

## QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 SEPTEMBER 2017

### HIGHLIGHTS

- \* Discussions underway with potential Chinese offtake partners for the Cyclone Zircon Project, following environmental approval from WA Government
- \* MOU signed with China ENFI whilst HOA is being negotiated to undertake final bankable feasibility studies (BFS) on Cyclone Zircon Project.
- \* Exploration commenced at Cape Bedford Silica/Heavy Minerals Project with reconnaissance drilling completed over part of the southern EPM area with large scale silica sand physically evidenced and metallurgical testing underway.
- \* Successful fund raising completed – Raising \$750,000 to fund Cape Bedford exploration and corporate activities.

### CYCLONE ZIRCON PROJECT (WA)

Currently the largest undeveloped zircon project in the zircon-rich Eucla Basin, Diatreme's flagship Cyclone Zircon Project continued to progress with the signing of an Memorandum of Understanding (MOU) with China ENFI Engineering Corporation (ENFI) for completion of a bankable feasibility study (BFS). ENFI would also assist in sourcing project equity investors, product off-takers and project debt funding.

ENFI is backed by Metallurgical Corporation of China, one of China's largest state-owned enterprises involved in the mining services sector, being a wholly owned subsidiary of the China Minmetals Group. ENFI and Diatreme are currently negotiating the principal terms for a heads of agreement (HOA) to commence study activities on the project. Both parties are targeting HOA completion by mid-November to fully capitalise on rising mineral sands market product prices.

Diatreme Resources Limited is an Australian based diversified mineral explorer with significant projects in WA and QLD.

#### Key Projects:

- Cyclone Zircon Project
- Tick Hill Gold Project
- Cape Bedford Silica/HMS Project
- Clermont Copper Project

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

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

Australian Securities Exchange  
Codes: DRX

#### Board of Directors - Non-executive:

William Wang - Chairman  
Gregory Starr  
Andrew Tsang  
Daniel Zhuang

#### Executive:

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## CYCLONE ZIRCON PROJECT (WA)

The Cyclone Zircon Project continued to advance towards development in the September quarter.

The project received final ministerial consent in early January, marking the conclusion of an extensive de-risking process.

Diatreme signed of a non-binding MOU with China ENFI Engineering Corporation (ENFI) in September for the completion of the Cyclone Zircon Project's BFS. ENFI is backed by Metallurgical Corporation of China one of China's largest state-owned enterprises (SOEs) involved in the mining services sector, being a wholly owned subsidiary of the China Minmetals Group.

Under the final terms of a proposed heads of agreement (HOA), which is being negotiated and expected to be completed within 60 days (targeting mid-November 2017), ENFI will undertake the Cyclone project's high-level engineering design and planning required to facilitate definitive final project costings, implementation and economics for this potentially company-making project in the Eucla Basin region of Western Australia.

Importantly, ENFI have agreed under the MOU to assist Diatreme in sourcing potential project equity or joint venture parties from within its extensive network, as well as facilitating engagement with Chinese banking consortia to assemble the project financing necessary for the mine's construction.

Diatreme has accordingly allowed ENFI access to all the relevant Cyclone project information studies, reports and other data under standard commercial confidentiality terms, for the purposes of advancing the HOA.

A Diatreme delegation will be visiting China in October to progress the negotiations.

### Mineral Resource and Ore Resource

Discovered in 2007, the Cyclone Deposit is located along the Barton shoreline within the northern Eucla Basin, 25 kilometres within Western Australia from the state border with South Australia. Cyclone is interpreted as a Tertiary beach strandline HM system with analogies to Iluka's Jacinth/Ambrosia HM deposit in the eastern Eucla Basin.

The Cyclone Mineral Resource estimate was updated in January 2017 and is reported as 203 Mt at 2.3% HM (at 1.0% HM cut-off grade), containing 4.70Mt of HM.

