

Exploration Activities Report Quarter ended 31 March 2014

HIGHLIGHTS

Cyclone Zircon Project (WA)

- Project de-risking activities continued under the Perpetual Mining Holding Limited Heads of Agreement.
- Follow-up flora and fauna Autumn field surveys completed in early April as part of the West Australian government Public Environmental Review process.
- Updated resource (JORC 2012) determined for the Cyclone Deposit – 137 million tonnes (Mt) at 2.2% heavy minerals (HM) at a 1% HM cut-off grade, containing 3.0Mt HM – released to market 9 January 2014.

Clermont Copper Project (QLD)

- Mapping commenced on Clermont goldfields.
- Joint Venture being sought over Peak Downs Copper Deposit.

Tick Hill Gold Project (QLD)

- Negotiations with Superior Resources completed with the signing of a term sheet in early April for the grant of option to acquire 100% interest in the project.

Project Tenement Rationalisation

- Withdrawal from Gilbert River Base Metal Project tenements.
- Concentration of ground holdings in Eucla Basin.



Cyclone water bore drilling in progress late 2013

Diatreme Resources is an Australian based diversified mineral explorer with significant projects in WA, SA, VIC and Qld.

The Company seeks to develop the Cyclone Zircon Deposit in WA, through a joint venture arrangement, and conducts exploration over a number of project areas prospective for heavy mineral sands, silica sand, copper and gold.

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

Australian Securities Exchange
Codes: DRX, DRXO

Securities

Ordinary shares (DRX):
621,154,707

Listed Options (DRXO):
11,572,276

Board of Directors

Executive:

Tony Fawdon - Chairman/CEO

David Hall - Operations

Non-executive:

George White

Andrew Tsang

William Wang

Neil McIntyre

Daniel Zhuang

Joint Company Secretaries:

Leni Stanley

Tuan Do

Key Projects:

- Cyclone Zircon Project
- Clermont Copper Project
- Anabama Copper Iron Project
- Glenthompson Copper Project
- Cape Bedford Silica/HMS Project

Diatreme Resources Contact:

Tony Fawdon

Executive Chairman/CEO

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Share Registry:

Link Market Services

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EUCLA BASIN HEAVY MINERAL PROJECT (WA)

Cyclone Zircon Project (WA)

Project de-risking activities under the joint venture with Perpetual Mining Holding Limited continued during the quarter. The deep bore that was drilled into the Officer Basin sediments during the previous quarter has assured the project that there is a suitable water supply available close to the proposed mine site. The test bore has been constructed to suit the purpose of testing the high yielding sandstone aquifers that exist beneath the Cyclone Deposit and also to be used as a production bore when a mining operation commences. A flow of water in excess of 40 litres per second was air lifted from the bore during an extended period of bore development.

Pump testing is now being planned to obtain specific data required to design the optimum borefield for the mine. The current estimate is for a network of at least eight bores to a depth of approximately 650 metres to supply the 7.8 gigalitres of water required for the mine and wet concentrator plant each year. The deep bore results have confirmed that the capital cost estimate used in the Pre Feasibility Study was appropriate and the operating cost estimate will be confirmed on completion of the pump test. Design of the borefield and other water supply infrastructure will be undertaken following completion of the environmental assessment process.

The environmental studies and assessment processes have continued in accordance with the Public Environmental Review ("PER") schedule which has been agreed with the Western Australian Environmental Protection Authority (EPA). Spring season baseline field surveys for flora and fauna were completed during the previous quarter to support the requirements of a PER document as required by the Western Australian Environmental Protection Act 1986. The results of those surveys were analysed and documented during Q1 2014 in preparation for inclusion in the PER. Autumn season field environmental surveys were completed in mid April. Experienced zoologists from Outback Ecology, a division of MWH Australia Pty Ltd, and Company personnel undertook field surveys for fauna and flora in the project study area which extends from the Cyclone Deposit in the north for a distance of 250 kilometres to the Forrest rail siding in the south.

