



# MARKET RELEASE

5 February 2004

Sandfire Resources NL

Sandfire Resources NL 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**

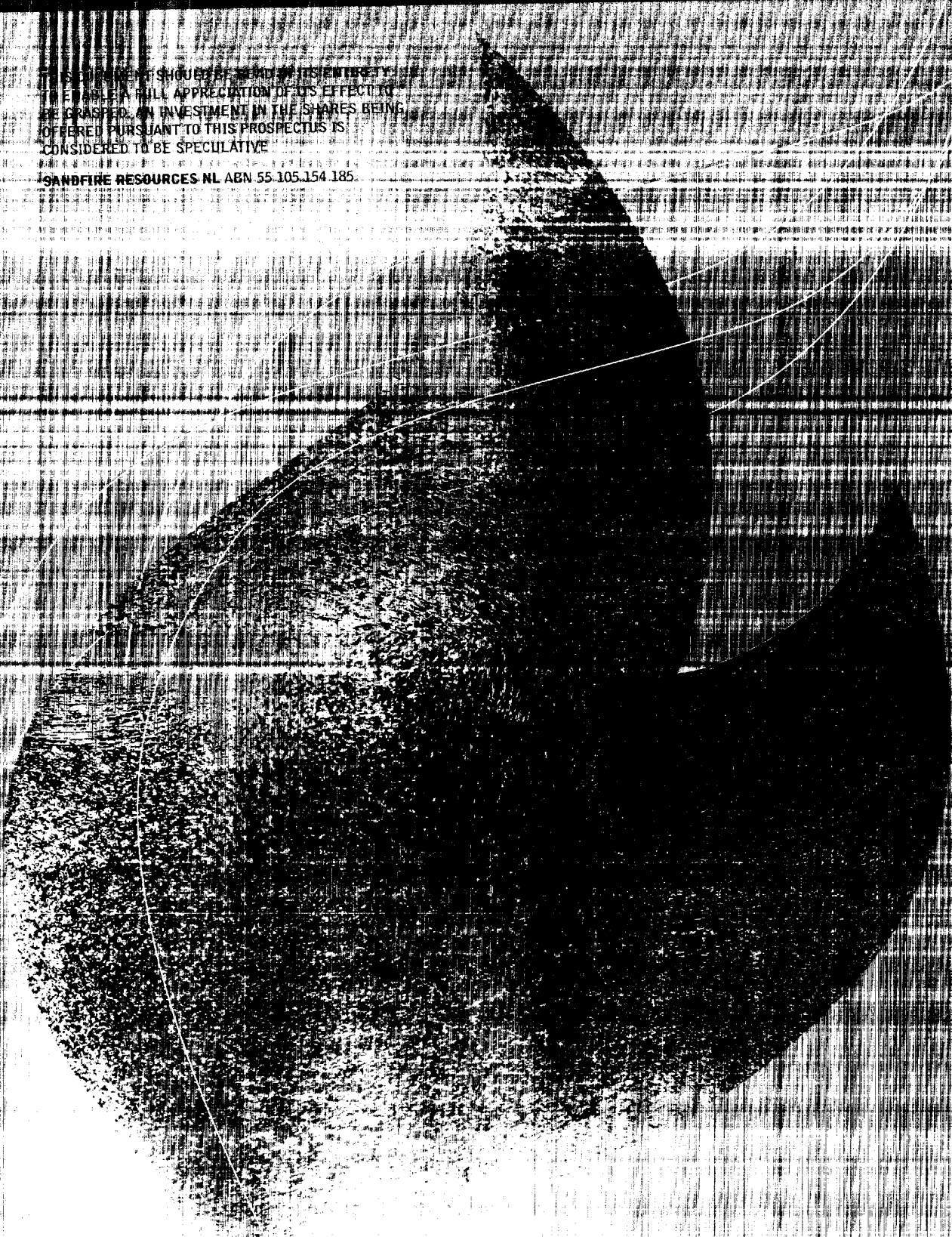


# SANDFIRE RESOURCES

## PROSPECTUS

THIS DOCUMENT SHOULD BE READ IN ITS ENTIRETY IN ORDER TO FULLY APPRECIATE THE EFFECTS OF AN INVESTMENT IN THE SHARES BEING OFFERED PURSUANT TO THIS PROSPECTUS IS CONSIDERED TO BE SPECULATIVE.

SANDFIRE RESOURCES NL ABN 55-105,154 185.





## INVESTMENT HIGHLIGHTS

|                                                                                                                             |             |
|-----------------------------------------------------------------------------------------------------------------------------|-------------|
| Pre-IPO Shares                                                                                                              | 14,000,000  |
| IPO Shares*                                                                                                                 | 18,750,000  |
| Total Shares*                                                                                                               | 32,750,000  |
| Amount Raised*                                                                                                              | \$3,750,000 |
| Contributing Shares (15c unpaid)                                                                                            | 4,000,000   |
| Options (ex @ 25c by 31/12/08)                                                                                              | 3,000,000   |
| * Up to an additional 6.25 million shares in oversubscriptions may be accepted to raise up to an additional \$1.25 million. |             |

|                      |                                     |
|----------------------|-------------------------------------|
| Directors            | Peter Thomas<br>Chairman            |
|                      | Greg Steemson<br>Managing Director  |
|                      | Graeme Hutton<br>Technical Director |
| Manager to the Offer | Southern Cross<br>Equities Limited  |
| Sponsoring Broker    | Montagu Stockbrokers Pty Ltd        |
| IPO Price:           | 20 cents per Share                  |

### SUMMARY

- **High calibre team** of seasoned professionals.
- **Proven track record** in discovery and commercialisation of mineral deposits.
- Carefully selected projects with **world class potential**.
- Unconventional thinkers looking for a **major discovery**.

### GRAEME HUTTON BSc(HONS), FAUSIMM

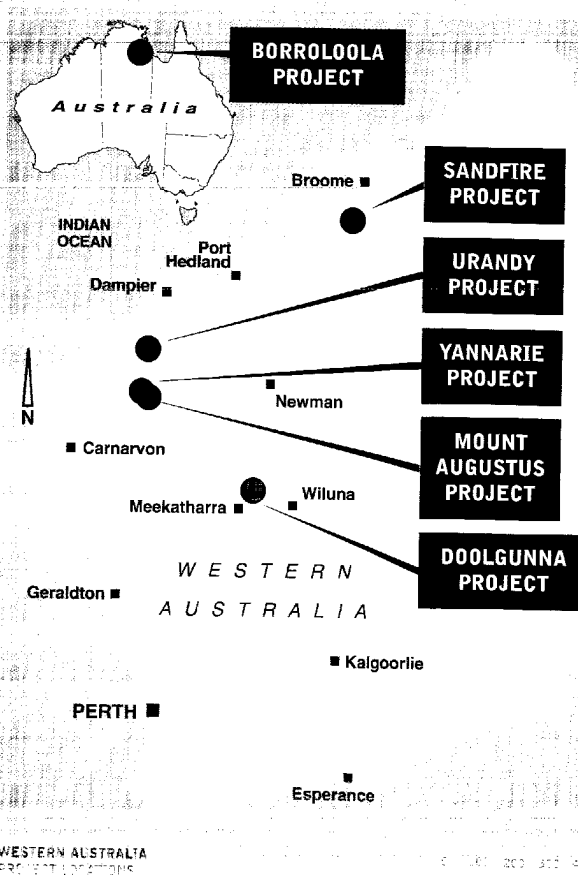
#### TECHNICAL DIRECTOR

- **Highly successful prospecting geologist**  
Over 40 years experience and a record of success.
- **A Pioneer of the Hamersley Iron Province**  
Receives significant royalties from key producers.
- **Co-founder of Metana Minerals NL**  
A star performer of the 1980s.
- **Technical Director and driving force behind the establishment of Kimberley Diamond Company**  
Now Australia's second commercial diamond producer.
- **Director of Herald Resources**  
Developed or developing gold and base metal operations.

### OTHER DIRECTORS

Mr Steemson is a qualified geologist and geophysicist with over 30 years experience in the mining industry. He has served on various boards of public listed companies and is currently a director of Mineral Commodities Ltd and Allied Gold Limited.

Mr Thomas is a solicitor with over 20 years experience in the resource sector and has served on the boards of various listed companies and presently is chairman of Image Resources NL.



## PROJECTS

The Company is exploring for large deposits of precious and base metals (including **gold, copper, lead, zinc and silver**) in under-explored geological provinces.

Although effective exploration of its conceptually generated projects will be expensive and involve higher than normal risks and rates of expenditure, based on his many years of experience and past successes, Mr Hutton believes that a commercial world class deposit will be discovered on at least one of these projects.

### SANDFIRE PROJECT

**TARGET METALS** Lead, Zinc & Silver.

**TARGET SIZE** >100Mt combined lead, zinc & silver deposit.

**EXPLORATION** Gravity Survey; Interpret & synthesise all data; Drill by July 2004.

Admiral Bay deposit (120Mt @ 8.7% lead/zinc + 20Mt @ 17.3% zinc/lead) delineated to the east by CRA.

Interpretation of existing data confirms the continuation of the mineralising structures into the project area and supports the hypothesis that mineralisation may be present at shallower depths than that drilled by CRA.

### DOOLGUNNA PROJECT

**TARGET METALS** Gold & Copper.

**TARGET SIZE** >1 Moz Gold deposits.

**EXPLORATION** RAB drilling by June/July 2004; Follow up target drilling by September 2004.

Located in a recognised gold and base metal province. Recent prospecting activity has discovered several new gold occurrences within the tenements; however, in the Company's view, the subtlety of the geochemistry has seen many exploration programs in the area terminated prematurely.

### BORROLOOLA PROJECT

**TARGET METALS** Copper, Lead & Zinc.

**TARGET SIZE** 20 Mt @ >10% combined lead/zinc.

**EXPLORATION** Drilling May/June 2004 (after wet season).

Covers part of a small sub-basin in the Batten Trough which is host to one of the world's largest zinc/lead/silver mines (McArthur River). A bounding fault zone and copper mineralisation in the project area provides a direct analogy with this deposit.

### URANDY PROJECT

**TARGET METALS** Copper & Gold.

**TARGET SIZE** Ernest Henry size (approx 2 Mt contained copper and approx 3 Moz contained gold).

**EXPLORATION** Aero-magnetic survey; Drilling by September 2004.

Located on the Paraborroloola Hinge Zone, where over 7 Moz of gold has been discovered and which hosts other major deposit types. Recent sampling nearby returned up to 51g/t gold and 9.35% copper.

### YANNARIE & MT AUGUSTUS PROJECTS

**TARGET METALS** Copper, Lead, Zinc & Silver.

**TARGET SIZE** Century & McArthur River size (>100Mt @ >10% base metals).

**EXPLORATION** Detailed geophysics; Drilling by late 2004.

Each project covers most of a sub basin known to contain mineralisation but presently under-explored and which has the potential to host McArthur type deposits.

## BACKGROUND

Since the 1980s there has been a dramatic fall in the level of green fields exploration in Australia due to factors including consolidation within the industry, the native title process, industry preoccupation with gold and investor sentiment being risk averse. As a result, Sandfire believes that there are many exciting, untested, conceptual exploration targets in Australia.

Sandfire was established by experienced, successful geologists for the purpose of generating and testing new exploration targets. Like all current explorers, Sandfire has access to all of the modern exploration tools. However, the individuals behind Sandfire combine a rare blend of seasoned professionals possessing scientific expertise, prospecting canniness and business acumen with an ambition to advance new conceptual exploration prospects rather than be beholden to historical workings and the resurrection of worn out prospects - **by backing this team, you will be backing unconventional thinkers looking for a really big discovery.**

Sandfire believes that the really big opportunities generally come from entirely new sources and that potentially huge rewards can be derived from its green fields projects. Sandfire also believes the risks normally associated with extraordinarily high rewards are diminished in the case of Sandfire through the combination of its visionary team of high calibre professionals with excellent track records (especially Graeme Hutton), its carefully thought out and selected prospects and its ability to apply modern exploration techniques to previously untested or inadequately tested country.

The Board has reviewed many projects over the last few years and from these projects has selected six for the Company's initial exploration effort. These projects range from conceptual base metal projects, such as the Sandfire Project, to more established gold projects, such as the Doolgunna Project. Sandfire believes that these projects have the potential to host world class deposits.

THESE "INVESTMENT HIGHLIGHTS" ARE NOT INTENDED TO PROVIDE FULL INFORMATION FOR INVESTORS LOOKING TO APPLY FOR SHARES OFFERED BY THIS PROSPECTUS. THE PROSPECTUS SHOULD BE READ AND CONSIDERED IN ITS ENTIRETY.

**INDICATIVE TIMETABLE**

|                       |                               |
|-----------------------|-------------------------------|
| Offer opening date    | 22 January 2004               |
| Offer closing date    | 20 February 2004 (5:00pm WST) |
| Expected Listing Date | 1 March 2004                  |

The above dates are indicative only and may change without notice.

**IMPORTANT NOTICES**

This prospectus has been issued by Sandfire Resources NL, was lodged with ASIC on, and is dated, 14 January 2004. Neither ASIC nor ASX take any responsibility for the contents of this prospectus.

The Company has issued both a printed and an electronic version of this prospectus; the electronic version may be accessed at [www.sandfire.com.au](http://www.sandfire.com.au). This prospectus should be read in its entirety before deciding to invest in the Shares offered by this prospectus. The Board considers an investment in the Shares to be speculative and recommends that you should consult with your financial advisor as to the course you should follow with respect to the Shares. No Shares (or other securities) will be issued on the basis of this prospectus after its expiry date, being 13 months after the date of this prospectus.

This prospectus only constitutes an offer in Australia. Where this prospectus has been dispatched to, or accessed electronically outside Australia, this prospectus is provided for information purposes only. Non-Residents should refer to *Additional Information - Non-Residents* for further details.

The Company reserves the right not to accept an application form from any person if it has reason to believe that when that person was given the application form, that person was not provided with a complete and unaltered copy of this prospectus and any relevant supplementary or replacement prospectus. If you have received an application form for the Shares without a complete and unaltered copy of this prospectus, please contact the Company who will send you, free of charge, either a printed or an electronic version of this prospectus (or both).

Notwithstanding any provision of this prospectus, the Board may from time to time extend or further extend any period or vary or further vary any date referred to in this prospectus for such period or to such later date as the Board thinks fit whether or not the period to be extended has expired or the date to be varied has passed.

Certain terms and abbreviations used in this prospectus (usually capitalised) are defined terms. See *Glossary* for further details.

# CONTENTS

|    |                                 |
|----|---------------------------------|
| 2  | Investment Highlights           |
| 6  | Chairman's Letter               |
| 7  | Corporate Overview              |
| 8  | Details of the Offer            |
| 9  | Board of Directors              |
| 10 | Project Overview                |
| 12 | Independent Geologist's Report  |
| 58 | Independent Accountant's Report |
| 66 | Report on Tenements             |
| 73 | Summary of Material Agreements  |
| 75 | Risks                           |
| 77 | Additional Information          |
| 80 | Glossary                        |
|    | Application Form                |

Dear Investor,

On behalf of the Board of Directors, it is my pleasure to offer you Shares in Sandfire Resources NL.

Australia is a country endowed with substantial natural resources and is fortunate to have a stable system of government that has allowed the development of a world class mining economy. Since the 1980s there has been a dramatic fall in the level of green fields exploration in Australia due to factors including consolidation within the industry (into the hands of major industry participants taking numerous junior explorers out of the industry), the native title process, industry preoccupation with gold and investor sentiment being risk averse. As a result, we believe that there are many exciting, untested, conceptual exploration targets in Australia.

Sandfire was established by experienced, successful geologists for the purpose of generating and testing new exploration targets. Like all current explorers, the Company has access to all of the modern exploration tools. However, the individuals behind Sandfire combine a rare blend of seasoned professionals possessing scientific expertise, prospecting canniness and business acumen with an ambition to advance new conceptual exploration prospects rather than be beholden to historical workings and the resurrection of worn out prospects - by backing this team, you will be backing unconventional thinkers looking for a really big discovery.

I believe that the really big opportunities generally come from entirely new sources and that potentially huge rewards can be derived from Sandfire's green fields projects. I also believe the risks normally associated with extraordinarily high rewards are diminished in the case of Sandfire through the combination of its visionary team of high calibre professionals with excellent track records, its carefully thought out and selected prospects and its ability to apply modern exploration techniques.

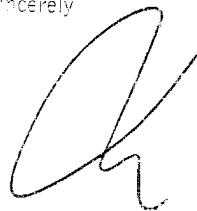
The Board has reviewed many projects over the last few years and from these projects has selected six for the Company's initial exploration effort.

These projects are situated in Western Australia and the other in the Northern Territory, range from conceptual base metal projects, such as the Sandfire Project, to more established gold projects, such as the Doolgunna Project. Part of the Company's exploration effort will be directed towards sedex style base metal deposits in the Proterozoic rocks of Western Australia and the Northern Territory. Sedex deposits worldwide are a major contributor to the copper, lead, zinc and silver inventories, and include deposits such as Broken Hill in New South Wales and Mt Isa in Queensland.

The Board believes the projects have the potential to host world class deposits. Over the course of the next few years, the Company intends, within the constraints of available funding, to continue the evaluation and, if warranted, acquisition of additional projects considered consistent with the Company's exploration philosophy.

On behalf of the Board of Directors of Sandfire, I recommend this investment opportunity to you and look forward to welcoming you as a Shareholder.

Yours sincerely



Peter Thomas  
Chairman

**OBJECTIVES**

The Company's objectives are to: carry out its proposed Year 1 exploration programs (as amended from time to time and subject to results) as set out in the *Independent Geologist's Report* section of this prospectus; and maintain a watching brief for other opportunities.

If the Company accepts the maximum oversubscriptions (an additional \$1.25 million), it also intends to carry out its proposed Year 2 exploration programs (as amended from time to time and subject to results) as set out in the *Independent Geologist's Report* section of this prospectus.

Following the Completion of the Offer, the Company will have enough working capital to carry out these objectives (see *Details of the Offer* for further details).

**CAPITAL STRUCTURE**

The expected capital structure of the Company following the Completion of the Offer is as follows:

| Details                                                                    | Number            |
|----------------------------------------------------------------------------|-------------------|
| Shares on issue prior to Completing the Offer                              | 14,000,000        |
| Shares to be issued pursuant to the Offer                                  | 18,750,000        |
| <b>Total Shares on issue at the Listing Date</b>                           | <b>32,750,000</b> |
| Contributing Shares on issue prior to Completing the Offer (\$0.15 unpaid) | 4,000,000         |
| Broker Options (exercisable at \$0.25 expiring 31 Dec 08)                  | 3,000,000         |

If the Board accepts oversubscriptions, the number of Shares on issue and the total issued capital at the Listing Date will increase by up to 6.25 million.

ASX may classify any securities issued or agreed to be issued prior to the Listing Date, excluding those issued pursuant to the Offer, as restricted securities, full details of which will be released to ASX as part of the Company's pre-quotation disclosure.

**USE OF PROCEEDS**

The expected application of the funds raised pursuant to this prospectus is as follows:

| Description                                                  | Offer<br>1st Year (\$) | Over-subscribed <sup>1</sup><br>1st Two Years (\$) |
|--------------------------------------------------------------|------------------------|----------------------------------------------------|
| Project Exploration                                          | 1,555,000              | 2,785,000                                          |
| ASX Listing Fees                                             | 30,000                 | 30,000                                             |
| Capital Raising Fees (6%)                                    | 225,000                | 300,000                                            |
| Other Outstanding Expenses of the Offer                      | 145,000                | 145,000                                            |
| Repayment of Loans (for out-of-pocket-expenses) <sup>2</sup> | 415,000                | 415,000                                            |
| Corporate Overheads                                          | 430,000                | 860,000                                            |
| General Working Capital                                      | 950,000                | 465,000                                            |
| <b>Total</b>                                                 | <b>\$3,750,000</b>     | <b>\$5,000,000</b>                                 |

1 The table assumes that the issue of Contributing Shares pursuant to the Borrooloola Sale Agreement will occur prior to Completing the Offer. However, as the Company will not be required to issue Contributing Shares under the Borrooloola Sale Agreement until the relevant tenements are actually transferred, the Contributing Shares may, in fact, be issued after Completing the Offer. See *Summary of Material Agreements - Borrooloola Sale Agreement* for further details.

1 This column only applies if over-subscriptions are accepted and assumes maximum over-subscriptions are accepted. If less than the maximum over-subscriptions are accepted, the Board will consider how it will apply the additional funds (after allowing for the additional capital raising fees) having regard to the circumstances after the Listing Date. However, it is anticipated that most of any additional funds will be allocated to project exploration in the second year after the Listing Date.

2 Owed to the Promoters for amounts paid on behalf of Sandfire by the Promoters to third parties unrelated to either the Promoters or Sandfire and for amounts advanced to Sandfire by the Promoters to enable Sandfire to make payments to third parties unrelated to either the Promoters or Sandfire.

## THE OFFER

This prospectus is for the offer of 18.75 million Shares at an issue price of 20 cents each to raise \$3.75 million. No Shares will be issued pursuant to the Offer until the Offer has been fully subscribed (ie, the minimum subscription is \$3.75 million). The Board reserves the right to accept over-subscriptions of up to an additional 6.25 million Shares to raise up to an additional \$1.25 million.

## ACCEPTANCE

If you wish to participate in the Offer, you must complete the application form accompanying this prospectus in accordance with the instructions set out therein. The Board reserves the right to accept any application in whole or in part, or to reject any application.

## APPLICATION MONIES

Application monies will be held in a separate bank account on behalf of applicants until the Shares are issued. If any application is rejected in whole or in part, the amount tendered in respect of Shares that have not been issued will be repaid to the unsuccessful applicant, without interest.

## ISSUE OF SHARES

If the Board decides to accept your application and issue Shares, either in whole or in part, the Company will, subject to ASX granting the Company conditional approval to be admitted to the Official List and the minimum subscription being reached, issue the Shares and dispatch either an issuer sponsored holding statement or CHESS statement to you as soon as practicable after the closing date together with any excess application monies.

## OPENING AND CLOSING DATE

The proposed opening date for acceptances of the Offer will be 22 January 2004 (the opening date will be delayed if the mandatory 7 day exposure period required by the Corporations Act is extended by ASIC). The proposed closing date for acceptances of the Offer is 5:00pm (WST) on 20 February 2004. The Board reserves the right to open and close the Offer at any other date and time, without notice.

Applications for Shares pursuant to this prospectus will not be processed by the Company until after the expiry of the exposure period. An application lodged prior to the expiry of the exposure period will be treated as though it was received immediately following expiry of the exposure period.

## STOCK EXCHANGE LISTING AND QUOTATION OF SHARES

The Company will apply within 7 days after the date of this prospectus for admission to the Official List and for its Shares to be quoted on ASX. If the application is not made within 7 days after the date of this prospectus or if the Shares are not granted quotation within 3 months after the date of this prospectus, the Company shall deal with applications in accordance with the requirements of the Corporations Act.

The fact that ASX may grant quotation of the Shares is not to be taken in any way as an indication of the merits of the Company or the Shares.

## OFFER FEES

See *Summary of Material Agreements - Manager to the Offer Agreement* for details.

**PETER S THOMAS****Chairman**

B. Juris, LLB

Mr Thomas is a practising solicitor with more than 20 years national and international experience in the resource sector, both oil and minerals, specialising in the provision of general contractual and corporate advice to both miners and explorers. He has been responsible for the structuring, restructuring and reconstruction of a number of entities and has been a director of a number of listed companies. He is Chairman of both Image Resources NL and the Anthem Software group of companies and was a director of Magnetic Minerals Limited until it was taken over by Ticor in early 2003 delivering real value to Magnetic shareholders.

**GREGORY H STEEMSON****Managing Director**

B.Sc(Geology), MSc(Geophysics),  
F.Aus.I.M.M, FAIG

Mr Steemson is a graduate of the University of Queensland and the University of Utah. He is a qualified geologist and geophysicist and has held senior positions within the mining industry during his 30 year career. Greg has been directly involved in successful exploration programs for gold, base metals, diamonds, iron ore, mineral sands and coal. He has professional work experience throughout Australia and in South Africa, New Zealand, New Guinea, Fiji, Canada, South America and China. He is also a director of Mineral Commodities Ltd and Allied Gold Limited. Greg brings management and expertise in exploration and mining to the Board.

**GRAEME J HUTTON****Technical Director**

B.Sc(Hons), F.Aus.I.M.M

Mr Hutton is a graduate of the University of Western Australia. Since graduating some 40 years ago, Graeme has established himself as a highly successful prospecting geologist.

His early prospecting career was centred on the Hamersley Iron Province. These activities, undertaken on behalf of DFD Rhodes Pty Ltd, have since been rewarded with Graeme's family company receiving or being entitled to receive royalties from the Rhodes Ridge Group and West Angelas owned by Rio Tinto, Hope Downs owned by Kumba Resources and Hancock Prospecting and McAmey's owned by BHP Iron. These royalties give recognition to Graeme's pioneering role in the development of this mineral field.

In the late 1970s, Graeme, together with Mr Peter Ingram, formed Metana Minerals NL which was one of the star performers of the developing gold mining industry in WA during the 1980s. Leaving the Metana group in the early 1990s, Graeme was the driving force behind the establishment of Kimberley Diamond Company (KDC), now Australia's second commercial diamond producer. Graeme maintains an active involvement with KDC in the role of Technical Director. Graeme also serves on the board of Herald Resources, a successful Western Australian resource company having developed its own gold mining operations and developing its own base metal operations.

The portfolio of projects currently held by Sandfire is the result of several years of exploration by the promoters.

## HISTORY AND BACKGROUND

The portfolio of projects currently held by SANDFIRE is the result of several years of exploration by the promoters. During this period, various tenements located throughout Western Australia and the Northern Territory have been reviewed. Many of these tenements did not stand the initial analysis and were abandoned leaving only the most promising in the portfolio, being the 6 projects now held by the Company.

SANDFIRE was incorporated to give effect to the intentions of the promoters for a jointly funded company to acquire and explore this portfolio of projects. These projects are the Doolgunna, Yannarie, Mt Augustus, Urandy and Carnarvon Projects, all of which are located in Western Australia, and the Borroloola Project, which is located in the Northern Territory. They are considered prospective for world class or, in the context of a junior exploration company, significant deposits of base metals or base and precious metals.

The Doolgunna, Yannarie, Mt Augustus and Urandy Projects are situated within the Proterozoic rocks in the mobile belt that separates the Archaean Yilgarn and Pilbara cratons.

The **DOOLGUNNA PROJECT**, located north of Meekatharra, is a conventional gold exploration play covering approximately 40km of the Jenkin fault zone and associated structures. This fault zone was active over a very long period of time during the development of the Glengarry Basin and was an important element in the geological evolution of the area. This zone hosts significant gold mineralisation. Exploration by CRA in the early 1990s defined a number of geochemical targets, two of which are in the project area. Shallow drilling by CRA intersected gold mineralisation in bedrock. In more recent times, prospectors have discovered several gold occurrences within the Company's tenements. In the Company's view, the subtlety of the geochemistry has seen many exploration programs in the area terminated prematurely. The Doolgunna Project provides the Company with existing gold targets for the initial exploration focus and the ability to develop new targets associated with the various structures associated with the Jenkin fault zone. In addition to the gold

potential, the area is also prospective for base metals. Many of the mineral deposits in the region have been mined solely for their base metal content or for their combined gold and base metal content.

The **YANNARIE** and **MT AUGUSTUS PROJECTS**, inland from Carnarvon, are located within the Proterozoic rocks of the Bagemall Basin. Each project covers most of what are interpreted to be sub-basin developments of the larger Bagemall Basin. These projects are prospective for "sedex" type mineral deposits examples of which are Broken Hill in New South Wales and Mt Isa in Queensland. Both of these sub-basins are situated at the southern margin of the Bagemall Basin and the Proterozoic rocks of the Gascoyne Province. Confirmation of the model in the area is found in the polymetallic Abra deposit discovered in 1981. This deposit is described in section 3.2 of the *Independent Geologist's Report*. Previous exploration in both project areas has been limited, thus providing the Company with the scope to look at these areas for the first time with modern exploration techniques. Minor base metal and gold mineralisation has been found in both areas by previous explorers.

The **URANDY PROJECT** inland from Onslow is located on the Paraburdoo Hinge Zone that marks the contact between the Wyloo and the Hamersley Group rocks. This zone is receiving increased attention by explorers as its prospectivity gains wider appreciation. Located in this zone to the southeast of the project area are gold resources totalling over 7 million ounces. The project area is also intersected by lineament 9B of O'Driscoll on which are located several major Australian ore deposits (eg. Paraburdoo and Mt Newman). Recent sampling undertaken by the Company near the Whynot prospect, located on the boundary of the project area has returned high gold grades (up to 50.9 g/t) confirming an earlier report of the same magnitude. The exploration program is targeted at iron oxide gold and base metal mineralisation and Carlin style gold mineralisation.

The **SANDFIRE PROJECT** is an exciting base metal play in the Canning Basin, south of Broome, Western Australia. The discovery of base metal mineralisation by petroleum explorers has occurred at least twice in Western Australia. One of these occasions was at Sorby Hills in the Kimberley. The second was in the Canning Basin on the Admiral Bay fault zone. The latter discovery was followed up by CRA which demonstrated that the mineralising system was extensive. The northwest extension of the Admiral Bay and associated faults have been investigated by the Company leading to the application for tenements near the coast. The available data confirms the existence of the faults in the project area and importantly suggests that there are other structures that may have caused any mineralising fluids to migrate to higher levels.

The **BORROLLOOLA PROJECT** is located near the locality of Borroloola in the Gulf country of Northern Territory. The project covers part of a small basin northwest of the McArthur River lead-zinc mine. Copper mineralisation occurs at the Gordon's mine within the project area and provides the basis for a strong analogue to the McArthur River deposit, which would see the lead-zinc mineralisation extending to the south of the Coppermine Creek fault within the project area.

See *Independent Geologist's Report* for further details with respect to the Company's projects.

#### INDICATIVE EXPLORATION EXPENDITURE

The Company believes that expenditure of the following amounts on exploring each project is justified.

| Project             | Year 1 (\$)        | Year 2 (\$)        | Total (\$)         |
|---------------------|--------------------|--------------------|--------------------|
| Sandfire Project    | 445,000            | 265,000            | 710,000            |
| Doolgunna Project   | 175,000            | 205,000            | 380,000            |
| Borroloola Project  | 205,000            | 150,000            | 355,000            |
| Urandy Project      | 225,000            | 190,000            | 415,000            |
| Yannarie Project    | 250,000            | 230,000            | 480,000            |
| Mt Augustus Project | 255,000            | 190,000            | 445,000            |
| <b>Total</b>        | <b>\$1,555,000</b> | <b>\$1,230,000</b> | <b>\$2,785,000</b> |

Contingent on results and other opportunities, expenditure may be reallocated amongst existing or new projects or to general working capital. The Company does not intend to restrict its activities to the aforementioned projects and will evaluate other opportunities as they arise. Conduct of the above exploration will require the tenement applications to be granted within a reasonable time and access agreements to be negotiated. If the Board does not accept oversubscriptions, the Company will need to raise additional funds should it wish to complete Year 2 of the above exploration expenditures (which are set out in more detail in the *Independent Geologist's Report*).

# INDEPENDENT GEOLOGIST'S REPORT

12

INDEPENDENT GEOLOGIST'S REPORT

Wynsai Pty Ltd ATF Fox Family Trust TA  
**K. FOX AND ASSOCIATES**

ACN 074 330 555

23 Finlayson Street  
SUBIACO WA 6008  
Australia

Telephone: + 61 8 9382 1556

Facsimile: + 61 8 9382 1556

E-mail: kefox@iinet.au/

9th January 2004

The Directors  
Sandfire Resources NL  
12 Walker Avenue  
WEST PERTH WA 6005

## INDEPENDENT GEOLOGISTS REPORT

You have commissioned K. Fox and Associates ("KFA") to prepare an Independent Geologist's Report on six mineral exploration projects located in Western Australia and the Northern Territory in which Sandfire Resources NL ("Sandfire") has an interest.

Sandfire will hold a 100% interest in a portfolio of six exploration projects, five in Western Australia and one in the Northern Territory covering areas with varying stages of exploration. The main commodities sought are gold, silver and base metals. The status of each tenement is set out elsewhere in this Prospectus.

This report is to be included in a Prospectus to be lodged with the Australian Securities and Investments Commission ("ASIC") on or about 14th January 2004 offering for subscription 18.75 million ordinary fully paid shares at an issue price of 20 cents each per share to raise \$3.75 million (before costs associated with the issue), with oversubscriptions for up to an additional \$1.25 million. The funds raised will be used mainly for exploration and evaluation of the mineral properties.

It has been prepared in accordance with the relevant requirements of the listing rules of the Australian Stock Exchange Limited ("ASX"), ASIC Practice Notes 42 and 43 and the Guidelines for Assessment and Valuation of Mineral Assets and Mineral Securities for Independent Expert Reports (the Valmin Code). Adherence to the Valmin Code is mandatory for all members of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists.

KFA has neither been requested to provide an Independent Valuation, nor has it been asked to comment on the Fairness or Reasonableness of any vendor or promoter considerations. We have not offered any opinion on these matters.

KFA's assessment of the tenements included in this Prospectus is based upon upon technical information provided by Sandfire together with technical reports prepared by Government agencies and reports by previous holders of tenements within the areas. Reference has been made also to other relevant published and unpublished data. A listing of the principal sources of information is included in the Independent Geologist's Report.

KFA has endeavoured, by making reasonable enquiries, to confirm the authenticity and completeness of all technical data used in the preparation of this report and to ensure KFA's unrestricted access to all relevant technical and other information.