**TABLE 1: CYCLONE MINERAL RESOURCE AND ORE RESERVE ESTIMATE**

Category	HM cut-off %	Material Mt	HM %	HM Mt	Slime %	OS %	Head Grade						Zircon Kt
							Zircon %	Rutile %	Leuco %	HiTi %	Alt Ilm %	Si TiOx %	
CYCLONE MINERAL RESOURCE ESTIMATE													
MEASURED	1.0	156	2.4	3.81	4.2	5.0	0.69	0.07	0.16	0.58	0.30	0.53	1,079
INDICATED	1.0	48	1.9	0.89	4.4	5.1	0.38	0.04	0.09	0.62	0.30	0.34	183
TOTAL	1.0	203	2.3	4.70	4.2	5.0	0.62	0.06	0.14	0.59	0.30	0.49	1,262
Mineral Assemblage							27%	3%	6%	26%	13%	21%	
CYCLONE ORE RESERVE ESTIMATE													
PROBABLE		138	2.6	3.52	4.6	5.3	0.72	0.07	0.17	0.59	0.32	0.57	990
TOTAL		138	2.6	3.52	4.6	5.3	0.72	0.07	0.17	0.59	0.32	0.57	990
Mineral Assemblage							28%	3%	7%	23%	13%	22%	

#### Table 1 Notes

- Rounding may generate differences in last decimal place
- A constant SG of 1.7 has been used to derive material tonnes
- Slime refers to material typically <53um
- OS refers to material typically >2mm
- Mineral Assemblage derived from QEMSCAN® analysis
- Leucogene (Leuc) – Ti-oxides containing 85 – 95% TiO<sub>2</sub>, HiTi - Ti-oxides containing 70 - 85% TiO<sub>2</sub>, Altered Ilmenite (Alt Ilm) - Ti-oxides containing <70% TiO<sub>2</sub>, Si-bearing Ti-Oxide (Si TiOx) – Ti-oxides containing >10% silica rich Ti minerals.
- "Strand", "Beach" and "Nearshore" represent differing geological domains based upon varying sediment grain size and sorting (i.e. depositional environment), mineralogy and HM grade.

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The geological interpretation of the mineralisation includes 3 distinct geological domains:

- a “Beach” domain of well sorted marine and reworked dunal sands occurring as 2 broadly tapered elongate mineralised sand units originating from a common point and extending for over 7km;
- a “Strand” domain of higher grade (>4%) HM mineralisation occurring as a series of continuous elongate strandline features within the broader “Beach” domain;
- A “Nearshore” domain of bimodal marine sands with fine grained HM mineralisation underlying the western beach unit and extending for around 7km as an arcuate feature.

An update to the Probable Ore Reserve was completed as part of the Project Enhancement and Update Study, with a Probable Ore Reserve estimate for the Cyclone Project reported as 138 Mt at 2.6% HM, including 0.72% Zircon, containing 3.52 Mt of HM, including 0.99 Mt of Zircon (ASX Announcement 15 June 2016).

The Probable Ore Reserve represents a 75% conversion rate for contained HM tonnes. The pit design includes 83 Mbcm of overburden with a strip ratio of 1:1. The strip ratio is considerably lower in the early years of the mine operation.

### Project Enhancement and Update Study

During 2016, DRX engaged Sedgman Limited, a leading provider of mineral processing and associated infrastructure solutions to the mineral sands industry, to undertake a Project Enhancement and Update Study. Sedgman reviewed work undertaken for the PFS and subsequent studies and provided an updated assessment of the process plant, some infrastructure and shipping costs and assumptions at a technical and commercial level.

This has provided Diatreme with a greater understanding of the project’s potential commercial returns, while current industry and market conditions provide an opportunity for cost savings on key capital and operating expenditures, compared to the Prefeasibility Study. The joint study has confirmed the viability of the Cyclone Project and provides DRX with an independent consultant’s financial analysis which shows improvements to the project economics.

### Environmental Approval

Final ministerial consent (approval) was received on 9 January 2017 as Ministerial Statement No:1052, which allows the Cyclone Project to; *“Develop and operate the Cyclone Mineral Sands Mine, including open cut pits, mining and processing infrastructure, airstrip, accommodation camp, bore fields and haul road construction from the mine site to the Forrest rail siding.”*

The ministerial approval is an important step in a project de-risking process undertaken by Diatreme, which has included securing an agreement with the traditional owners, the identification of suitable water supplies and the expansion of the project’s forecast mining life following the acquisition of the adjacent Cyclone Extended tenement area.

### Market Upturn Underway for Mineral Sands

Research by industry researcher TZMI has highlighted the continued upturn in the mineral sands market. According to TZMI’s mid-year 2017 report, overall zircon supply is set to decline after 2017, with new projects necessary to avoid a potential supply deficit by 2019 and to meet continued expected demand.