These surveys were designed in close consultation with key stakeholders and regulators including officers from the WA Office of the Environmental Protection Authority and the WA Department of Parks and Wildlife. All field survey work to date has been completed safely and successfully, and in accordance with established timeframes for progression of the Cyclone Project. Analysis, assessment, and reporting of the results of the current environmental field surveys is planned for completion during Q2 2014 in preparation for completion of the PER and submission to the EPA during Q3 2014. Outback Ecology and the Company continue to liaise closely with relevant stakeholders to ensure that all environmental survey work for the project is robust and comprehensive. The PER will also include reports covering Aboriginal Heritage, Subterranean Fauna, Hydrology, Hydrogeology, Noise, Dust, Rehabilitation, Mine Closure, and a draft program of Environmental Offsets.

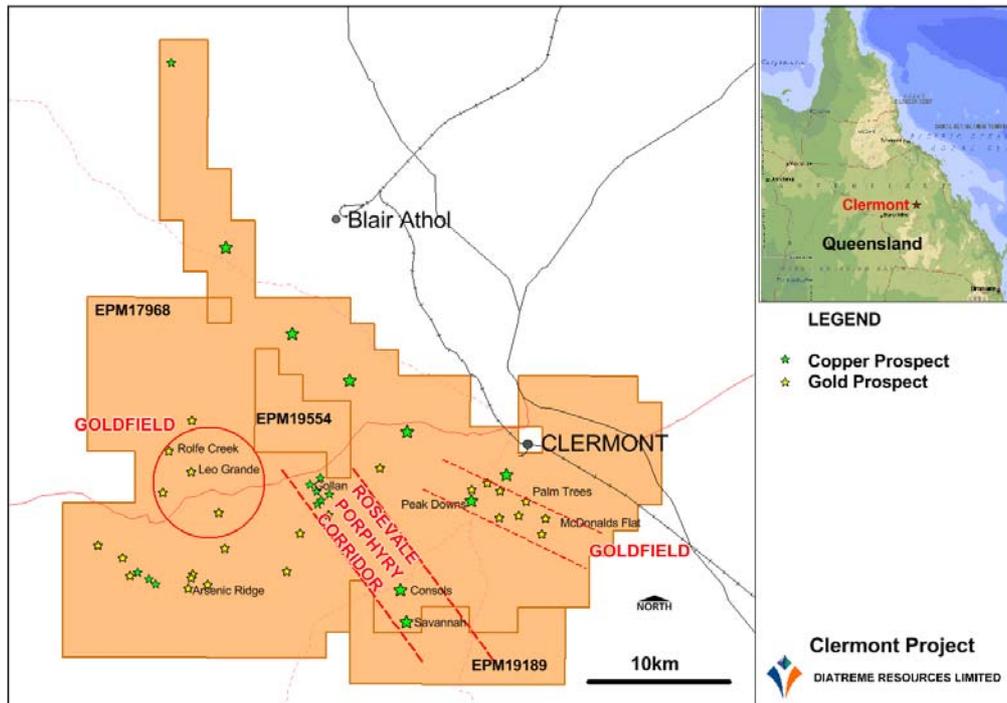
Cyclone Mineral Resource Update - JORC 2012

A review and upgrade of the Cyclone heavy mineral resource estimate as part of the ongoing project feasibility work was completed (*see ASX release dated 9 January 2014 for full details*). The revised resource reconfirms the economic potential of the zircon rich Cyclone Deposit and demonstrates the robustness of previous resource estimates.

The Cyclone resource is now 137 million tonnes (Mt) at 2.2% heavy minerals (HM) at a 1% HM cut-off grade, containing 3.0Mt HM (within DRX tenure) and more than 90% of the resource is now classified as "Measured".

CLERMONT COPPER GOLD PROJECT (QLD)

The discovery of alluvial gold in gullies south of Clermont in 1861 triggered one of Queensland's major gold rushes. However, much of the previous exploration and mining around Clermont on the known gold bearing quartz vein systems has shown these to be relatively small. These veins are the likely source of at least some of the alluvial gold deposits in the Clermont area, but the amount of alluvial gold in some areas is not in accordance with the known gold bearing quartz vein and shear occurrences. This is the case immediately south of Clermont where there is no significant known source for the amount of gold that was mined from the Wild Cat and other leads in this area. This suggests that there are undiscovered gold bearing sources in this area. It is the potential for new hard rock sources for the gold found in some of these alluvial deposits near Clermont that is currently driving the gold exploration in this highly prospective district.