It is the opinion of KFA that the projects described in this Prospectus are worthy of continued exploration and are located in areas where there is a reasonable expectation that economic mineralisation may be located. It is not possible to accurately determine the outcome of exploration and considerable variation of the proposed exploration programmes and budgets may become necessary as new data become available. We have visited all of the project areas except for the overburden covered Sandfire Project during the course of preparation of this report.

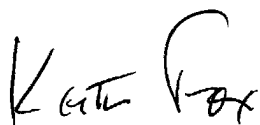
K. Fox and Associates is an independent geological consultancy established in 1979. Keith Fox, the sole director, graduated from the University of Wales at Cardiff in the UK in 1962 with a BSc(Honours) degree in geology and is a member of the AusIMM, with the relevant and appropriate experience, competence and independence to appraise the projects. During the course of preparation of this report KFA retained the services of Mr John Hartley as an Associate to prepare the Borroloola Project part of the report. Mr Hartley graduated from the University of Queensland with a BSc degree in geology in 1959 and is a member of the AusIMM.

The statements contained in this report are given in good faith. They are based on information believed to be reliable and accurate supplemented by our own investigations and observations. We have relied upon this information and have no reason to believe that any material facts have been withheld from us.

Neither K. Fox and Associates nor the authors of this report have or have previously had any material interest in Sandfire or the mineral properties in which Sandfire has an interest. Our relationship with Sandfire is solely one of professional association between client and independent consultant. This report has been prepared in return for professional fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report.

Yours faithfully

K. FOX AND ASSOCIATES

A handwritten signature in black ink that reads "Keith Fox". The signature is written in a cursive, slightly stylized font.

K. Fox

BSc(Hons) MAusIMM MIMMM CEng MAIG

# INDEPENDENT GEOLOGIST'S REPORT

## TABLE OF CONTENTS

### SUMMARY

#### 1 GENERAL

#### 2 DOOLGUNNA PROJECT

##### 2.1 Introduction

##### 2.2 Regional Geological Setting

##### 2.3 Project Geology

##### 2.4 Previous Exploration

##### 2.5 Exploration Potential

##### 2.6 Exploration Programme

##### 2.7 Exploration Budget

#### 3 YANNARIE PROJECT

##### 3.1 Introduction

##### 3.2 Regional Geological Setting

##### 3.3 Project Geology

##### 3.4 Previous Exploration

##### 3.5 Exploration Potential

##### 3.6 Exploration Programme

##### 3.7 Exploration Budget

#### 4 MOUNT AUGUSTUS PROJECT

##### 4.1 Introduction

##### 4.2 Regional Geological Setting

##### 4.3 Project Geology

##### 4.4 Previous Exploration

##### 4.5 Exploration Potential

##### 4.6 Exploration Programme

##### 4.7 Exploration Budget

#### 5 URANDY PROJECT

##### 5.1 Introduction

##### 5.2 Regional Geological Setting

##### 5.3 Project Geology

##### 5.4 Previous Exploration

##### 5.5 Exploration Potential

##### 5.6 Exploration Programme

##### 5.7 Exploration Budget

#### 6 SANDFIRE PROJECT

##### 6.1 Introduction

##### 6.2 Regional Geological Setting

##### 6.3 Project Geology

##### 6.4 Previous Exploration

##### 6.5 Exploration Potential

##### 6.6 Exploration Programme

##### 6.7 Exploration Budget

#### 7 BORROLOOLA PROJECT

##### 7.1 Introduction

##### 7.2 Regional Geological Setting

##### 7.3 Project Geology

##### 7.4 Previous Exploration

##### 7.5 Exploration Potential

##### 7.6 Exploration Programme

##### 7.7 Exploration Budget

## MAIN SOURCES OF INFORMATION

## GLOSSARY OF TECHNICAL TERMS

## SUMMARY

Sandfire Resources N.L. ("Sandfire" or "the Company") has assembled a portfolio of six Australian exploration projects, five in Western Australia and one in the Northern Territory (Figure 1). Four of these projects: Doolgunna, Yannarie, Mount Augustus and Urandy have potential to host world class deposits of either SEDEX type stratiform lead-zinc-silver  $\pm$  copper such as Abra and HYC (McArthur River), iron oxide copper-gold-uranium-REE type deposits or in the case of the Urandy Project Carlin type sediment hosted gold deposits. The Sandfire Project has potential for discovery of Mississippi Valley type lead-zinc-silver  $\pm$  copper deposits and the Borroloola Project in the Northern Territory is believed to have potential for discovery of a HYC type deposit of modest size.

The Doolgunna Project comprises four tenements with a total area of more than 480 km<sup>2</sup> covering about 40 km strike length of the Peak Hill Mineral Field's early Proterozoic Bryah and Padbury basins on the northern margin of the Archaean Yilgarn Craton. The evolution of these basins was controlled in part by the major crustal east-northeast trending Jenkin lineament. This structure is parallel to the Tangadee lineament of the Bangemall Basin located about 120 kilometres to the north and considered to have played a major role in the development of the Jillawarra sub-basin that hosts the major sub-economic Abra zinc-lead-silver deposit.

Previous major company exploration of the Doolgunna Project area identified a number of gold/base metal anomalies. Follow-up confirmed the presence of gold mineralisation but the explorers concluded that the potential for discovery of a >1 million ounce gold deposit was limited. Sandfire's initial exploration programme will comprise more detailed investigation of these known anomalies.

Two of Sandfire's projects: Yannarie and Mount Augustus are located within the Bangemall Basin.

The Yannarie Project comprises three contiguous tenements covering a total area of more than 600 km<sup>2</sup> and secures an 83 km strike length (more than 90 percent) of the "Mangaroon Syncline", an outlier of Bangemall Basin rocks within the Gascoyne Province metamorphic rocks of the Capricorn Orogeny. Recent mapping has established that this "syncline" is a rifted sub-basin of similar type to the Jillawarra sub-basin. Except for 3 diamond drill holes investigating possible uranium targets, previous exploration has been confined to regolith sampling. These programmes resulted in identification of areas anomalous in copper, lead, zinc, uranium and silver. Anomalous gold has been recorded in two areas.

The available data suggest this project to have potential for discovery of sediment hosted (SEDEX) zinc-lead-silver  $\pm$  copper and/or iron oxide copper-gold deposits.

The Mt Augustus Project comprises three contiguous tenements covering a total uncontested area of 429 km<sup>2</sup> and secures most of the double plunging Bangemall Anticline and its flanking synclines.

This area is believed to be a rifted sub-basin similar to the Mangaroon sub-basin of the Yannarie Project and the Jillawarra sub-basin that hosts the Abra zinc-lead-silver deposit and is considered to have similar exploration discovery potential.

The Urandy Project consists of three tenements covering an area of more than 380 km<sup>2</sup> and is located within the Ashburton Mineral Field. The Wyloo group succession was deposited in the Ashburton Basin during early Proterozoic times. The rocks of the basin host many significant gold deposits. Previous exploration within the project area has identified a number of copper-gold-uranium and copper-arsenic geochemical anomalies in both weathered and fresh rocks. The project is believed to have potential for discovery of both iron oxide copper-gold-uranium-REE and Carlin style sediment hosted gold deposits. Crossing the project area is a major continental east-southeast lineament – the "Paraburdoo Hinge Zone". Gold resources identified to date along this trend total more than 7 million ounces.

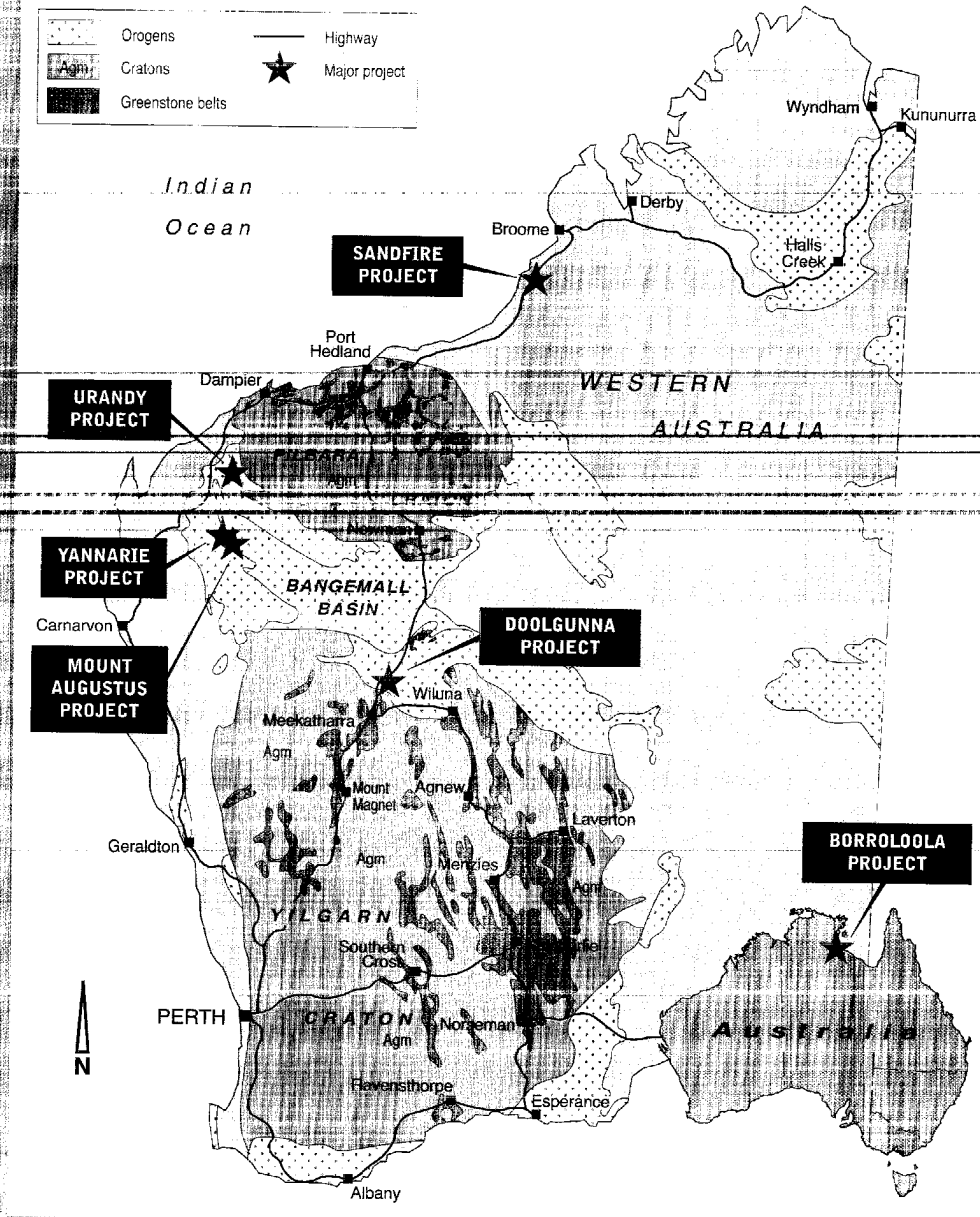
The Sandfire Project comprises three tenements covering an area of about 570 km<sup>2</sup> in the Admiral Bay area of the Canning Basin. Following the intersection of thick zones of lead-zinc mineralisation in oil wells about 50 km east-southeast of the project CRA completed a major exploration programme. A large deposit was delineated about 1,400m below the surface. Average grades were too low to enable exploitation. Sandfire's exploration objective is to discover a deposit of similar type at shallower depth.

The Borroloola Project consists of a single Exploration Licence with a total area of about 16.5 km<sup>2</sup> within which is included small mining lease. It is underlain by the Lower to Middle Proterozoic rocks of the McArthur Basin being located approximately 85 km north-northwest of the large McArthur River HYC zinc-lead-silver-copper ore deposit. Previous exploration results suggest there may be potential for discovery of a modest deposit at relatively shallow depth.

Sandfire's six projects are considered to have been acquired on the basis of sound technical merit. Although five of these projects have potential for discovery of world class base and precious metal deposits, they should be viewed as being exploration properties that are speculative in nature.

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 1 - WESTERN AUSTRALIA  
PROJECT LOCATIONS**

## 1 GENERAL

The projects described in this report have been acquired to explore for four different mineral deposit types. Each of these has certain distinctive characteristics and has been formed by different processes. Descriptions of these characteristics are presented below.

### SEDEX DEPOSITS

"Many mineral deposits containing zinc, lead, copper, barium and/or precious metals are stratiform in that their general morphology is similar to sedimentary strata" (Morganti, J.M., 1981). Most of these can be described as sediment-hosted massive sulphide deposits. They occur within the rocks of a variety of sedimentary basin types and have in many cases been subjected to post depositional folding, faulting and metamorphism. Despite their diversity they have the following common characteristics (after Allen, C., SEDEX Presentation, PERTH, 2003, unpublished):

- they occur in areas of extensional (pull-apart) tectonics involving the development of long-lived growth faults, unconformities and coarse clastic sediment input;
- they contain thick and extensive aquifer systems of quartzites, arkoses and often volcanics undergoing diagenesis;
- they exhibit abnormal heat flow either related to volcanic or deep seated intrusive activity or to high temperature gradients along developing growth faults that allow continual fluid discharge and recharge and
- the presence, in most cases of reduced pyritic black shales.

Australian examples of SEDEX deposits included the Mt Isa, Hilton, George Fisher group, Queensland with more than 40 million tonnes of zinc-lead metal and the Broken Hill deposits of New South Wales with about 75 million tonnes of zinc-lead metal.

There are also many known SEDEX type copper deposits. These characteristically occur at the interface between underlying red haematitic sediments and overlying carbonaceous sediments, dolomites and limestones. Examples include the deposits of the Zambian and Zairian Copperbelts of Africa and the Kupferschiefer deposits of Poland.

### PROTEROZOIC IRON OXIDE COPPER-URANIUM-GOLD-REE DEPOSITS

The Olympic Dam copper-uranium-gold-silver deposit in South Australia, the Wernecke Mountain iron ore breccias of the Yukon, USA, the Kiruna iron ore district of Sweden, the Ernest Henry copper-gold deposit, Queensland and the Redbank breccias, of the Northern Territory are all examples of this deposit type. The main common characteristics of this class of deposit are as follows (Hitzman, M.W. et al, 1991):

- Age – most of the deposits, particularly the larger ones are hosted by early to mid-Proterozoic rocks (1.1 to 1.8 billion years);
- Tectonic setting – the deposits are located in areas that were cratonic or continental margin environments and there is often a close spacial and temporal association with extensional tectonics – most districts occur along major structural zones;
- Mineralogy – the ores are generally dominated by iron oxides, either magnetite or haematite – magnetite is found at deeper levels than haematite – carbonate minerals, barium, phosphorous or fluorine minerals are common;
- Alteration – there is a general trend from sodic alteration at deep levels to potassic alteration at intermediate to shallow levels and to sericitic alteration and silicification at very shallow levels.

It is believed that these deposits generally formed in shallow crustal environments i.e. at less than 4 to 6 km depth and that they are expressions of deeper seated, volatile rich igneous-hydrothermal systems tapped by deep crustal structures. The narrow time frame of the world-wide occurrence of these deposits suggests them to be related to a series of global rifting events.

### MISSISSIPPI VALLEY TYPE LEAD-ZINC-SILVER DEPOSITS

These are typically stratabound deposits of lead and/or zinc minerals in carbonate rocks, together with fluorite and barite. The deposits tend to have relatively simple mineralogy, occurring as veins and replacement bodies. They show little post-ore deformation. Evidence of igneous activity is generally absent. They comprise stratabound rhythmically banded ore with replacement of primary sedimentary features and/or are hosted in faults and hydrothermal cavities. They may be associated with dolomite alteration halos.

MVT deposits tend to be located close to extensional faults.

Australian examples are the Cadjebut, Goongewa and Blendeville zinc-lead-silver deposits of the Lennard Shelf and the Admiral Bay zinc-lead deposit all of which are located within the Canning Basin, Western Australia.

### CARLIN TYPE SEDIMENT HOSTED GOLD DEPOSITS

Carlin Type deposits occur over a wide time frame extending from the early Proterozoic 2000Ma to at least Mesozoic 120Ma times. At least 15 gold deposits have been discovered along Nevada's Carlin trend with combined mined and unmined resources exceeding 64 million ounces.

The gold mineralisation tends to be stratabound and often stratiform being generally hosted within sequences of interbedded siltstones, dolomitic siltstones and dolomites.

There is convincing evidence that the carbon dioxide-rich acidic mineralising fluids ascended tensional faults that crosscut the host stratigraphy. The resulting alteration caused extensive carbonate removal. At Carlin gold "most consistently enriches the zone of calcite and dolomite removal" (Kuehn et al., 1992). Both alteration and mineralisation are zoned away from the crosscutting fault conduits. Gold tends to be coincident with anomalous arsenic, antimony and mercury.

## 2 DOOLGUNNA PROJECT

### 2.1 INTRODUCTION

The Doolgunna Project comprises Exploration Licence applications E52/1697, E52/1698, E52/1699 and E52/1715 covering a total area of about 487 km<sup>2</sup>. It is centred at latitude 25°35'S, longitude 119°15'E and located about 760 km north-northeast of Perth and 145 kilometres by road north of the town of Meekatharra in the Peak Hill Mineral Field of Western Australia (Figure 1). A prior Mining Lease application M52/597 (see Figure 3) is excluded from the project area.

The Great Northern Highway passes from south-southwest to north-northeast through its centre. Access within the project can be gained via numerous station tracks, mainly along fence lines together with tracks created by historical exploration activities.

Vegetation varies between woodlands, shrublands and spinifex grasslands with rare eucalypts along major drainage channels. The region has an arid to semi-arid climate with low irregular rainfall averaging about 200mm per annum, most of which is confined to rare incursions of cyclonic rains during summer. Mean mid-summer temperatures vary between 38°C maximum and 23°C minimum and in mid-winter ranges from 20°C maximum to 6°C minimum.

### 2.2 REGIONAL GEOLOGICAL SETTING

In early Proterozoic times (between 2000 and 1800 Ma ago) an oblique continental collision occurred between the Archaean Yilgarn and Pilbara cratons (Adamides, M.G., 1998). This event is known as the Capricorn Orogeny.

During this period three adjacent volcano-sedimentary basins were formed in the Peak Hill area (Figure 2): the early Proterozoic Yerrida, Bryah and Padbury basins. Originally collectively named the Glengarry Basin (Gee, R.D., 1985), these basins overlie the northern margin of the Archaean Yilgarn Craton.

The Yerrida and Bryah basins are believed to have formed during separate episodes of pull-apart tectonics. The Padbury Basin appears to have been formed during a later extensional episode with the Bryah Group succession as a basement.

A lack of dating information together with variable degrees of tectonism and metamorphism prevent precise determination of the relative ages of these basins. In many areas tectonism has resulted in the boundaries between the Yerrida, Bryah, and Padbury basins being fault contacts.

To the north essentially unmetamorphosed and gently folded shallow water sedimentary rocks of the Middle Proterozoic Bangemall Basin unconformably overlie the Gascoyne Orogen metamorphic rocks of the Capricorn Orogeny.

The Yerrida Basin lies to the east and southeast of the project area and its succession unconformably overlies the northern margin of the Yilgarn Craton.

To the northwest, in faulted contact with the Yerrida Basin (the Goodin and Jenkin faults) is the Bryah Basin.

The Bryah Group rocks have been metamorphosed to greenschist facies and complexly deformed. Its members exhibit features characteristic of a rifted succession.

The basal Bryah Group Karalundi Formation essentially comprises a mixed sequence of sericitic and haematitic siltstone and shale (Adamides, N.G., 1998). The presence locally within these rocks of exotic blocks of various sizes and compositions are believed to represent remnants of debris flows deposited within the deep waters of a rift sequence.

The Karalundi Formation is overlain by and at least in part intercalated with the Narracoota Formation that comprises mafic to ultramafic lava flows, tuffs and dykes with intercalated sediments.

The Narracoota Formation is overlain by the poorly sorted sediments of the Ravelstone Formation and these in turn are overlain by the wackes, shales and banded iron formations of the Horseshoe Formation.

To the north of the westernmost project tenement (E52/1715) is an area of Narracoota Formation thickening. Between these volcanics and the Archaean Marymia granitic inlier is a fault-bounded zone up to 4 kilometres wide occupied by the quartz sericitic Peak Hill Schist. These rocks are of undetermined age.

Unconformably overlying and in faulted contact with the Bryah Basin rocks are the sediments of the Padbury Basin. The basal Wilton Formation comprises a sequence of conglomerates overlain by finer grained sandy and then shaly rocks. It is overlain by the Robinson Range Formation consisting of interbedded shales, magnetite bearing granular iron-formations and banded iron-formations. Deposited on the Robinson Range Formation was the Millipie Creek Formation comprising a thick sequence of shale, dolomite and sandstone.

**FIGURE 2 - DOOLGUNNA PROJECT  
REGIONAL GEOLOGICAL SETTING**

The Padbury Group members have been subjected to intense, often isoclinal folding.

In the western part of the area, in the trough between the Archaean Yilgarn craton and the Marymia and Goodin inliers there occurs an outlier of Mount Leake Formation rocks that unconformably overlie the sequences of both the Yerrida and Bryah basins.

Exposure of Archaean basement rocks within the area comprises granites of the Yilgarn Craton to the southwest, south and southeast to the north of which are two basement high related inliers of granitic composition the Goodin and Marymia inliers.

Between the Goodin and Marymia inliers is a major east-northeast trending fault zone related lineament – the Jenkin lineament or fault zone. This zone is parallel to the Tangadee lineament that is believed to have played a major role in the development of the Pitha-Tangadee sub-basin in the Bangemall Basin.

The Jenkin lineament is considered to be a major continental structure that played a similar role in the development of the Yerrida, Bryah and Padbury basins. While retaining its integrity in a regional or continental sense many of its fault elements exhibit evidence of complex fault plane folding. There is evidence to suggest that the various dislocational structures have alternated between extensional rift related growth faults and compressional reverse faults.

Gold was first found in the Proterozoic rocks of the Peak Hill Mineral Field area in about 1892. Since that time exploration has resulted in discovery and mining of numerous ore deposits (Figure 2).

The Peak Hill schists form a tectonic unit of uncertain age and may be part of the Archaean Marymia inlier. The structurally controlled Peak Hill, Jubilee and Mount Pleasant gold deposits are hosted by these schists.

Total gold production from the Peak Hill centre has been 726,853 ounces of gold from 5,098,000 tonnes of ore.

Bryah Group rocks host most of the major Proterozoic gold deposits of the area. Located to the northwest of the project area are the structurally controlled Nathan Bitter, Labouchere main lode, Labouchere-Nathan Deep South and Fortnum group gold deposits. These deposits occur either within or in close proximity to major fault/shear zone structures. Total pre-1998 recorded gold production was about 607,350 ounces.

Also within the Bryah Group are the Harmony, Milkhaurra, Wombley, Cashmere and Ruby Well gold deposits. Gold production and remaining resources exceed 295,000 ounces.

The Horseshoe gold-copper deposit occurs within felsic schists within the Narracoota Formation of the Bryah Group. It comprises massive sulphides overlying and flanked by disseminated and stringer sulphides and the

ore mainly consists of chalcocite, pyrite and chalcopyrite. Ore zone geometry, associated alteration and the contained metals - copper, gold, silver, lead and zinc suggest the tectonically modified deposit to have originally been of volcanogenic origin (Pirajno, F. and Preston, W.A., 1998). Average ore grade was about 10% copper, 8g/t gold and 300g/t silver. A large low-grade resource remains.

About 25 kilometres east of the project area is a group of 5 shear hosted copper deposits. The Thaduna Mine has exploited the largest of these. The deposits are located along a northwest trending shear zone within the turbiditic rocks of the Yerrida Group Thaduna Formation. Between 1942 and 1971 a total of 340,000 tonnes of ore averaging 8.3% copper was mined. A resource of about 500,000 tonnes averaging 3.4% copper remained.

## 2.3 PROJECT GEOLOGY

Most of the project area is underlain by early Proterozoic rocks of various ages. The tenements cover about a 40 kilometres strike length and up to 15 kilometres width of Bryah Group sediments and volcanics. In the western part of the project an inlier up to 4 kilometres wide of steeply dipping and synclinally folded Padbury Group quartz-wackes, shales and banded iron formations occurs: the south-southwesterly plunging Robinson Syncline. Approximately 15 kilometres strike length of this inlier lies within the project areas (Figures 3 and 4).

The Bryah Group rocks have been metamorphosed to greenschist facies and complexly deformed. Its members exhibit features characteristic of a rifted succession.

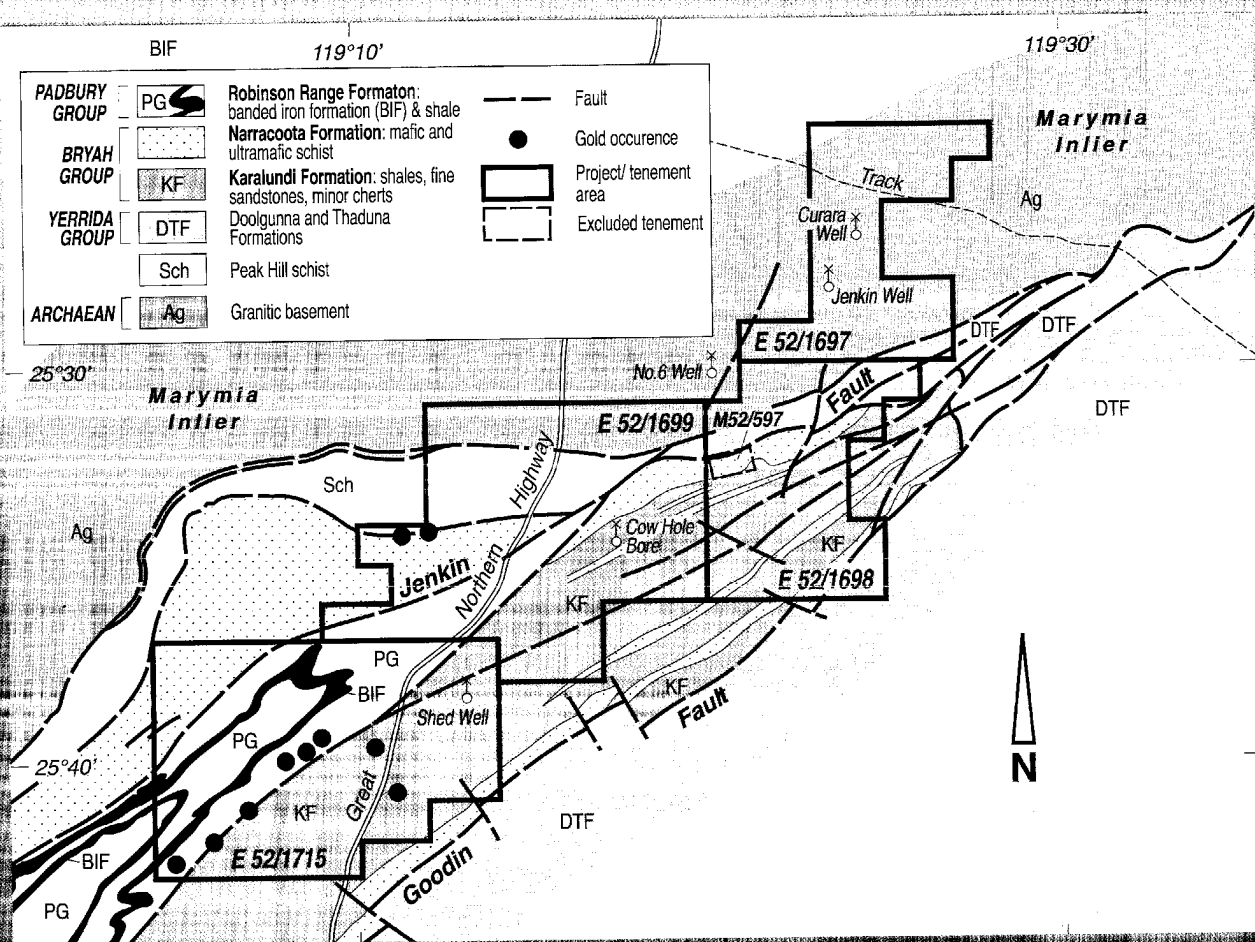
As previously mentioned, the basal Bryah Group Karalundi Formation comprises a sequence of sericitic and haematitic siltstone and shale with evidence of debris flows suggesting deposition associated with a rift sequence.

There is also strong evidence of hydrothermal exhalative processes related to volcanic activity (Gee, R.D., 1987).

The sedimentary rocks of the Karalundi Formation sequence are overlain by and particularly within the southern part of the project area, intercalated with the Narracoota Formation's mafic to ultramafic lava flows, tuffs and dykes.

To the north of the westernmost part of the project is an area of Narracoota Formation thickening.

Within the project area the sedimentary rocks of the Padbury Basin appear to occur as a fault bounded outlier. The basal Wilthorpe Formation comprises an upwardly fining sequence grading from conglomerates to shaly rocks. It is overlain by the Robinson Range Formation consisting of interbedded shales and magnetite rich granular and banded iron-formations.



**FIGURE 3 - DOOLGUNNA PROJECT**  
INTERPRETED SOLID GEOLOGY

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT

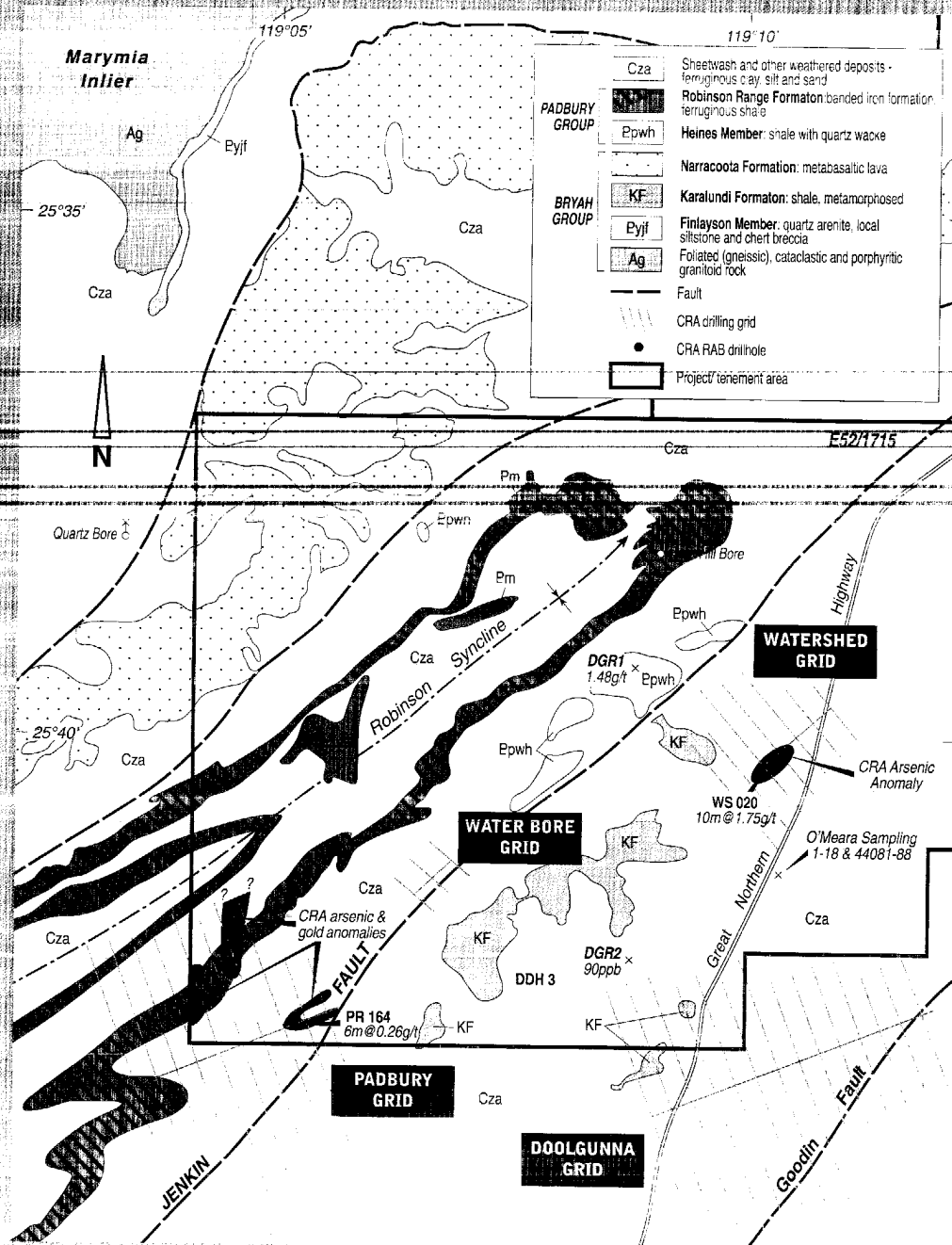


FIGURE 4 - DOOLGUNNA PROJECT E52/1715  
OUTCROP GEOLOGY



Deposited on the Robinson Range Formation was the Millidie Creek Formation comprising a thick sequence of shale, dolomite and sandstone. This sequence has been subjected to intense, often isoclinal folding accompanied by axial plane cleavage.

## 2.4 PREVIOUS EXPLORATION

Companies that have completed significant exploration are relatively few and their programmes and results are summarised below.

During the period 1980 to 1982 Chevron completed a programme over its Noonyereena Prospect. This prospect straddled the present boundary between Sandfire's applications E 52/1698 and E 52/1699. An aeromagnetic and radiometric survey was flown and six percussion holes were drilled to test magnetic anomalies for base metal mineralisation. No anomalous results were returned. Several rock chip samples were collected and analysed and the best results were: 3,400ppm copper and 300ppm zinc (sample D), 28.5% copper, 14.4g/t silver and 0.57g/t gold (sample E) and 3.4% copper, 205ppm lead, 290ppm zinc, 1.0g/t silver and 1.05ppm gold (sample F). Precise locations of these samples are unknown.

