

# ASX

## ANNOUNCEMENT

### QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 31 March 2020

29 April 2020

#### Quarterly Highlights

##### Galalar Silica Project, Qld

- Post-quarter economic study shows Galalar Silica Project would deliver sizeable economic injection into Hope Vale, Cooktown and surrounding region, including approx. \$23-24 million in construction phase and up to \$42m in operation, generating more than 110 equivalent jobs including flow-on effects
- Total Inferred and Indicated Resource upgraded by 26% to an estimated 38 million tonnes (Mt) > 99% SiO<sub>2</sub>, with scope to further increase resource confidence to a JORC-compliant Measured Resource
- Application lodged to undertake voluntary Environmental Impact Statement (EIS), potentially streamlining regulatory approval process

##### Cyclone Zircon Project, WA

- COVID-19 impacts China-based project partners; talks continuing to formalise project participants' interests amid continued solid demand and constrained supply outlook for zircon.

##### Corporate

- \$1.5m debt facility maturing July 2020 extended for further 16 months to 30 November 2021
- Post-quarter: Annual General Meeting postponed to July, due to restrictions on travel and assembly due to COVID-19.



## COMING JUNE QUARTER ACTIVITIES - 2020

Diatreme's operational focus for the June quarter 2020 comprises the following:

- **Galalar Silica Project**


- Planned installation of surface water and groundwater monitoring network to establish baseline water quality and water resources for EIS technical studies;
- Further detailed terrestrial and marine studies in preparation for the lodgement of environmental approvals (EIS);
- Further bulk product testing and product development targeting high end premium silica products;
- Further transshipment and logistics studies targeting most economical options for project with minimal environmental impact;
- Further engagement with project partners, Hopevale Congress and relevant regulatory/government agencies to advance project approvals and preferred logistics solution;
- Progression towards formalised offtake agreements;
- Further bulk sampling and testing for resource upgrades and mine planning for definitive feasibility study (DFS).

- **Cyclone Zircon Project**

- Further advance discussions with EPC, offtake and other potential partners towards potentially binding agreements;
- Determination of HMC concentrate's highest commercial potential, including potential extraction of hafnium from zircon component;
- Assemble optimum mix of commercial parties to facilitate project's development, amid rising demand for zircon and constrained supply.

## GALALAR SILICA PROJECT, QLD – First Quarter 2020 Activities

The March quarter 2020 saw further advances at Diatreme's Galalar Silica Project, with the North Queensland project favourably positioned to become a leading supplier of premium silica sand product to Asia's fast-growing solar PV market and other high-tech applications.



In a move aimed at expediting the project's regulatory approvals, in February Diatreme lodged an application to undertake a voluntary Environmental Impact Statement (EIS) in accordance with the *Environmental Protection Act 1994* (Qld) (refer ASX announcement 6 February 2020).

Conducted under Chapter 3, part 1 of the Act, a voluntary EIS allows for only a single EIS to be produced for both the Queensland and Commonwealth governments, resulting in a streamlined but still vigorous approval process.

Pending the approval of Diatreme's application to undertake a voluntary EIS, the Company referred the project to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) and will include any requirements under that Act in the draft terms of reference.

Diatreme expects the final terms of reference to be issued in the third quarter of 2020 following community consultation, with the Company in position to commence negotiations on these as soon as the process allows. Already, Diatreme has commenced many of the various detailed specialist studies likely to be required in support of the voluntary EIS.

The move followed the December 2019 lodgement of a Mining Lease Application, as Diatreme seeks to accelerate the development of a new silica sand mine that generates valuable jobs and investment for the region and wealth for shareholders.

The Galalar project's potential for further expansion was demonstrated with Diatreme's 20 February 2020 announcement, with the total Inferred and Indicated Mineral Resource upgraded to 38 million tonnes (cut-off grade >99% SiO<sub>2</sub>), up 26% on the previous resource estimate, as reported by independent consultants Ausrocks Pty Ltd.

**Table 1: Updated Resource Estimate** (Diatreme confirms there has been no material change to this estimate since its release on 20 February 2020.)