Commentary from analysts and producers has pointed to solid growth in both demand and pricing, as reflected by the restart of the Jacinth-Ambrosia mine in the Eucla Basin. A July 2017 report by analysts Beer & Co (available via Diatreme’s website) has also noted that the firming zircon market will support Cyclone’s development prospects.

### CAPE BEDFORD SILICA/HMS PROJECT (QLD)

The Cape Bedford EPM17795 is located approximately 200km north of Cairns in North Queensland, and covers the extent of a large Quaternary sand dune field, part of which is currently being mined by Cape Flattery Silica Mines Pty Ltd (CFSM), a wholly owned subsidiary of Mitsubishi Corporation. Cape Flattery has operated since 1967 and is the world's largest silica sand mining operation.

The Cape Bedford / Cape Flattery region of north Queensland is dominated by an extensive Quaternary sand mass and dune field that stretches inland from the present coast for approximately 10km and extends 50km from north to south.

Previous exploration has focused on the Cape Flattery area, within the Mining Leases of CFSM, but reconnaissance exploration has been carried out over the entire dunefield in the late 1960's and again in the early 1980's. This exploration confirmed the presence of both silica sand and heavy mineral sands, and Diatreme intends to build on the existing data and initially target those areas (e.g. Nob Point) where prospective silica sand dunes have been identified and access is readily available.

The company executed a Conduct and Compensation Agreement (CCA) in January 2017, and a Cultural Heritage Agreement (CHA) in June 2017 with the traditional owners, the Hopevale Congress. The CCA allows access for ground disturbing exploration activity and ensures the traditional owners share in the potential economic benefits of this new project, while the CHA sets out the protocol for cultural heritage issues. Cultural heritage surveys for the first proposed exploration program were undertaken in August and subsequent exploration access granted in September 2017.

Diatreme's reconnaissance samples confirm the potential of the widespread silica sand dune material to generate high-quality silica sand. Reconnaissance samples, together with the observation of HM slicks on some of the exposed beaches, suggests that HM mineralisation may be present at several locations within the EPM. Preliminary metallurgical testwork on a mineralized bulk sample from near Elim Beach indicates the sands to be amenable to the use of standard mineral sands process methodologies and equipment.

### Reconnaissance Exploration

Following the process defined by the CHA, Diatreme assisted with a Cultural Heritage survey in August 2017 over the proposed reconnaissance exploration area in the Nob Point to Elim Beach area in the southern part of EPM17795. A reconnaissance exploration program was subsequently approved, and Diatreme commenced exploration in September 2017 utilising company owned and operated air-core drilling rig. Reconnaissance drilling was planned alongside established roads and tracks, with line clearing and reconnaissance drilling also planned over a dune system in the southern part of the EPM.

The exploration program was developed based upon encouraging results from historical exploration in the 1970's and 1980's (although this was itself reconnaissance in nature), encouraging observations from Diatreme's site visits, and the ease of access due to several roads and tracks traversing the area.

During September, 29 holes were drilled along Elim Road and a related beach access track, for a total of 606m with an average hole depth of 21m. The logged geology was reasonably consistent in defining large areas of fine grained quartz sand, but sand colour was variable, with a variety of coloured sands particularly apparent towards Elim Beach. This is not surprising, as Elim Beach itself is known for its exposures of eroded high dune cliffs displaying "coloured sands". Widespread, but low-grade HM mineralisation was observed in most of the roadside reconnaissance drilling, with HM assay results pending.

The beach access track runs alongside a broad elongate swamp, and holes drilled here encountered quartz sands with a shallow water table (~3m) and typically white sands on surface and tannin stained light brown to brown sands below water table.

Holes drilled along the central part of the Elim Road returned good thicknesses of fine grained white quartz sands from surface, and assay results support the logging with an average 99% SiO<sub>2</sub> reported



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for the samples submitted for analysis.

A table of summary assay results is presented below.