In 1970 an aeromagnetic survey was flown for WMC by Geophysical Resources Development Company. Between 1982 and 1985 WMC investigated selected potentially kimberlite related magnetic features. About 60% of this work was concentrated in the same area as that explored between 1980 and 1982 by Chevron. No kimberlites were found but a number of HMC and rock chip samples were collected. Although precise locations are not known geochemical values of up to 4,102ppm cobalt, 1.45% copper, 4,102ppm chromium, 5,463ppm nickel, 266ppm strontium, 2,358ppm cerium, and 389ppm neodymium were recorded.

In 1987 CRA commenced a major exploration programme, the Ruby Bore Project that ultimately covered large areas of the Yerrida, Bryah and Padbury basins and continued until 1993. Data collected during these years are well documented. It is estimated that between 30% and 40% of CRA's expenditure was concentrated in the area of Exploration Licence applications E52/1715 and part of E52/1699.

CRA had completed an aeromagnetic survey in 1981. The 1987-93 programme initially comprised extensive 3 km. spaced pisolite sampling with multielement analysis. A number of subtle geochemical anomalies were located. The best of these were followed up by collection and multielement analyses of one km. spaced HMC and limited pisolite and BLEG samples. A total of 466 HMC, 65 pisolite and 32 BLEG samples were collected.

Two obvious gold anomalies were located, both covering areas of about 8 square kilometres with peak values of up to 16.9ppb gold. Follow up involved collection and analyses of 400m x 200m spaced augered soil samples.

A number of discrete 10 to 150ppb gold anomalies were identified. Grids were constructed over the Doolgunna, Padbury and later the Watershed anomalies and one metre deep auger sampling was infilled to 400m x 100m spacing.

The Watershed grid and about 40% of the Padbury and Doolgunna grids are located within the current tenements (Figure 4).

Auger drilling of the Watershed grid identified a small (400m x 200m) low level 8.6 to 9.8ppb gold anomaly and a coincident arsenic anomaly with values of up to 270ppm. At a 20ppm arsenic level this anomaly is about 1,200 metres long and up to 500 metres wide. The anomaly was followed up by the drilling of 49 vertical RAB holes totalling 1,769 metres at 50 metres intervals along 200 metres spaced lines. A wide sheared and quartz veined zone was encountered. An intersection of 10 metres averaging 1.75g/t with 110ppm arsenic and 429ppm zinc was recorded at the bottom (24 to 34m) of hole WS 020. Five aircore holes totalling 201 metres were drilled to "close off the anomaly" and recorded a best result of 0.19g/t gold with 410ppm copper, 805ppm zinc and 1105ppm arsenic.

Auger drilling in that part of the Padbury Grid covered by Sandfire's tenement E52/1715 indicated two areas of low level anomalous gold and arsenic. The southernmost of these is a hook shaped area with a strike length of about 1,000 metres and open to the east. A total of 45 shallow vertical RAB holes spaced either 50m or 25m apart were drilled on lines 200m apart to test this anomaly. The best result was 6 metres at 0.26g/t in hole PR 164.

The second anomaly appears to be a north – south trending feature oblique to the grid. Anomalous consecutive gold values of 5 or 6ppb are coincident with arsenic values of up to 46 ppm. This feature lies within a large area of elevated >10ppm arsenic in auger hole geochemistry. As defined by the 20ppm arsenic contour this anomaly has a trend length of more than 1,000 metres open to the north and is up to 400 metres wide.

Prospector Mr Denis O'Meara collected samples from the western part of the project area between 1981 and 2003 and has at various times applied for a number of Exploration Licences in the area. A total of 26 rock chip samples were collected from a location adjacent to the Great Northern Highway (Figure 4). Five of these samples contained >0.1g/t gold with best values being 0.33g/t gold, 1430 arsenic, 570ppm copper and 302ppm zinc.

In May 2003 two additional locations were sampled and analysed for gold only. Sample DGR 01 assayed 1.48g/t gold in quartz-iron breccia and sample DGR 02 returned 90ppb gold in brecciated quartz-limonite vein material.

# INDEPENDENT GEOLOGISTS REPORT

24

INDEPENDENT GEOLOGISTS REPORT

## 2.5 EXPLORATION POTENTIAL

This project area is believed to have considerable potential for discovery of gold and base metal deposits.

In most cases although mineralisation may have been originally of SEDEX or iron oxide copper gold deposit origin it is likely to have been remobilised by subsequent intense tectonic activity.

Several potentially significant targets have been already identified by CRA.

Gold is known to have been recovered from illegal metal detecting activities in several parts of the project tenements (Figure 3) and such activities are known to have occurred elsewhere within the project. The known occurrences tend to be on or close to major east-northeast trending faults that are elements of the regionally significant Jenkin Lineament. There is ~~an intense interest in discovery of base metal deposits~~ Fortnum and Horseshoe type deposits along this trend.

## 2.6 EXPLORATION PROGRAMME

Bedrock exposure is poor over most of the project area. Systematic surface and near surface geochemical sampling by CRA suggests that gold mineralisation at depth may be represented by only subtle low level gold anomalies in the upper part of the regolith.

In addition to the recognition of highly prospective regional structures, a number of the target areas generated by previous explorers are worthy of further investigation. Most of these are coincident with highly anomalous arsenic geochemistry that extends well beyond the confined areas of anomalous gold. Surface and near surface arsenic geochemistry appears to be an excellent gold pathfinder.

The exploration programme proposed by the Company consists of further geochemical sampling to complete coverage along the prospective structures prior to RAB and RC drilling.

## 2.7 PROPOSED EXPLORATION BUDGET

The Company's minimum planned budget expenditure is as follows:

| Activity             | Year 1<br>\$ | Year 2<br>\$ | TOTAL   |
|----------------------|--------------|--------------|---------|
| Surface Geology      | 41,000       | 35,000       | 76,000  |
| Surface Geochemistry | 31,000       | 4,000        | 35,000  |
| Airborne Geophysics  | 7,500        | 0            | 7,500   |
| Ground Geophysics    | 15,500       | 13,000       | 28,500  |
| RAB Drilling         | 33,000       | 30,000       | 63,000  |
| RC Drilling          | 0            | 82,000       | 82,000  |
| Diamond Drilling     | 0            | 0            | 0       |
| Administration       | 47,000       | 41,000       | 88,000  |
| TOTAL                | 175,000      | 205,000      | 380,000 |

The budgeted expenditures of \$175,000 and \$205,000 on the Doolgunna Project for Years 1 and 2 respectively are considered to be both reasonable and adequate to cover the costs of the extensive planned exploration programme. It is considerably more than the total estimated Department of Industry and Resources statutory expenditure requirements of \$289,800 for the first two years.

## 3 YANNARIE PROJECT

### 3.1 INTRODUCTION

The Yannarie Project is centred at about latitude 23°42'S, longitude 115°38'E being located approximately 500 kilometres southwest of Port Hedland and 900 kilometres north of Perth (Figure 1). It straddles the boundary of the Gascoyne and Ashburton Mineral Fields of Western Australia. It comprises Exploration License Applications E06/1409, E06/1410 and E09/1111 covering a total area of about 603 square kilometres (Figure 5).

Access can be gained by travelling along the North West Coastal Highway to the Barradale Roadhouse. From the roadhouse a well maintained graded road runs for 40 kilometres south-southeast to Towera Station from which it runs for a further 60 kilometres east-southeast to Maroona Station. From here a number of graded roads and station tracks provide access into and through the project area.

The project is located in open to dense "shrub-steppe" vegetation with spinifex covering most of the area and acacias and tall eucalypts along the main watercourses.

The climate is arid to semi arid with hot summers and mild winters. Mean maximum daily temperatures vary between about 31°C in summer and 22°C in winter. Average annual rainfall varies between 200mm and 300mm and potential annual evaporation is about 2,400mm.

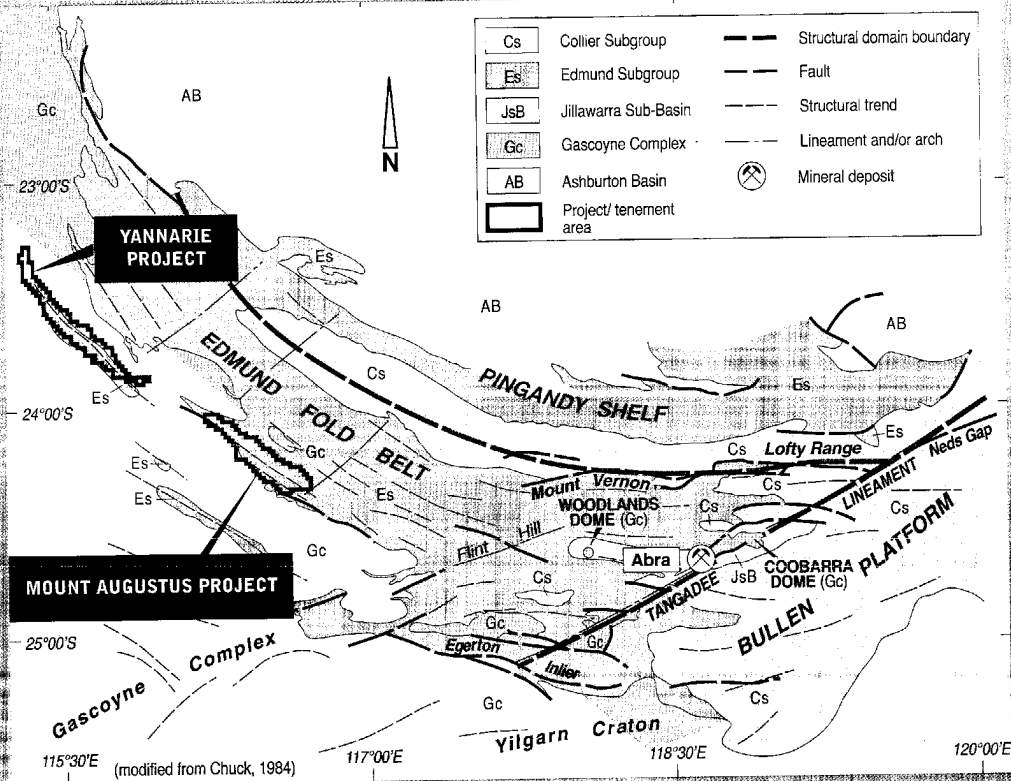
### 3.2 REGIONAL GEOLOGICAL SETTING

The project area is located within the Gascoyne Province of Western Australia.

The Gascoyne Province consists of the deformed high grade metamorphic core zone formed by the oblique collision between the Archaean Yilgarn and Pilbara cratons during the early Proterozoic Capricorn Orogeny (Williams, S. J., 1986).

To the north and northeast, overlying the rocks of the Gascoyne orogen is the intracratonic extensional Bangemall Basin (Figure 5). The Middle Proterozoic Bangemall Group succession mainly comprises unmetamorphosed shallow-marine sedimentary rocks.

Sedimentation is believed to have begun in the western part of the basin. North-northeast - south-southwest extension related subsidence initially created a sag basin that progressively developed lifting that resulted in horst



**FIGURE 5 - BANGEMALL BASIN PROJECTS**  
REGIONAL GEOLOGICAL SETTING

0 20 40 60 80 100km

# INDEPENDENT GEOLOGIST'S REPORT

26

INDEPENDENT GEOLOGIST'S REPORT

and graben related sub-basins, possibly by reactivation of steeply dipping earlier Proterozoic faults. Alluvial fan deposits flanking horst blocks were overlain by a transgressive sequence of marine pyritic black shales, sandstones and stromatolitic dolomites.

The transgressive sequence ended with the deposition of the Discovery Chert which is overlain by shallow marine sandstones, shales and carbonates (Muhling, P. C. and Brakel, A. T., about 1980).

Between 1965 and 1980 numerous exploration programmes consisting variously of geological mapping, surface (stream sediment, rock chip and soil) geochemical surveys and some aeromagnetic and radiometric surveys were completed within the Bangemall Basin succession without obvious success.

In 1976 an Amoco Minerals – Geopeko - Renison ~~mineralisation was reported from a 7 kilometre strike length~~ survey identified a magnetic anomaly 6 kilometres in diameter and several satellite anomalies.

In 1981, following remodelling of the magnetic and gravity survey data diamond drill hole DDH AB 3 was drilled and intersected 255 metres of iron-barium-lead-silver-copper-gold mineralisation from 260 metres downhole depth within the sedimentary rocks of the Bangemall Group. The Abra Deposit had been discovered (Boddington, T.D.M., 1990).

After 1981 Geopeko continued alone being taken over by North shortly thereafter. Drilling of a further 7 diamond drill holes during 1982 and 1983 confirmed the presence of a large graben hosted sub-economic mineralised and essentially stratabound body estimated to contain about 200 million tonnes grading 1.86% lead, 6 grams per tonne silver, 0.18% copper and 6% barium. The best intersection was 13 metres of 10.6% lead, 0.22% copper, 18% barium and 15.2 grams per tonne silver. Between 1994 and mid 1998, a joint venture with RGC successfully completed a further 7 diamond drill holes. All 15 holes drilled have encountered substantial mineralisation.

Abra is located at the eastern margin of the Jillawarra Sub-basin, a Middle Proterozoic graben structure about 80 kilometres in east-west length and 10 kilometres in north-south width. This graben is located in the centre of the Bangemall Basin between two major east-northeast trending lineaments or fault zones – the Tangadee Lineament to the east and the Flint Hill Lineament to the west.

The sedimentary succession from the top comprises:

**The Jillawarra Formation** – siltstones with minor sandstones;

**The West Creek Formation** – mostly siltstones; and

**The Gap Well Formation** – clastic and carbonate rocks siltstones and dolomites.

The mineralisation is located in the upper part of the Gap Well Formation which dips at 15° to 25° to the south and is overlain by 300 to 700 metres of West Creek Formation rocks. It is accompanied by intense alteration and is composed of an upper stratabound section with intense haematite and magnetite alteration and a lower funnel shaped stringer zone section centred on the magnetic anomaly. It is pervasively chloritised with the host rocks being replaced and brecciated by veins and zones of magnetite – silica – carbonate – barite – pyrite – galena and chalcopyrite.

Several large but low grade zones of stratabound base metal mineralisation (Cooper, R.W. et al, 1998) are known to occur in the central and western parts of the Jillawarra Sub-basin.

Recent drilling to the west of Abra by Apex Minerals NL to explore for Olympic Dam style sub-economic mineralisation has reportedly intersected "two large hydrothermal iron-oxide related" alteration systems.

Elsewhere within the Bangemall Basin succession exploration for sediment hosted (SEDEX) or iron oxide (copper-gold-uranium-REE) deposits of base and precious metals has been limited. Two graben associated Bangemall Group sub-basins occur as outliers within the Gascoyne Complex metamorphics: the the Mangaroon Syncline covered by the Yannarie Project Exploration Licence applications and the Ti Tree Syncline located about 45 kilometres to the south-southeast.

## 3.3 PROJECT GEOLOGY

The Yannarie Project covers all except the 7 kilometres strike length southeastern end of the northwesterly trending "Mangaroon Syncline", an approximately 92 kilometres long and up to 8 kilometres wide outlier of Bangemall Basin sedimentary rocks within the highly metamorphosed rocks of the Gascoyne province (Figure 6).

The geological succession (from the top) within the Bangemall Supergroup rocks in the Mangaroon Syncline is as follows:

**Devils Creek Formation** – laminated dolostone and dolomitic siltstone with some thick-bedded dolorudite.

**Discovery Chert Formation** – massive or laminated chert, silicified black shale, mudstone and siltstone.

**Kiangi Creek Formation** – thin to thick bedded quartz sandstone, siltstone and mudstone with minor dolostone and conglomerate.

**Cheyne Springs Formation** – dolorudite, co-arenite, dolorudite, mudstone and siltstone with minor sandstone.

**Blue Billy Formation** – siltstone, mudstone and sandstone, locally sulphidic.

**Gooragoora Formation** – fine to coarse grained sandstone, siltstone, minor conglomerate, dolostone and dolomitic siltstone.

0 2 4 6 8 10km

# INDEPENDENT GEOLOGIST'S REPORT

28

INDEPENDENT GEOLOGIST'S REPORT

**Irregully Formation** – stromatolitic and non-stromatolitic dolostone, dolomitic siltstone, quartz sandstone and conglomerate.

**Yilgatherra Formation** – sandstone siltstone and conglomerate.

The sediments between the Gooragoora and Discovery Chert formations are believed to represent lateral equivalents of the Gap Well, West Creek and Jillawarra formations of the Jillawarra Sub-basin.

Later doleritic sills have been intruded into the Bangemall Group succession.

Geological mapping of the southeastern 52 kilometres of the Mangaroon Syncline at a scale of 1:100,000 (Martin et al GSWA, 1998-1999) indicated the contained Bangemall Group rocks to occupy a rifted structure (Figures 6 and 7) with several rift-parallel extension faults bounding a graben marginal to the central graben. The "Mangaroon Syncline" is a rifted Sub-basin.

The high grade metamorphic rocks of the Gascoyne Complex that surround this structure are cut by an extensive swarm of narrow dolerite dykes that trend towards azimuth 0° to 10°. Within and marginal to the Mangaroon rift there occur several dolerite dykes with trends of 20° to 25°. These dykes can be up to 200 metres in thickness and are almost basin-normal in orientation. They are interpreted to have been intruded into transfer structures, (the Reynolds Creek and Two Peaks faults) of similar type to the Tangadee and Flint Hill Lineaments of the Jillawarra Sub-basin.

## 3.4 PREVIOUS EXPLORATION

During the period 1965 to 1987 exploration was done by various companies within the area secured by the current Exploration Licences (GSWA open file reports). These explorers collectively identified six potentially significant base metal occurrences within the Bangemall Group succession of the Mangaroon Syncline (Figure 6). In addition an occurrence of copper-nickel-gold-palladium-platinum mineralisation was identified within a brecciated gabbro/dolerite dyke in close proximity to the southwestern margin of the graben. Significant historical exploration is described below.

The first recorded exploration was done between 1965 and 1967 when Westfield Minerals NL in joint venture with Ashburton Exploration Pty Ltd completed a stream sediment sampling programme that identified an area of anomalous copper and zinc geochemistry in the Two Peaks area. After follow-up drilling of 43 shallow percussion holes totalling 1436 metres it was concluded that the anomaly was laterite related.

Following examination of a "large ironstone outcrop" located by a prospector in the Two Peaks area in 1970, Asarco pegged 10 mineral claims and completed a programme of "gossan" search and rock chip sampling.

Analyses indicated anomalous geochemistry up to 2.05% zinc, 5,800ppm lead, 1,700ppm copper, 0.3% nickel and 5ppm silver. Six shallow percussion holes totalling 147 metres were drilled and assays indicated the ironstone to be a surficial feature with no significantly anomalous geochemistry being encountered in the underlying dolomite. About 2.25 kilometres southeast of the drilled area evidence of shale hosted copper (malachite) mineralisation with pyrite was noted over a total strike length of more than 200 metres. Seven lines of chip sampling indicated sporadic copper values of up to 8.00%.

Uranertz (Australia) Pty Ltd conducted a uranium exploration programme in the Two Peaks area during the period 1973 to 1975. The target comprised a strike parallel fractured and ferruginous quartz veined shear about 320 metres long that exhibited high radioactivity.

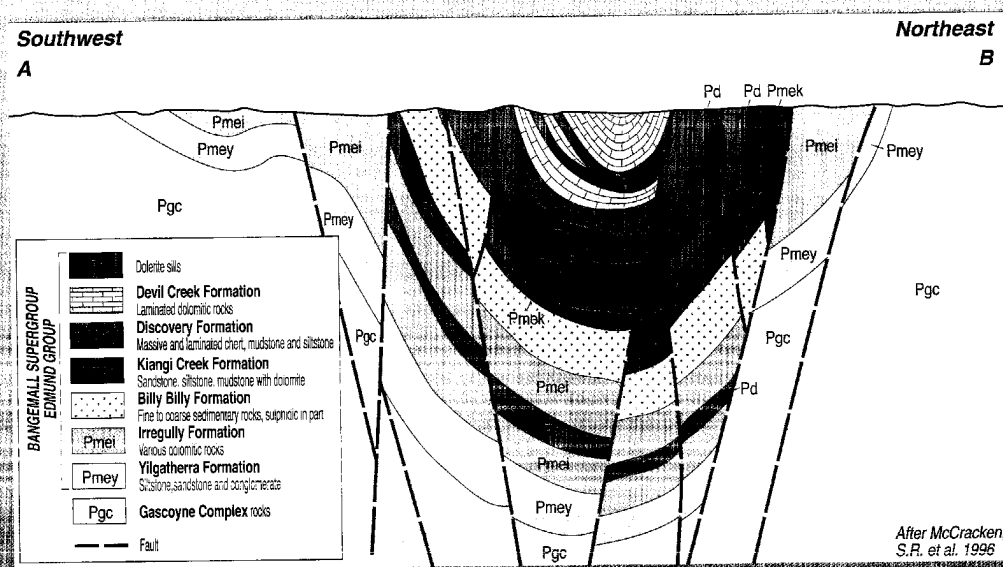
Two Peaks area sample analysis returned up to 340ppm U308 and 3,200ppm copper. Follow-up trenching with analysis of 133 rock chip and grab samples returned maxima of 550ppm U308 and 1,350ppm copper. No drilling was done.

Unfortunately neither the Westfield Minerals NL Joint Venture, Asarco (Australia) Pty Ltd nor Uranertz (Australia) Pty Ltd recorded sample and drill hole locations with accuracy.

In 1973 and 1974 the Canadian Superior Mining (Aust.) Pty Ltd Western Uranium Joint Venture investigated shale and grit environments within the Mangaroon Syncline.

Following reconnaissance geochemistry, selected shale environment areas were secured, mapped and rock chip and costean samples analysed. Potential gossans were examined in thin and polished section and pyrite and copper sulphide textures identified. Follow-up was confined to the drilling of a single inclined diamond drill hole, DDH 3 to a total depth of 169.16 metres. Of the total hole length 94.81 metres was drilled in hard dense green black fine-grained dolerite. Fresh rock was encountered at 69.15 metres downhole. Samples were analysed for cobalt, copper, chromium, lead, nickel, thorium, uranium and silver. Best analytical values were 90ppm cobalt, 270ppm copper, 150ppm chromium, 530ppm nickel, 16ppm thorium, 50ppm uranium, 5170ppm zinc and 2ppm silver. The 3.9 metres interval 103.00m to 106.90m averaged 103ppm copper and 3474ppm zinc in rock described as "fine grained dolerite with minor fractures and black shale remnants". No significantly anomalous lead, thorium or uranium geochemistry was recorded.

Grit environment exploration comprising surface geochemistry and was confined to two prospect areas one located over the basal Yilgatherra Formation sandstones and conglomerates and the second over grits and ferruginous dolerites.



0 1 2km

**FIGURE 7 - YANNARIE PROJECT**

INTERPRETED CROSS SECTION (SEE FIGURE 6 FOR LOCATION)

# INDEPENDENT GEOLOGIST'S REPORT

30

INDEPENDENT GEOLOGIST'S REPORT

Preliminary follow up comprised 15 shallow auger holes averaging 3.8 metres in depth. More detailed exploration comprised two northeasterly inclined diamond drill holes, DDH 1 drilled to a total down hole depth of 140.74 metres and DDH 2 to 199.29 metres. In both holes core from fresh rock was analysed for cobalt, copper, chromium, lead, nickel, thorium, uranium, zinc and gold in ppm.

Maximum values in DDH 1 were 80ppm copper, 470ppm chromium, 135ppm lead, 1800ppm thorium, 145ppm uranium and 0.61ppm gold. Best values in DDH 2 were 235ppm copper, 410ppm chromium, 68ppm lead, 700ppm thorium, 80ppm uranium and 0.08ppm gold. Cobalt and nickel were at background levels only.

In the Western Uranium Joint Venture's 1973 Annual Report it is stated that many of the fine grained dolerite dykes "are now considered to be of volcanic origin as evidenced by pillow structures and amygdaloidal textures" observed in the dolerites from the High Range area.

During 1978 Australian Anglo American Ltd ("AAA") conducted a reconnaissance programme of regional mapping and panned heavy mineral concentrate sampling with a few conventional stream sediment samples. In 1979 the 1978 the geochemistry was reassessed and Temporary Reserve 7102H covering a total area of 200 square kilometres was applied for and granted. The review of drainage sample data resulted in identification of three main target areas: the Coria Springs area secured by MC 08/2686 and the Coria South and Caraline prospect blocks. These prospects are located on the Winning Pool - Minilya 1:250,000 map sheet and cover areas to the immediate southwest of the formed road between the Lyndon and Maroonah station homesteads.

During the period 1978 to 1980 AAA's programme involved collection of: 142 stream sediment samples - analysed for cobalt, copper, manganese, nickel, lead and zinc; 1520 soil samples - analysed for arsenic, antimony, bismuth, cadmium, cobalt, copper, gold, lead, manganese, molybdenum, nickel, silver, tin, tungsten, uranium and zinc; 119 grab rock samples - analysed for cobalt, copper, lead, manganese, nickel and zinc and 80 rock chip samples - analysed for arsenic, antimony, bismuth cadmium, cobalt, copper, gold, lead, manganese, molybdenum, nickel, tin, silver and zinc. In addition all prospects were gridded and ground magnetic surveys completed.

On the Coria Springs Mineral Claim three geochemical anomalies were identified.

In 1987 Regional Resources NL retained Mackay and Schnellman Pty Ltd to carry out an exploration programme in areas southwest of and adjoining the southern part of the Mangaroon Syncline. This area had been previously explored unsuccessfully for copper and

gabbroic dyke associated nickel mineralisation by Mallina Mining and Exploration NL during the period 1971 to 1973.

The most prominent of the NNE trending Proterozoic dykes in this area (hosted by the Reynolds Creek Fault) is reported to become thick (up to 2 kilometres) and gabbroic over the approximately 5 km. trend length that extends southwest from the White Well vicinity. This gabbroic body "exhibits rhythmic banding" and along its southeastern margin there is reported to be a gossanous pegmatoid up to 2 metres wide.

It was reported that grab samples of this pegmatoid unit were collected and analysed with best results being: up to 6350ppm copper, 1.25% nickel, 2.1g/t palladium, 2.2g/t platinum and 0.44g/t gold.

Limited exploration was done also by Endeavour Oil Company NL (1972), Dampier Mining Company Ltd (1973-74), Helix Resources NL (1977) and CEC.

## 3.5 EXPLORATION POTENTIAL

Previous exploration of the "Mangaroon Sub-Basin" has mainly been of a superficial nature being confined to stream sediment, soil, panned concentrate, grab rock and trench line rock chip geochemical sampling with analyses for various element suites. Some airborne radiometrics and ground scintillometer and magnetic surveys have been done together with shallow drilling in the regolith. Only three holes, Canadian Superior Mining (Aust) Pty Ltd's DDHs 1, 2 and 3 are known to have penetrated fresh rock.

The Yannarie project area covers most of the Mangaroon Sub-basin and exhibits features that suggest it to have good potential for the discovery of Proterozoic sediment hosted exhalative (SEDEX) lead-zinc-silver of Abra type and iron-oxide copper-gold-uranium-REE deposits.

Several apparent "bulls-eye" magnetic highs that may be related to high magnetite concentrations associated with stratiform base metal deposits have been identified from regional magnetic data.

## 3.6 EXPLORATION PROGRAMME

The initial exploration programme will comprise a detailed low-level aeromagnetic survey over the total Mangaroon Sub-basin area held. All discrete magnetic anomalies will be followed up with ground geophysics, geochemistry and mapping. Targets generated will be drilled.

### 3.7 PROPOSED EXPLORATION BUDGET

The Company's minimum planned budget expenditure is as follows:

| Activity             | Year 1<br>\$   | Year 2<br>\$   | TOTAL          |
|----------------------|----------------|----------------|----------------|
| Surface Geology      | 41,000         | 35,000         | 76,000         |
| Surface Geochemistry | 15,500         | 15,500         | 31,000         |
| Airborne Geophysics  | 60,000         | 0              | 60,000         |
| Ground Geophysics    | 54,000         | 0              | 54,000         |
| RAB Drilling         | 30,000         | 30,000         | 60,000         |
| RC Drilling          | 0              | 32,000         | 32,000         |
| Diamond Drilling     | 0              | 72,000         | 72,000         |
| Administration       | 49,500         | 45,500         | 95,000         |
| <b>TOTAL</b>         | <b>250,000</b> | <b>230,000</b> | <b>480,000</b> |

The budgeted expenditures of \$250,000 and \$230,000 on the Yannarie Project for Years 1 and 2 respectively are considered reasonable and adequate to cover the costs of the extensive exploration programme planned. It is considerably more than the total estimated Department of Industry and Resources statutory expenditure requirements of \$345,600 for the first two years.

## 4 MOUNT AUGUSTUS PROJECT

### 4.1 INTRODUCTION

The Mt Augustus Project is centred at about latitude 24°10'S, longitude 116°25'E being located about 540 kilometres southwest of Port Hedland and 850 kilometres north of Perth (Figure 1) within the Gascoyne Mineral Field of Western Australia. It comprises Exploration Licence Applications E09/1138, E09/1139 and E09/1140 covering a total area of 602 square kilometres. Pre-existing Exploration Licence Applications E09/1054 and 1101 and prospecting licences included within them cover about 174 square kilometres of this area. The total uncontested application area is about 429 square kilometres.

Access to the Mount Augustus Project can be readily gained from the Yannarie Project area located about 40 kilometres to the west-northwest. Both projects share the same topographic and climatic characteristics.

### 4.2 REGIONAL GEOLOGICAL SETTING

The project area is located within the Gascoyne Province of Western Australia (Figure 5).

A general description of the geological setting has been presented in the Yannarie Project section of this report however the geological succession in and around the Mount Augustus Project area differs in some ways from that of the Yannarie Project.

The geological succession (from the top) of the Bangemall Group rocks in this area is as follows (Williams, S.J. et al., 1983):

**Fords Creek Shale** – green to dark green shale, minor arenite and siltstone;

**Coodardoo Formation** – moderate to poorly sorted grey arenite with minor siltstone and shale;

**Curran Formation** – white shale, siliceous in outcrop;

**Ullawarra Formation** – fine grained arenite with siltstone, shale and minor dolomite, overlying and passing laterally into the

**Devils Creek Formation** – laminated dolomite and dolomitic siltstone with some thick bedded dolerite;

**Discovery Chert Formation** – massive or laminated chert, silicified black shale, mudstone and siltstone;

**Jillawarra Formation** – shale and siltstone with minor shale;

**Kiangi Creek Formation** – thin to thick bedded quartz sandstone, siltstone and mudstone with minor dolomite and conglomerate;

**Cheyne Springs Formation** – dolomite, dolarenite, dolerite, mudstone and siltstone with minor sandstone;

**Blue Billy Formation** – siltstone, mudstone and sandstone, locally sulphidic;

**Gooragoora Formation** – fine to coarse grained sandstone, siltstone, minor conglomerate, dolomite and dolomitic siltstone;

**Irregularly Formation** – stromatolitic and non-stromatolitic dolomite, dolomitic siltstone, quartz sandstone and conglomerate and at the base of the Irregularly Formation the

**Mt Augustus Sandstone** – coarse grained quartz arenite, minor conglomerate.

### 4.3 PROJECT GEOLOGY

The Mount Augustus Project covers almost 65% of the total 65 kilometres strike length and up to 12 kilometres wide west-northwesterly striking target Bangemall Sub-basin (Figure 8).

The geological succession (from the top) within the Bangemall Supergroup rocks in the Mount Augustus Project area is as follows (Williams, S.J. et al., 1983):

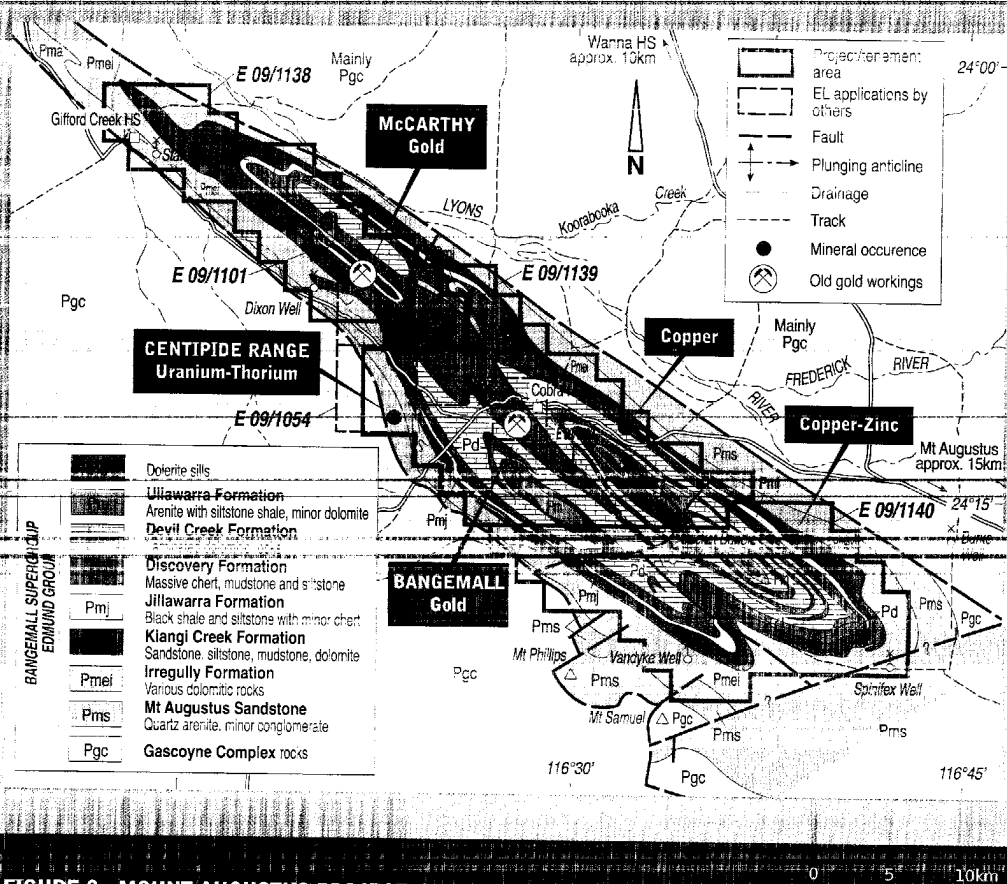
**Ullawarra Formation** – fine grained arenite with siltstone, shale and minor dolomite, overlying and passing laterally into the

**Devils Creek Formation** – laminated dolomite and dolomitic siltstone with some thick bedded dolerite;

**Discovery Chert Formation** – massive or laminated chert, silicified black shale, mudstone and siltstone;

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 8 - MOUNT AUGUSTUS PROJECT**  
**INTERPRETED SOLID GEOLOGY**

**Jillawarra Formation** – shale and siltstone with minor chert;

**Kiangi Creek Formation** – thin to thick bedded quartz sandstone, siltstone and mudstone with minor dolostone and conglomerate;

**Irregularly Formation** – stromatolitic and non-stromatolitic dolostone, dolomitic siltstone, quartz sandstone and conglomerate at the base of which is the

**Mt Augustus Sandstone** – coarse grained arenites with minor conglomerate.

Later dolerite sills have been intruded into the Bangemall Group succession.