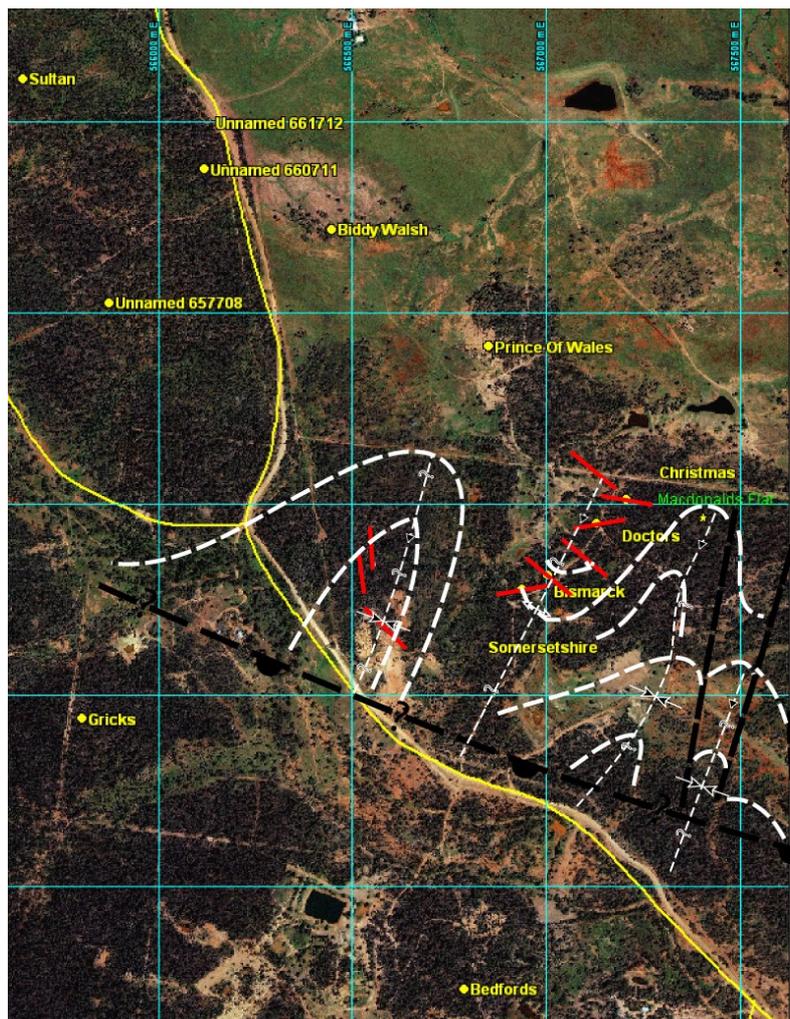
Location of Clermont tenements and prospects

Diatreme re-commenced mapping over the Clermont goldfields during the quarter with the aim of locating the source of the gold and to define drilling targets. The exploration model conceptualises a >5 million oz Au potential for the region stretching over a 6km strike length, with an eye to quartz reef hosted Charters Towers & Bendigo/Ballarat style mineralisation.

Previous drilling in the area by Straits Resources Ltd in the McDonalds Flat area intersected highly anomalous gold intercepts of:

- 10m @ 24.5g/t Au from 17m in hole MFRC19 (including 1m at 233.5 g/t Au from 21m),
- 3m @ 24.1g/t Au from 33m in hole MFRC6.

The area around McDonalds Flat has been worked in the past for the hard rock quartz reef gold and later for the alluvial gold. A new structural model is being applied that has the potential to be highly rewarding and further structural mapping is required to locate drill targets. This work will be carried out in the next quarter.