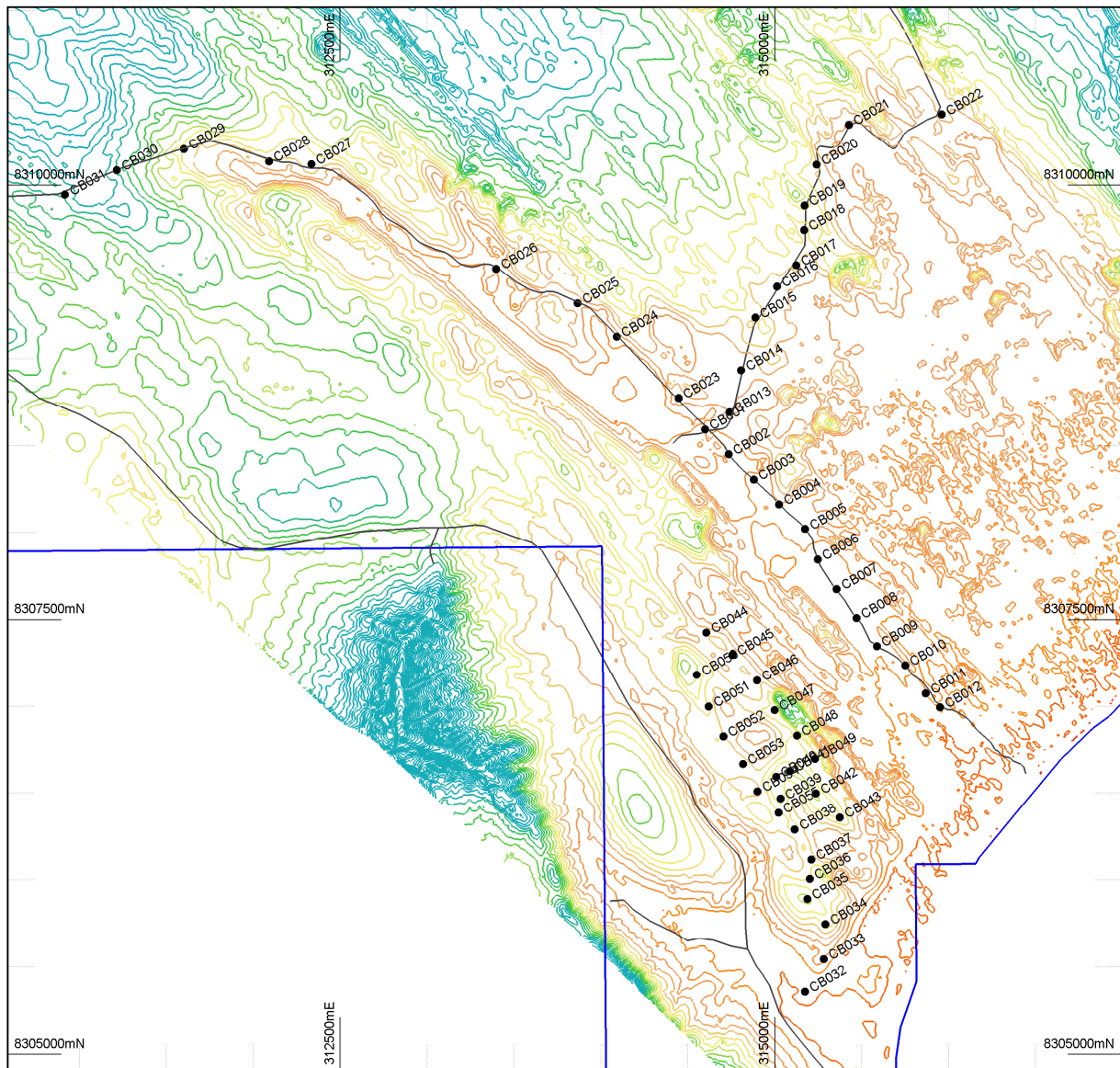
Hole_ID	East	North	RL	From	To	Int.	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>
	UTM Zone55L GDA			m	m	m	%	%	%	%
CB013	314743	8308688	18	0	12	12	99.04	0.09	0.05	0.08
CB024	314094	8309126	18	0	18	18	98.67	0.06	0.07	0.14
CB025	313869	8309318	22	0	18	18	98.89	0.09	0.08	0.14
CB026	313400	8309518	20	0	24	24	98.80	0.08	0.08	0.12
CB028	312094	8310134	29	0	18	18	98.99	0.08	0.08	0.15
CB029	311605	8310207	36	0	15	15	98.82	0.10	0.08	0.12

The assay results are considered encouraging in light of the fact they are as-drilled samples, with no sample preparation (e.g. washing, HM removal) as would typically be carried out for silica sands. Minor amounts of HM (ilmenite dominant) were observed during logging, as evidenced by the iron and titanium assay results reported. Also note that CB027 was not submitted for analysis as it displayed a light brown sand layer with minor root material (interpreted as a paleo topsoil horizon) at 6m depth, disrupting the white sand profile which was present from surface to 18m in that hole.