Area	Cut-off SiO <sub>2</sub> %	SiO <sub>2</sub> % Grade	Indicated (Mt)	Inferred (Mt)	Inferred & Indicated (Mt)
East Nob Point	99%	99.26%	20.2	14.4	34.6
West Nob Point	99%	99.16%	1.3	2.1	3.4
<b>Total</b>			<b>21.5</b>	<b>16.5</b>	<b>38.0</b>

**Note:** Under the JORC Code, 2012 Edition an Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to support mine planning and evaluation of the deposit's economic viability. An Indicated Mineral Resource has a higher



*level of confidence than an Inferred Mineral Resource but a lower level of confidence than a Measured Mineral Resource.*

There is also scope to increase resource confidence to measured in select areas of resource without additional drilling by further desktop investigation of the geostatistics and variability.

To accomplish this, DRX will establish a block model to better represent the geostatistical variation of SiO<sub>2</sub> grade and contaminants such as Fe<sub>2</sub>O<sub>3</sub> not readily visible in the current model. This block model will also increase the confidence in the distribution of grade and will enable a sound base from which to complete more detailed mining studies and scheduling in the future.

The potential to further upgrade the resource has boosted confidence in Galalar's ability to become a long-term provider of premium quality silica sand to Asian markets.

Post-quarter, on 8 April 2020 Diatreme released the results of an independent economic study which showed the project would deliver a sizeable economic injection into Hope Vale, Cooktown and the surrounding region, including approximately \$23-\$24 million in the construction phase and up to \$42m in operation.

Importantly, the study by Cummings Economics also showed the project could generate more than 110 equivalent full-time jobs including flow-on effects, becoming Hope Vale's largest employer outside local government and providing a significant boost to household incomes.

The study estimated annual revenue of \$80.25 million based on a production target of 750,000 tonnes per annum (tpa) of high-grade silica, priced at US\$75 per tonne. The project could generate \$1.475m in annual royalties and more than \$10 million in company tax for the benefit of the community, with an estimated after-tax return of \$24.7m (Cooktown loading option) or \$39.2m (Nob Point loading option).

Government savings are estimated at some \$2m per annum from a reduction in welfare benefits and increased income tax from the region.

A preferred logistical solution for the project is also being advanced in consultation with the relevant regulatory agencies. Nob Point is considered the most environmentally and economically beneficial option compared to trucking product from the mine site for loading at Cooktown, as this latest study reinforces.

**Note:** *The studies undertaken on the Galalar Silica Project regarding regional economic and social benefits by Cummings Economics are based on relevant independent assessments and the project's scoping study (as per ASX*