This sequence is believed to have been rift faulted during basin development and then later subjected to a period of moderate compressional tectonics. This later episode resulted in folding i.e. the Bangemall anticline (possibly originally a horst block) flanked by the (possibly graben related) Cobra Syncline to the north and the smaller Gem Well syncline to the south.

#### 4.4 PREVIOUS EXPLORATION

Most of the previous exploration within the project area has been concentrated on the 2.5 km<sup>2</sup> area of the Bangemall Mining Centre. In this area narrow quartz veins have been worked for gold in the past by prospectors. Company evaluations have included the drilling of 12 RC holes totalling 497 metres by Sons of Gwalia in 1991. The general consensus has been that the potential for discovery of a significant gold deposit is extremely low.

Between 1978 and 1980 Occidental Minerals carried out an uranium exploration programme at its Centipede Range prospect located about 7 kilometres west of the old Bangemall Mining Centre. A high resolution aeromagnetic and radiometric airborne survey (200 km<sup>2</sup> – 900 line km was completed and follow-up exploration identified three potentially significant areas of radioactive mineralisation at three separate levels in the Mt Augustus Formation sandstones. A total of 88 rock chip samples were collected and analysed. The best single sample analysis was 2,250ppm uranium, 2.23% thorium and 1,100ppm lead.

During the period 1983 to 1985 BHP conducted a stream sediment orientation survey with particular attention being given to the area of old gold workings.

Follow-up exploration comprised collection of 877 auger soil samples from an average depth of about 2 metres depth. All samples were analysed for arsenic, barium, chromium, copper, gold, lead, manganese, silver and zinc in ppm. Sirotem and helimag surveys were also completed.

Many of the stream sediment samples returned anomalous gold values with a maximum of 0.60ppm. Anomalies were investigated by the drilling of 13

percussion holes totalling 865 metres. All holes were terminated within the regolith without encountering any significantly anomalous geochemistry. The project was terminated.

#### 4.3 EXPLORATION POTENTIAL

Previous field exploration of the Mount Augustus Project area has been mainly confined to stream sediment, soil and rock chip geochemical sampling with analyses for various element suites. Aeromagnetic and radiometric surveys have been done together with shallow drilling in the regolith. No drill holes have penetrated fresh rock.

The Mount Augustus Project area covers most of the Bangemall Sub-basin and exhibits features similar to those of the Yannarie Project area. The project is considered to have good potential for discovery of Proterozoic sediment hosted exhalative (SEDEX) lead-zinc-silver of Abra type and iron-oxide copper-gold-uranium-REE deposits.

#### 4.4 EXPLORATION PROGRAMME

Initial activity will comprise acquisition and collation of all available low-level aeromagnetic data. Gaps in the aeromagnetic coverage will be filled in with new data. All discrete magnetic anomalies will be followed up with ground geophysics, geochemistry and mapping. Targets generated will be drilled.

#### 4.7 PROPOSED EXPLORATION BUDGET

The Company's minimum planned budget expenditure is as follows:

| Activity             | Year 1<br>\$   | Year 2<br>\$   | TOTAL          |
|----------------------|----------------|----------------|----------------|
| Surface Geology      | 41,000         | 35,000         | 76,000         |
| Surface Geochemistry | 31,000         | 4,000          | 35,000         |
| Airborne Geophysics  | 55,000         | 0              | 55,000         |
| Ground Geophysics    | 49,000         | 5,000          | 54,000         |
| RAB Drilling         | 30,000         | 0              | 30,000         |
| RC Drilling          | 0              | 32,000         | 32,000         |
| Diamond Drilling     | 0              | 72,000         | 72,000         |
| Administration       | 49,000         | 42,000         | 91,000         |
| <b>TOTAL</b>         | <b>255,000</b> | <b>190,000</b> | <b>445,000</b> |

The budgeted expenditures of \$255,000 and \$195,000 on the Mount Augustus Project for Years 1 and 2 respectively are considered to be both reasonable and adequate to cover the costs of the extensive planned exploration programme. It is considerably more than the total estimated Department of Industry and Resources statutory expenditure requirements of \$306,000 for the first two years.

# INDEPENDENT GEOLOGIST'S REPORT

34

INDEPENDENT GEOLOGIST'S REPORT

## 5 URANDY PROJECT

### 5.1 INTRODUCTION

The Urandy Project is located about 350 kilometres west-southwest of Port Hedland and 1,050 kilometres north of Perth within the Ashburton Mineral Field of Western Australia (Figure 1). Centred at approximately latitude 22°15'S, longitude 115°58'E it comprises Exploration Licence Applications E08/1391, 08/1392 and E08/1403 covering a total area of about 384 square kilometres.

Access from Perth can best be gained by travelling northwards along the North West Coastal Highway via Carnarvon to the Mt. Stuart station turn-off about 75 kilometres north of the Barradale Roadhouse and then travelling east for about 60 kilometres to Mt. Stuart homestead. The project southern boundary is located about 14 kilometres north of the homestead and is readily accessible via station tracks.

The climate is arid to semi-arid with hot summers and mild winters. Average annual rainfall is about 325mm. Vegetation in the project area is mainly spinifex grassland with scattered trees and shrubs. Eucalypts are common along the main drainages.

### 5.2 REGIONAL GEOLOGICAL SETTING

The Urandy Project area is located within the northwesterly trending Ashburton Fold Belt and is dominantly underlain by rocks of the Wyloo Group succession. The Wyloo Group was deposited in the Ashburton Basin approximately 2 billion years ago. The succession is believed to have a maximum thickness of about 10 to 12 kilometres (Seymour, D. B. et al., 1986) and comprises – from top to bottom:

#### UPPER WYLOO GROUP

##### Ashburton Formation

between 500m and 10,000m, conglomerates, mudstones and minor cherts near the base of which are banded-iron formations, mudstones and cherts;

#### LOWER WYLOO GROUP

##### June Hill Volcanics

about 120m of mainly mafic lavas, tuffs and pillow breccias with minor dolomite, sandstone and mudstone;

##### Duck Creek Dolomite

about 1,000m of stromatolitic dolomites with minor chert and mudstone – evidence of evaporite textures and dolomitic breccias;

##### Mt. McGrath Formation

~ 900m of conglomerates, wackes, mudstone and dolomite;

##### Wooly Dolomite

about 325m of stromatolitic dolomite and dolomitic mudstones with minor chert and locally sandstone at base;

##### Cheela Springs Basalt

approximately 2,000m of basaltic lavas with minor tuff and chert – some dolomite sills and

##### Beasley River Quartzite

~360m of conglomerates, sandstones, mudstones and dolomites.

Lower Wyloo Group sedimentary and volcanic rocks were deposited in an open marine shelf environment to the south and west of a land mass occupying the area of the present day Hamersley Range. Deposition was mainly shallow marine to fluvial with braided delta and fan-delta systems. Sediment input was sporadic enabling the deposition of dolomite units. A gradual deepening of the shelf waters occurred culminating in the deposition of the Duck Creek Dolomite.

The submarine eruptions of the Cheela Springs Basalt and June Hill volcanics are believed to reflect the onset of extensional tectonic rifting. Downfaulting and subsidence during late Wyloo Group times led to the formation of a rift and a margin trough – the Ashburton Basin.

Rift basin development resulted in the major increase in sediment input that resulted in deposition of the Upper Wyloo Group Ashburton Formation.

Subsequently the Wyloo Group sequence was deformed by two major episodes of folding, the first D1 and second D2 (Seymour, D.B. et al. 1988).

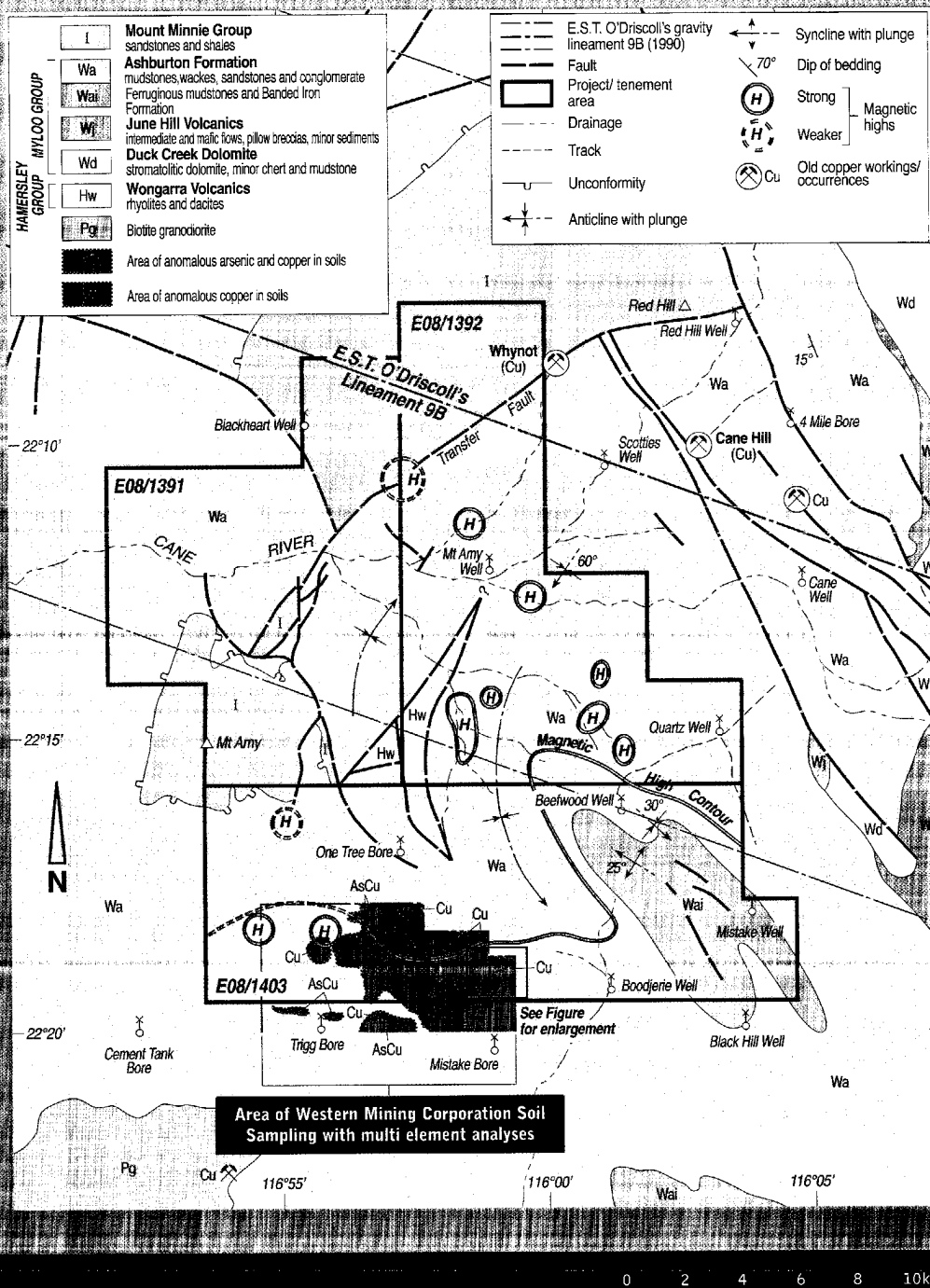
D1 deformation produced steeply dipping bedding and moderate to strong foliation. Open to tight west-northwest trending folds with sub-vertical axial planes and moderate to steep plunges were generated.

D2 deformation generally generated minor structures and although the rocks are metamorphosed, bedding dips are usually recognisable.

The Wyloo Group sequence is unconformably overlain by the shallow marine coarse to fine-grained sedimentary rocks of the Mount Minnie Group. This sequence is believed to have been deposited between the D1 and D2 episodes of tectonic activity.

A major east-southeasterly trending continental gravity lineament (O'Driscoll, E.S.T., 1990 - Lineament 9B) also known as the Paraburdoo Hinge Zone extends through the Urandy Project area (Figure 9) and continues to the east-southeast through the areas of the Paraburdoo and Mount Newman haematitic iron ore deposits.

Numerous significant gold deposits occur along this trend. The Paulsens deposit with a gold resource of about 625,000 ounces is located about 35 kilometres to the southeast in the Archaean rocks of the Wyloo Dome. Other deposits include the Newcrest-Sipa discoveries with gold resources at Cheela of about 2.5 million ounces, at Electric Dingo with about 1.9 million ounces and Ilex with about 2.5 million ounces. The Sipa, Mt Olympus gold mine with combined reserves and resources of 11.2 million tonnes are also on this trend.



**FIGURE 9 - URANDY PROJECT**  
INTERPRETIVE SOLID GEOLOGY

# INDEPENDENT GEOLOGIST'S REPORT

36

INDEPENDENT GEOLOGIST'S REPORT

## 5.3 PROJECT GEOLOGY

The Wyloo Group Ashburton Formation and Mount Minnie Group rocks of the project area are moderately well exposed cropping out over about 30 to 40 percent of the total area (Figure 9). Most of this exposure comprises folded and metamorphosed coarse to fine grained Ashburton Formation sediments. The basal Ashburton Formation banded iron-formations, cherts and mudstones are exposed in the southeastern part of the project.

The tenements overlie part of the deep craton margin basin that comprises the Ashburton Trough. The area is structurally dominated by northwest and north-northwest trending arcuate faults that are believed have been rift related growth faults active during deposition of the Ashburton Formation sediments.

In the northwest the area contains older Hamersley Group rocks overlain and are partly in faulted contact with the Wyloo Group succession. This fault has an east-northeast trend and is interpreted as being a transform fault. Geological mapping by CRA in 1993 suggested that episodes of extensional tectonic rifting with conjugate transform faulting continued until post Mount Minnie Group times.

An arcuate inlier of older Hamersley Group felsic volcanics occurs in the centre of the project area. It is believed that this inlier may be a horst block.

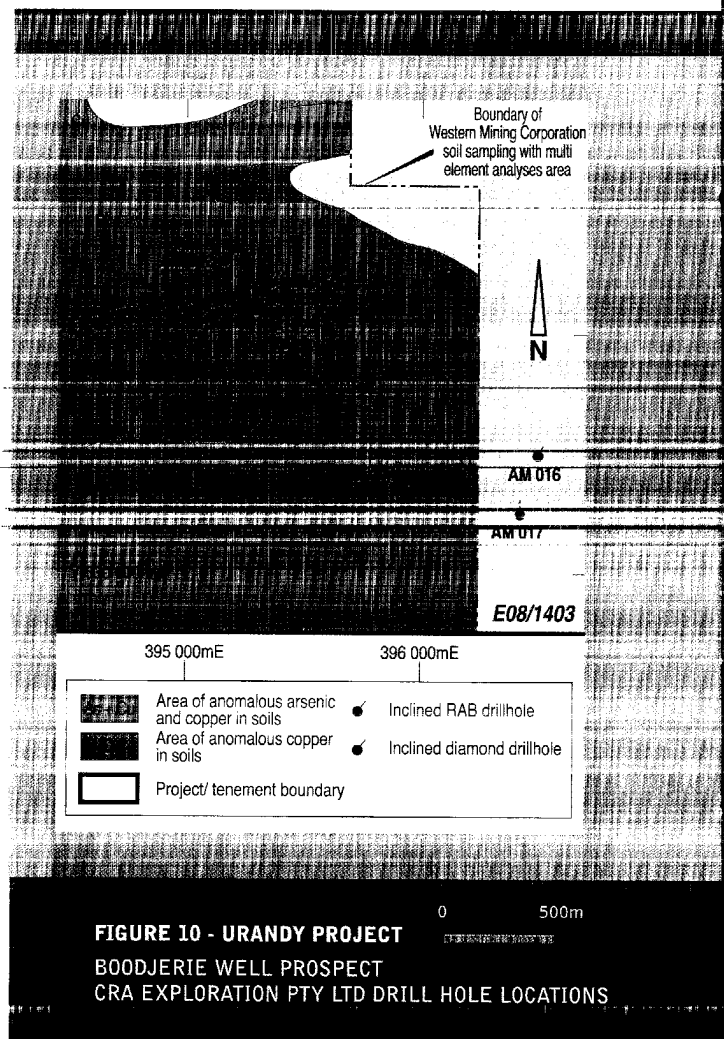
## 5.4 PREVIOUS EXPLORATION

Almost all pre-1988 regional exploration in the area that includes the Urandy Project involved investigation of areas marginal to the current project tenements. Significant exploration (1988 to 1993) within the project is described below.

In mid-1988 WMC concluded that the region that includes the Urandy Project was prospective for discovery of iron formation hosted gold deposits.

In 1990 an extensive programme of lag sampling was completed with samples being collected at 100 metres intervals along north-south lines spaced 400 metres apart. All 4,262 samples were analysed for gold at ppb levels. Although a total of about 426 line-kilometres were sampled the only anomalous sample with 11ppb was collected outside the project area.

The first 1,500 samples collected were analysed also for arsenic, copper, iron and nickel, 810 of these being located within or immediately marginal to the Urandy Project area. The results of this programme conducted in the vicinity of Boodjerie Well indicated a major northwesterly trending >30ppm arsenic (up to 600ppm) anomaly with coincidently anomalous >30ppm copper (up to 180ppm) with a large halo of anomalous copper (Figure 9).



**FIGURE 10 - URANDY PROJECT**  
BOODJERIE WELL PROSPECT  
CRA EXPLORATION PTY LTD DRILL HOLE LOCATIONS

During the period 1991 to 1993 a CRA – Valiant Consolidated Ltd Joint Venture carried out extensive exploration in the surrounding region. The main objective was discovery of manganese deposits similar to those of the Kalahari Manganese Field of southern Africa. Two of the areas investigated lie within the current project area.

The Boodjerie Well Prospect lies within the area of WMC's arsenic-copper anomaly described above. Extensive (up to 18%) surface manganese oxide mineralisation is known to occur in this area. In 1991 CRA drilled seven inclined reverse circulation holes totalling 533 metres (Figure 10). Depth of oxidation varies between 49 and 75 metres.

Anomalous arsenic and copper geochemistry was recorded in the fresh rock of all holes. In addition fresh rocks in three holes were anomalous in lead and zinc. Elevated manganese geochemistry was commonly encountered above the base of oxidation.

In RC hole 91AM014 the 19 metres interval 45 to 64 averaged 12.9% manganese and in 91AM017 the 18 metres interval 31m to 49m averaged 13.9% manganese.

In 1992 two inclined diamond drill holes (DD92AM029 and 030) of 100m and 200m downhole depths respectively were drilled by CRA to obtain core to assist investigation of the manganese oxide potential. These holes suggested the manganese mineralisation above the base of oxidation to be sub oregrade. Holes DD92AM030 tested the possibility for fresh rock hosted ore grade manganese mineralisation without success.

In hole DD92AM029 the base of oxidation was at 55.3 metres. The 14 metres fresh rock interval 86m to 100m averaged about 90ppm arsenic with manganese varying between 1.57% and 12.70%. The 10 metres bottom of hole interval averaged 99.8ppm arsenic and 0.37% phosphorous with 21ppm antimony in the bottom 2 metres. In DD92AM030 the base of oxidation was at 56.6 metres and the 23.9 metres interval from 61.1m to 85m averaged about 150ppm arsenic with manganese varying between 0.30% and 2.00%.

A strip approximately 30 kilometres long and up to 1.5 kilometres wide along the contact between the Ashburton Formation to the south and the Mount Minnie Group to the north was mapped. The contacts are mainly faulted (both transcurrent and normal) and true unconformity contacts are rare. This mapping located several small surficial copper carbonate occurrences some with radiometrically anomalous vein material. Only 48 samples were taken from the approximately 45 square kilometres mapped. Of the 26 samples containing less than 0.5% manganese maximum recorded values were 480ppm arsenic, 2,400ppm barium, 240ppm cobalt, 1,600ppm copper, 0.411ppm gold, 24ppm molybdenum, 460ppm nickel, 2.5% phosphorous, 1,600ppm lead, 480ppm thorium 340ppm uranium, 480ppm zinc, 3.5ppb palladium and 14ppb platinum. It was concluded that all anomalies "are attributable to surface enrichment below" Cretaceous and/or Tertiary "lateritic weathering surfaces".

## 5.5 EXPLORATION POTENTIAL

There is some evidence to suggest that this project may have potential for discovery of Proterozoic iron oxide copper-gold  $\pm$  uranium deposits (Hitzman et al, 1992) of Olympic Dam or Ernest Henry type and/or sediment hosted Carlin type gold deposits.

A number of small copper-gold-uranium occurrences have been identified within and in the vicinity of the project area suggesting possible minor remobilisation of iron oxide copper-gold-uranium style mineralisation along extensional faults during folding.

Grab samples collected by Sandfire and earlier Aberfoyle Resources Ltd from the old Whynot copper prospect located 400 metres east of the project returned assays of up to 9.35% copper, 50.9g/t gold and 39.4ppm uranium.

The project area has been covered by Geological Survey of Western Australia (GSWA) geochemical mapping (Pye, K. J. et al). Statistical element-index plots for base metals – copper+lead+zinc+arsenic+antimony and for Mount Clement style epithermal deposits – silver+arsenic+gold+bismuth+cerium+copper+lanthanum+lead+antimony+tin+thorium+uranium+tungsten+zinc tend to indicate particularly elevated scores to the southeast of Mount Amy. High antimony, arsenic, manganese and silver are also associated with this trend.

The WMC arsenic and copper lag soil anomaly is located in this area and is open to the northeast. CRA's seven RC and two diamond drill holes have confirmed the continuity of anomalous geochemistry into fresh rock. This feature is proximal to an interpreted rift related northwest trending extensional growth fault.

The CRA diamond drill holes intersected a sequence of interbedded siltstones, dolomitic siltstones and dolomites – a sequence of similar type to that at Carlin, Nevada (Kuehn, C.A. and Rose, A.W., 1992). Also similar is the presence of anomalous arsenic and phosphorous geochemistry. The bottom two metres of Hole DD02AM029 assayed 21ppm antimony. The Carlin type gold deposits are characteristically accompanied by anomalous levels of arsenic, antimony, phosphorous and mercury (Stenger, D.P. et al., 1997). The CRA samples were not analysed for mercury. They are not accompanied by either magnetic or gravity anomalies. Ore mineralisation is generally confined to strata adjacent or close to the extensional or growth faults that have been conduits for mineralising fluids.

The part of the WMC geochemical lag sampling programme that included analyses for base metals demonstrates the effectiveness of this technique in target identification.

Previous investigation of the faulted contact between the Ashburton Formation and overlying Mount Minnie Group rocks resulted in the conclusion that this major 30 kilometres long structure is a normal extension transfer fault that also exhibits evidence of transcurrent displacement.

Although lateritic enrichment has elevated the levels of potential ore metal geochemistry along this fault zone area the presence of anomalous arsenic, barium, cobalt, copper, gold, lead, molybdenum, nickel, palladium, platinum, thorium, uranium and zinc may be significant. It seems unlikely that such anomalous metallic element levels could have been sourced from the clastic Ashburton Formation and Mount Minnie sediments. It is considered more likely that they were transported by fluid flow along active growth faults and were sourced from deeper in the basin.

During the 1980's Western Mining Corporation's consultant geologist E.S.I. O'Driscoll completed a study of Bouger gravity patterns throughout Australia. Many gravity megalineaments were identified.

Located on or close to these structures and at their intersections are many mineral deposits such as Kalgoorlie gold, Kambalda nickel, Broken Hill lead-zinc-silver, Mount Isa lead-zinc-copper, Mount Newman haematite and Olympic Dam copper-uranium-gold (O'Driscoll, E.S.T., 1990). In many cases these crustal megalineament corridors can also be seen on magnetic, aerial photo and satellite image compilations. O'Driscoll's west-northwest to east southeast trending lineament 9B otherwise known as the Paraburdoo Hinge Zone extends through the Urandy Project area.

Although not directly indicating any particular locations for exploration within the project the presence of this megalineament corridor is a positive indication of the area's prospectivity.

Several anomalous features are evident on the 1990 provisional regional aeromagnetic coverage of the project area. One of these features in the southeast of the project is underlain by lower Ashburton Formation ferruginous mudstones and banded ironstones and is highlighted by strongly elevated magnetics.

## 5.6 EXPLORATION PROGRAMME

No detailed aeromagnetic data are available for the area. Initial exploration will comprise a detailed low level aeromagnetic survey which will be followed up by ground geophysics, geochemistry and mapping. Targets generated and those based on existing information will be tested by drilling.

Strips along extensional growth faults mapped by the GSWA and identified by Sandfire geologists will be early targets for geochemical surveys.

## 5.7 PROPOSED EXPLORATION BUDGET

The company's minimum planned budget expenditure is as follows:

| Activity             | Year 1<br>\$   | Year 2<br>\$   | TOTAL          |
|----------------------|----------------|----------------|----------------|
| Surface Geology      | 41,000         | 35,000         | 76,000         |
| Surface Geochemistry | 15,500         | 15,500         | 31,000         |
| Airborne Geophysics  | 45,000         | 0              | 45,000         |
| Ground Geophysics    | 49,000         | 0              | 49,000         |
| RAB Drilling         | 30,000         | 0              | 30,000         |
| RC Drilling          | 0              | 32,000         | 32,000         |
| Diamond Drilling     | 0              | 72,000         | 72,000         |
| Administration       | 41,500         | 25,500         | 60,000         |
| <b>TOTAL</b>         | <b>225,000</b> | <b>190,000</b> | <b>415,000</b> |

The budgeted expenditures of \$225,000 and \$190,000 on the Urandy Project for Years 1 and 2 respectively are considered both reasonable and adequate to cover the costs of the extensive planned exploration programme. It is considerably more than the total estimated Department of Industry and Resources statutory expenditure requirements of \$212,400 for the first two years.

## 6 SANDFIRE PROJECT

### 6.1 INTRODUCTION

The Sandfire Project is located approximately 135 kilometres southwest of Broome and 350 kilometres east-northeast of Port Hedland (Figure 1) in the Canning Basin of Western Australia.

The project is centred at about latitude 18°53'S, longitude 121°46'E and comprises Exploration Licence E04/1344 and Exploration Licence applications E04/1424 and E04/1425 covering a total area of about 570 square kilometres. The Great Northern Highway passes through the centre of the project area and access within its area can be gained via established tracks and seismic survey lines.

### 6.2 REGIONAL GEOLOGICAL SETTING

"The Canning Basin is a large multiphase intracratonic basin infilled with more than 18 kilometres of Phanerozoic sedimentary rocks" (McCracken, S.R. et al, 1996) that was initiated in early Ordovician times as a series of northwest trending extensional rifts (Figure 11).

The Phanerozoic sedimentary rocks of the basin range from Lower Ordovician (~480Ma) to early Cretaceous (~125Ma) in age and their composition from top to bottom is summarised below.

- **Jurassic to Cretaceous** – shallow marine sandstones, siltstones and mudstones with some lignite and conglomerates at base.
- **Early Permian** – shallow marine calcareous mudstones and fine sandstones with interbedded limestones underlain by poorly sorted sandstones and mudstones with minor limestone and conglomerates at base.
- **Late Ordovician to Early Carboniferous** – marine and continental sandstones, siltstones and shales with minor limestone, dolomite and anhydrite with the limestone and dolomite content increasing downwards, becoming multicoloured near base.
- **Early to Middle Ordovician** – shallow marine Nita Formation limestones and dolomites with interbedded shale; underlain by Goldwyer Formation fossiliferous calcareous pyritic black shales with minor siltstone lenses; underlain by Willara Formation dolomitic limestones below which are the Nambeet Formation shales and sandstone with minor limestone and dolomite interbeds.

During their deposition the rocks of this succession have undergone a long and complex history of basin evolution and related tectonic activity.

The basin's northeastern boundary is the unconformity between the Phanerozoic sediments of the basin and the Precambrian rocks of the Kimberley Block. The main structural elements (Figure 11) from north to south can be described as follows (Shaw, R.D. et al, 1994):

- a northern shelf region comprising the Lennard Shelf and its disrupted eastwards continuation - the Bulka Hills and Billiluna shelves;
- a segmented extensional rifted basin with normal faulting along both northern and southern margins – the Fitzroy Trough to the west with the Gregory Sub-basin to its east;
- a central basement arch comprising a reduced thickness of sedimentary succession – the Broome Platform to the west and the Grossland Platform to the east, the southern boundary of which is marked by a major zone of normal faulting with downthrow to the south – the Admiral Bay Fault Zone;

- a southerly segmented rifted basin comprising the Willara Sub-basin to the west and the Kidson Sub-basin to the east; and
- a southern shelf region with normal faulting on its northern boundary comprising the Anketell, Table Top and Ryan Shelves.

Five Mississippi Valley Type zinc-lead deposits have been discovered over the last 25 to 30 years in the Lennard Shelf area on the northern margin of the Canning Basin.

These deposits (Wagon Pass, Narlarla, Blendevalle, Twelve Mile Bore and Cadjebut) are hosted by the carbonates of a Devonian barrier reef complex about 50 kilometres wide and 350 kilometres long. Some of these have been or are being mined. All are within one kilometre of mapped or inferred extensional faults.

In 1981 Meridian Oil drilled a petroleum exploration well through the Phanerozoic sequence in the Admiral Bay Fault Zone area on the northeastern margin of the Willara Sub-basin. This well - Great Sandy No. 1 – encountered a thick zone of zinc-lead mineralisation.

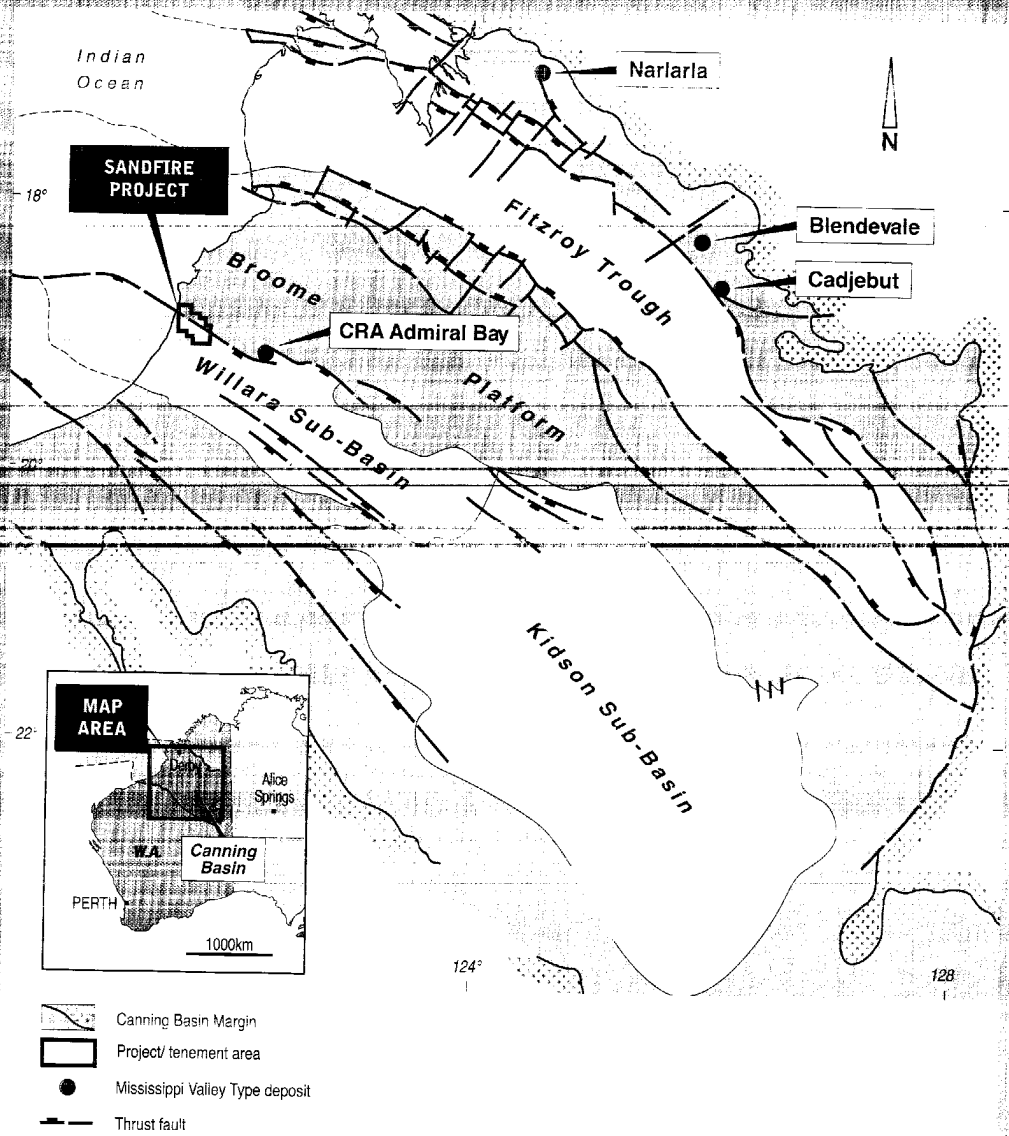
In 1986 Cudaigarra No.1 a petroleum exploration well drilled by Sydney Oil Pty Ltd intersected extensive base metal mineralisation above and within a suspected algal mound at the top of the Nita Formation (McCracken, S.R. et al, 1996).