Drill hole collars overlain on Google Earth – blue line EPM





Drill hole collars overlain on 5m topographic contour data – blue line EPM, grey line road



Drilling along beach access track

Low levels of HM were observed in all of the drilling completed, with a visual estimate of background HM grades averaging around 0.3% for the drilled areas. However, some holes returned significantly higher levels of HM in visual logging (refer photo below), and 60 samples have been submitted for HM analysis to assess the economic potential of the observed HM.





HM mineralisation present in sample from hole CB016, 21-24m depth

The first stage of the reconnaissance air-core drilling in September has allowed a general understanding of the dune geology, and returned results that confirm both the exploration potential of a significant silica sand deposit in the area, together with more localised occurrences of HM mineralisation.

Technical information relating to the reconnaissance exploration program is presented as JORC 2012 Table 1 appendix attached to this report.

Subsequent to the reporting period, a further program of drilling was completed over dune features in the Nob Point area during early October. A further 26 holes for a total of 670m were drilled, with an average depth of 26m. Several zones of white quartz sands were observed during this program, and samples, including bulk samples from the most promising areas, have been submitted for analysis



Drilling on dune feature in Nob point area

### Exploration – next steps

Planning for the next stage of exploration is underway, with a vegetation survey being commissioned in Q4 that should allow access to the NW extension of the Nob Point dunes drilled in October. Compilation of the reconnaissance data together with a high-resolution satellite image (and related topographic data processing) that was acquired in September 2017, will facilitate detailed planning for the next stages of exploration.

### TICK HILL GOLD PROJECT (QLD)

The Tick Hill Gold Project comprises three granted Mining Lease No's 7094, 7096 and 7097 (totalling 390ha). The Tick Hill Gold Deposit was mined between 1991 and 1995 by Carpentaria Gold Pty Ltd (a subsidiary of MIM Holdings Limited) for the production of 513,333 ounces of gold from 705,000 tonnes of ore at a recovered grade of 22.6 g/t gold (source: MIM – Annual Reports). This makes it one of the highest grade gold deposits in Australia's recent gold producing history.

The transfer of the three ML's to Diatreme Resources was confirmed by the Department in March 2015, triggering the commencement of the DRX Farm-In and Joint Venture Agreement with Superior Resources Limited (ASX:SPQ) over the Tick Hill Gold Project. Under the Joint Venture Agreement, Superior Resources has the right to earn a 50% interest in the project by:

- Completing \$750,000 of exploration expenditure;
- Making a payment to DRX of \$100,000; and
- Lodging 50% of the Queensland Government security bond on the tenements.

Exploration and assessment of the surface material within the leases (including alluvials, tailings and waste dumps) is to be conducted as a joint operation, with each party contributing 50% of the costs.

The Tick Hill Gold Mine operated from August 1991 through to March 1995, with commissioning of the site processing plant in December 1991. The plant comprised crushing and milling circuits delivering a product with a p80 of 70µm to a CIL circuit. Tailings were discharged into a tailings dam comprising two paddocks of a "turkeys nest" construction in which a perimeter embankment with a clay core retains tailings. Wall heights range from 6m to 10.5m. Since decommissioning the surface has been capped and both the surface and batters seeded, with good vegetation cover now present.

The total reported production for the Tick Hill Gold Mine was 705,000t at 22.6 g/t Au for 15,900kg Au at 97% gold recovery. Some high grade open pit ore was mined and transported to the Carpentaria Gold operations at Ravenswood to provide early cash flow to the project, this has been estimated at 20,000t based on the reported 19,000oz produced at Ravenswood in the 1991/1992 financial year (with head grades for that year of 30.2 g/t Au). This suggests that approximately 685,000t of tailings remain on site, with an estimated grade of around 0.7 g/t Au.

In January 2016 Diatreme announced a maiden Mineral Resource estimate for tailings material located within the rehabilitated tailings dam at Tick Hill (refer *ASX announcement 19 Jan 2016*). The Indicated Resource is estimated at 630kt at 1.08 g/t Au (at 0.5 g/t Au cut-off) containing 680kg (22,000 troy ounces) of gold.

