

## Exploration Activities Report Quarter ended 30 June 2013

### Highlights

#### HEAVY MINERAL SAND PROJECTS

**Cyclone Zircon Project (WA):** Continued emphasis on advancing environmental study requirements and mine access road considerations.

#### METALLIFEROUS PROJECTS

**Clermont Copper Project (QLD):** Continued exploration over tenements under Antofagasta Farm-In arrangements toward defining primary areas of interest.

**Gilbert River Project (QLD):** Continuation of technical assessment of project tenements through fieldwork and historic data compilation.

**Anabama Copper Project (SA):** Braemar Iron commences work exploring for iron ore.

**Tick Hill Gold Project (QLD):** Farm-In and Joint Venture Agreement with Superior Resources Limited (ASX:SPQ) formalised and signed.

#### CORPORATE

**Capital raising:** Following approval at the AGM, a placement of 34M shares raised \$850,000. A placement of a further 22M shares, raising \$440,000 was committed.



Great Victoria Desert - Western Australia

Diatreme Resources is an Australian based diversified mineral explorer with significant projects in heavy mineral sands, copper, base metals and gold.

The Company owns the world class **Cyclone Zircon Deposit** in Western Australia, situated within the Eucla Basin province, along with extensive areas of underexplored ground prospective for heavy mineral sands.

The Board and senior personnel exhibit wide experience, ranging through the exploration and development phases of resource management.

**Australian Securities Exchange**  
Codes: DRX and DRXO

#### Securities

Ordinary shares (DRX):  
529,582,422

Listed 15c options (30/09/13)(DRXO):  
88,650,035

#### Board of Directors

##### Executive:

Tony Fawdon - Chairman/CEO  
David Hall - Operations

##### Non-executive:

George White  
Andrew Tsang  
William Wang  
Neil McIntyre

##### Joint Company Secretaries:

Leni Stanley  
Tuan Do

#### Key Projects:

- Cyclone Zircon Project
- Clermont Copper Project
- Anabama Copper Iron Project
- Gilbert River Base Metals Project

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#### Share Registry:

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## **HEAVY MINERAL SAND PROJECTS**

### **EUCLA BASIN PROJECT (WA)**

#### **Cyclone Zircon Project (WA)**

Diatreme has been developing a plan for the Level 2 environmental studies that are necessary for environmental approvals of the mining operation at Cyclone and for the preferred transport route from Cyclone to Forrest on the Transcontinental Railway. Company officials have met with the Environment Protection Agency (EPA) to discuss potential impacts of the Project and formalise the process requirements for the Public Environment Report (PER).

The EPA and Diatreme are also discussing the plan for referral of the project to the Australian Government under the Environment Protection and Biodiversity Conservation Act. A final Environmental Scoping Document is expected to be issued by the EPA during the third quarter. Competitive proposals have been received from environmental consultants for the environmental studies, reporting and stakeholder negotiations necessary for completion of the PER.

Alternative development models for the Project have been evaluated, including lower production rates and lower capital options, as part of ongoing discussions with potential project partners. The preferred strategy in the current market is to implement the project using a staged development approach with reduced mining rate and higher grade ore during the early years of production.

Plans for defining the water source for the project by drilling the deep aquifers in the Officer Basin are now in place. Statutory approvals for three shallow water bores have been obtained and drilling is planned to commence late August. The shallow bores are required to supply water necessary for the deep bore drilling. Funding arrangements are now being finalised to allow completion of the deep drilling and water source definition for the Project by December 2013.

The process circuit design for the WCP and the MSP have been completed and the process design report will be finalised during the third quarter. Heavy mineral concentrate (HMC) produced during the earlier WCP testwork was used to optimise the MSP process design, mineral recovery and final product quality. There may be some minor additional processing testwork that will be completed during the engineering design phase for confirmation of design parameters. The staged approach to development and the funding model that is currently in place has allowed the project to progress to development planning phase.

## **METALLIFEROUS PROJECTS**

### **CLERMONT COPPER GOLD PROJECT (QLD) - FARM-IN BY ANTOFAGASTA MINERALS AUSTRALIA**

Under the Farm-In Agreement with a wholly-owned subsidiary of Antofagasta plc (Antofagasta), the Rosevale Project area has been the focus of the Company's attention.

Antofagasta has the right to earn into the entire Clermont tenement package which hosts a number of copper prospects, in addition to numerous gold and nickel prospects. These latter prospects may not be of primary interest to Antofagasta, and therefore a prospectivity analysis of the prospects within the tenements was carried out during the quarter so as to assist Antofagasta to reduce the area of its interest to only those prospects that have potential to host large scale copper deposits. Further work continues.