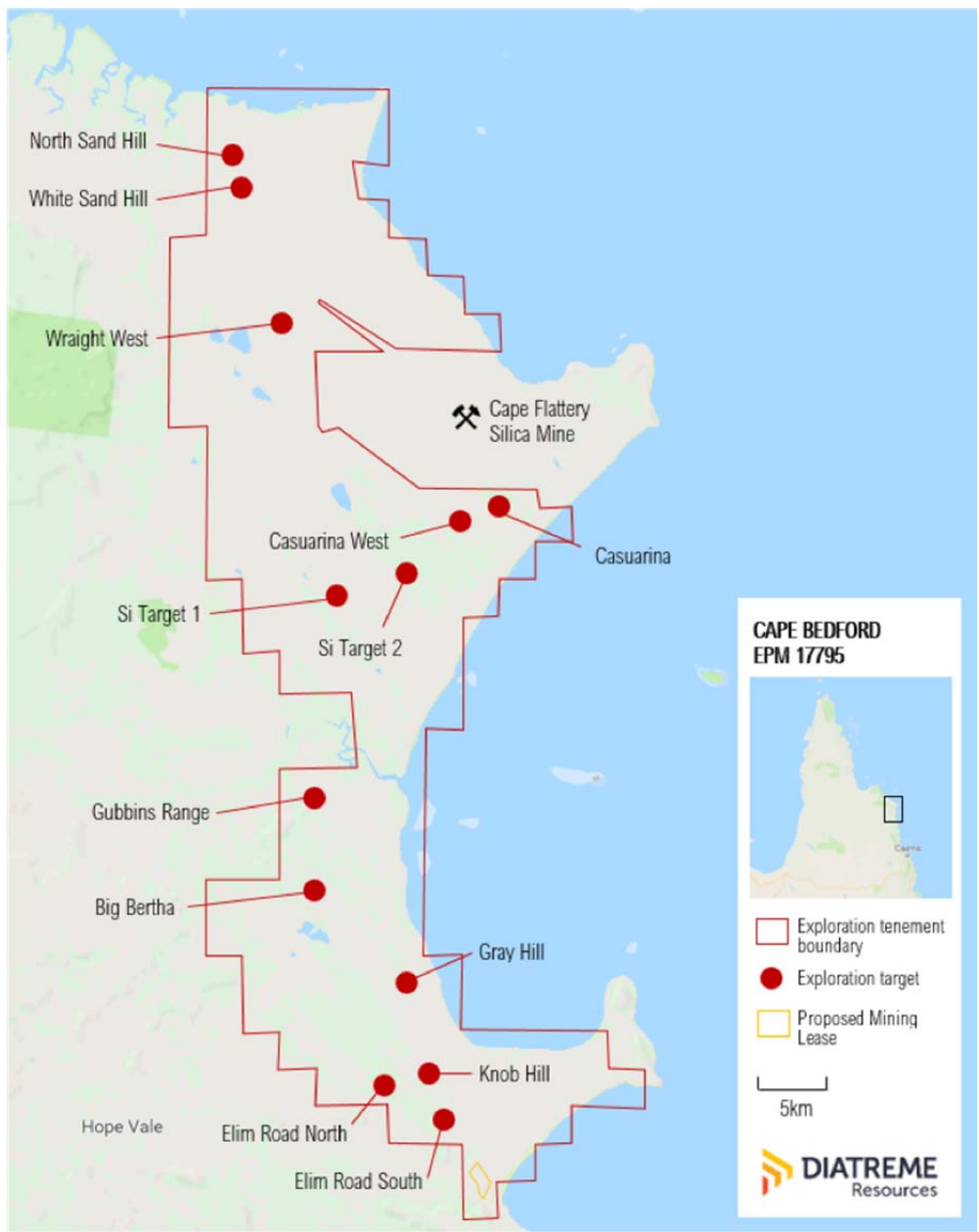


*announcement 9 September 2019) and have been undertaken as part of the voluntary EIS process Diatreme has underway with the relevant Qld Government regulatory agencies and as such assumes the project is implemented and has all relevant approvals to undertake the development and mining activity. The full economic impact study along with all other relevant studies will be released for public examination through the public engagement process of the EIS over the coming months.*

Located around 200km north of Cairns and 20km from the port of Cooktown, the Galalar project (EPM 17795) lies within the same sand dune system and in close proximity to the world's largest operating silica sand mine at Cape Flattery. Testwork has demonstrated the project's ability to produce a premium-grade product for solar (photovoltaic) panels and also ultra-thin electronics, attracting significant price premiums.

To be developed in partnership with traditional owners, Hopevale Congress (12.5% project interest), the Galalar project is expected to provide a significant boost to the local community as highlighted by the latest economic study.

Diatreme also aims to ensure a sustainable project is developed, with the potential to become net 'carbon neutral' based on the likely use of its product in China, where it is expected to help reduce dependence on coal-fired power and improve air quality.



**Figure 1: Galalar exploration tenement and resource area**



## **CYCLONE ZIRCON PROJECT, WA**

The outbreak of COVID-19 in Wuhan, China and the resulting travel and communications shutdown affected progress and travel arrangements during advanced talks with potential China-based project partners in the March quarter.

However, with China now gradually emerging from the shutdown and industrial activity recommencing, such talks have re-commenced and further progress is expected in coming months given the continued bright outlook for zircon, amid constrained supply and solid demand over the medium to long term.