This mineralisation occurs within the Lower Ordovician Nita and Goldwyer Formations. As a result of this discovery CRA secured tenements along the Admiral Bay Fault Zone. Twenty-four diamond drill holes totalling 37,472 metres were completed between 1986 and 1991. Locations of CRA's diamond drill holes are plotted on Figure 12.

Tabulated on page 41 are some of the best intersections.

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 11 - THE CANNING BASIN**  
MAIN STRUCTURAL ELEMENTS & LOCATIONS OF THE MAJOR MVT DEPOSITS

## ADMIRAL BAY FAULT ZONE

## SELECTED PETROLEUM WELL AND CRA DRILL HOLE INTERSECTIONS

| Hole No.     | Depth(m)                               |      | Interval (m) | Pb(ppm) | Zn(ppm) | Cu(ppm) | Ag(ppm) | Ba%    |
|--------------|----------------------------------------|------|--------------|---------|---------|---------|---------|--------|
|              | From                                   | To   |              |         |         |         |         |        |
| Grt Sandy 1  | 1455                                   | 1465 | 10           | -       | 1.55%   | -       | -       | -      |
|              | 1495                                   | 1500 | 5            | -       | 1.25%   | -       | -       | -      |
|              | 1695                                   | 1705 | 5            | 1.00%   | -       | -       | -       | -      |
| Cudalgarra 1 | 1294                                   | 1330 | 36           | 0.32%   | 2.75%   | -       | 18.46   | -      |
| DD86SS2      | 1285                                   | 1290 | 5            | 5.50%   | 7.20%   | 25      | 61.00   | 1.50%  |
|              | 1324                                   | 1343 | 19           | 4.30%   | 4.10%   | 38      | 15.00   | 13.69% |
|              | 1369                                   | 1383 | 14           | 16.40%  | 1280    | 127     | 8.00    | 25.70% |
|              | 1573                                   | 1576 | 3            | 27.20%  | 13      | 17      | 15.00   | 9.17%  |
|              | 1604                                   | 1611 | 7            | 1.20%   | 8.50%   | 849     | 2.00    | 2.12%  |
| DD86SS3      | 1382                                   | 1397 | 15           | 2.90%   | 3.70%   | 35      | 25.00   | 8.30%  |
| DD87SS6      | 1469                                   | 1478 | 9            | 3.40%   | 6.20%   | -       | 40.00   | -      |
| DD89SS14     | 1466                                   | 1519 | 53           | 7.80%   | 0.20%   | -       | 30.00   | -      |
| DD89SS15     | ~1348                                  | 1369 | 20.5         | 1.50%   | 4.60%   | -       | 18.00   | -      |
| DD89SS17     | 1336                                   | 1366 | 30           | 0.80%   | 4.20%   | -       | 22.00   | -      |
| DD89SS18     | Numerous narrow mineralised intercepts |      |              |         |         |         |         |        |
| DD90SS19     | Numerous narrow mineralised intercepts |      |              |         |         |         |         |        |
| DD90SS20     | 1390.5                                 | 1392 | 1.5          | 6.90%   | 8.70%   | -       | 73.00   | -      |
|              | 1389                                   | 1392 | 3            | 4.70%   | 8.20%   | -       | 62.00   | -      |

The following main zones of mineralisation were delineated (Figure 13):

- an upper zinc-rich zone at the top of the Nita Formation with an "inferred resource" of 120 million tonnes averaging 6.4% zinc, 2.3% lead and 32 grams of silver per tonne; and
- lower lead-rich zones with an "inferred resource" of 20 million tonnes at 16.9% lead, 0.4% zinc and 57 grams per tonne silver located at the top of the Goldwyer Formation algal bioherms.

The upper zinc rich zone has a strike length of 19 kilometres.

Hydrothermal activity associated with extensional faulting is believed to have occurred during deposition of the footwall algal bioherms. These vary between 200 and about 500 metres in width and can be more than 330 metres thick. Significant intercepts of sphalerite, galena and chalcopyrite have been encountered within these bioherms. Alteration products such as siderite, haematite, magnetite, chert and quartz are abundant.

Apart from drilling, the main exploration tools used by CRA were existing seismic survey data that enabled reasonably precise structural interpretation and an aeromagnetic survey to identify possible mineralisation associated magnetite concentrations.

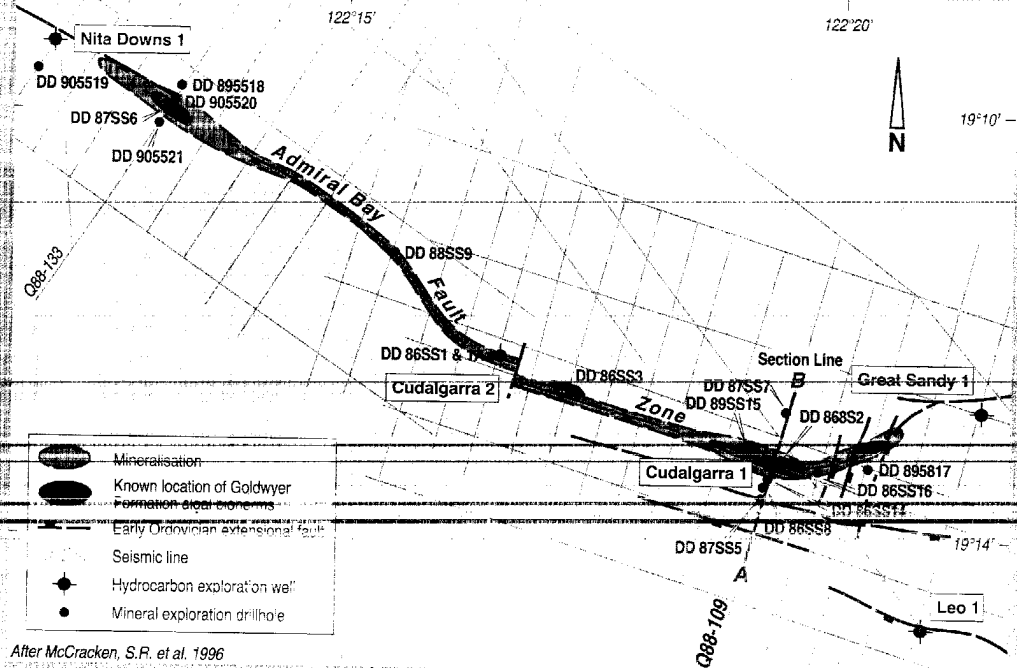
The top of the mineralisation delineated by CRA varies between 1,280 metres and 1,420 metres below surface and because of the relatively low zinc grade and its considerable depth it was concluded to be sub-economic.

### 6.3 PROJECT GEOLOGY

The project area covers the westernmost approximately 25 kilometres strike length of the on-shore Admiral Bay Fault Zone. The main elements of the fault zone in this area comprise, from north to south: the Admiral Bay Fault, The Nita Downs Fault and the Willara Fault. These are all extensional structures with downthrows to the south. Interpretation of seismic survey data suggests that the Admiral Bay and Nita Downs faults tend to converge within the project area (Figure 14).

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 12 - CRA ADMIRAL BAY PROJECT**  
EXPLORATION ACTIVITY IN THE GREAT SANDY  
ACCOMMODATION ZONE

It is believed that the depth to the top of the Nita and Goldwyer Formations may be significantly less in this area than in the original discovery area.

Results of a regional gravity survey by the BMR now AGSO outlines a complex gravity feature over and to the north of the project area. This feature suggests that there are additional faults parallel to the Admiral Bay Fault in the northern part of the project area (Figure 14). A review of existing seismic cross-sections tends to confirm this interpretation. It is possible that mineralisation could occur at shallower depths in this area.

#### 6.4 PREVIOUS EXPLORATION

Previous exploration has been limited to oil search activities consisting mainly of seismic surveys and an aeromagnetic survey. The nearest oil exploration hole Parda 1 is located about 10 kilometres east of the project area. No drilling was done in the project vicinity by CRA.

#### 6.5 EXPLORATION POTENTIAL

The base metal mineralisation associated with the Admiral Bay Fault Zone is extensive and there is a reasonable expectation that the same processes may have operated within the project area. Structural features similar to those investigated by CRA are evident in the seismic data of the project area.

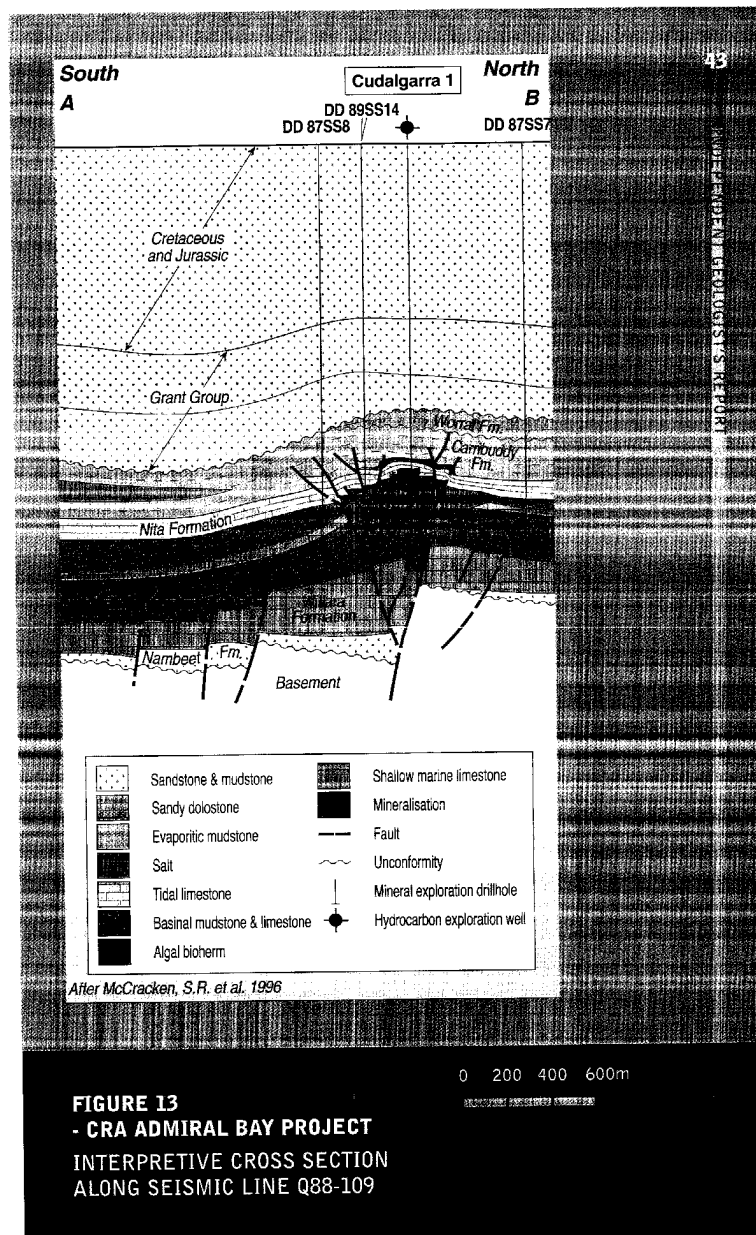
#### 6.6. EXPLORATION PROGRAMME

Exploration of this project will require a large commitment to drilling. Initially however the Company intends collating all existing data and collecting appropriate new data with the objective of developing a structural and stratigraphic model of the project area. This will require purchase of the multiclient aeromagnetic survey data, collection of additional gravity data and investigation of the applicability of other geophysical tools such as CSAMT which have deep penetration ability. This phase of work will be followed by diamond drilling.

#### 6.7 PROPOSED EXPLORATION BUDGET

The Company's minimum planned budget expenditure is as follows:

| Activity            | Year 1<br>\$   | Year 2<br>\$   | TOTAL          |
|---------------------|----------------|----------------|----------------|
| Geology             | 40,000         | 35,000         | 75,000         |
| Airborne Geophysics | 2,000          | 0              | 2,000          |
| Ground Geophysics   | 170,000        | 5,000          | 175,000        |
| RAB Drilling        | 0              | 0              | 0              |
| RC Drilling         | 0              | 0              | 0              |
| Diamond Drilling    | 0              | 180,000        | 180,000        |
| Administration      | 50,000         | 43,000         | 93,000         |
| <b>TOTAL</b>        | <b>445,000</b> | <b>265,000</b> | <b>710,000</b> |

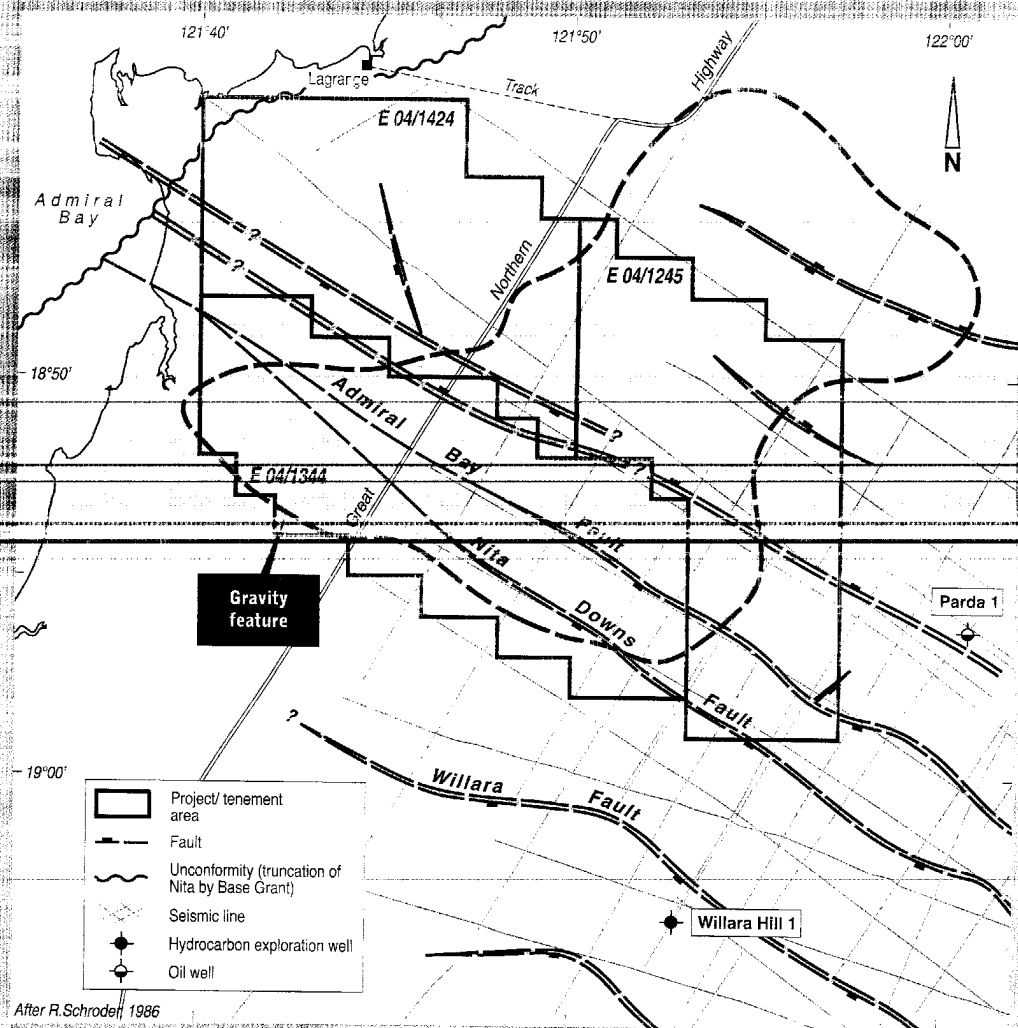


**FIGURE 13**  
**- CRA ADMIRAL BAY PROJECT**  
**INTERPRETIVE CROSS SECTION**  
**ALONG SEISMIC LINE Q88-109**

The budgeted expenditures of \$445,000 and \$265,000 on the Sandfire Project for Years 1 and 2 respectively are considered to be both reasonable and adequate to cover the costs of the extensive planned exploration programme. It is considerably more than the total estimated Department of Industry and Resources statutory expenditure requirements of \$338,400 for the first two years.

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 14 - SANDFIRE PROJECT  
STRUCTURAL INTERPRETATION**

0 2 4 6 8 10km

## 7 BORROLOOLA PROJECT

### 7.1 INTRODUCTION

The Borroloola Project (Figure 1) is situated about 660 kilometres southeast of Darwin, 920 kilometres north of Alice Springs and 85 kilometres west of the small town of Borroloola in the "Gulf country" of the Northern Territory, Australia.

The project is centred at approximately latitude 15° 58' S and longitude 135° 34' E (Figure 15) and it comprises Exploration Licence EL10121 and Mineral Lease MLN624 covering a total area of about 16.5 square kilometres.

Mineral Lease MLN624 lies within the above Exploration Licence and is situated upon the more significant old mine workings known as Gordons Prospect.

From Darwin vehicle access can be gained by travelling 588 kilometres south along the Stuart Highway, then eastwards for 269 kilometres along the Carpentaria Highway to Cape Crawford and thence northwards along the unsealed Roper Bar road that crosses the project area between 93 and 106 kilometres from Cape Crawford.

The "Gulf country" climate is tropical with a hot wet season from November to April and a warm dry season from May to October. The average annual rainfall is 980mm and mean daily maximum temperatures range between about 25.0°C in July to 34.5°C in December.

The project is surrounded by Exploration Licence, EL10048 of 470.4 square kilometres held by North Mining Ltd., an associate of Rio Tinto Exploration Pty. Ltd.

### 7.2 REGIONAL GEOLOGICAL SETTING

The project tenements cover an area of Lower to Middle Proterozoic rocks that comprise part of the sedimentary sequence of the McArthur Basin (Figure 15). This basin is believed to be defined by several arcuate north trending asymmetrical rift sub-basin troughs or grabens separated by northwest trending faults and transverse ridges (Ahmad, 1998).

The dominant extensional features of the basin are the Batten and Walker troughs that have known trend lengths of about 250 and 200 kilometres respectively. The Borroloola Project area is located on the western margin of the Batten Trough.

About 85 kilometres southeast of the Borroloola Project and located on the eastern edge of the Batten Trough is the McArthur River (HYC) zinc-lead-silver-copper deposit. The HYC mineralised outcrop was discovered in 1955 and was first drilled in 1959 whereupon the syngenetic nature of the orebody first became apparent.

Although many successful holes were subsequently drilled, the extremely fine-grained ore caused

metallurgical problems that prevented profitable exploitation for more than 40 years. Mining of this orebody has been in progress since 1994. A resource of 104 million tonnes grading 14.12% zinc and 6.4% lead remained to be mined as of 1998.

To paraphrase Ahmad (1998) the following points can be made - the McArthur Basin forms part of the north Australian base metal province extending from Mt Isa to the Gove Peninsular.

There have been many more discoveries of large mineral deposits in the Mt Isa region, Queensland than in the Northern Territory. Mineral exploration in the Mt Isa region has taken place for many years and related expenditure has been much greater than in the Northern Territory part of the province. With continued exploration there is excellent potential for discovery of more large deposits within the Northern Territory.

It should be noted that the HYC deposit is located about 1.5 kilometres west of the Emu Fault Zone; its feeder growth fault. Many of the large stratiform Precambrian deposits said by current consensus to probably be of sedimentary exhalative origin (SEDEX) such as HYC, Century, and Dugald River appear to be within synclinal structures adjacent to apparent 'feeder' faults which acted as conduits for the hydrothermal fluids containing the metals. These 'feeder' faults typically contain small related replacement and vein fill style uneconomic high grade patches of ore minerals.

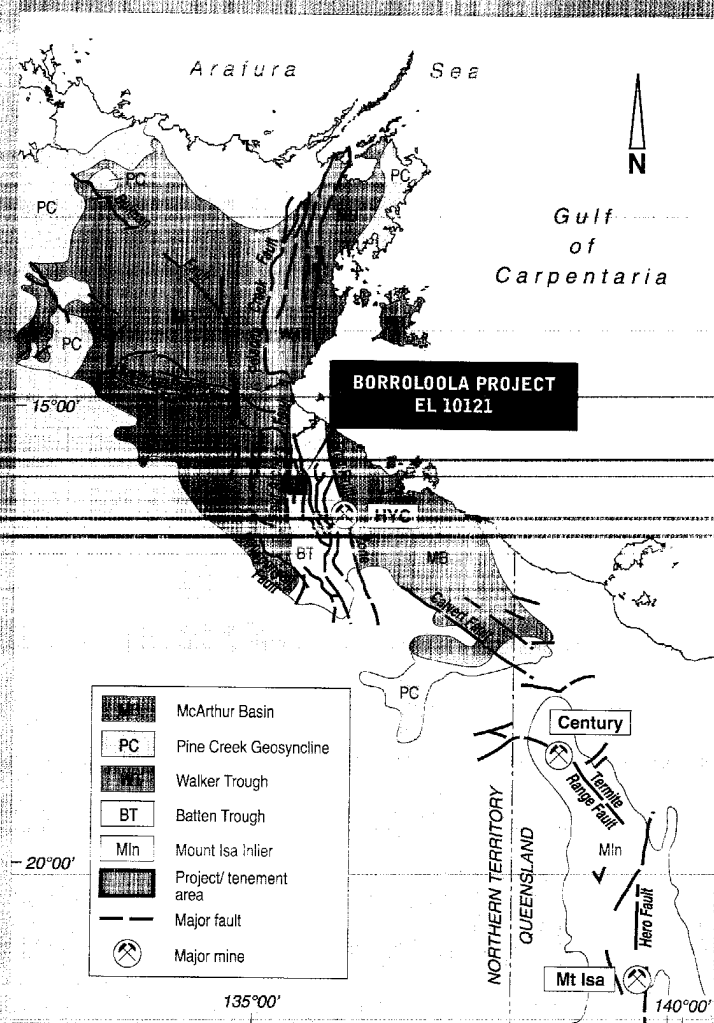
It would appear that the mineralised fluids, being heavier than seawater, flowed down slope from the 'feeder' to the deepest part of the basin or half graben where metals were precipitated due to cooling and reaction with sulphur. There is also a metal zonation with copper becoming weaker and lead-zinc increasing from the feeder to the basin centre (Large et.al., 1998). It should be noted that the somewhat similar, but copper rich stratabound Nifty deposit in the Proterozoic of Western Australia appears to have a syndeformational sediment replacement origin (Anderson et. al., 2001). Both the north Australian deposits such as HYC and deposits such as Nifty occur in synclines. Their ore forming fluids passed through adjacent 'feeder' faults to deposit either stratiform or stratabound ore in well layered marine sequences.

### 7.3 PROJECT GEOLOGY

The Borroloola Project covers the northwestern part of a small fault-bounded sub-basin (Figure 16). The Northern Territory Geological Survey ("NTGS") 1:100,000 scale geological mapping indicates that bedrock exposure within and around the project area is excellent. Most of the rocks that crop out have been identified as McArthur Group sediments. These sediments are bounded on both western and eastern sides by north-south trending faults - the Four Archers Fault and the Lorella Fault respectively, and to the north by an east-west fault, the

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 15 - BORROLOOLA PROJECT  
REGIONAL GEOLOGICAL SETTING**

"Coppermine Creek Fault" that splays off the Four Archers Fault. Near the western end of this latter structure there occurs a copper gossan adjacent to which are a shallow shaft, an old adit and a number of pits. This occurrence is known as Coppermine Creek or the Gordons Copper Mine. Seven other significant copper/lead occurrences have been noted within 10 to 40 kilometres of the "Gordons Copper Mine". No production has been recorded.

Surface geology is largely known from the published NTGS mapping supplemented by observations made during a brief site visit and an aerial inspection by helicopter.

Knowledge of sub-surface geology is confined to shallow reverse circulation (RC) holes and two deeper RC/diamond drill holes all completed solely to test the Gordons Copper Mine mineralisation (see 7.4. below).

The sequence of McArthur Group sediments which is exposed within the project area is:

- **Tooganinie Formation** – dolomitic siltstone and mudstone with minor dolarenite. Reported ripple marks and other shallow marine depositional evidence (locally 100m thick);
- **Tatoola Sandstone** – Fine grained flaggy sandstone with interbeds of dolarenite with ripple marks and other shallow marine depositional evidence (locally about 100m thick);
- **Amelia Dolomite** – Dololomite and interbedded dolarenite.

The stromatolitic dolomitic horizons, so common elsewhere, were not sighted during the brief field visit (locally about 125m thick).

The BHP diamond drillhole (MYD-007) which was collared in Tatoola Formation, appeared to core all the Amelia Dolomite (approximately 125m thick). The underlying Mallapunyah Formation was penetrated for 137 metres (about 135 true thickness) and logged as reddish mudstones, siltstones and sandstones with a variable amount of dolomite matrix.

In the southern part of the project area the McArthur Group is overlain unconformably by Cretaceous sediments. To the north of the Coppermine Creek Fault are locally poorly exposed Roper Group shallow water sediments. Within the project area to the west of the Four Archers Fault are Middle Tawallah Group fine to medium grained shallow water sediments.

RJ Burke (2003) rightly points out, "In the diamond drill core the stratigraphic column appears to record marine transgression over stand-still, shallow, oxidised (reddish, hematitic tints) evaporitic basement (i.e. Mallapunyah Formation). When sag phase subsidence commenced and water depth began to increase (albeit still at relatively shallow depths) the reddish coloured, oxidised evaporitic sediments have given away to darker

coloured, less oxidised dolomite-rich sediment (i.e. Amelia Dolomite) during marine transgression."

Within the fault bounded exposure of McArthur Group dolomitic sediments there is a small south plunging synclinal structure or perhaps basin which abuts the east-west trending and steep south dipping mineralised Coppermine Creek Fault system. To the west this 'basin' abuts a north-south splay from the trough bounding Four Archers Fault. To the southeast the Geological Survey map indicates a northeast trending fault, but a brief inspection found evidence that this may be a hingeline and suggests that the structure is more like a basin. To the south the structure appears to be obscured by Cretaceous cover.

An interpretative north-south trending section has been drawn on the basis of BHP's section through drill holes, NTGS mapping and measurements made during the brief inspection (Figure 17).

On the surface at Gordons Copper Mine there is brecciated and oxidised Amelia Dolomite pervasively silicified with much interstitial malachite with minor cuprite and tenorite as well as rare chalcocite. The mineralisation in the Mt Carrington Mines Ltd. RC holes was largely supergene copper whilst that in the BHP core hole was principally chalcopyrite in stockwork veins and small ankerite or siderite spherules. There is minor pyrite, indicating little available sulphur from this source for precipitation of metals. Carbonate is largely recrystallised indicating heat in the system at some stage, possibly hydrothermal.

Near surface samples show high arsenic and cobalt values probably due to scavenging by iron and manganese which are also present. Analyses for gold reveal only rare traces.

The geological logs and geochemistry of the BHP diamond drillhole MYD 007 offer clear evidence of successive mineralising episodes in which fluids pregnant with base metals (and silver) may have gravitated to a basin low during sedimentation or percolated through the host sediments during diagenesis. More or less consistent with the logged interval of Amelia Dolomite, the core averaged 1.7ppm silver over 124.2metres and 28ppm bismuth over 157 metres.

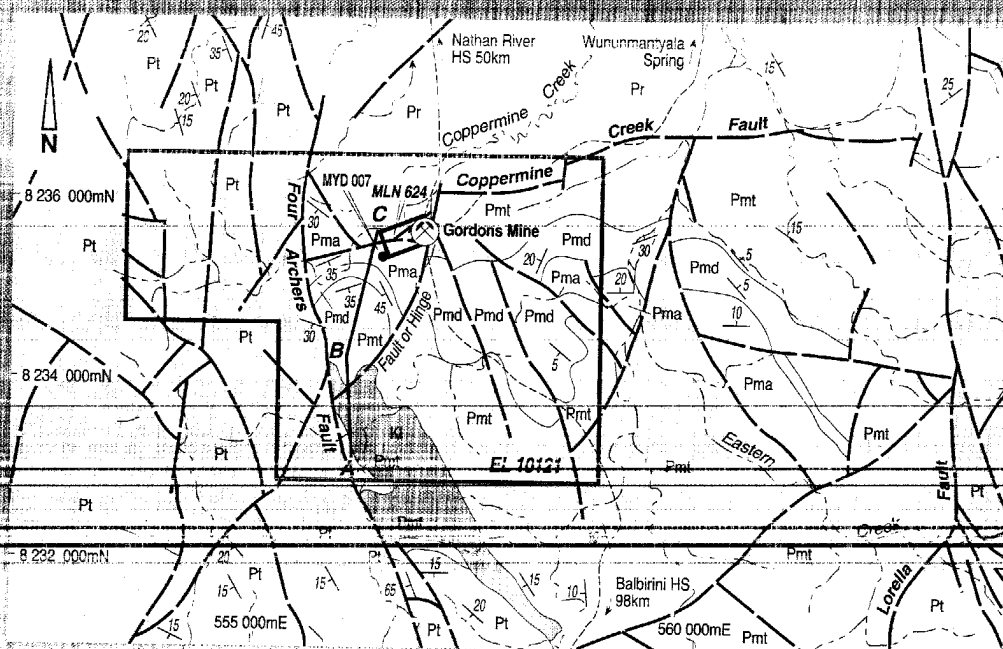
#### 7.4 PREVIOUS EXPLORATION

In 1962 CEC completed an investigation of the Gordons Copper Mine that included the drilling of a single 138.5 metre diamond drill hole inclined to the north at 50°. This hole intersected 17 metres averaging 0.5% copper from 78 metres.

Between 1966 and 1982 a KEA / Oil Stream Industries Pty Ltd joint venture, Amad N.L. and CEC conducted stream sediment and soil geochemical surveys. The samples were analysed for various elements including copper, nickel, cobalt, lead and zinc. No gold assays were

# INDEPENDENT GEOLOGIST'S REPORT

INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 16 - BORROLOOLUA PROJECT  
GEOLOGY PLAN**



- |     |                                 |                                      |
|-----|---------------------------------|--------------------------------------|
| K   | Younger rocks                   | Project/tenement area                |
| Pr  | Lower Roper Group sediments     | Drainage                             |
| Pmt | Toonganine Formation            | Track                                |
| Pmd | Tatoola sandstone               | Old copper workings                  |
| Pma | Amelia dolomite                 | Foliation                            |
| Pt  | Undifferentiated Tawallah Group | Diamond drillhole (approx. location) |

done during this period. Apart from the Gordons Mine area and its immediate east and west strike extensions, no significant anomalies were identified.

In late 1993 Mt Carrington Mines Limited completed 10 northerly inclined RC holes to test a 300 metres strike length of the Gordons Copper Mine trend. Samples were analysed for copper, lead, zinc, nickel, cobalt and silver.

The best intersection was 13 metres between 15 and 28 metres downhole depth averaging 2.11% copper and 386ppm cobalt. Otherwise best single sample analyses were 4.65% copper, 195ppm lead, 107ppm zinc, 8.6ppm silver, 870ppm nickel and 1,380ppm cobalt. No gold analyses were done.

In 1995 and 1996 the project area was explored by BHP. In 1995 transient electromagnetic (TEM) soundings were done at spacings of about one kilometre along a north-south line. No indication of conductive mineralisation was recognised. In 1996 BHP completed an airborne Geotem survey of "the entire Gordons area". The only conductor identified was in the Gordons Mine area and follow-up moving loop TEM defined a "weak conductor" at a depth of around 280 metres below the Gordons workings.

An RC/diamond drill hole (MYD 007) inclined at 60° to the north was completed to test the interpreted flat lying conductor re-estimated to be at ~225 metres vertical depth.

This hole intersected a series of alternating banded grey dolomitic siltstones with some rare interbedded mauve siltstones from surface to 156 metres down hole depth. From 156 to 197 metres the core comprised recrystallised sideritic marble below which was 20 metres of banded grey dolomitic siltstone and then from 217 to 315 metres the hole intersected red dolomitic sandstones, siltstones and mudstones with zones of haematite replacement, recrystallised sideritic marble, rare jasper bands and brecciation. Between 301 and 315 metres the rocks became fractured and sheared and from 315 to the hole end at 334.4 metres became strongly brecciated and silicified with chlorite-epidote-haematite alteration and some fault gouge clays.

Evidence of several brecciation events was noted as well as pyrite-calcite veining. Calcite veining was logged throughout the hole.

Composite samples (6 metres in the 82 metre precollar RC and 2 metres in the cored section) were analysed for: antimony, arsenic, bismuth, cadmium, chromium, cobalt, copper, iron, lead, manganese, vanadium, molybdenum, nickel, phosphorous, silver and zinc. Anomalous (more than 5 times background) zones of copper, cobalt, bismuth, arsenic and silver geochemistry occur throughout the hole.

Twenty-six rock chip samples of surface mineralisation were analysed by the tenement holder Mr Biddlecombe. Only three of these returned detectable gold with values of 0.04, 0.06 and 0.08ppm respectively; the remainder were below detection level (<0.02ppm).

A search was made of the Northern Territory Geological Survey Open File Report Database. There were 158 Open File records referencing work on the Tawallah 1:100,000 sheet. Of these nine referenced Gordons Copper Mine and of these only Goulevitch, (1994), Paterson (1996) and Stevens (1997) have been studied. They seem to summarise all other work of significance.