In March 2016, Diatreme announced that a scoping study completed by an independent external consultant (Metcor) had confirmed the viability of a standalone operation processing the identified tailings resource. Tick Hill has the potential for a 20-month operation processing the tailings via re-grinding and a standard CIP/CIL circuit.

Metallurgical studies were undertaken to help determine the optimal grain size required to balance leach extraction rates with energy requirements for regrinding of the tailings. The cyanide leach testwork showed that gold extraction increases with increasingly finer grind size, but gold extraction of ~90% or higher can be achieved at grind sizes of around P<sub>80</sub> 35 µm and finer.

Ultra-fine grinding testwork utilising an Isamill™ was conducted to determine the likely energy requirements, with results reported slightly higher than parameters used in the Scoping Study, but further work is required to generate data suitable for use in feasibility studies.

Additional metallurgical testwork is required to allow detailed design of a process flowsheet, determination of capital and operating costs, and development of a financial model to further assess the economic potential for mining and processing of the tailings material.

### CLERMONT COPPER PROJECT (QLD)

A review of the Clermont project, primarily the Rosevale Porphyry Corridor (RPC), is continuing, with development of a proposed exploration strategy.



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### GRAYS HILL PROJECT (QLD)

The company has identified a number of topographic features within Quaternary sediments on the coastal plain in the eastern part of EPM25117 that may represent targets for HM accumulation. An agreement with the primary landholder is required to facilitate access for reconnaissance exploration and this was not advanced during the quarter.

### CASH POSITION

The Company's cash position at 30 September 2017 (Appendix 5B) was \$325k\*.

\* The company is also currently undertaking a Share Purchase Plan (SPP) capital raising to fund further specific exploration programs and additional working capital (refer ASX release 4/10/17).

### APPENDIX 1

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

**Dated 24<sup>th</sup> October 2017**

**Neil J McIntyre**

Chief Executive

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#### Competent Person Statements

The information in this report that relates to Exploration Results from the Cape Bedford Project is based on information compiled by Mr. Ian Reudavey, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Reudavey is a full-time employee of Diatreme Resources Limited. Mr. 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'. Mr. Reudavey 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 that relates to Exploration Results and Mineral Resource from the Tick Hill Gold Project is based on information compiled by Mr. Ian Reudavey, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Reudavey is a full-time employee of Diatreme Resources Limited. Mr. 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'. Mr. Reudavey 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 from the Cyclone Zircon Project is based on information compiled by Mr Ian Reudavey, who is 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 from the Cyclone Zircon 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.

APPENDIX 1

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

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

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
WA	Cyclone	M69/141	Eucla Basin	100%	LSPL	Granted
WA	Cyclone Extended	R69/1	Eucla Basin	100%	DRX	Granted
QLD	Clermont	EPM17968	Clermont	100%	CHAL	Granted
QLD	Grays Hill	EPM25117	Yeppoon	100%	DRX	Granted
QLD	Cape Bedford	EPM17795	Hopevale	100%	DRX	Granted
QLD	Tick Hill	ML7094	Duchess	100%	DRX	Granted
QLD	Tick Hill	ML7096	Duchess	100%	DRX	Granted
QLD	Tick Hill	ML7097	Duchess	100%	DRX	Granted

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

State	Tenement Name	Tenement ID	Location	Interest	Holder	Comments
-	-	-	-	-	-	-

**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	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
QLD	Tick Hill Gold Project	Farm-out and Joint Venture Agreement	DRX and Superior Resources Limited	100%	Proposed JV announced Aug 2011, formal Agreement announced Jun 2013, Joint Venture commenced Jan 2015

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

State	Project Name	Agreement Type	Parties	Interest held at end of quarter by exploration entity	Comments
-	-	-	-	-	-

Abbreviations:

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

## JORC Code, 2012 Edition – Table 1

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Sampling techniques are mineral sands “industry standard” for dry beach sands with low levels of induration and slime.</li> <li>Samples are 3m down hole intervals of air-core drill cuttings collected from cyclone mounted rotary splitter, approximately 3-4kg (representing ~20%) of drill material is sampled.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul style="list-style-type: none"> <li>Vertical NQ air-core drilling utilizing blade bit, 3m drill runs</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul style="list-style-type: none"> <li>Visual assessment and logging of sample recovery and sample quality</li> <li>Reaming of hole and clearance of drill string after every 3m drill rod</li> <li>Sample chute cleaned between samples and regular cleaning of cyclone to prevent sample contamination</li> <li>No relationship is evident between sample recovery and grade</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Geological logging of the total hole by field geologist, with retention of sample in chip trays to allow subsequent re-interpretation of data</li> <li>The total hole is logged; logging includes colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilizing panning.</li> <li>Logging is captured in Micromine data tables, with daily update of field database and regular update of master database.</li> </ul>