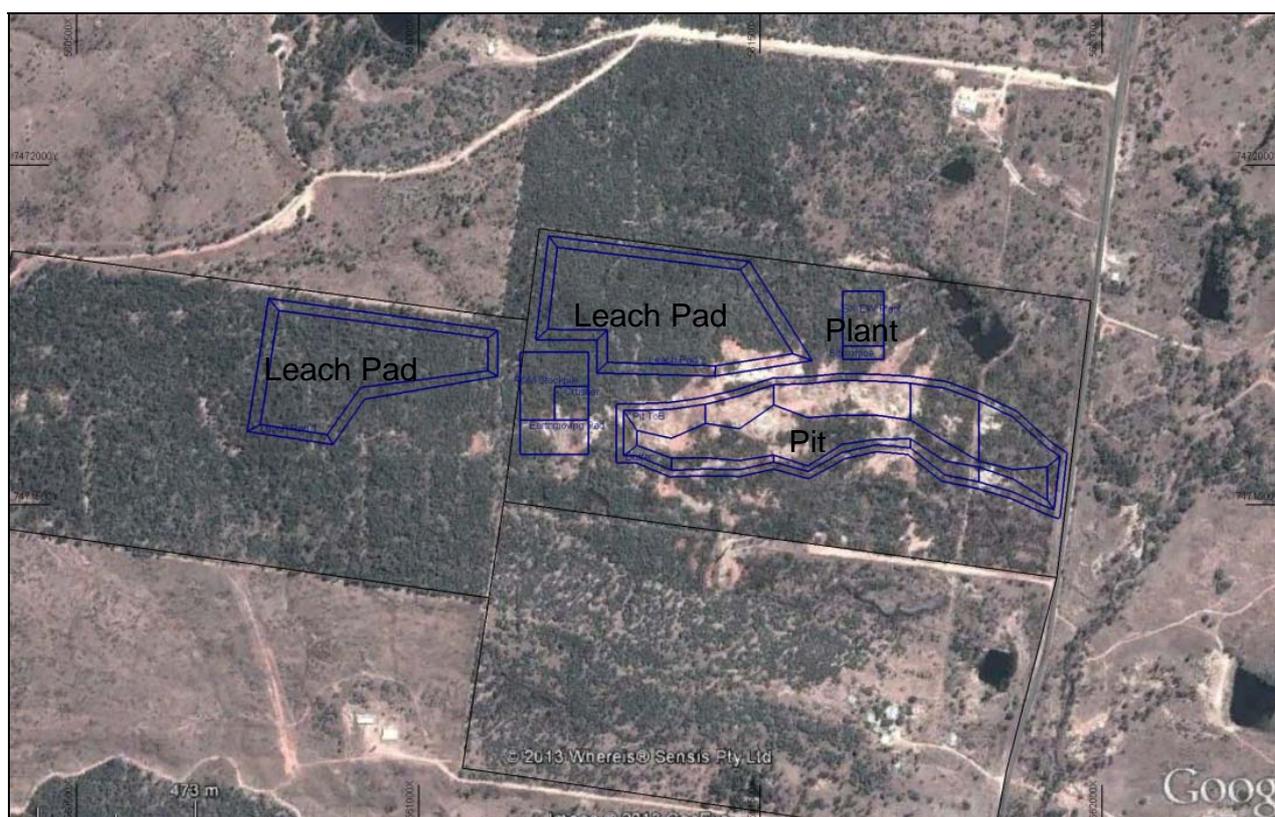


McDonald's Flat Prospect overlain with fold limb and axial traces (white) interpreted from TMI imagery, with hard rock gold occurrences (yellow). Red lines represent trends of mineralisation.

Peak Downs Copper Prospect

The Peak Downs Copper Deposit, discovered in 1862, is situated 6km to the southwest of Clermont. This lode is considered prospective for Girilambone-style copper oxide mineralisation together with some potential for gold. The rich copper ore mined from within the oxidised portions of the Main lode, together with extensive float of malachite, azurite and less common native copper throughout the extent of the Peak Downs system are all indicative of a significant zone of supergene enriched copper-gold mineralisation.

The Peak Downs copper workings extend over a total strike length of 2.5km. The lode was mined to a maximum depth of 107m. Production figures for all the Peak Downs workings indicate that over 100,000 tonnes with an average grade of 17% copper was mined and smelted by the Peak Downs Copper Mining Company between 1862 and 1877. Potential remains at Peak Downs for the development of the remaining ore. Diatreme is actively pursuing joint venture participation over this project and has been in detailed discussions with a potential partner.



Peak Downs Copper Prospect - conceptual minesite layout, pit and heap leach pads.