A specific search was also made for 'gold' but none are recorded within the current tenements. A search for proprietary geophysics other than that of BHP revealed no available geophysics other than the NT government magnetic and radiometric coverage done in 1989, flown at a height of 300m on lines at 500m spacing.

These magnetic data were briefly examined and no features with any clear relationship to mapped geology or targeted mineralisation were noted.

## 7.5 EXPLORATION POTENTIAL

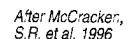
The Borroloola Project is considered to have potential for discovery of copper-lead-zinc-silver SEDEX deposits and/or syndeformational sediment-replacement deposits. Previous exploration drilling has been confined to investigation of the east-west trending Coppermine Creek Fault that hosts the outcropping copper mineralisation of the Gordons Copper Mine. Much of this mineralisation is considered to have resulted from supergene enrichment of sulphides deposited by hydrothermal brines ascending the feeder system.

The Coppermine Creek Fault is interpreted to be a growth fault of similar type to the HYC feeder growth fault - the Emu Fault Zone.

The synclinal structure with possible closure referred to above may have been a basin at the time the formations were being deposited and suggests the possible existence of a deep water containment structure to hold the heavy metal rich brines sourced from the feeder fault.

Throughout the western margin of the Bauhinia Basin there are numerous lead ± zinc ± copper occurrences of a cross cutting nature (veins & stockworks etc) which are primarily hosted by Amelia Dolomite or younger units but older than Barney Creek Formation that hosts the HYC deposit. The only group of deposits hosted by the younger Nathan Group all occur in a Sub-basin northwest of the main Bauhinia Basin. The Gordons mineralisation appears to be one of the many occurrences that may be either leakage from an Amelia hosted stratabound deposit or reactivation of a feeder growth fault from Amelia time.

## INDEPENDENT GEOLOGIST'S REPORT



**FIGURE 17 - BORROLoola PROJECT  
INTERPRETIVE CROSS SECTION  
(SEE FIGURE 16 FOR LOCATION)**



Previously used methods such as soil geochemistry and airborne GEOTEM and ground moving loop Transient Electromagnetic (TEM) surveys are considered to have been unlikely to identify SEDEX type deposits deep within the basin.

The basin structure interpreted (Figure 17) is about 450 metres deep to base of the Amelia Dolomite that is about 125 metres thick. The basin areal extent potential is about 2.5 square kilometres.

Discovery of a deposit containing about 20 million tonnes of ore would appear to be a reasonable exploration objective for this project.

BHP recorded evaporitic conditions with evidence of original gypsum within the Amelia Dolomite and Malapunyah Formations. The associated sulphur may have provided the necessary catalyst to precipitate metal sulphides at low temperatures in the basin deeps.

#### 7.6 EXPLORATION PROGRAMME

Detailed ground gravity surveys will be completed over the interpreted small basin. More detailed photo/GPS mapping will be completed simultaneously at a scale of 1:5,000 or 1:10,000. (1:50,000 colour photos are available).

Should this gravity survey and mapping indicate a basin is present or is possible, then a single vertical stratigraphic drillhole about 500 metres deep will be required to test the conceptual target.

#### 7.7 PROPOSED EXPLORATION BUDGET

The Company's minimum planned budget expenditure is as follows:

| Activity            | Year 1<br>\$   | Year 2<br>\$   | TOTAL          |
|---------------------|----------------|----------------|----------------|
| Surface Geology     | 41,000         | 36,000         | 77,000         |
| Airborne Geophysics | 0              | 0              | 0              |
| Ground Geophysics   | 45,000         | 0              | 45,000         |
| RAB Drilling        | 0              | 0              | 0              |
| RC Drilling         | 0              | 0              | 0              |
| Diamond Drilling    | 90,000         | 90,000         | 180,000        |
| Administration      | 50,000         | 43,000         | 93,000         |
| <b>TOTAL</b>        | <b>205,000</b> | <b>150,000</b> | <b>355,000</b> |

The budgeted expenditures of \$205,000 and \$150,000 on the Borrooloola Project for Years 1 and 2 respectively are considered both reasonable and adequate to cover the costs of the extensive planned exploration programme.

**8 MAIN SOURCES OF INFORMATION**

- Adamides, N.G., 1998 – Geology of the DooGUNna 1:100,000 Sheet: Geological Survey of Western Australia, 1:100,000 Geological Series, Department of Minerals and Energy, 1998.
- Ahmad, M., 1998 – Geology and mineral deposits of the Pine Creek Inlier and McArthur Basin, Northern Territory: AGSO Journal of Geology and Geophysics, Volume 17, Number 3.
- Anderson, B.R., Gemmell, J.B. and Berry, R.F., 2001 – The geology of the Nifty Copper Deposit, Throssell Group, Western Australia: Implications for ore genesis, Economic Geology Vol. 96, 2001, p. 1535-1565.
- Bates, R.L. and Jackson, J.A., 1987 – Glossary of Geology (Third Edition), American Geological Institute, Alexandria, Virginia, 1987.
- Bates, R.L. and Jackson, J.A., 1987 – Geology of the environment of shale-hosted massive sulphide Pb-Zn-Ag deposits of Proterozoic northeastern Australia: Economic Geology Vol. 98, 2003, pp. 557-576.
- BHP Minerals Division Company Ltd., 1983 to 1985 – The Cobra Project, Western Australia: Geological Survey of Western Australia WAMEX open file reports Item 3161, A 15960 – 1984 Annual Report and A 15961 – Final Report 1985.
- Blackburn, G., 2003 – The Peak Hill Bore Gold Prospect, Doolgunna Station, Peak Hill Region, Western Australia E 52/1368 and ELA 52/1593: unpublished report.
- Blockley, J.G. and Myers, J.S., 1990 – Proterozoic rocks of the Western Australian Shield – geology and mineralisation, in Geology of the Mineral Deposits of Australia and Papua New Guinea (Ed. F.E. Hughes) pp 607-615 (The Australasian Institute of Mining and Metallurgy, Melbourne).
- Boddington, T.D.M., 1990 – Abra lead-silver-copper-gold deposit in Geology of the Mineral Deposits of Australia and Papua New Guinea (ed. F.E. Hughes) pp. 659-664 (The Australasian Institute of Mining and Metallurgy, Melbourne).
- Broadbent, G.C. and Waltho, A.E., 1998 – Century zinc-lead-silver deposit: in Geology of Australia and Papua New Guinean Mineral Deposits (Eds. D.A. Berkman and D.H. Mackenzie) pp. 729-736 (The Australasian Institute of Mining and Metallurgy, Melbourne).
- Burke, R.J., 2003 – Report on a field visit to Gordon's copper prospect, McArthur Basin, Northern Territory: unpublished professional report.
- Canadian Superior Mining (Aust) Pty Ltd – Western Uranium Joint Venture: Annual Report (1973) to Mines Department – Shale environments in the Edmund (1:250,000) region, 1974: Geological Survey of Western Australia WAMEX open file report Item 423, A 5681.
- Canadian Superior Mining (Aust) Pty Ltd – Western Uranium Joint Venture: Annual Report for 1974 – Prospect evaluation of shale environments, Edmund (1:250,000) region, 1974: Geological Survey of Western Australia WAMEX open file report Item 420, A 5682.
- Chevron Exploration Corporation – Yereena Prospect, Peak Hill, Western Australia: Geological Survey of Western Australia WAMEX open file reports – Item 2490, A 9872 – Annual Report 1981 and A 10592 – Final Report 1992.
- Copper Belt, Canada, B. and D. D. D. 1988 – Mineral occurrences and exploration potential of the Bangemall Basin: Geological Survey of Western Australia, Report 64.
- CRA Exploration Pty Ltd., 1986 to 1991 – The Admiral Bay Project, Canning Basin, Western Australia: Geological Survey of Western Australia WAMEX open file reports – in Items 3976, 5075, 5846, 6384 and 7215.
- CRA Exploration Pty Ltd., 1987 to 1993 – The Ruby Bore Project, Peak Hill Western Australia: Geological Survey of Western Australia WAMEX open file reports – in Items 5261, 6742 and 7052.
- CRA Exploration Pty Ltd., 1992 to 1993 – Reports on the Ashburton Manganese – Base Metals Project, Ashburton Mineral Field, Western Australia: Geological Survey of Western Australia WAMEX open file reports – Item 7922, A 36625 vols 1 and 2 and A38374.
- Gee, R.D., 1987 – Peak Hill, Western Australia (2nd edition): Western Australia Geological Survey, 1:250,000 Geological Series Explanatory Notes.
- Gibson, D.L., Towner, D.R. and Crowe, R.W.A., 1977 – Lagrange, Western Australia: Western Australia Geological Survey, 1:250,000 Geological Series.
- Goldrick, P.J. and Large, R.R., 1993 – Proterozoic stratiform sediment-hosted Zn-Pb-Ag deposits, in AGSO Journal of Australian Geology and Geophysics, 17(4), pp. 189-196.
- Goodfellow, W.D., Lyden, J.W. and Turner, R.J.W., 1993 – Geology and genesis of stratiform sediment-hosted (SEDEX) zinc-lead-silver-sulphide deposits, in Kirkham, R.W., Sinclair, W.D., Thorpe, R.I. and Duke, C.W., eds., Mineral Deposit Modelling: Geological Association of Canada, Special Paper 40, pp. 201-251.
- Goodfellow, W.D., 1994 – Geology of the 1993 drilling programme, Gordon's Prospect, EL8021, MEX 624: 1:100,000 map, W.A. Geological Survey, Perth.

Haines, D.W., Brooke, W.J.L. and Mazzoni, P.P., 1993 – Application of conceptual models for sediment-hosted ore deposits in the discovery of the Nifty copper and adjacent zinc-lead deposits, Yeneena Basin, Western Australia: in Kirkham, R.V., Sinclair, W.D., Thorpe, R.I. and Duke, J.M., eds., *Mineral Deposit Modelling*: Geological Association of Canada, Special Paper 40, pp. 75-88.

Haines, P.W., Pietsch, B.A., Rawlings, D.J. and Madigan, T.L., 1993 – Mount Young SD53-15 1:250,000 sheet, Northern Territory: Northern Territory Geological Survey 1:250,000 map series. Northern Territory Department of Mines and Energy.

Hanna, J.P. and Ivey, M.E., 1990 – Labouchere and Deep South Gold Deposits: in *Geology of the Mineral Deposits of Australia and Papua New Guinea* (Ed. F.E. Hughes), pp. 667-670 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Harper, M.A., Hills, M.G., Renton, J.I. and Thorne, S.E., 1998 – Gold Deposits of the Peak Hill area: in *Geology of Australia and Papua New Guinean Mineral Deposits* (Eds. D.A. Berkman and D.H. Mackenzie) pp. 81-88 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Hill, A.D. and Cranney, P.J., 1990 – Fortnum Gold Deposit: in *Geology of the Mineral Deposits of Australia and Papua New Guinea* (Ed. F.E. Hughes), pp. 665-666 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Hitzman, M.W., Oreskes, N. and Einaudi, M.T. 1991 – Geological characteristics and tectonic setting of Proterozoic iron oxide (Cu-U-Au-REE) deposits: *Oresearch*, 58 (1992), Elsevier Science Publishing B.V., Amsterdam.

Hoyle, M.W.H., 1980 – Australian Anglo American Limited Gascoyne project – interim report – High Range for the period April to November, 1979, Vols. 1 to 3: Geological Survey of Western Australia WAMEX open file report Item 2553, A 16567.

Hoyle, M.W.H., 1980 – Temporary Reserve 7102H – Australian Anglo American Limited - Annual and final report to the Mines Department, Western Australia for period 6th July, 1979 to 5th July, 1980: Geological Survey of Western Australia WAMEX open file report Item 2039, A 9238.

Kriewaldt, M., 1970 – Asarco (Australia) Pty Ltd, Final report on MC's 09/208 to 214 – Two Peaks zinc prospect, 1970: Geological Survey of Western Australia WAMEX open file report Item 1049, A 1893.

Kuehn, C.A. and Rose, A.W., 1991 – Geology and Geochemistry of Wall Rock Alteration at the Carlin Gold Deposit, Nevada: *Economic Geology*, Vol. 87, No. 7, November, 1992.

Large, R.R., Bull, S.W., Cooke, D.R. and McGoldrick, P.J., 1998 – A genetic model for the HYC deposit, Australia: based on regional sedimentology, geochemistry and sulphide-sediment relationships, *Economic Geology* Vol. 93, pp. 1345-1368.

Leaman, D.E., 1996 – Structure, contents and setting of Pb-Zn mineralisation in the McArthur Basin, northern Australia, in *Australian Journal of Earth Sciences* (1998) 45, pp. 3-20.

Martin, D.McB. and Thorne, A.M., 1998-9 – Geology of the Mangaroon 1:100 000 Sheet, Geological Survey of Western Australia, Department of Minerals and Energy.

McGoldrick, P.J. and Large, R.R., 1998 – Proterozoic stratiform sediment hosted Zn-Pb-Ag deposits: AGSO *Journal of Australian Geology and Geophysics*, 17(4), pp 189-196.

Morete, S., 1973 – Uranerz (Australia) Pty Ltd – exploration 1973 on MC 09/1498, Two Peaks, south-east High Range, Gascoyne area, Western Australia: Geological Survey of Western Australia WAMEX open file report Item 2524, A 4635.

Morete, S., 1973 – Uranerz (Australia) Pty Ltd - exploration 1975 on MC 09/1498, Two Peaks, S.E. High Range, Gascoyne Region, Western Australia: Geological Survey of Western Australia WAMEX open file report Item 2524, A 6348.

Morganti, J., ~1980 – Sedimentary-Type Stratiform Ore Deposits, some models and a new classification: in *Ore Deposit Models* (Ed. R.C. Roberts and P.A. Sheahan); Geoscience Canada Reprint Series 3, Geological Association of Canada iv Series, 1988.

Muhling, P. C. and Brakel, A. T., ~1980 - Geology of the Bangemall Group; the evolution of an intracratonic basin: from Geological Survey of Western Australia, Bulletin 128.

Occidental Minerals Corporation of Australia, 1978 to 1980 – Temporary Reserve No. 6787H The Centipede Range Prospect, Western Australia: Geological Survey of Western Australia WAMEX open file reports Item 1104 A 08598 and A 08884.

O'Driscoll, E.S.T., 1990 – Lineament tectonics of Australian ore deposits: in *Geology of the Mineral Deposits of Australia and Papua New Guinea* (Ed. F.E. Hughes), pp. 667-670 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Paterson, T., 1996 – Annual Report for the period ending 26 January, 1996, Exploration Licence 8011, McArthur Basin NT: unpublished report, BHP Minerals Pty. Ltd.

Pietsch, B.A. et al, 1991 – Bauhinia Downs SE53-3, 1:250,000 Geological map series with explanatory notes; Northern Territory Geological Survey.

Pirajno, F. and Preston, W.A., 1998 – Mineral deposits of the Padbury, Bryah and Yerrida basins: in *Geology of Australian and Papua New Guinean Mineral Deposits* (Eds: D.A. Berkman and D.H. Mackenzie), pp63-70 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Pye, K.J., Coker, J., Faulkner, J.A. and Saunders, A.J., 1998 – Geochemical Mapping of the Edmund 1:250,000 sheet: Western Australia Geological Survey, 1:250 000 Regolith Geochemistry Series Explanatory Notes, 51pp.

Pye, K. J., Sanders and Faulkner, J. A., 1999 – Geochemical mapping of the Wyloo 1:250 000 Sheet: Western Australia Geological Survey, 1:250,000 Regolith Geochemical Series Explanatory Notes, 53pp.

Rawlings, D.J. et al., 1993 – Tawallah Range 6066, 1:100,000 Geological map series with explanatory notes, Northern Territory Geological Survey.

Ryan, A.J., 1998 – Ernest Henry copper-gold deposit, in *Geology of Australian and Papua New Guinean Mineral Deposits* (Eds: D.A. Berkman and D.H. Mackenzie), pp 759-768 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Reeve, J.S., Cross, K.C., Smith, R.N. and Oreskes, N., 1990 – Olympic Dam copper-uranium-gold-silver deposit: in *Geology of the Mineral Deposits of Australia and Papua New Guinea* (Ed. F.E. Hughes), pp. 1009-1035 (The Australasian Institute of Mining and Metallurgy, Melbourne).

Sanders, A.J., Morris, P.A., Subramanya, A.G. and Faulkner, J.A., 1997 – Geochemical Mapping of the Mount Phillips 1:250,000 sheet: Geological Survey of Western Australia, 1:250,00 Regolith Geochemistry Series Explanatory Notes, 51p.

Sanders, A.J. and McGuinness, S.A., 2001 – Geochemical Mapping of the Winning Pool Minilya 1:250,000 sheets: Western Australia Geological Survey, 1:250 000 Regolith Geochemistry Series Explanatory Notes, 57p.

Seymour, D. B., Thorne, A. M. and Blight, D. F., 1988 *Wyloo, Western Australia, Second Edition: Geological Survey of Western Australia 1:250,000 geological series – map and explanatory notes.*

Shaw, R.D., Sexton, M.J. and Zeelinger, I., 1994 – The Tectonic Framework of the Canning Basin, Western Australia, including the 1:2 million Structural Element Map of the Canning Basin: AGSO, Canberra.

Sons of Gwalia Limited, 1991 – Dixon Well Joint Venture Progress Report: Geological Survey of Western Australia WAMEX open file report Item 6855 A 35602.

Stenger, D.P., Kesler, S.E., Peltonin, D.R. and Tapper, C.J., 1997 – Deposition of Gold in Carlin-Type Deposits: The Role of Sulphidation and Decarbonation at Tyin Creeks, Nevada: *Economic Geology*, Vol. 93, pp 201-215, 1998.

Stephens, D., 1997 – Final report for the period ending 25 December 1996, Exploration Licence 8011 and MLN624, Gordons, McArthur Basin, NT: unpublished report BHP Minerals Pty Ltd.

Subramanya, A.G., Faulkner, J.A., Sanders, A.J. and Gozzard, J.R., 1995 – Geochemical Mapping of the Peak Hill 1:250 000 sheet: Western Australia Geological Survey, 1:250 000 Regolith Geochemical Series Explanatory Notes, 51p.

Swager, C.P. and Myers, J.S., 1999 – *Geology of the Milgun 1:100,000 Sheet: Geological Survey of Western Australia* – Minerals and Energy, 1999.

Tompkins, L.A., Pedone, V.A., Roche, M.T. and Groves, D.I., 1993 – The Cadjebut deposit as an example of Mississippi Valley-Type mineralisation on the Lennard Shelf, Western Australia – single episode or multiple events?: *Economic Geology*, Vol. 89, pp 450-466, 1994.

Western Mining Corporation Ltd., 1989 to 1990 – Terminal Report, Exploration Licences E0/258 and 08/266, Mt. Stuart, Ashburton Mineral Field: Geological Survey of Western Australia WAMEX open file report Item 4544, A 32653.

Western Mining Corporation Ltd, 1993 to 1995 – Reports on the Peak Hill Exploration Licences: Geological Survey of Western Australia WAMEX open file reports Item 4315, A 14400 – 1983-84 Annual Report and A 16708 – 1984-85 Annual Report.

Williams, S.J., 1986 – *Geology of the Gascoyne Province, Western Australia: Geological Survey of Western Australia Report 15.*

## 9 GLOSSARY

### Aberfoyle

Aberfoyle Resources Limited.

### Aeromagnetic Survey

A survey made from the air recording variations in the earth's magnetic field.

### Aeromagnetics

Results of an aeromagnetic survey.

### AGSO

Australian Geological Survey Organisation.

### Alteration

The change in the texture and mineral composition of a rock, commonly used in reference to the effects of hydrothermal fluids.

### Arenite

A general name used for a consolidated sedimentary rock composed of sand-sized fragments.

### Archaean

The oldest rocks of the Precambrian era, earlier than 2,500 million years.

### Anticline

A fold, generally convex upwards, the core of which contains the older rocks.

### Axial-plane-cleavage

Cleavage that is closely related to the axial planes of folds in the rock.

### Banded iron formation

Chemical sedimentary rock mainly composed of finely alternating layers of silica and iron oxide.

### Basalt

Dark coloured fine-grained volcanic rock of low silica content (<55%) and high iron and magnesium content.

### Basin

A low area in the Earth's crust, of tectonic origin, in which sediments and sometimes volcanic rocks have accumulated; also termed a sedimentary basin.

### BHP

BHP Minerals Limited.

### BLEG sample

A bulk sample collected for bulk leach extractable gold analysis.

### BMR

Bureau of Mineral Resources – now AGSO.

### Breccia

Rock composed of angular fragments.

### Carbonate

A sediment formed by the precipitation from aqueous solution of carbonates of calcium, magnesium or iron; e.g. limestone or dolomite.

### Carboniferous

A geological period ranging from about 345 to about 280 million years ago.

### CEC Carpentaria

Exploration Company Pty Ltd.

### Chevron

Chevron Exploration Corporation

### Conglomerate

A rock composed mainly of water worn rounded pebbles, cobbles or boulders.

### CRA

CRA Exploration Limited

### Craton

Large and usually ancient stable part of the Earth's crust.

### Cretaceous

A geological period ranging from about 135 to about 65 million years ago.

### CSAMT

A ground geophysical exploration method termed "Controlled Source Audio Magnetic Tellurics".

### Devonian

A geological period ranging from about 400 to about 345 million years ago.

### Diamond drilling

A method of obtaining a solid cylindrical core of rock by drilling with a diamond set or diamond impregnated bit.

### Diagenesis

All the chemical, physical and biological changes undergone by a sediment after its initial deposition and during and after its lithification.

### Dolarenite

A dolomitic rock consisting mainly of dolomite particles of sand size.

### Dolerite

Dark coloured medium-grained volcanic rock of low silica content (<55%) and high iron and magnesium content.

### Dololulite

A dolomitic rock consisting mainly of dolomite particles of silt size.

### Dolorudite

A dolomitic rock consisting mainly of dolomite particles of larger than sand size.

### Dolomite

A calcium-magnesium carbonate mineral; dolomite rock (also called Dolostone) contains more than 50% of this mineral.

### Epigenetic

Said of a mineral deposit that originated later than the enclosing rocks.

### Exhalative

Descriptive of a process whereby mineralisation and associated alteration occurs as a result of the emanation of gases and/or vapours from a volcanic source.

### Felsic

Descriptive of a light coloured rock containing an abundance of the minerals feldspar (generally potassium rich) and quartz.

### Gabbro

Dark coloured coarse-grained volcanic rock of low silica content (<55%) and high iron and magnesium content.

### Graben

An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides – can also be termed a trough.

### Grit

A coarse grained sandstone with grains 2mm to 4mm in size, often with angular particles.

### GSWA

Geological Survey of Western Australia.

### g/t

Grams per tonne.

### Haematite

An oxide of iron.

### HMC sample

A heavy mineral concentrate generated by either panning or flotation and analysed for selected chemical elements.

### Horst

An elongate, relatively uplifted crustal unit or block that is bounded by faults on its long sides.

### Hydrothermal

Pertaining to heated water, particularly of magmatic origin associated with the formation of mineral deposits or the alteration of rocks.

### Igneous

Formed by the solidification of hot mobile material termed magma.

# INDEPENDENT GEOLOGIST'S REPORT

56

INDEPENDENT GEOLOGIST'S REPORT

## Inlier

An area (often elliptical) of older rocks surrounded by younger strata.

## Isoclinal

A fold with parallel limbs.

## Jurassic

A geological period ranging from about 190 to about 135 million years ago.

## KEA

Kennecott Explorations (Australia) Pty Ltd.

## km<sup>2</sup>

Square kilometres

## Magmatic

Derived from Magma – a naturally occurring mobile rock material generated within the Earth and capable of intrusion or extrusion

## Marine transgression

The spread or extension of the sea over land areas.

## Metamorphism

The mineralogical, structural and chemical changes induced within solid rocks through the actions of heat and/or pressure or the introduction of new chemicals.

## MVT

Mississippi Valley Type (see 1. GENERAL section of this report).

## Normal Fault

A fault in which the hanging wall appears to have moved downward relative to the footwall; alternatively called a pull-apart, gravity or slump fault.

## Ordovician

A geological period ranging from about 500 to about 440 million years ago.

## Outlier

An area or group of rocks surrounded by rocks of older age.

## OSI

Oil Stream Industries Pty Ltd.

## Permian

A geological period ranging from about 280 to about 225 million years ago.

## Phanerozoic

That part of geological time represented by rocks within which the evidence of life is abundant.

## Pilbara Block

The northern Archaean craton of Western Australia

## ppb

Parts per billion (1,000 million).

## ppm

Parts per million.

## Precambrian

All of those parts of geological time older than about 570 million years.

## Proterozoic

That part of geological time between about 570 and about 2,500 million years old.

## RAB drilling

Rotary air blast drilling – a technique in which the sample is returned to surface outside the rod string by air pressure.

## RC

Reverse circulation drilling – a technique in which the sample is returned to the surface through the drill rods thus reducing sample contamination.

## REE

Rare earth elements – oxides of a series of fifteen metallic elements with atomic numbers 57 to 71 together with yttrium, thorium and scandium that are widely distributed but rare in concentration.

## Rift faults

Approximately parallel normal faults that bound a rift valley.

## Rock chip sample

A representative sample of rock fragments collected within a limited area.

## Sag phase

A phase in the development of a basin in which the weight of sediment deposited results in a downward of regional extent.

## SEDEX

A sedimentary exhalative or sediment-hosted mineral deposit type (see section 1. GENERAL of this report).

## Schist

A metamorphic rock with a platy or foliated texture.

## Sericite

A fine grained member of the platy mica group (sheet like phyllosilicates) containing potassium and aluminium – frequently a product of alteration.

## Shale

A laminated sedimentary rock formed by the consolidation of mud or silt.

## Strata-bound

Refers to a mineral deposit deposited confined to a single stratigraphic unit.

## Stratiform

Refers to a type of strata-bound mineral deposit in which the mineralisation is strictly coextensive with one or more sedimentary, metamorphic or igneous layers.

## Stratigraphy

Composition, sequence and correlation of stratified rocks within the Earth's crust.

## Stromatolite

A structure produced by precipitation as a result of the growth and metabolic activity of micro-organisms.

## Sulphide

A mineral compound characterised by the linkage of sulphur with a metal.

## Syncline

A fold, generally convex downwards, the core of which contains the younger rocks.

## Tectonic

Pertaining to the forces involved in, or the resulting structures of movements in the Earth's crust.

## Tectonism

Relating to the movement of the Earth's crust produced by tectonic activity.

## Thrust

A low angle compressional fault.

## Trough

See Graben.

## Wacke

A dirty sandstone that consists of a mixed variety of angular and unsorted or poorly sorted mineral and rock fragments.

## WMC

Western Mining Corporation Limited.

## Yilgarn Block

The Archaean craton of southern Western Australia.



# INDEPENDENT ACCOUNTANT'S REPORT

## SOMES & COOKE

CHARTERED ACCOUNTANTS

550A Hay Street West Perth WA 6005  
PO Box 709 West Perth WA 6872  
Telephone (08) 9322 4853  
Facsimile (08) 9481 5645  
Email admin@somescooke.com.au

PARTNERS  
KO Somes FCA  
J Cooke FCA ACIS

ASSOCIATES  
Julie Burns CA  
Steve Wilson CA

58

INDEPENDENT ACCOUNTANT'S REPORT

10001 City, B.C.  
The Directors  
Sandfire Resources NL  
12 Walker Avenue  
WEST PERTH WA 6005

Dear Sirs

RE: INDEPENDENT ACCOUNTANT'S REPORT

### 1 INTRODUCTION

This report has been prepared at the request of the Directors of Sandfire Resources NL ("Sandfire" or "the Company"), for inclusion in a prospectus to be lodged with the Australian Securities and Investment Commission ("ASIC") on or around 14 January 2004 ("Prospectus"), relating to the proposed issue of 18,750,000 to 25,000,000 ordinary shares at an issue price of 20 cents each to raise a minimum of \$3,750,000 and a maximum of \$5,000,000.

### 2 BACKGROUND

At or since incorporation, the only activities undertaken by the Company has been the issue of subscribers shares and acquisition of interests in mineral exploration tenements in Australia.

### 3 BASIS OF PREPARATION

This report has been prepared to provide investors with information on historical results and the financial position of Sandfire, and to provide investors with a pro forma statement of financial position of Sandfire as at 31 October, 2003 adjusted to include funds raised by this Prospectus and the completion of acquisitions of exploration interests and other transactions as referred to in Note 2 of Appendix 2.

This report does not address the rights attaching to the shares to be issued in accordance with the Prospectus, the risks associated with the investment, nor form the basis of an independent expert's opinion with respect to a valuation of the Company or a valuation of the share issue price of 20 cents per share.

This report does not consider the prospects for Sandfire nor the merits and risks associated with becoming a shareholder. Somes & Cooke accordingly takes no responsibility for those matters or for any matter or omission in the Prospectus, other than responsibility for this report.

### 4 SCOPE OF OUR REVIEW

The Directors are responsible for preparation of the historical actual financial information and the pro forma financial information as detailed in Appendices 1, 2 and 3 of this report.

We have performed a review of the financial information in order to state whether, on the basis of the procedures described, anything has come to our attention that would indicate that the financial information in Appendices 1, 2 and 3 is not presented fairly in accordance with the recognition and measurement principles in Accounting Standards and other mandatory professional reporting requirements in Australia, and the accounting policies adopted by the Company as described in Note 1 of Appendix 2 and on the basis of the assumptions and transactions set out in Note 2 of Appendix 2.

Our review has been conducted in accordance with Australian Auditing Standard AUS902 "Review of Financial Reports". Our review was limited primarily to:

- Inquiries of Directors, advisors and consultants of Sandfire and
- Consideration of the working papers, accounting records and other documentation supporting the historical financial information of Sandfire.

Our procedures have been limited to ensure that they:

- Address statements of financial performance for the period ended 31 October 2003 and the pro forma statements of financial performance as at 31 October 2003 to the extent that they are consistent with the historical financial information for the period ended 31 October 2003.

- Pro forma financial information has been based on the extracted information; and
- Actual and pro forma financial information has been drawn up in accordance with the accounting policies and the assumption set out in Notes 1 and 2 of Appendix 3 respectively.

Our review of the historical financial information has not involved a study and evaluation of internal accounting controls, test of accounting records or tests of responses to inquiries by obtaining corroborative evidence from inspection, observation or confirmation. These procedures do not provide all the evidence that would be required in an audit, thus the level of assurance is less than that given in an audit. We have not performed an audit and, accordingly, we do not express an audit opinion.

## 5 VALUE OF EXPLORATION INTERESTS

The principal asset of Sandfire is its exploration interests. The exploration interests have been included at cost in the pro-forma statement of financial position. We have not performed a valuation of the exploration interests. We are unable to form a view on whether the carrying values of the exploration interests are fairly stated. The value of these interests is dependent upon successful development and commercial exploitation of the mineral tenements to which the interests relate.

## 6 REVIEW STATEMENT

Based on our review, which is not an audit, nothing has come to our attention, which causes us to believe that the financial information of Sandfire set out in Appendices 1, 2 and 3 does not present fairly the:

- Actual statements of financial performance for the period 18 June 2003 to 31 October, 2003;
- Actual statements of financial position as at 31 October, 2003;
- Proforma statement of financial position as at 31 October, 2003; and
- Notes to the actual and pro forma financial information.

in accordance with the recognition and measurement principles in Accounting Standards and other mandatory professional reporting requirements in Australia, and the accounting policies adopted by Sandfire as described in Note 1 of Appendix 3 and on the basis of the assumptions and transactions set out in Note 2 of Appendix 3.

## 7 SUBSEQUENT EVENTS

Based on our review, which is not an audit, nothing has come to our attention, which causes us to believe that matters arising after 31 October 2003, other than the matters dealt with in this report, would require comment on, or adjustment to, the information contained in this report, or would cause such information to be misleading or deceptive or result in an omission of the financial or accounting matters require to be disclosed in this report.

## 8 DECLARATIONS

Mr John Cooke, a partner of Somes & Cooke, is a registered company auditor and has qualifications and experience appropriate to this report.

Somes & Cooke has acted as independent accountants' for the Company and in no other capacity with respect to the Prospectus. Somes & Cooke has authorised or caused the issue only of its "Independent Accountants' Report" and has not authorised or caused the issue of any other part of this Prospectus. Somes & Cooke will be paid a professional fee for the preparation of this report based on actual hours spent on the assignment at normal professional rates. Neither Somes & Cooke, nor any of its Partners have any pecuniary interest in the Company. Somes & Cooke was appointed as auditors of the Company on 3 November 2003. The Company has agreed to identify and hold harmless Somes & Cooke and its employees from any claims arising out of any misstatement or omission of information supplied by the Company.

