;

'Stuart In Specie Shares' means the 12,268,000 Shares to be issued pursuant to the Stuart Tenements Acquisition Agreement;

'**Stuart Shareholders**' means those shareholders of Stuart registered on the record date in respect of the Capital Reduction;

'**Stuart Tenements Acquisition Agreement**' means the agreement dated 24 February 2000 between Stuart and Gunson providing for the sale of the Stuart Tenements to Gunson and being more particularly described at page 92 of this Prospectus;

'**Tenement**' means an EL, ELA, EPM or MDL or any other form of mineral licence or title held or applied for by Gunson Resources Limited or in which the Company has an interest;

'Underwriter' means Morgan Corporate Limited ACN 010 539 607;

'**Underwriting Agreement**' means the agreement dated 15 March 2000 between Gunson Resources Limited and the Underwriter;

Photographs in this Prospectus contain property that is not necessarily owned by the Company.



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GUNSON RESOURCES LIMITED

ACN 090 603 642

APPLICATION FORM

BROKERS REFERENCE NO. ASX CODE ADVISER NO.

Registrar's Use Only



Before sending this Application Form, applicants should read the Prospectus dated 15 March 2000 to which this Application Form relates. Applications should be completed in accordance with the Instructions to Applicants contained on the back of this Application Form.

I/We apply for

(Number of Shares)

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Complete full	(Mr/Mrs/Miss/Ms) (given name/s)		(surnam	ie)	
	(Applicant)				e e transferie
한 1월 1999년 1월 1997년 11 2월 1997년 1997년 11월 11일 중 14일 전 11월 11일 (11월 11일)	(Mr/Mrs/Miss/Ms) (given name/s)		(surnam	e)	
	(Joint Applicant)	ter			· · · · · · · · · · · · · · · · · · ·
Company	(Name)		(ACN)		
Complete full address details	(number and street)				
	(city and suburb)		(State)		(postcode)
Telephone details	(home)	(business)		(contact name)	
Felephone details C heque Details Drawer:	(home)	(business)		(contact name)	
Telephone details Cheque Details Drawer: Bank:	(home)	(business) A\$ Brand	ch:	(contact name)	
Telephone details Cheque Details Drawer: Bank: CHESS Details (where applicable)	(home) PID	(business) A\$ Branc	ch:	(contact name)	
Telephone details Cheque Details Drawer: Bank: Bank: CHESS Details (where applicable) I/We apply this/	(home) PID these Tax File Number/s or Exemp	(business) A\$ Brand Dition/s to all my/our	ch: HIN investments in [(contact name)].
Telephone details Cheque Details Drawer: Bank: Bank: CHESS Details (where applicable) I/We apply this/	(home) PID these Tax File Number/s or Exemp	(business) A\$ _ Brand	ch: HIN investments in [Tax File Numi (if ap	(contact name) (contact name) ber or exemption uplicable)].]. Date
Telephone details Cheque Details Drawer: Bank: CHESS Details (where applicable) I/We apply this/	(home) PID these Tax File Number/s or Exemp	(business) A\$ Brand Dition/s to all my/our (surname)	th:	(contact name)].]. Date
Telephone details Cheque Details Drawer: Bank: Bank: CHESS Details (where applicable) I/We apply this/	(home) PID these Tax File Number/s or Exemp	(business) A\$ _ Brand otion/s to all my/our (surname)	ch: HIN investments in [Tax File Numi (if ap Tax File Numi (if ap	(contact name) (contact name) ber or exemption plicable) ber or exemption uplicable)].]. Date Date



INSTRUCTIONS TO APPLICANTS

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The applicant agrees to be bound by the Constitution of Gunson Resources Limited.

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COMPLETED APPLICATION FORMS AND CHEQUES SHOULD BE RETURNED TO:

Computershare Registry Services Pty Limited	그는 그는 바람이 귀엽다. 것이 집중 집에 없다.
Level 2, Reserve Bank Building	or GPO Box D182
45 St George's Terrace	Perth WA 6840
Perth WA 6000	그는 것 이 같은 가격에는 가슴을 물었다.