TICK HILL GOLD PROJECT (QLD)

Negotiations with Superior Resources Limited (ASX:SPQ) completed during the quarter with a term sheet signed in early April (see ASX release dated 10 April 2014 for full details) for the grant of an option to acquire 100% interest in the project.

The key terms of the option arrangement are:

- Superior is granted an option to acquire a 100% legal and beneficial interest in the Project in return for the issue to Diatreme of 10,000,000 ordinary shares in Superior. The shares will be:
 - issued within 10 days of completion of the transfer of the Project mining leases to Diatreme; and
 - escrowed for a period of 12 months from the date of issue.
- The term of the option is three years, commencing on the date of completion of the transfer of the Project mining leases to Diatreme and extendable for an additional period of not less than 12 months;



- If Superior elects to exercise the option, then at the election of Diatreme, Superior will pay Diatreme six million dollars (\$6,000,000) or the equivalent in ordinary shares in Superior (30 day VWAP per share), or any combination of cash and shares. The issue of any shares to Diatreme will be subject to the approval of Superior shareholders;
- During the option period, Superior:
 - will have the exclusive right to manage, plan and conduct exploration activities on the Project;
 - retains the right under the JVA to be transferred a 50% interest in the Project upon spending \$750,000 on exploration activities;
 - may mine and process existing surface material, including waste dumps, on the basis of each party funding 50% of the costs or as otherwise agreed between the parties. The revenue generated by such an operation will be apportioned between the parties in accordance with their respective proportionate contributions to the costs.

PROJECT TENEMENT RATIONALISATION

In maintaining the company's focus on core projects, a number of exploration tenements have been surrendered and tenement applications abandoned as a result of internal, ongoing prospectivity reviews. Appendix 1 provides details of the mining tenements disposed during the quarter.

Gilbert River Base Metals Project: After many years of exploration and endeavours to joint venture the project a decision was finalised to cease continuing exploration in the region, resulting in all remaining tenements being relinquished.

Eucla Basin Heavy Mineral Sands Project: Significant exploration has been conducted over many years and a well developed understanding of the Eucla Basin geology gained, resulting in the discovery of the Cyclone Deposit. Following ongoing internal reviews, the Company has now reduced its ground holding in the basin, retaining those areas which contain potential for the discovery of new deposits which may enhance the Cyclone Project. During this process, new ground was also granted immediately southeast of Cyclone in the WA sector of the basin.

CASH POSITION

The Company's cash position at 31 March 2014 (Appendix 5B) was \$343K, with additional funding for the Cyclone Zircon Project totalling \$750K being received during April 2014.

APPENDIX 1

Appendix 1 provides information required under ASX listing rule 5.3.3 for mineral exploration entities.

Dated 30 April 2014

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 from the Clermont and Glenthompson projects 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 Australian Institute of Geoscientists. 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 2012 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.

The information in this report that relates to Exploration Results and Mineral Resources from the Cyclone Zircon Project is based on information compiled by Mr Ian Reudavey, a Competent Person who is a Member of the Australian Institute of Geoscientists. Ian Reudavey is a full time employee of Diatreme Resources Limited. Ian Reudavey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Ian Reudavey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