Yours faithfully



SOMES & COOKE  
Chartered Accountants

J Cooke  
Partner

# INDEPENDENT ACCOUNTANT'S REPORT

60

INDEPENDENT ACCOUNTANT'S REPORT

## APPENDIX 1 STATEMENT OF FINANCIAL PERFORMANCE

Reviewed  
18 June 2003  
to  
31 October 2003  
\$

|                                                                                            |          |
|--------------------------------------------------------------------------------------------|----------|
| Revenues from ordinary activities                                                          | -        |
| Write-down of Exploration Expenditure                                                      | (15,432) |
| Loss from ordinary activities before income tax expense                                    | (15,432) |
| Income Tax expense relating to ordinary activities                                         | -        |
| Loss from ordinary activities after related income tax expense                             | (15,432) |
| Total changes in equity other than those resulting from transactions with owners as owners | (15,432) |

## APPENDIX 2 STATEMENT OF FINANCIAL POSITION

|                                     | Note | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|-------------------------------------|------|-----------------------------------|-----------------------------------|
| <b>CURRENT ASSETS</b>               |      |                                   |                                   |
| Cash                                | 3    | 100                               | 2,965,625                         |
| Total Current Assets                |      | 100                               | 2,965,625                         |
| <b>NON CURRENT ASSETS</b>           |      |                                   |                                   |
| Capitalised Exploration expenditure | 4    | 349,060                           | 369,061                           |
| Total Non Current Assets            |      | 349,060                           | 369,061                           |
| <b>TOTAL ASSETS</b>                 |      | 349,160                           | 3,334,686                         |
| <b>CURRENT LIABILITIES</b>          |      |                                   |                                   |
| Unsecured loans - Promoters         | 5    | 364,492                           | -                                 |
| <b>TOTAL LIABILITIES</b>            |      | 364,492                           | -                                 |
| <b>NET ASSETS (LIABILITY)</b>       |      | (15,332)                          | 3,334,686                         |
| <b>EQUITY</b>                       |      |                                   |                                   |
| Contributed Equity                  | 6    | 100                               | 3,350,118                         |
| Accumulated losses                  | 7    | (15,432)                          | (15,432)                          |
| <b>TOTAL EQUITY (DEFICIENCY)</b>    |      | (15,332)                          | 3,334,686                         |

**APPENDIX 3 NOTES TO AND FORMING PART OF THE STATEMENTS OF FINANCIAL POSITION****NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES****(a) Basis of Accounting**

The following significant accounting policies have been adopted in the preparation and presentation of the actual and pro forma financial information:

The financial information has been prepared in accordance with the recognition and measurement principles in Australian Accounting Standards, Urgent Issues Group Consensus Views and on the basis of historical cost and, except where stated do not take into account changing monetary values or current valuations of non-current assets. The disclosure requirements of applicable Accounting Standards and Urgent Issues Group Consensus Views have only been applied as considered necessary. The accounting policies have been consistently applied, unless otherwise stated.

**(b) Exploration & Evaluation Expenditure**

Acquisition, exploration, evaluation and development expenditure incurred is accumulated in respect of each identifiable area of interest. These costs are carried forward only if they relate to an area of interest for which rights of tenure are current and in respect of which:

- (i) Such costs are expected to be recouped through successful development and exploitation or from sale of the area; or
- (ii) Exploration and evaluation activities in the area have not, yet, reached a stage that permits a reasonable assessment of the existence or otherwise of economically recoverable reserves, and active operations in, or relating to, the area are continuing.

Accumulated costs in respect of areas of interest which are abandoned are written off in the year in which the decision to abandon the area is made.

Each area of interest is reviewed annually and accumulated costs are written off to the extent that they will not be recoverable in the future.

**(c) Going Concern**

The financial statements have been prepared on a going concern basis, which anticipates the ability of the company to meet its obligations in the normal course of business. The ability of the Company to meet its existing obligations and those relating to recent acquisitions (as detailed in the Prospectus) will depend on the ability to raise funds pursuant to the Prospectus, and raise further funds through the issue of additional share capital to meet future exploration commitments, as and when required.

**(d) Taxation**

The company adopts the liability method of tax effect accounting.

**(e) Trade and other creditors**

These amounts represent liabilities for goods and services provided to the Company prior to the end of the period and which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition.

**(f) 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 at the date of acquisition plus costs incidental to the acquisition.

Costs relating to the acquisition of new areas of interest are classified as exploration or evaluation expenditure, development properties or mine properties based on the stage of development reached at the date of acquisition.

# INDEPENDENT ACCOUNTANT'S REPORT

62

INDEPENDENT ACCOUNTANT'S REPORT

## NOTE 2 ACTUAL AND PROPOSED TRANSACTIONS TO ARRIVE AT PRO-FORMA STATEMENT OF FINANCIAL POSITION

The pro-forma statement of financial position as at 31 October 2003 has been prepared by the independent accountant to reflect the position of the Company on the assumption that the following transactions had occurred as at 31 October 2003:

- The issue of 18,750,000 shares at 20 cents each raising \$3,750,000.
- Payment of expenses relating to the Prospectus and share issue of approximately \$400,000 that will be offset against capital raised.
- The payment of \$20,000 to the vendor of the Borroloola Tenements for the acquisition of these Tenements.
- The issue of 13,999,900 fully paid shares at 0.0001 cents each.
- The issue of 4,000,000 partly paid shares at 0.0001 cents each.
- The cash advance of \$50,000 from promoters made on 1 December 2003, for the out of pocket expenses of Sandfire NL.
- The repayment of the promoters' loans of \$414,492.

(8) Issue of 2,000,000 partly paid shares at 25 cents for all cash consideration.

## NOTE 3 CURRENT ASSET

|                                                                                                                                   | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|
| <b>CASH</b>                                                                                                                       |                                   |                                   |
| Cash on hand                                                                                                                      | 100                               | 117                               |
| <b>PROFORMA ADJUSTMENTS</b>                                                                                                       |                                   |                                   |
| (a) The issue of 18,750,000 shares at 20 cents each                                                                               |                                   | 3,750,000                         |
| (b) Payment of expenses relating to the Prospectus and share issue of approx. \$400,000 will be offset against the capital raised |                                   | (400,000)                         |
| (c) Payment to the vendor of the Borroloola tenements                                                                             |                                   | (20,000)                          |
| (d) Cash advance of \$50,000 from promoters, for the out of pocket expenses of Sandfire Resources NL.                             |                                   | 50,000                            |
| (e) Repayment of the promoters' loans of \$414,492.                                                                               |                                   | (414,492)                         |
| <b>Total</b>                                                                                                                      | <b>100</b>                        | <b>3,265,625</b>                  |

If more than the minimum subscription is raised the cash position will increase by the additional funds raised less 6% in relation to capital raising fees.

## NOTE 4 NON CURRENT ASSET

|                                            | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|--------------------------------------------|-----------------------------------|-----------------------------------|
| <b>CAPITALISED EXPLORATION EXPENDITURE</b> |                                   |                                   |
| Opening balance                            | -                                 | -                                 |
| Expenditure incurred during the period     | 364,492                           | 384,493                           |
| Expenditure written off during the period  | (15,432)                          | (15,432)                          |
| <b>Total</b>                               | <b>349,060</b>                    | <b>369,061</b>                    |

The ultimate recoupment of the expenditure on mineral exploration expenditure is dependant upon successful commercial exploitation or alternatively the sale of respective areas of interest at an amount at least equal to book value

## NOTE 5 CURRENT LIABILITIES

|                             |                |          |
|-----------------------------|----------------|----------|
| Unsecured loans – promoters | 364,492        | -        |
| <b>Total</b>                | <b>364,492</b> | <b>-</b> |

The above loans are interest free and repayable at call.

# INDEPENDENT ACCOUNTANT'S REPORT

64

## NOTE 6 CONTRIBUTED EQUITY

|                                                                                                                                                                                                                 | No of Shares | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------|-----------------------------------|
| <b>(A) ORDINARY FULLY PAID SHARES</b>                                                                                                                                                                           |              |                                   |                                   |
| Issue of Subscriber shares at \$1.00 each                                                                                                                                                                       | 100          | 100                               | 100                               |
| Sub Total                                                                                                                                                                                                       | 100          | 100                               | 100                               |
| <b>Proforma Adjustments</b>                                                                                                                                                                                     |              |                                   |                                   |
| Issue of shares<br>@ 0.0001 cents each                                                                                                                                                                          | 13,999,900   | -                                 | 14                                |
| The allotment of fully paid ordinary shares<br>pursuant to this Prospectus at 20 cents each                                                                                                                     | 18,750,000   | -                                 | 3,750,000                         |
| <b>Expenses relating to the Prospectus and<br/>share issue of approx. \$400,000</b>                                                                                                                             |              |                                   |                                   |
| Sub Total                                                                                                                                                                                                       | 32,750,000   | 100                               | 3,350,114                         |
| If more than the minimum subscription of shares is allotted, the issued share capital will increase by the additional shares allotted. The capital raising fees will also increase by 6% of the capital raised. |              |                                   |                                   |
| <b>(B) ORDINARY PARTLY PAID SHARES</b>                                                                                                                                                                          |              |                                   |                                   |
| <b>Proforma Adjustments</b>                                                                                                                                                                                     |              |                                   |                                   |
| Issued at 0.0001 cents each                                                                                                                                                                                     | 3,000,000    | -                                 | 3                                 |
| Issue to vendor of mineral tenement<br>at 0.0001 cent each                                                                                                                                                      | 1,000,000    | -                                 | 1                                 |
| Sub Total                                                                                                                                                                                                       | 4,000,000    | -                                 | 4                                 |
| Total                                                                                                                                                                                                           | 36,750,000   | 100                               | 3,350,118                         |

The uncalled capital on the Partly Paid Shares is 15 cents for each share.

### (C) OPTIONS ON ISSUE

#### Proforma Adjustments

3,000,000 options to acquire ordinary fully paid shares expiring on 31 December 2008, exercisable at a price of 25 cents each.

## NOTE 7 ACCUMULATED LOSSES

|                                                | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|------------------------------------------------|-----------------------------------|-----------------------------------|
| Accumulated losses at beginning of period      | -                                 | -                                 |
| Loss from ordinary activities after income tax | (15,432)                          | (15,432)                          |
| Accumulated losses at end of the period        | (15,432)                          | (15,432)                          |

## NOTE 8 COMMITMENTS

Exploration expenditure commitments.

In order to maintain current rights of tenure to exploration tenements, the company is required to perform minimum expenditure requirements specified by the State or Territory Governments. These obligations are subject to renegotiation when application for a mining lease is made and at other times. These obligations are not provided for the financial report and are payable:

|                                         | Reviewed<br>31 October 2003<br>\$ | Proforma<br>31 October 2003<br>\$ |
|-----------------------------------------|-----------------------------------|-----------------------------------|
| Within one year                         | 67,000                            | 67,000                            |
| One year later or no later than 5 years | 268,000                           | 268,000                           |
|                                         | 335,000                           | 335,000                           |

## NOTE 9 SUBSEQUENT EVENT

(a) Sandfire has entered into a conditional contract to acquire the Borroloola mineral tenements on the following terms:

Within 14 days of execution of contract

- \$20,000 cash payment – paid on 5 December 2003.

No earlier than the company listing with the ASX

- Allotment of 1,000,000 partly paid shares paid to 0.0001 cents each.
- Grant of royalty to vendor of point eight of one percent (0.8%) of gross revenue obtained from these tenements.

(b) On 1 December 2003 the promoters made an unsecured cash advance of \$50,000 to the company which is repayable at call.

# REPORT ON TENEMENTS



**McMAHON  
MINING  
TITLE  
SERVICES  
PTY LTD**

Ph: (08) 9225 4699  
Fax: (08) 9225 4266  
Email: [mnts@westnet.com.au](mailto:mnts@westnet.com.au)  
Level 1 202 Pier Street  
Perth WA 6000

P.O. Box 8638  
Perth Business Centre  
WA 6849

66

REPORT ON TENEMENTS

9th January 2004

The Board of Directors  
Sandfire Resources NL  
12 Walker Avenue  
West Perth WA 6005

Dear Sirs,

## REPORT ON TENEMENTS

This report is prepared for inclusion in a prospectus (**Prospectus**) to be issued by Sandfire Resources NL (**Company**) to be lodged on or about the 14th January 2004.

### 1 SEARCHES

For the purposes of this report, in respect of all the Tenements, we have conducted searches and made enquiries as follows:

- we have reviewed searches of the Tenements in the register maintained by the Western Australian Department of Industry and Resources (DIR) and the Northern Territory's Department of Business, Industry and Resource Development (DBIRD). These searches were conducted on 7th November 2003. Updated tenement searches were conducted on the 23rd December 2003 and 8th January 2004.
- we have obtained "Quick Appraisal" reports from the DIR, summarising information available in the "TENOGRAPH" system maintained by the DIR to determine if any native title claims are registered over the area of the Tenements. These searches were conducted on 5th & 6th November 2003. Updated quick appraisals were conducted on the 8th January 2003.

### 2 OPINION

As a result of our searches and enquiries, but subject to the assumptions and qualifications set out below, we are satisfied that, as at the date of the relevant searches:

- the details of the Tenements included in this report are accurate as to the status of the Tenements;
- where title to a Tenement has not been granted or an application for extension of a term of a Tenement is pending, that fact is disclosed in the Schedule or the Notes;
- all applicable rents due under the Western Australian Mining Act 1978 ("WA Mining Act") and the Northern Territory of Australia Mining Act 1980 ("NT Mining Act") in respect of the Tenements have been paid, unless otherwise noted in the Schedule;
- all expenditure requirements under the WA Mining Act and the NT Mining Act have been met or exemptions obtained unless otherwise noted in the Schedule;
- Tenements granted since 23 December 1993 are valid assuming the applicable processes prescribed by the Native Title Act 1993 (Cth) (NTA) were complied with by the State and Territory Governments (which we have not checked). The valid grant of any of the current applications for Tenements which may affect native title will require compliance with the applicable processes of the NTA.

### 3 TENEMENTS

The Tenements comprise exploration licences and Mineral Leases granted or applied for under the WA Mining Act and the NT Mining Act.

#### GENERALLY APPLICABLE CONDITIONS

Mining tenements are granted subject to various conditions prescribed by the Mining Act, including payment of rent, compliance with minimum expenditure and reporting requirements.

Certain conditions that apply to one or more of the Tenements include standard environmental conditions. Tenements are also subject to statutory requirements of certain other Acts including Aboriginal Heritage legislation, environmental legislation, eg. emission and rights in relation legislation. These standard conditions are not detailed in this report or the Schedule.

## SPECIFIC CONDITIONS

Specific conditions applicable to the individual Tenements are detailed in the notes to the Schedule.

## ENCUMBRANCES

Encumbrances and caveats applicable to the individual Tenements are mentioned in the notes to the Schedule.

## 4 ABORIGINAL SITES

Tenements in Western Australia are granted subject to an endorsement reminding the tenement holder of its obligation to comply with the requirements of the *Aboriginal Heritage Act 1972 (WA)* (**Heritage Act**).

Tenements in the Northern Territory are granted subject to the provisions of the *Northern Territory Aboriginal Sacred Sites Act 1978 (NT)* (the "**NT Heritage Act**")

The Heritage Act protects sites and areas of significance to Aboriginal persons. The Minister's consent is required where any use of land is likely to result in the excavation or other alteration of or damage to an Aboriginal site or any objects on or under that site.

There is no requirement for a site to be registered in any public manner or, indeed, be in any way acknowledged as an Aboriginal site for it to qualify as an Aboriginal site for the purposes of the Heritage Act. A register of sites is maintained by the Aboriginal Affairs Department of Western Australia. The Heritage Act applies to all Aboriginal sites and objects whether or not they are registered under the Heritage Act. For that reason, we have not conducted a search of that register for the purposes of this report.

A practical method of minimising the danger of unintentional disturbance of a site, is to undertake Aboriginal heritage surveys with local Aboriginal communities before the commencement of land disturbing activities. This is an informal process because the Heritage Act does not actually prescribe a mechanism for identifying Aboriginal sites. We are not aware of any heritage surveys of the land the subject of the Tenements having been conducted to date.

The NT Heritage Act defines a sacred site as a site that is sacred to Aboriginals or otherwise of significance according to the Aboriginal tradition. The NT Heritage Act established the Aboriginal Areas Protection Authority ('AAPA') which is empowered to establish and maintain a register of sacred sites. Sacred Sites will only be recored by the AAPA if so requested by the custodian or where the Authority has itself identified a sacred site as a result of its own previous work in the area.

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)* (**Heritage Protection Act**) also affords some protection to Aboriginal sites in Western Australia. It allows declarations to be made which protect or preserve objects or areas which are of significance to Aboriginals, whether situated on private or Crown land.

Two types of declarations may be made in relation to significant Aboriginal objects or Aboriginal areas (being objects or areas of significance to Aboriginals in accordance with Aboriginal tradition) under the Heritage Protection Act.

- (a) emergency declarations of preservation which remain in force for a maximum of 60 days; and
- (b) declarations of preservation (which remain in force for the terms specified in the declarations).

Before making a prominent declaration in relation to an area, the Minister for Aboriginal Affairs must commission a report on the area, which addresses specific matters such as the significance of the area, the extent of the area to be protected and the effects of the declaration on any non-Aboriginal interests in the land. Compensation is payable by the Minister for Aboriginal Affairs to a person who is, or is likely to be affected by a permanent declaration of preservation.

It is an offence to contravene a declaration made under the Heritage Protection Act.

In respect of these sites and any other sites identified on any of the Tenements, the Company needs to ensure that any interference with such sites is in strict conformity with the provisions of the Heritage Act, the NT Heritage Act and the Heritage Protection Act.

## 5 NATIVE TITLE – MABO AND NATIVE TITLE LEGISLATION

On 3 June 1992, the High Court of Australia held in *Mabo v. Queensland (no.2)* (1992) 175 CLR 1 that the common law of Australia recognises a form of native title. In order to succeed in a native title claim the persons making such claim must show that they enjoy certain customary rights and privileges in respect of a particular area of land and that by these rights and privileges they have a connection with that land. Such a claim will not be recognised if the native title has been extinguished, either by voluntary surrender to the Crown, death of the last survivor of a community entitled to native title, abandonment of the land in question by that community or the granting of a wholly "inconsistent interest" in the land by the Crown. An example of an inconsistent interest would be the granting of a freehold or some type of exclusive possession

leasehold interest in the land. The granting of a lesser form of interest not conferring exclusive possession will not extinguish native title as it would not be wholly inconsistent with native title rights and interests.

The *Racial Discrimination Act 1975 (Cth)* (RDA) enacted by the Federal Parliament is binding on the State of Western Australia, and generally makes racial discrimination unlawful.

The Commonwealth Parliament responded to the Mabo decision by passing NTA. This Act enabled a State Parliament to validate any mining tenements granted prior to its commencement which might otherwise have been invalid by reason of the RDA. NTA was extensively amended by the *Native Title Amendment Act 1998 (Cth)*. These amendments include the ability of a State Parliament to validate any titles which may have been invalidly granted over pastoral leases and certain other leasehold interests during the period 1 January 1994 to 23 December 1996. The State of Western Australia has enacted the validating legislation contemplated by the NTA: the *Titles (Validation) and Native Title (Effect of Past Acts) Act 1995 as amended by the Titles (Validation) and Native Title (Effect of Past Acts) Amendment Act 1999*.

## 6 NATIVE TITLE – NATIVE TITLE CLAIMS

Persons claiming to hold native title may lodge an application for determination of native title with the Federal Court. The Court will then refer the application to the Native Title Registrar for the registration test.

If the Native Title Registrar is satisfied that the lodged claim meets the registration requirements set out in the NTA (Registration Test), it will be entered on the Register of Native Title Claims maintained by the National Native Title Tribunal (Register). Claimants of registered claims are afforded certain procedural rights under the NTA including the "right to negotiate".

Claims which fail to meet the Registration Test are recorded on the Schedule of Applications Received. Such claims may be entered on the Register at a later date if additional information is provided by the claimant that satisfies the Registration Test.

Some of the Tenements relate to land which is currently the subject of one or more registered native title claims. These claims are identified in the Schedule. If native title is found to exist, the nature of the native title may be such that consent to the grant of a mining tenement may be required by the native title holders but is withheld or only granted on conditions unacceptable to the Company.

We have not undertaken the considerable historical, anthropological and ethnographic work that would be required to determine the likelihood that existing claims may be successful, or the possibility of any further native title claims being made in the future.

In any event, the existence of native title is not the relevant issue for the Company. The relevant issue is the existence of a registered native title claim. That effectively requires the Company to observe the provisions of the NTA in proceeding with its applications for Tenements. The reason for this is that an act which affects native title rights such as the grant of a mining tenement may be invalid unless there has been compliance with the provisions of the NTA. Until the native title claim has been determined by the Federal Court the existence of native title will be uncertain. Prudence dictates that native title should be assumed to exist over all claimed land other than freehold, "exclusive possession" leasehold or vested reserve until the claim has been determined.

## 7 NATIVE TITLE – VALIDITY OF TITLES

### TENEMENTS GRANTED BEFORE 1 JANUARY 1994

The NTA permits a State or Territory to validate 'past acts'. Under the NTA mining tenements granted in the Northern Territory prior to 1 January 1994 are deemed to be valid. The following Tenement was granted prior to 1 January 1994 and thus has been validated by the NTA and Territory legislation:

MIN 654

### TENEMENTS GRANTED BETWEEN 1 JANUARY 1994 AND 23 DECEMBER 1996

The company has no tenements that were granted during this period.

### TENEMENTS GRANTED SINCE 23 DECEMBER 1996

Mining tenements granted since 23 December 1996 may be invalid if they were granted over (and other than) freehold, "exclusive possession" leasehold or vested reserve and the applicable processes prescribed by the NTA have not been complied with. We understand that it has been the practice of the State and Territory Governments since 23 December 1996 to comply with these processes subject to certain cases where the Minister granted mining tenements over enclosed or unenclosed pastures and/or other land. The Minister has stated that the NTA does not apply to such land and that the granting of such tenements is not subject to the NTA.

The following Tenements have been granted since 23 December 1996. We have not undertaken any independent enquiries to confirm whether the applicable processes prescribed by the NTA were complied with by the State and Territory Governments:

E04/1344 (WA) EL 10121 (NT)

#### FUTURE TENEMENT GRANTS

The valid grant of any of the current applications for Tenements which may affect native title requires compliance with the provisions of the NTA.

The NTA regulates all future actions (such as the grant of a mining tenement) which affect native title rights. These actions are known as "future acts". A future act will be valid if it falls within one of a number of categories of land dealings specified in the NTA provided that there is compliance with the applicable procedural requirements: NTA Part 2, Division 3, Subdivisions B-P.

So, if the grant of any of the current applications for Tenements affects native title, the grant will be a future act and will be valid only if there has been compliance with the relevant requirements of the NTA. In order to determine whether the grant of any of the current applications will affect native title, a determination must be made as to whether native title exists in the area. This will require a hearing by the Federal Court (or a consent determination) as to the existence of native title, which could take years. However, in the interim, the validity of the grant of the current applications for Tenements can be assured if the State and the Company comply with the requirements of the NTA on the assumption that native title does in fact exist in the area.

The following tenements are current applications:

ELA04/1424, ELA04/1425, ELA08/1374, ELA08/1391, ELA08/1392, ELA08/1403, ELA08/1409, ELA09/1111, ELA09/1138, ELA09/1139, ELA09/1140, ELA52/1697, ELA52/1698, ELA52/1699, ELA52/1715.

## 8 QUALIFICATIONS

While the status of the Tenements is dealt with in the Schedule and the notes to the Schedule, we point out, by way of summary, that:

- (a) we have assumed the accuracy and completeness of all Tenement searches and other information or responses which were obtained from the relevant Department or authority. We cannot comment on any obligations of the Company that may arise from agreements that are not registered as a dealing, encumbrance or otherwise noted on the searches of the Tenements obtained from the DIR or DBIRD;
- (b) the holding of the Tenements is subject to compliance with the terms and conditions and the provisions of the WA Mining Act and the NT Mining Act;
- (c) we have assumed the accuracy and completeness of any instructions or information which we have received from the Company or any of its officers, agents and representatives;
- (d) with respect to any application for the grant of a Tenement, we express no opinion as to whether such application will ultimately be granted and that reasonable conditions will be imposed upon grant, although we have no reason to believe that any application will be refused or that unreasonable conditions will be imposed;
- (e) where compliance with the requirements necessary to maintain a Tenement in good standing is not disclosed on the face of the searches referred to in this report, we express no opinion on such compliance;
- (f) references in the Schedule to any area of land are taken from details shown on searches obtained from the DIR and DBIRD. It is not possible to verify the accuracy of those areas without conducting a survey;
- (g) the Schedule is accurate as at 8th January 2004 as it is based on searches and quick appraisals from the DIR and DBIRD at that date. We cannot comment on whether any changes have occurred in respect of the Tenements between 8th January 2004 and the date of the Prospectus.

Yours faithfully



Shannon McMahon

# REPORT ON TENEMENTS

70

REPORT ON TENEMENTS

| TENEMENT | HOLDER / APPLICANT | SHARES<br>HELD | GRANT DATE<br>(APPLICATION<br>DATE) | EXPIRY DATE | AREASIZE |
|----------|--------------------|----------------|-------------------------------------|-------------|----------|
|----------|--------------------|----------------|-------------------------------------|-------------|----------|

## DOOLGUNNA PROJECT

|            |                          |         |           |    |               |
|------------|--------------------------|---------|-----------|----|---------------|
| ELA52/1697 | FAUSTUS NOMINEES PTY LTD | 100/100 | (16/5/03) | NA | 23 Sub-Blocks |
| ELA52/1698 | FAUSTUS NOMINEES PTY LTD | 100/100 | (16/5/03) | NA | 28 Sub-Blocks |
| ELA52/1699 | FAUSTUS NOMINEES PTY LTD | 100/100 | (16/5/03) | NA | 54 Sub-Blocks |
| ELA52/1715 | FAUSTUS NOMINEES PTY LTD | 100/100 | (23/9/03) | NA | 56 Sub-Blocks |

## YANDARRIE PROJECT

|            |                                     |         |            |    |               |
|------------|-------------------------------------|---------|------------|----|---------------|
| ELA08/1574 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | (23/10/02) | NA | 70 Sub-Blocks |
| ELA08/1409 | FAUSTUS NOMINEES PTY LTD            | 100/100 | (9/5/03)   | NA | 52 Sub-Blocks |
| ELA09/1111 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | (23/10/02) | NA | 70 Sub-Blocks |

## MT AUGUSTUS PROJECT

|            |                          |         |           |    |               |
|------------|--------------------------|---------|-----------|----|---------------|
| ELA09/1138 | FAUSTUS NOMINEES PTY LTD | 100/100 | (11/9/03) | NA | 50 Sub-Blocks |
| ELA09/1139 | FAUSTUS NOMINEES PTY LTD | 100/100 | (11/9/03) | NA | 70 Sub-Blocks |
| ELA09/1140 | FAUSTUS NOMINEES PTY LTD | 100/100 | (11/9/03) | NA | 70 Sub-Blocks |

## URANDY PROJECT

|            |                          |         |           |    |               |
|------------|--------------------------|---------|-----------|----|---------------|
| ELA08/1391 | FAUSTUS NOMINEES PTY LTD | 100/100 | (6/5/03)  | NA | 36 Sub-Blocks |
| ELA08/1392 | FAUSTUS NOMINEES PTY LTD | 100/100 | (6/5/03)  | NA | 39 Sub-Blocks |
| ELA08/1403 | FAUSTUS NOMINEES PTY LTD | 100/100 | (13/5/03) | NA | 48 Sub-Blocks |

## SANDFIRE PROJECT

|            |                                     |         |            |          |               |
|------------|-------------------------------------|---------|------------|----------|---------------|
| ELA04/1244 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | 20/10/03   | 18/10/08 | 70 Sub-Blocks |
| ELA04/1424 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | (13/10/03) | NA       | 69 Sub-Blocks |
| ELA04/1425 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | (13/10/03) | NA       | 69 Sub-Blocks |

## BORROLOOLA PROJECT

|            |                                     |         |            |          |               |
|------------|-------------------------------------|---------|------------|----------|---------------|
| ELA04/1244 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | 20/10/03   | 18/10/08 | 70 Sub-Blocks |
| ELA04/1424 | RESOURCE DEVELOPMENT<br>CO. PTY LTD | 100/100 | (13/10/03) | NA       | 69 Sub-Blocks |

| ANNUAL RENT<br>(NEXT RENTAL<br>YEAR) | MINIMUM<br>ANNUAL<br>EXPENDITURE | ENCUMBRANCES | NOTES                  | NATIVE TITLE CLAIMS                                                                                                                              |
|--------------------------------------|----------------------------------|--------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| NA                                   | Not yet required                 | NIL          |                        | WC99/046 Yugunga Nya, WC03/002 Gingirana,<br>ARB/11 Central Desert A.R.B.                                                                        |
| NA                                   | Not yet required                 | NIL          |                        | WC99/046 Yugunga Nya,<br>ARB/11 Central Desert A.R.B.                                                                                            |
| NA                                   | Not yet required                 | NIL          |                        | WC99/046 Yugunga Nya, WC03/002 Gingirana,<br>ARB/11 Central Desert A.R.B., ARRB/14 Geraldton A.R.B.,<br>NTA/1, Ilua Wia2000/001 Nharnuwangga Waj |
| NA                                   | Not yet required                 | NIL          |                        | WC99/046 Yugunga Nya, ARB/11 Central Desert A.R.B.,<br>ARRB/14 Geraldton A.R.B., NTA/1, Ilua Wia2000/001<br>Nharnuwangga Waj                     |
| NA                                   | Not yet required                 | NIL          |                        | WC97/95 Thudgari,<br>ARB/14 Geraldton A.R.B., ARB/12, Pilbara A.R.B.                                                                             |
| NA                                   | Not yet required                 | NIL          |                        | ARB/14 Geraldton A.R.B., ARB/12, Pilbara A.R.B.                                                                                                  |
| NA                                   | Not yet required                 | NIL          |                        | WC97/95 Thudgari, WC97/28 Gnulli,<br>ARB/14 Geraldton A.R.B., ARB/12, Pilbara A.R.B.                                                             |
| NA                                   | Not yet required                 | NIL          |                        | WC97/28 Gnulli, ARB/14 Geraldton A.R.B.                                                                                                          |
| NA                                   | Not yet required                 | NIL          |                        | WC97/28 Gnulli, WC01/003 Wajarri Elders,<br>ARB/14 Geraldton A.R.B.                                                                              |
| NA                                   | Not yet required                 | NIL          |                        | WC01/003 Wajarri Elders, ARB/14 Geraldton A.R.B.                                                                                                 |
| NA                                   | Not yet required                 | NIL          |                        | WC99/045 Thalanyji, WC99/012 Kururma Marhudun,<br>ARB/12, Pilbara A.R.B.                                                                         |
| NA                                   | Not yet required                 | NIL          |                        | WC99/045 Thalanyji, WC99/012 Kururma Marhudun,<br>WC01/005 Puutu Kunti Kurr, ARB/12, Pilbara A.R.B.                                              |
| NA                                   | Not yet required                 | NIL          |                        | WC99/045 Thalanyji, WC99/012 Kururma Marhudun,<br>WC01/005 Puutu Kunti Kurr, ARB/12, Pilbara A.R.B.                                              |
| \$6,729.80                           | \$63,000                         | NIL          | 1, 2, 3,<br>4, 5, 6, 7 | WC00/002 Karajarri,<br>ARB/10 Kimberley A.R.B.                                                                                                   |
| NA                                   | Not yet required                 | NIL          |                        | WC00/002 Karajarri,<br>ARB/10 Kimberley A.R.B.                                                                                                   |
| NA                                   | Not yet required                 | NIL          |                        | WC00/002 Karajarri, ARB/10 Kimberley A.R.B.                                                                                                      |
| \$55.00                              | \$4,000                          | NIL          |                        | DC00/29 Billengarra                                                                                                                              |
| \$187.00                             | Not applicable                   |              |                        | DC00/29 Billengarra                                                                                                                              |

# REPORT ON TENEMENTS

72

REPORT ON TENEMENTS

The following abbreviations are referred to in the Schedule.

E means Exploration Licence

EL means Exploration Licence

ELA means Exploration Licence Application

MLN means Mineral Lease Northern

## NOTES

- 1 The Licensee's attention is drawn to the provisions of the Aboriginal Heritage Act, 1972.
- 2 No interference with Geodetic Survey Station La Grange 11 & 12 and mining within 15 metres thereof being confined to below a depth of 15 metres from the natural surface.
- 3 No interference with the use of the Aerial Landing Ground and mining thereon being confined to below a depth of 15 metres from the natural surface.
- 4 No excavation, excepting shafts, approaching closer to the Great Northern Highway, Highway verge or the road reserve than a distance equal to twice the depth of the excavation and mining on the Great Northern Highway or Highway verge being confined to below a depth of 15 metres from the natural surface.
- 5 The prior written consent of the Minister for State Development being obtained before commencing mining on Microwave Translator Site Reserve 38984.
- 6 No interference with the optic fibre cable or the installations in connection therewith, and the rights of ingress to and egress from the facility being at all times preserved to the owners thereof.
- 7 Consent to mine on Stock Route Reserve 9697 granted subject to: No mining operations being carried out on Stock Route Reserve 9697 which restrict the use of the reserves.

# SUMMARY OF MATERIAL AGREEMENTS

The Company has entered into a number of contracts some of which (**Material Contracts**) the directors regard as being material for disclosure. By subscribing for Shares under this prospectus, you will be deemed to have approved the entering into of these contracts. Details of the Material Contracts, to the extent relevantly material for disclosure purposes and not disclosed elsewhere in this prospectus, appear below.

## BORROLOOLA SALE AGREEMENT

A sale agreement between Robert Michael Biddlecombe (RMB) and Biddlecombe Pty Ltd (BPL) as vendors and Sandfire whereby:

- a) RMB, as the registered holder, beneficial owner and vendor of Mining Lease 624 (ML), and BPL, as registered holder, beneficial owner and vendor of Exploration Licence 10121 (EL), agreed to sell and Sandfire agreed to purchase the ML and the EL (collectively the **Tenements**);
- b) Sandfire agreed to (and in fact did) pay BPL the sum of \$20,000 within 14 Business Days of execution of the agreement;
- c) the Tenements are to be transferred to Sandfire within 20 Business Days of the date of satisfaction of the conditions to which the agreement is subject;
- d) in exchange for transfers of the Tenements, Sandfire will issue 1,000,000 Contributing Shares to BPL;
- e) the vendors acknowledge that these Contributing Shares will be restricted securities if and for so long as ASX determines and Sandfire covenants not to call any amount in respect of the shares prior to the expiry of 12 months from the date they cease to be subject to the restricted security provisions;
- f) the vendors agree to enter into Restriction Agreements as required by ASX;
- g) the vendors agree (in addition to any requirements of ASX) not to transfer any of the Contributing Shares within 12 months of the date of their issue except to investors to whom disclosure would not be required under Parts 6D.2 of Chapter 6D of the Corporations Act by reason of Section 708 of that Act;
- h) Sandfire will pay BPL a royalty at the rate of 0.8% of gross revenue received by or on behalf of Sandfire from the sale of minerals extracted from the Tenements.