In particular, multi-billion dollar stimulus measures planned by the Chinese Government, including both fiscal and monetary stimulus, likely will boost infrastructure investment and construction activity, further lifting demand for zircon which is used in the production of ceramic tiles, among other applications.

A Definitive Feasibility Study completed in November 2018 by China ENFI Engineering Corp., part of the leading China Minmetals group, demonstrated Cyclone's potential as the largest undeveloped zircon dominant heavy minerals project in the world-class Eucla Basin (refer map below).

During 2019, Diatreme announced new proposed agreements for Cyclone, with demand heating up for its high grade zircon-dominant HMC product amid constrained supply (refer ASX announcement 5 August 2019).

The agreements followed the appointment of independent corporate advisers Blackbird Partners (refer ASX announcement 23 January 2019) with the aim of extracting maximum value for shareholders from Cyclone, one of only a handful of major zircon-rich discoveries over the past decade.

In October 2019 (refer ASX announcement 10 October 2019), Diatreme announced that China's Hunan Rare Earth Industry Group (HRE) had identified a potential additional product, the strategic rare metal hafnium ( $\text{HfO}_2$ ), within the zircon component of Cyclone's HMC.

The identification of this potential opportunity occurred during detailed project offtake discussions by both HRE and Diatreme of the independent metallurgy reports and bulk sampling undertaken during the original prefeasibility study (PFS) and subsequent definitive feasibility study (DFS). These followed the signing of an MOU with HRE for the potential life of mine offtake of HMC from Cyclone and its potential investment into the project (refer ASX announcement 5 August 2019).

The work with HRE followed the signing of an EOI with MCC International Corporation, part of the leading China Minmetals Group, for the provision of engineering, procurement and construction services to Cyclone (refer ASX announcement 5 August 2019), in addition to assisting in sourcing suitable project finance to facilitate the project's development.

Ultimately, Diatreme aims to assemble an optimum mix of commercial parties into binding agreements that will facilitate the project's development.



## Recent Progress in March Quarter

In order to extract value for shareholders the Company, in conjunction with its corporate adviser Blackbird Partners, has also been actively examining the potential for Cyclone's holding vehicle (Lost Sands Pty Ltd) to be effectively annexed into a separated process allowing an external funding package (not dilutionary to Diatreme shareholders) and a specialist management team put in place.

This potential structure would still allow the continued rapid progress and advancement of the Company's Galalar Silica Project without causing management to lose focus or divert fiscal resources to that task.

This potential team and funding would then be used to advance the Cyclone Project towards potentially a separate public flotation (spin out) or vend (sell) for share consideration into a suitable existing public vehicle in exchange for shares (consideration).

Diatreme has observed over recent times within the heavy minerals development sector projects that have been successfully implemented (to mining activity) and others that have not been as successful or have failed to thrive post mining. The more successful projects observed have some common characteristics which Diatreme has identified and is looking to replicate.

It is noted that Cyclone already has some of these key characteristics, thus potentially providing avenues and opportunities to optimise the project and ultimately its returns to shareholders.

Broadly, these successful factors include:

- 1) producing a high-quality zircon product focused on meeting customer requirements whilst maximising contained product value;
- 2) maximising early revenue by targeting high grade and high value components of the ore body to garner attractive debt finance structures;
- 3) implementation of a simple, low capital and operating cost processing option to produce a high value heavy mineral concentrate (HMC) product for direct sale into a competitive export market; and
- 4) having an incumbent management team with deep heavy mineral sands specific experience including implementation, project financing, construction and operations management.

Diatreme is advanced in discussions to assemble this project development option concurrently with its existing initiatives and will keep the market informed when these potentially transition to a formally documented process which can be fully disclosed to the market.