APPENDIX 1

DISCLOSURES REQUIRED UNDER ASX LISTING RULE 5.3.3

- Mining tenements held at the end of the quarter and their location

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
SA	Anabama North	EL4783	Anabama	100%	CHAL	Granted
SA	Anabama	EL5138	Anabama	100%	CHAL	Granted
SA	Noorina 1	EL 5045	Eucla Basin	100%	LSPL	Granted
SA	Noorina 2	EL 5046	Eucla Basin	100%	LSPL	Granted
SA	Elliston	EL(A)12/327	Eucla Basin	100%	DRX	Application
SA	Eucla 5	EL(A) 05/934	Eucla Basin	100%	DRX	Application
SA	Eucla 6	EL(A) 05/935	Eucla Basin	100%	DRX	Application
SA	Eucla 9	EL(A) 08/235	Eucla Basin	100%	DRX	Application
WA	Wanna Lakes	E69/1920	Eucla Basin	100%	LSPL	Granted
WA	Wanna Lakes East	E69/2408	Eucla Basin	100%	LSPL	Granted
WA	Wanna-South	E69/2425	Eucla Basin	100%	LSPL	Granted
WA	Serpentine	E69/3113	Eucla Basin	100%	LSPL	Granted
WA	Cyclone	M(A) 69/141	Eucla Basin	100%	LSPL	Application
WA	Mandora	E(A) 45/4022	Canning Basin	100%	DRX	Application
QLD	Clermont	EPM17968	Clermont	100%	CHAL	Granted
QLD	Parapet	EPM19189	Clermont	100%	CHAL	Granted
QLD	Expedition Ck	EPM19544	Clermont	100%	CHAL	Granted
QLD	Cape Bedford	EPM(A)17795	Cape Bedford	100%	DRX	Application
QLD	Grays Hill	EPM(A)25117	Yeppoon	100%	DRX	Application
QLD	Tick Hill	ML7094	Duchess	100%	MIM*	Granted
QLD	Tick Hill	ML7096	Duchess	100%	MIM*	Granted
QLD	Tick Hill	ML7097	Duchess	100%	MIM*	Granted
VIC	Glenthompson	EL5478	Glenthompson	100%	CHAL	Granted

- Mining tenements acquired and disposed of during the quarter and their location

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
WA	Serpentine	E69/3113	Eucla Basin	100%	LSPL	Granted
WA	Shallow bores	L69/18	Eucla Basin	100%	LSPL	Relinquished
WA	Ilma	E(A) 69/2740	Eucla Basin	100%	LSPL	Abandoned
WA	Boorabie West	E(A) 69/2741	Eucla Basin	100%	LSPL	Abandoned
WA	Boorabie East	E(A) 69/2742	Eucla Basin	100%	LSPL	Abandoned
WA	Forrest Lakes West	E(A) 69/2743	Eucla Basin	100%	LSPL	Abandoned
WA	Forrest Lakes East	E(A) 69/2744	Eucla Basin	100%	LSPL	Abandoned
QLD	Gilbert River	EPM12888	Gilbert River	100%	CHAL	Relinquished
QLD	Bellfield Extended	EPM18213	Gilbert River	100%	CHAL	Relinquished
QLD	Bellfield East	EPM18262	Gilbert River	100%	CHAL	Relinquished
QLD	Bellfield North	EPM18353	Gilbert River	100%	CHAL	Relinquished
QLD	Conical Hill	EPM18547	Gilbert River	100%	CHAL	Relinquished



- Beneficial percentage interests held in farm-in or farm-out agreements at end of the quarter

State	Project Name	Agreement Type	Parties	Interest held at end of quarter by exploration entity or child entity	Comments
WA	Cyclone Zircon Project	Farm-out Heads of Agreement (HoA)	LSPL and Perpetual Mining Holding Limited	100%	Agreement in principle announced July 2013 and HoA announced Jan 2014
SA	Anabama Iron Project	Farm-out Heads of Agreement (HoA)	CHAL and Braemar Iron Pty Ltd	100%	HoA announced Jan 2013
QLD	Tick Hill Gold Project	Option & Sale Agreement	DRX and MIM	100%	Option exercised by DRX, subject to government assignment requirements being completed
QLD	Tick Hill Gold Project	Farm-out Agreement	DRX and Superior Resources Limited	100%	Announced Aug 2011, subject to pre-conditions relating to pre-existing option and sale agreement between DRX and MIM

- Beneficial percentage interests in farm-in or farm-out agreements acquired or disposed of during the quarter

Not Applicable this quarter

Notes:

MIM* - DRX has rights under the Tick Hill Option and Sale Agreement. A 100% Assignment of the leases to DRX is being processed by the Queensland Government. DRX has entered into a joint venture arrangement with Superior Resources Limited.

Abbreviations:

EPM(A)	Queensland	Exploration Permit for Minerals (Application)
EL(A)	South Australia	Exploration Licence (Application)
E(A)	Western Australia	Exploration Licence (Application)
ML	Queensland	Mining Lease
M(A)	Western Australia	Mining Lease (Application)
L(A)	Western Australia	Miscellaneous Licence (Application)
DRX	Diatreme Resources Limited	
CHAL	Chalcophile Resources Pty Ltd	
LSPL	Lost Sands Pty Ltd	
MIM	Mount Isa Mines	