Details of recent programs over the Rosevale and Savannah/Consols prospects have been reported in the Company's release dated 22 May 2013.

### **GILBERT RIVER BASE METALS PROJECT (QLD)**

Field mapping and ground truthing was carried out during the quarter, followed by a comprehensive review of available data and compilation within the database. However, in the field it became apparent that the exploration database is incomplete, and that significantly more historical exploration has been undertaken than previously understood. Work is underway to compile and enter further records into the database.

The 100 000 geology map covering the main area of interest appears to be very accurate and provides a good base for prospectivity modelling. The concept of unmapped or buried Permo-Carboniferous intrusives associated with the



intersection of major structural corridors has driven a lot of the exploration over the last 20 years and it is fair to say that this concept has been well investigated. However, further data compilation is required to fully document the extent and level of this exploration. This will be followed up in the field once complete as a significant amount of exploration has previously taken place over the entire tenement package.

Technical results from recent work are outlined below:

- The stratabound (Mt Isa) mineralisation potential in the Daniel Creek Formation has been well explored at surface, but potential may occur at depth.
- There has been a lack of exploration “under cover”.
- There are a number of shear/structurally controlled mineral occurrences within the Robertson River Subgroup (e.g. Ortona). BP mention a drill intersection of 10m at 1% Cu for the 8-Mile copper workings.
- The continued presence of Capstone highlights prospectivity of the Einasleigh Metamorphics. This needs to be checked against the coverage of airborne geophysics and regional exploration already undertaken to assess this potential.
- The area around the Gilberton homestead remains an attractive target, purely on the extent and amount of gold historically mined. Comstock is an attractive target, and the volcanic breccias at Ti-Tree have not been explored since the 1980's (modern geophysics may add to the geological understanding). The Commissioners Hill workings were the largest on the field, but do not appear to have been targeted by modern exploration. It also appears that the area covered by the Gilberton Formation (approx. 2.5km x 1.5km) has not been assessed by either the historical miners or modern explorers, despite some evidence that the cover is very shallow.
- A comprehensive data compilation and review program needs to be undertaken to better understand the exploration potential.

### **ANABAMA COPPER PROJECT (SA) – HOA WITH BRAEMAR IRON PTY LTD**

Braemar Iron has been engaged in preparatory activities to commence field work on the Anabama Braemar Iron Project. Activities have included the following:

- Negotiation of a native title agreement with Ngadjuri and Whyyakali claimant groups for exploration activities on the licence areas.
- Magnetic modelling to determine magnetite exploration potential of the licence areas. This work has also directed where ground based magnetic surveys will be conducted.

The strategy is to collect as much low impact data as possible while Native Title agreement negotiations are in progress assisting Braemar to decide locations for maiden drill holes targeting the Braemar Iron Formation magnetite.

Diatreme is continuing to seek joint venture participation over the copper and base metal prospects within the project tenements.

### **TICK HILL GOLD PROJECT (QLD) – FARM-IN BY SUPERIOR RESOURCES LIMITED (ASX:SPO)**

In accordance with an Option and Sale Agreement between Diatreme and Mount Isa Mines Limited (MIM), mining lease No's 7094, 7096 and 7097 are being assigned 100% to Diatreme. This process has been delayed over the past couple of years by regulatory requirements within the government approvals process. However, progress achieved to date has been sufficient to allow the Farm-In and Joint Venture Agreement with Superior Resources Limited to be formalised and signed in June.

Following renewal of the mining leases, each for ten (10) year terms, the commencement of the earn-in under the Agreement remains conditional on the completion of the transfer of the mining leases from MIM to Diatreme (in progress).



## CORPORATE

During the quarter, the Company allotted 34,000,000 shares to Sophisticated Investors raising \$850,000 before costs. A further placement of 22,000,000 shares to raise \$440,000 before costs was also committed.

On 24 June 2013, the Company received notice confirming an association of three existing shareholders collectively holding 19.84%.

Dated 31 July 2013

**Anthony J Fawdon**  
Executive Chairman/CEO

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### Competent Person Statements

The information in this report, insofar as it relates to Exploration Results and Mineral Resources is based on information compiled by company personnel under the supervision of Mr David Jelley, who is a full time employee of Diatreme Resources Limited and a Member of the Australasian Institute of Mining and Metallurgy. Mr Jelley has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Jelley consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.