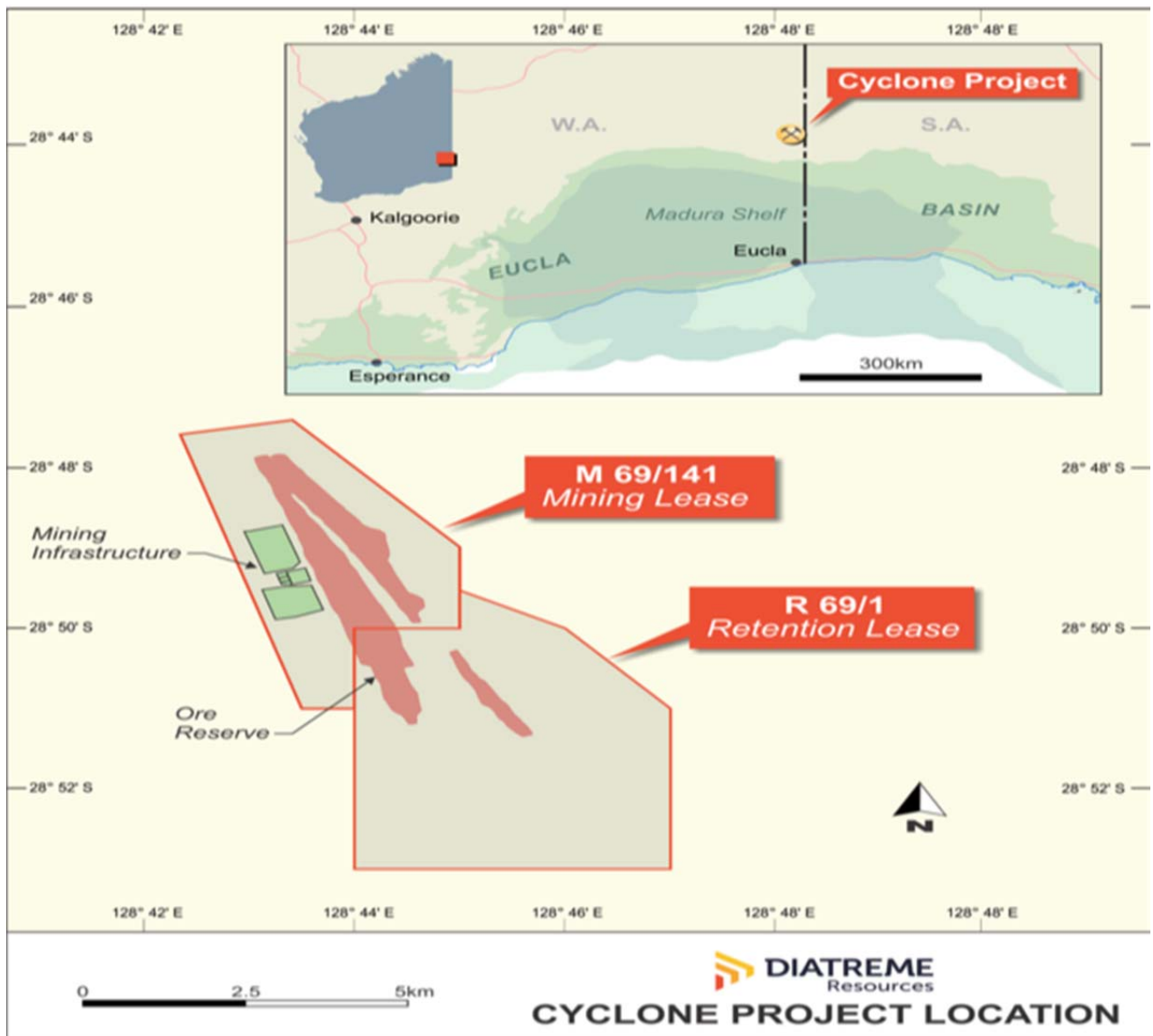


Figure 2: Cyclone project location



## CLERMONT COPPER PROJECT, QLD

Diatreme management and external consultants continue to review the Clermont Copper Project, particularly the Rosevale Porphyry Corridor, to determine its potential for further exploration, disposal or joint venture.

## CORPORATE

A general meeting was held at the Company's head office in Brisbane on 3 February 2020 to ratify the issue of placement shares and options, among other resolutions. All four resolutions were approved by shareholders (refer ASX announcement).