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TABLE OF AMOUNTS PAYABLE

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No. of Shares	Ап	ount payable
10,000		\$ 2,000
20,000	1.1	\$ 4,000
50,000		\$10,000
100.000		\$20,000

PLEASE ENSURE CHEQUE DETAILS HAVE BEEN ENTERED ON THE FRONT OF THIS APPLICATION FORM.

APPLICATIONS MUST BE IN THE NAME/S OF NATURAL PERSON/S, COMPANY OR OTHER LEGAL ENTITIES ACCEPTABLE TO GUNSON RESOURCES LIMITED.

Type of Investor	Incorrect Form	Correct Form	
Trusts	 (i) John Smith Trustee for Michael Smith (ii) John Smith Family Trust (iii) John Smith Trust Account (iv) John Smith No 1 A/c 	John Smith (do not use name of trust use personal name of trustee)	
Deceased Estates	(i) John Smith (deceased)(ii) Estate of the Late John Smith	 (i) Michael Smith, or (ii) Mary Smith and Michael Smith (do not use name of deceased, use executor's personal names) 	
Partnership	(i) John Smith & Son(ii) Smith & Smith	John Smith and Michael Smith (do not use name of partnership, use partner's personal names)	
Superannuation Funds	(i) John Smith Pty Ltd Superannuation fund(ii) John Smith Pension fund	(i) John Smith Pty Ltd, or(ii) John Smith (do not use name of fund, use name of trustee of fund)	

TAX FILE NUMBERS

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GUNSON RESOURCES LIMITED

ACN 090 603 642

APPLICATION FORM

BROKERS REFERENCE NO. ASX CODE ADVISER NO. Registrar's Use Only

Broker's Stamp

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	(Applicant)			
	(Mr/Mrs/Miss/Ms) (given n	ame/s)	(surname)	
	(Joint Applicant)			
Company	(Name)		(ACN)	
Complete full address details	(number and street)			
	(city and suburb)	a a an ag ing the second second	(State)	(postcode)
Telephone details	(home)	(business)	(contact name)	
Cheque Details:				
Drawer:		A\$		
Bank:		Branc	h:	
CHESS Details (where applicable)	PID		HIN	
I/We apply this/tl	hese Tax File Number/s or	Exemption/s to all my/our i	nvestments in [].
			Tax File Number or exemption (if applicable)	Date
	(given name/s)	(surname)		
Complete Tax File			Tax File Number or exemption (if applicable)	Date
Number Details	(given name/s)	(surname)		////


GUNSON RESOURCES LIMITED

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100,000

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20,000	\$ 4,000
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\$20,000

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	(ii) Estate of the Late John Smith	(ii) Mary Smith and Michael Smith (do not use name of deceased, use executor's personal names)
Partnership	(i) John Smith & Son	John Smith and Michael Smith
	(ii) Smith & Smith	(do not use name of partnership, use partner's personal names)
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•	(ii) John Smith Pension fund	(ii) John Smith (do not use name of fund, use name of trustee of fund)

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	(Applicant)			a kila ketefozo k
	(Mr/Mrs/Miss/Ms) (given	i name/s)	(surname)	ella di la chevera
	(our Appreal)			
Company	(Name)		(ACN)	
Complete full address details	(number and street)			
	(city and suburb)		(State)	(postcode)
Telephone details	(home)	(business)	(contact name)	
Cheque Details:				
Drawer:		A\$		efizit en progra La constante progra
Bank:		Bran	ch:	
CHESS Details	PID		HIN	
I/We apply this/	these Tax File Number/s o	or Exemption/s to all my/our	investments in [].
			Tax File Number or exemption (if applicable)	Date
	(given name/s)	(surname)		//
Complete Tax File			Tax File Number or exemption (if applicable)	Date
Number Details	(given name/s)	(surname)		

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