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Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>Rotary split on site (approx. 80:20), resulting in approximately 3 – 4kg of dry sample</li> <li>Sample was coned and quartered to generate a sample for submission to the laboratory, with surplus retained as a reference sample.</li> <li>Sample size is considered appropriate for the material sampled</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>Samples were submitted to ALS Townsville, where they were dried, weighed and split.</li> <li>Analysis was undertaken by ALS Brisbane utilizing a Tungsten Carbide pulverization, ME-XRF26 (whole rock by Fusion/XRF) and ME-GRA05 (H<sub>2</sub>O/LOI by TGA furnace)</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Significant intersections validated against geological logging and local geology / geological model.</li> <li>Due to the reconnaissance nature of exploration no twinned holes have been completed at this stage.</li> <li>All data captured and stored in both hard copy and electronic format.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>All holes initially located using handheld GPS with an accuracy of 5m for X,Y.</li> <li>UTM coordinates, Zone 55L, GDA94 datum.</li> <li>Topographic surface generated from processing Stereo WorldView-3 satellite imagery and DGPS control points, collar RL's levelled against this surface to ensure consistency in the database.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>Drill lines were completed at ~200m spacing along the road verge where sufficient width was available to allow safe operation of the drill rig.</li> <li>Drill spacing and distribution is not sufficient to allow valid interpretation of geological and grade continuity for Mineral Resource estimation</li> <li>No sample compositing (down hole) has been undertaken at this time.</li> </ul>

## QUARTERLY REPORT

Criteria	JORC Code explanation	Commentary
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>The road alignment is variable and there is insufficient knowledge of the dune geology at this time to comment on unbiased sampling</li> <li>The dune field has ridges dominantly trending 320° - 330°.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Sample collection and transport from the field was undertaken by company personnel following company procedures.</li> <li>Samples were delivered direct to ALS in Townsville.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>There has been no audit or review of sampling techniques and data at this time.</li> </ul>

## QUARTERLY REPORT

### Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The Cape Bedford Project occurs within EPM17795 in Queensland and is held by Diatrema Resources.</li> <li>The tenement is in good standing</li> <li>A Compensation and Conduct Agreement, and a Cultural Heritage Agreement is in place with the landholder and native title party (Hopevale Congress)</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration has been carried out in the area during the 1970's by Ocean Mining and 1980's by Breen Organisation.</li> <li>The historical exploration data is of limited use since it comprises shallow hand auger drilling and is often not accurately located.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The geology comprises variably re-worked aeolian sand dune deposits associated with a Quaternary age sand dune complex.</li> <li>Mineralisation occurs within aeolian dune sands.</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>A tabulation of the material drill holes is presented in the main body of this report.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>The assay data presented for the silica sand is an arithmetic average of the 3m individual sample results.</li> <li>No minimum of maximum grade truncations have been used.</li> <li>The grade is relatively consistent and the aggregate intercepts use a simple arithmetic average.</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i></li> </ul>	<ul style="list-style-type: none"> <li>• As the mineralisation is associated with aeolian dune sands the majority will be essentially horizontal, some variability will be apparent on dune edges and faces.</li> <li>• All drilling is vertical; hence the drill intersection is essentially equivalent to the true width of mineralisation.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>• <i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i></li> </ul>	<ul style="list-style-type: none"> <li>• A map of the drill collar locations is incorporated with the main body of the announcement. Representative cross-sections are not attached as there is insufficient drilling at this time to generate meaningful sections.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>• <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All exploration results have been reported at this time.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Geological observations are consistent with aeolian dune mineralisation</li> <li>• No bulk density measurements have been undertaken</li> <li>• Abundant groundwater was intersected during drilling, as expected given the location of drilling adjacent to an interdunal swamp.</li> <li>• The mineralisation is unconsolidated sand</li> <li>• There are no known deleterious substances at this time.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Additional drilling to test for lateral extensions of mineralisation are planned.</li> <li>• The areas of possible extensions are considered to be potentially politically and culturally sensitive, and not appropriate for publishing at this time.</li> </ul>