The conditions to which the agreement is subject are that by 31 December 2004: (a) Sandfire must be admitted to the Official List of ASX; (b) the Minister responsible for administering the Mining Act 1990 (Northern Territory) (the Tenements are subject to that Act) must approve the sale of the Tenements to Sandfire pursuant to the agreement.

## MANAGER TO THE OFFER AGREEMENT

Southern Cross Equities has agreed to manage the Offer on a best endeavours basis for a fee equal to 6% (exclusive of GST) of the funds raised and the issue to it (or its nominees) of 3 million options (**Broker Options**) exercisable at 25 cents each on or before 31 December 2008. Montagu Stockbrokers has agreed with Southern Cross Equities to act as sponsoring broker to the Offer for a fee equal to 5% (exclusive of GST) of the funds raised pursuant to applications procured by Montagu Stockbrokers and the issue to it (or its nominees) of 1 million Broker Options. For the sake of clarity, the Company will pay a total of 6% (exclusive of GST) of the funds raised and will issue a total of 3 million Broker Options.

## AGREEMENTS WITH PROMOTERS

The effect of certain deeds variously made between all or some of the Promoters and Sandfire and a deed made by the Promoters in favour of and enforceable by Sandfire is that:

- a) the Promoters have confirmed that:
  - i) the applications for Exploration Licences (ELAs) and the granted Western Australian Exploration Licence (EL) (the ELAs and the EL collectively being referred to as the **Tenements** which references include reference to tenements granted pursuant to the ELAs) detailed in the schedule to the *Report on Tenements* are and at all times have been held in trust for Sandfire; and
  - ii) the holder of the EL and applicants for the ELAs will deal with the Tenements in the manner directed by Sandfire from time to time;
- b) Sandfire will, on demand being made after the Listing Date, reimburse the Promoters' costs (but free of interest) of acting as trustees of the Tenements to the extent those costs were or are incurred with Sandfire's approval (**Reimbursement**);
- c) it is acknowledged that (by force of section 64 (1)(b) the Mining Act of Western Australia) ministerial consent is required if an exploration licence is to be transferred or otherwise dealt with within 12 months of it being granted; and to the extent any provision of any of the deeds might otherwise be construed to effect a transfer or other dealing in any interest in the Tenements within 12 months of the date of their grant contrary to the provisions of the Mining Act then:

- i) such provision is subject to and conditional upon all approvals, consents, registrations or authorisations may be required by the Mining Act to enable the Tenements to be dealt with in that manner **PROVIDED THAT** while each such provision, if any, remains subject to this condition the obligations of the parties as between themselves shall not be suspended except to the extent where performance of those obligations would be an illegal act or would result in any of the Tenements being jeopardised; and

- ii) to the extent that consent as contemplated by Section 64(1)(b) of the Mining Act is not forthcoming during the first year of the term of a Tenement then the deeds (and any transfer delivered to Sandfire pursuant to the terms of the deeds) shall ~~only be effective to constitute a dealing in a legal or equitable interest in that Tenement following the expiry of the first year of the term of the Tenement~~

As at the date of this prospectus, costs approved as Reimbursements totalled approximately \$364,492 and relate to payments to third parties unrelated to either the Promoters or Sandfire. In addition, the Promoters have advanced an additional \$50,000 (to be treated as a Reimbursement to the Company to enable the Company to make payments to third parties unrelated to either the Promoters or Sandfire.

#### SUBSCRIPTION AGREEMENTS

Pursuant to the subscription agreements under which the Contributing Shares have been or will be issued (other than those to be issued under the Borrowing Sale Agreement), the subscribers for those shares agreed:

- a) to enter into Restriction Agreements as required by ASX;
- b) and the Company has agreed to use reasonable efforts to cause the Contributing Shares to be listed within 24 months of Sandfire listing on ASX; and
- c) (in addition to any requirements of ASX) not to transfer any of the Contributing Shares within 12 months of the date of their issue except to investors to whom disclosure would not be required under Parts 6D.2 of Chapter 6D of the Corporations Act by reason of Section 708 of that Act.

#### DEEDS OF INDEMNITY, INSURANCE AND ACCESS

The Company has entered into Deeds with each of its directors to:

- a) indemnify (to the maximum extent permitted by law) ~~each director against certain liabilities (including costs, damages and expenses) incurred in the capacity of a~~
- b) maintain directors' and officers' insurance in favour of each director whilst he is a director of the Company and for a period of seven (7) years after he ceases to be a director of the Company; and
- c) allow each director to inspect and, if necessary, make copies of all Company records that are in any way relevant to the director's holding of office as a director of the Company or any proceedings to which the director is involved because he is, or was, an officer of the Company.

The Board considers that an investment in the Shares the subject of this prospectus is speculative due to the nature of the Company's business. The Board recommends that potential applicants consider the risks described below and information contained elsewhere in this prospectus, as well as consult with their professional advisors, before deciding whether or not to apply for the Shares.

The following is a non-exhaustive list of the risks that may have a material effect on the financial position and performance of the Company and the value of its securities, as well as the Company's exploration, development and mining activities, and ability to fund those activities.

#### **GENERAL, ECONOMIC AND POLITICAL CONDITIONS**

The value of the Company's securities are likely to fluctuate depending on various factors such as inflation and interest rates, domestic and international economic growth, taxation policies, legislative change, political stability, mining industry conditions, stock market conditions in Australia and elsewhere, changes in investor sentiment towards particular market sectors, and acts of terrorism.

#### **NATIVE TITLE AND ABORIGINAL HERITAGE**

Native title legally recognises the unique title rights of indigenous Australians over areas where those rights have not been lawfully extinguished. State and Commonwealth native title legislation regulates the recognition, application and protection of native title. Native title may affect the status, renewal and conversion of existing tenements and the granting of new tenements. Indigenous land use agreements, including terms of compensation, may need to be negotiated with affected parties.

There may be sites and objects of significance to indigenous Australians located on the land relating to the Company's tenements. State and Commonwealth Aboriginal heritage legislation aims to preserve and protect these sites and objects from use in a manner inconsistent with Aboriginal tradition. Aboriginal heritage may restrict access to the affected land and result in the preclusion of any exploration or mining activities in that area. Access agreements may need to be negotiated with affected parties.

It is not possible to quantify the financial or other impact (if any) of native claim or Aboriginal heritage upon the Company. See *Report on Tenements* for further details.

#### **TENEMENTS AND GOVERNMENT DUTIES**

The Company's tenements are located in Western Australian and the Northern Territory, and as such, are subject to differing legislative requirements with respect to the processes for application, grant, conversion and renewal. Tenements are also subject to the payment of annual rent and the meeting of minimum annual expenditure commitments. There is no guarantee that any applications, conversions or renewals for the Company's tenements will be granted. The inability of the Company to meet rent and expenditure requirements may adversely affect the standing of its tenements. See *Report on Tenements* for further details.

Moreover, although the Company considers that its legal liability to pay stamp duty is not (and should not be) material, there is an inherent risk that the relevant revenue departments may not share the same view, which could result in the Company either being required to pay significant stamp duties or choosing to rescind the relevant agreements. This is particularly relevant for tenements which were applied for on trust by the Promoters for the Company but prior to the Company's incorporation.

#### **RELIANCE ON KEY PERSONNEL**

The Company's success largely depends on the core competencies of its directors and management, their familiarisation with and ability to operate in the metals and mining industry and the Company's projects. In its initial stages, the Company will rely heavily upon Mr Graeme Hutton and Mr Gregory Steemson. The loss of one or both of these persons, or other key persons or consultants, could have a materially adverse effect on the Company.

#### **COMMODITY AND CURRENCY PRICE VOLATILITY**

Commodity prices inherently fluctuate and are affected by numerous factors beyond the control of the Company, including global and regional demand for and supply of a particular commodity, forward selling by producers and the level of production costs in major commodity-producing regions. Moreover, commodity prices are also affected by macroeconomic factors such as expectations regarding inflation and interest rates. Commodities are principally sold throughout the world in US dollars.

As a result, any significant and/or sustained fluctuations in the exchange rate between the Australian and US dollars, and/or adverse movements in commodity prices (in particular, precious and base metals), could have a materially adverse effect on the Company's financial position and performance. The Company may undertake measures where deemed necessary by the Board to mitigate such risks.

#### **EXPLORATION**

Exploration, by its nature, contains elements of significant risk. Ultimate success depends on the establishment of an efficient exploratory operation, obtaining of necessary government, statutory and other approvals and discovery and delineation of economically recoverable mineral resources. The exploration activities of the Company may be affected by a number of factors including, but not limited to, geological conditions, seasonal weather patterns, technical difficulties and failures, availability of the necessary technical equipment and appropriately skilled and experienced technicians, adverse changes in government policy or legislation and access to the required level of funding.

There can be no assurances that the Company's current or future exploration activities will result in the discovery of mineral resources. Even if a mineral resource is identified, there can be no guarantee that it can be economically exploited.

## DEVELOPMENT AND MINING

For the future development of a mining operation, any of the Company's projects is dependent on a number of factors including, but not limited to, the acquisition and/or delineation of economically recoverable mineral resources, favourable geological conditions, receiving the necessary approvals from all relevant authorities and parties, seasonal weather patterns, unanticipated technical and operational difficulties encountered in extraction and production activities, mechanical failure of operating plant and equipment, unexpected shortages or increases in the price of consumables, spare parts and plant and equipment, cost overruns, access to the required level of funding and contracting risk from third parties providing essential services.

In the event that the Company commences production, its operations may be disrupted by a variety of risks and hazards which can occur in the course of its operations. These hazards include, but are not limited to, industrial accidents, technical failures, labour disputes, unusual or unexpected rock formations, flooding and extended interruptions due to inclement or hazardous weather conditions and fires, explosions and other accidents. No assurance can be given that the Company will achieve commercial viability through the development and/or mining of its projects.

## ENVIRONMENT

The Company's projects are subject to Australian State and Commonwealth laws and regulations regarding environmental matters and the discharge of hazardous wastes and materials. As with all exploration and mining projects, the Company's projects are expected to have a variety of environmental impacts should development proceed. The Company intends to conduct its activities in an environmentally responsible manner and in accordance with all applicable laws and regulations.

## SHORTAGE OF CAPITAL

The funds raised by the Offer will be used to carry out the Company's objectives as detailed in this prospectus. However, the Company will require additional capital to fund further exploration of the Company's existing projects, undertake feasibility studies, develop mining operations, meet its future obligations and/or acquire new projects. In particular, if the Board does not accept oversubscriptions, the Company will need to raise additional funds should it wish to complete Year 2 of the proposed exploration expenditures (which are set out in more detail in the *Independent Geologist's Report*). The Company's ability to raise further capital, either equity or debt, within an acceptable time, of sufficient quantum and on terms acceptable to the Company will vary according to a number of factors, including:

- a) perspective of projects (existing and/or future);
- b) the results of the Company's exploration and development activities; and
- c) stock market and industry conditions; and
- d) the price of relevant commodities and exchange rates.

No assurance can be given that future funding will be available to the Company on favourable terms, or at all. If adequate funds are not available on acceptable terms the Company may not be able to further develop its projects or assume further obligations in the future.

## INTERESTS, FEES AND BENEFITS

The information set out below and elsewhere in this prospectus is provided for the purposes of section 711 of the Corporations Act.

- a) Mr Thomas has a relevant interest in 400,000 Shares and 1 million Contributing Shares.
- b) Smyth & Thomas, of which Mr Thomas is principal, has been (or will be) paid a fee of approximately \$25,000 (exclusive of GST) for preparing various contracts and the *Summary of Material Agreements* section of this prospectus, providing compliance advice in relation to this prospectus, participating in the due diligence process and for providing other professional services in relation to this prospectus and the listing of the Company. Mr Thomas will also receive director fees of \$50,000 per annum for acting as Chairman of the Company.
- c) Mr Steemson has a relevant interest in 1.35 million Shares.
- d) By an agreement between Mr Steemson and Sandfire, the Company has procured the services of Mr Steemson as Managing Director at an annual cost of approximately \$165,000 (inclusive of superannuation). Mr Steemson will not receive any director fees in addition to this amount and is entitled to 8 weeks annual leave per annum.
- e) Collectively, the Promoters will have a total relevant interest in 12,000,000 Shares upon Completion of the Offer. The final proportions of those Shares to be held by each Promoter will be the same proportion as the amount owed by the Company to the relevant Promoter as a percentage of the total amounts owing to the Promoters collectively just prior to Completion of the Offer. These amounts owed to the Promoters are for amounts paid on behalf of Sandfire by the Promoters for payments to third parties unrelated to either the Promoters or Sandfire and for amounts advanced to Sandfire by the Promoters to enable Sandfire to make payments to third parties unrelated to either the Promoters or Sandfire. See *Summary of Material Agreements - Agreements with Promoters* for further details with respect to the interests of the Promoters.
- f) Faustus (a Promoter of the Company and an entity associated with Mr Hutton), is owed approximately \$194,746 by the Company as at the date of this prospectus and may advance additional funds to the Company prior to Completing the Offer. Based on the amount owing as at the date of this prospectus, Mr Hutton and Faustus would have a relevant interest in 5,638,111 Shares. By an agreement between Mr Hutton and Sandfire, the Company has also procured the services of Mr Hutton as Technical Director at an annual cost of \$100,000 (inclusive of superannuation), which is split into \$25,000 in director fees and \$75,000 in retainer services.
- g) RDC (a Promoter of the Company) is owed approximately \$194,746 by the Company as at the date of this prospectus and may advance additional funds to the Company prior to Completing the Offer. Based on the amount owing as at the date of this prospectus, RDC would have a relevant interest in 5,638,111 Shares. RDC will also receive service fees of \$36,000 per annum for providing, general corporate, management, administrative, financial, secretarial, and office services to the Company (including certain offices and facilities).
- h) Weybridge Pty Ltd (a Promoter of the Company) is owed \$25,000 by the Company as at the date of this prospectus and, based on this amount, would have a relevant interest in 723,778 Shares. See *Summary of Material Agreements - Agreements with Promoters* for further details.
- i) Southern Cross Equities has agreed to act as Manager to the Offer and will be paid the fees disclosed in the *Summary of Material Agreements - Manager to the Offer Agreement* section of this prospectus.
- j) Montagu Stockbrokers has agreed to act as Sponsoring Broker to the Offer and will be paid the fees disclosed in the *Summary of Material Agreements - Manager to the Offer Agreement* section of this prospectus.
- k) ACM Corporate Pty Ltd has been (or will be) paid a fee of approximately \$50,000 (exclusive of GST) for acting as float co-ordinator and for providing other professional services in relation to the Offer.
- l) K. Fox & Associates has been (or will be) paid a fee (including disbursements) of approximately \$40,000 (exclusive of GST) for preparing the *Independent Geologist's Report* section of this prospectus.
- m) Somes & Cooke has been (or will be) paid a fee of approximately \$10,000 (exclusive of GST) for preparing the *Independent Accountant's Report* section of this prospectus has been (or will be) paid a fee of approximately \$10,000 for providing other accounting services to the Company. The Company has agreed to indemnify Somes & Cooke from all claims arising in respect of their involvement in preparing the report for inclusion in this prospectus to the extent that liability arises as a consequence of any information being provided by or on behalf of the Company to Somes & Cooke being misleading, deceptive or false or to the extent that the Company fails to disclose information which is reasonable in all the circumstances to expect would have been disclosed to Somes & Cooke to enable them to prepare the report.
- n) McMahon Mining Title Services Pty Ltd has been (or will be) paid a fee of approximately \$2,000 (exclusive of GST) for preparing the *Report on Tenements* section of this prospectus.

## ADDITIONAL INFORMATION

78

ADDITIONAL INFORMATION

Subject to the Corporations Act and the Listing Rules, the Company may pay to the directors a maximum total amount of directors' fees (excluding salaries and other employee benefits) determined by the Company in general meeting or until so determined, as the Board resolves. The Board may also determine the manner in which the directors' fees are divided between them, and until so determined, the amount is to be divided between the directors equally.

Prior to lodgement of this prospectus, the Company's shareholders resolved that, in accordance with the Constitution, the annual aggregate fees payable to directors (as directors) shall be the product of \$24,000 multiplied by the weighted average number of directors for that year, plus \$26,000 per annum (as an additional allowance for the Chairman), to be distributed amongst the directors as they determine from time to time and, in the absence of agreement, equally. As at the date of this prospectus, none of the directors have received any fees (as directors) or directors' fees due and payable). Directors' fees will accrue as from the date the Company is granted official quotation.

In addition, the Company must pay all reasonable travelling, accommodation and other expenses properly incurred by the directors in attending Board meetings, shareholders' meetings and otherwise in connection with the business of the Company.

### CONSENTS

The following persons have given their written consent to be named in this prospectus and for the inclusion of statements made by those persons (as described below), and have not withdrawn such consent before lodgement of this prospectus with ASIC.

- a) Southern Cross Equities has consented to being named as Manager to the Offer.
- b) Montagu Stockbrokers has consented to being named as Sponsoring Broker to the Offer.
- c) ACM Corporate has consented to being named as Float Co-ordinator and has been involved in the preparation of this prospectus and the due diligence process.
- d) Smyth & Thomas has consented to being named as Solicitors to the Company and the inclusion of its *Summary of Material Agreements* in this prospectus (in the form and context in which they appear) and has been involved in the preparation of this prospectus and the due diligence process.
- e) R. Fox & Associates has consented to being named as Independent Geologist to the Company and the inclusion of its *Independent Geologist's Report* in this prospectus (in the form and context in which it appears).
- f) Sorens & Coekle has consented to being named as Auditor & Independent Accountant to the Company and the inclusion of its *Independent Accountant's Report* in this prospectus (in the form and context in which it appears).

- g) McMahon Mining Title Services Pty Ltd has consented to being named as Tenement Consultant to the Company and the inclusion of its *Report on Tenements* in this prospectus (in the form and context in which it appears).

Other than as disclosed above, none of the abovementioned persons have been involved in the preparation, or authorised or caused the issue, of this prospectus. To the maximum extent permitted by law, each of the persons referred to above expressly disclaims and takes no responsibility for any part of this prospectus other than as disclosed above.

### EXPENSES OF THE OFFER

It is estimated that the expenses of the Offer will comprise approximately \$30,000 in ASX listing fees, \$225,000 in capital raising fees and approximately \$175,000 in other Offer expenses. Additional capital raising fees (6%) will be incurred if the Company accepts oversubscriptions.

### RIGHTS ATTACHING TO SHARES AND CONSTITUTION

All Shares being offered pursuant to this prospectus are fully paid ordinary shares in the capital of the Company and will rank pari passu with existing fully paid ordinary shares on issue. Further details as to the rights and liabilities attaching to the Shares are set out in the Constitution, which has been lodged with ASIC.

The Constitution is deemed to be incorporated by reference into this prospectus in accordance with section 712 of the Corporations Act. A copy of the Constitution can be obtained from the Company's registered office, at no cost, or from ASIC. The Constitution deals with such matters as transfer of shares, alterations of share capital, share buy-backs, disposal of less than a marketable parcel, variation of class rights, meetings of shareholders, polls, appointment and removal of directors, remuneration of directors and the Listing Rules.

### RIGHTS ATTACHING TO CONTRIBUTING SHARES

Contributing Shares will rank pari passu with all Shares on issue, except that:

- a) each Contributing Share:
  - i) is paid to 0.0001 cent;
  - ii) has an amount unpaid of 15 cents;
  - iii) carries the right to participate in new issues of securities to holders of Shares (except bonus issues) on the same basis as holders of Shares;
  - iv) carries the right to participate in bonus issues of securities in the proportion which the amount paid (not credited) bears to the total amounts paid and payable (excluding amounts credited); and
  - v) carries the right to vote in the election of directors and a dividend (not credited) bears to the total amounts paid and payable (excluding amounts credited).

- b) the Company shall not make a call in respect of any amount unpaid on a Contributing Share unless the day on which the call will be payable is on or after 3 years from the date on which the Company is admitted to the Official List of ASX;
- c) holders of Contributing Shares have no obligation to meet a call made by the Company, however, non-payment of a call will result in the forfeiture of the relevant Contributing Shares;
- d) holders of Contributing Shares are permitted to pay up the full amount remaining unpaid at any time (without the Company first being required to make a call), in which case the Contributing Share will become a (fully paid) Share and will rank *pari passu* with all Shares on issue;
- e) if a holder of a Contributing Share tenders part of the amount remaining unpaid on the Contributing Share other than in satisfaction of a call:
  - i) the rights attaching to the Contributing Share will not change (including the amounts paid and unpaid); and
  - ii) the amount tendered will be returned; and
- f) if there is a reorganisation of the issued capital of the Company (including, but not limited to, a consolidation, subdivision, cancellation, reduction or return of capital):
  - i) the number of Contributing Shares must be reorganised in the same proportion as all other classes of shares on issue; and
  - ii) the reorganisation must not involve a cancellation or reduction of the total amount payable and unpaid by holders of Contributing Shares.

#### **CORPORATE GOVERNANCE POLICY**

The Board monitors the business affairs of the Company on behalf of shareholders and has formally adopted a corporate governance policy that is designed to encourage the Board to focus its attention on a wide range of corporate issues. Such issues include remuneration and performance appraisal, management and employees, accountability, strategic planning, risk assessment and management, trading in the Company's securities by the Board and management, information disclosure and ethical conduct. The corporate governance policy was prepared in accordance with the "Principles of Good Corporate Governance and Best Practice Recommendations" released by the ASX Corporate Governance Council in March 2003, to the extent that it is consistent with the objectives of the Company.

#### **DIVIDEND POLICY**

The Company does not yet have a dividend policy. The Company currently has no intention to declare or distribute dividends. The payment of any future dividends will depend upon the future success of the Company's exploration, development and mining activities, profitability and financial position.

#### **NON-RESIDENTS**

This prospectus only constitutes an offer of securities within Australia. Non-Residents should consult with their professional advisors as to whether any formalities need to be observed (either by themselves or the Company) to enable them to subscribe for Shares within Australia. It is the responsibility of Non-Residents to obtain all necessary approvals so that they may legally subscribe for (and be issued) Shares. The return of a completed application form will be taken by the Company to constitute a representation and warranty by the applicant that it has received this Offer within Australia and that the Company may legally issue Shares to the applicant.

# GLOSSARY

80

GLOSSARY

## ASIC

Australian Securities & Investments Commission.

## ASTC

ASX Settlement and Transfer Corporation Pty Limited (ABN 49 008 504 532).

## ASX

Australian Stock Exchange Limited (ABN 98 008 624 691).

## Board

Board of Directors of the Company as constituted from time to time.

## Borrooloola Project

Tenements E110121 & MLN624 in the Northern Territory (see *Report on Tenements for further details*).

## Broker Options

Options to acquire Shares exercisable at 25 cents each on or before 31 December 2008. Refer to *Summary of Material Agreements* for further details.

## CHES

Clearing House Electronic Subregister System.

## Company

Sandfire Resources NL (ABN 55 105 154 185).

## Completion of the Offer

(and other similar phrases): The issue of Shares pursuant to the Offer.

## Constitution

Constitution of the Company as amended from time to time.

## Contributing Share

A partly paid ordinary share in the capital of the Company, the terms of which are set out in *Additional Information - Rights Attaching to Contributing Shares*.

## Corporations Act

Corporations Act 2001.

## Doolgunna

Tenements E52/1697, E52/1698, E52/1699 & E52/1715 in Western Australia (see *Report on Tenements for further details*).

## Faustus

Faustus Nominees Pty Ltd (ACN 100 874 315).

## FSI

Financial Services Institute of Australia.

## Listing Date

Date of commencement of official quotation of the Shares on ASX.

## Listing Rules

Listing Rules of ASX and any other rules of ASX which are applicable while the Company is admitted to the official List, each as amended or replaced from time to time, except to the extent of any express written waiver by ASX.

## Montagu Stockbrokers

Montagu Stockbrokers Pty Ltd (ABN 46 009 368 432).

## Mt Augustus Project

Tenements E09/1138, E09/1139 & E09/1140 in Western Australia (see *Report on Tenements for further details*).

## Non-Residents

Persons domiciled outside Australia.

## Offer

Offer of Shares under this prospectus as per *Details of the Offer - The Offer*.

## Official List

Official list of entities that ASX has admitted and not removed.

## Promoter or Promoters

Either individually or severally (as the case may be) RDC, Faustus and Weybridge Pty Ltd.

## RDC

Resource Development Company Pty Ltd (ACN 063 197 900).

## Sandfire

Sandfire Resources NL (ABN 55 105 154 185).

## Sandfire Project

Tenements E04/1344, E04/1424 & E04/1425 in Western Australia (see *Report on Tenements for further details*).

## Share

Fully paid ordinary share in the capital of the Company.

## Southern Cross Equities

Southern Cross Equities Limited (ABN 87 071 935 442).

## Tenement

Mining or exploration tenement.

## Urandy Project

Tenements E18/1111, E18/1112, E18/1113 & E18/1114 in Western Australia (see *Report on Tenements for further details*).

## WSI

Western Standard Time, Perth, Western Australia.

## Yannarie Project

Tenements E04/1425, E08/1409 & E09/1111 in Western Australia (see *Report on Tenements for further details*).

Please refer to *Independent Geologist's Report - Glossary* for additional definitions with respect to geological terms and abbreviations.



# SANDFIRE RESOURCES

## APPLICATION FORM

Applicants should read this prospectus in its entirety before completing this application form. A person who gives to another person access to this application form must, at the same time and by the same means, give that person access to the prospectus.

NO OF SHARES APPLIED FOR

IDENTIFYING STAMP ONLY

APPLICATION MONIES AT 20 CENTS PER SHARE

TITLE

GIVEN NAMES/COMPANY NAME

SURNAME/ACN

JOINT APPLICANTS OR ACCOUNT DESIGNATION

POSTAL ADDRESS

CITY/TOWN

STATE

POSTCODE

EMAIL ADDRESS

CONTACT NAME

DAYTIME CONTACT NO.

CHESS DETAILS PID

HIN

TAX FILE NO/EXEMPTION CATEGORY

APPLICANT 2

APPLICANT 3

DRAWER

BANK

BRANCH

AMOUNT

\$

\$

### DECLARATION

By lodging this application form and a cheque for the application money the applicant hereby:

- applies for the number of Shares specified in the application form or such lesser number as may be allocated by the Board;
- agrees to be bound by the Constitution of the Company;
- authorises the Board to complete or amend this application form where necessary to correct any errors or omissions; and
- declares that the prospectus has been received (in full) by the applicant and is fully understood and read in its entirety.

**Cheques must be made payable to "Sandfire Resources NL".**

## NOTES

- 1 Enter the number of Shares you wish to apply for. Applications must be for a minimum of 10,000 Shares and thereafter in multiples of 2,500 Shares.
- 2 Enter the total amount of application monies payable. To calculate this amount, multiply the number of Shares you are applying for by the issue price for each Share.
- 3 Enter the full name(s) of all legal entities that are to be recorded as the registered holders.
- 4 Enter the postal address for all communications from the Company.
- 5 Enter the name and telephone number of the person who should be contacted if there are any questions with respect to this application form.
- 6 If you are CHESs sponsored, enter your Participant Identification Number (PID) and Holder Identification Number (HIN) in the CHESs HIN box, otherwise leave this box blank and a Shareholder Reference Number (SRN) will be allocated to you on issue.
- 7 Enter the tax file number(s) of the applicant(s) - this is not mandatory.
- 8 Unless otherwise agreed by the Company, payment must be made to "Sandfire Resources NL" by cheque drawn or payable on a bank within Australia, crossed "Not Negotiable" and be in Australian dollars. Receipt of payment will not be acknowledged.
- 9 This application form does not need to be signed. Return of this application form with the required application monies will constitute acceptance of that number of Shares stated on this form.

If you have received an application form without a complete and unaltered copy of this prospectus, please contact the Company who will send you, free of charge, either a printed or an electronic version of this prospectus (or both).

Please note that if an application form is not completed correctly, or if the accompanying payment is for the wrong amount, it may still be accepted. Any decision of the Board as to whether to accept an application form, and how to construe, amend or complete it, shall be final. An application form will not be treated as having offered to subscribe for more Shares than is indicated by the amount of the accompanying cheque.

Please deliver the completed application form (accompanied by a cheque for the application monies) at any time prior to closing date to **Southern Cross Equities**.

### Delivery:

Level 32, 88 Phillip Street  
Sydney, New South Wales

### Post:

PO Box R234  
Royal Exchange,  
New South Wales 1225

Please telephone Southern Cross Equities on (02) 9231 0880 if you have any questions with respect to this application form. Applications are for Shares as detailed in the prospectus dated 14 January 2004, which expires 13 months after that date.

### CORRECT FORMS OF REGISTRABLE TITLE

Note that only legal entities are allowed to hold securities. Application forms must be in the name(s) of a natural person(s), companies or other legal entities acceptable to the Company. At least one full name and a surname is required for each natural person. Application forms cannot be completed by persons under 18 years of age. Examples of the correct form of registrable title are set out below:

### Type of Investor

Trusts

Deceased Estates

Partnerships

Clubs/Unincorporated Bodies

Super Funds

### Correct Form of Registrable Title

Mr John David Brown <John David Brown A/C>

Mr John David Brown <Est John David Brown A/C>

Mr John David Brown and Mr Michael James Brown

Mr John David Brown <ABC Tennis Association A/C>

John Brown <Super Fund A/C>



## APPLICATION FORM

Applicants should read this prospectus in its entirety before completing this application form. A person who gives to another person access to this application form must, at the same time and by the same means, give that person access to the prospectus.

NO OF SHARES APPLIED FOR

IDENTIFYING STAMP ONLY

APPLICATION MONIES AT 20 CENTS PER SHARE

TITLE

GIVEN NAMES/COMPANY NAME

SURNAME/ACN

JOINT APPLICANTS OR ACCOUNT DESIGNATION

POSTAL ADDRESS

CITY/TOWN

STATE

POSTCODE

EMAIL ADDRESS

CONTACT NAME

DAYTIME CONTACT NO.

CHESS DETAILS PID

HIN

TAX FILE NO/EXEMPTION CATEGORY

APPLICANT 2

APPLICANT 3

DRAWER

BANK

BRANCH

AMOUNT

\$

\$

### DECLARATION

By lodging this application form and a cheque for the application money the applicant hereby:

- applies for the number of Shares specified in the application form or such lesser number as may be allocated by the Board;
- agrees to be bound by the Constitution of the Company;
- authorises the Board to complete or amend this application form where necessary to correct any errors or omissions; and
- declares that the prospectus has been received (in full) by the applicant and is fully understood and read in its entirety.

**Cheques must be made payable to "Sandfire Resources NL".**

## NOTES

- 1 Enter the number of Shares you wish to apply for. Applications must be for a minimum of 10,000 Shares and thereafter in multiples of 2,500 Shares.
- 2 Enter the total amount of application monies payable. To calculate this amount, multiply the number of Shares you are applying for by the issue price for each Share.
- 3 Enter the full name(s) of all legal entities that are to be recorded as the registered holders.
- 4 Enter the postal address for all communications from the Company.
- 5 Enter the name and telephone number of the person who should be contacted if there are any questions with respect to this application form.
- 6 If you are CHESS sponsored, enter your Participant Identification Number (PIN) and Participant Identification Number (PIN) in the CHESS PIN box, otherwise leave this box blank and a Shareholder Reference Number (SRN) will be allocated to you on issue.
- 7 Enter the tax file number(s) of the applicant(s) - this is not mandatory.
- 8 Unless otherwise agreed by the Company, payment must be made to "Sandfire Resources NL" by cheque drawn or payable on a bank within Australia, crossed "Not Negotiable" and be in Australian dollars. Receipt of payment will not be acknowledged.
- 9 This application form does not need to be signed. Return of this application form with the required application monies will constitute acceptance of that number of Shares stated on this form.

If you have received an application form without a complete and unaltered copy of this prospectus, please contact the Company who will send you, free of charge, either a printed or an electronic version of this prospectus (or both).

Please note that if an application form is not completed correctly, or if the accompanying payment is for the wrong amount, it may still be accepted. Any decision of the Board as to whether to accept an application form, and how to construe, amend or complete it, shall be final. An application form will not be treated as having offered to subscribe for more Shares than is indicated by the amount of the accompanying cheque.

Please deliver the completed application form (accompanied by a cheque for the application monies) at any time prior to closing date to **Southern Cross Equities**.

### Delivery:

Level 32, 60 Phillip Street  
Sydney, New South Wales

### Post:

PO Box R234  
Royal Exchange,  
New South Wales 1225

Please telephone Southern Cross Equities on (02) 9231 0890 if you have any questions with respect to this application form. Applications are for Shares as detailed in the prospectus dated 14 January 2004, which expires 13 months after that date.

### CORRECT FORMS OF REGISTRABLE TITLE

Note that only legal entities are allowed to hold securities. Application forms must be in the name(s) of a natural person(s), companies or other legal entities acceptable to the Company. At least one full name and a surname is required for each natural person. Application forms cannot be completed by persons under 18 years of age. Examples of the correct form of registrable title are set out below.

### Type of Investor

Trusts  
Deceased Estates  
Partnerships  
Jointly Owned Entities  
Share Pools

### Correct Form of Registrable Title

Mr John David Brown (John David Brown A/C)  
Mr John David Brown, Petitioner David Brown A/C  
Mr John David Brown and Mr Michael James Brown  
Mr John David Brown (ABC Tennis Association Ltd)  
John Brown (Share Pool A/C)