On 27 March 2020, Diatreme announced an agreement to extend a \$1.5 million debt facility's maturity, from 31 July 2020 to 30 November 2021, in an important step in the Company's capital management strategy. The Board thanks the lender, Ms Jie Wu, an unrelated party, for her continued support and the favourable extension terms provided to the Company (refer ASX announcement).

Post-quarter, on 20 April 2020 Diatreme announced the deferral of the Company's Annual General Meeting (AGM), due to the impact of restrictions imposed on travel and assembly over the COVID-19 pandemic.

Shareholder attendance and participation is important to the Company, and the AGM has been tentatively rescheduled to the latter part of July 2020. A date is expected to be set in mid-to-late June, at which time shareholders will be advised and a Notice of AGM provided shortly thereafter.

Should another deferral of the AGM be required, given uncertainty surrounding COVID-19 meeting and assembly restrictions, Diatreme will update the market accordingly.

The Company's cash and liquids positions as at 31 March 2020 totaled \*\$ 1.84m

*(\*Note: This comprises \$1.59m cash and \$252,404 in CNB (ASX: CNB) ordinary shares(as at 31/3/20) . CNB share value has since increased to \$569,712 as at 24/4/20 and are freely tradeable)*

This announcement was authorised for release by the Board.

**Neil J McIntyre**  
Chief Executive

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## MINERAL SANDS AND SILICA - COMPETENT PERSON STATEMENTS

*The information in this report that relates to Mineral Resources at the Cape Bedford Project is based on information compiled by Bryce Mutton from Ausrocks Pty Ltd who has significant experience in Industrial Minerals and Quarry Resource assessments. Bryce Mutton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking 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 (The JORC Code).*

*Bryce Mutton consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.*

*The information in this report that relates to Exploration Results and Exploration targets from the Cape Bedford Project is based on information reviewed and compiled by Mr. Neil Mackenzie-Forbes, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Mackenzie-Forbes is a director of Sebrof Projects Pty Ltd (a consultant geologist to Diatreme Resources Limited). Mr. Mackenzie-Forbes 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'. Mr. Mackenzie-Forbes consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this report, insofar as it relates to Mineral Resources at the Cyclone Project is based on information compiled by Mr Ian Reudavey, who was a full time employee of Diatreme Resources Limited and a Member of the Australian Institute of Geoscientists. Mr Reudavey 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 Reudavey 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, insofar as it relates to Ore Reserves at the Cyclone Project is based on information compiled by Mr Phil McMurtrie, who is a director of Tisana Pty Ltd (a consultant to Diatreme Resources Limited), and a Member of the Australasian Institute of Mining and Metallurgy. Mr McMurtrie 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 McMurtrie consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.*

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## APPENDIX 1

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

### Interest in mining tenements at end of quarter

State	Tenement Name	Tenement ID	Status	Location	Interest	Holder
WA	Cyclone	M69/141	Granted	Eucla Basin	100%	LSPL
WA	Cyclone Extended	R69/1	Granted	Eucla Basin	100%	DRX
QLD	Clermont	EPM17968	Granted	Clermont	100%	CHAL
QLD	Cape Bedford	EPM17795	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	EPM27265	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	EPM27212 EPM27430	Applications	Hopevale	(Pending)	DRX
QLD	Cape Bedford	ML100235	Application	Hopevale	(Pending)	DRX

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

State	Project Name	Agreement Type	Parties	Interest held at end of quarter	Comments
WA	Cyclone Zircon Project	Farm-out Heads of Agreement	LSPL and Perpetual Mining Holding Limited	94%	HoA announced Jan 2014, initial 6% farm-out completed 18 Sept 2014 – Subject to dilutionary non-contribution clauses.

#### Abbreviations:

M	Western Australia	Mining Lease	DRX - Diatreme Resources Limited
R	Western Australia	Retention Licence	CHAL – Chalcophile Resources Pty Ltd
EPM	Queensland	Exploration Permit for Minerals	LSPL – Lost Sands Pty Ltd
ML	Queensland	Mining Lease	