ASX
ANNOUNCEMENT

QUARTERLY ACTIVITIES REPORT
FOR THE PERIOD ENDED 30 JUNE 2018

31 July 2018

Highlights

- **Definitive Feasibility Study (DFS) advances for flagship Cyclone Zircon Project, with final report by China ENFI Engineering Corporation expected third quarter 2018 amid positive mineral sands outlook**

- **Maiden silica Mineral Resource imminent for Cape Bedford's Nob Point Silica Sand Prospect following targeted exploration drilling; metallurgical bulk sample testing underway to confirm potential high-quality silica product suitable for export markets**

- **Tick Hill Gold Project vended into proposed new gold IPO by Carnaby Resources Limited, generating further upside for Diatreme shareholders at zero cost**

CYCLONE ZIRCON PROJECT (WA)

Diatreme's flagship Cyclone Zircon Project in Western Australia's Eucla Basin continued to advance towards development in the June quarter amid a positive environment for mineral sands prices.

Diatreme has engaged China ENFI Engineering Corporation (ENFI) for the completion of the Cyclone Zircon Project's Definitive Feasibility Study (DFS). 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 (approximately A$331 billion in total assets).

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Diatreme and ENFI signed an MOU in September 2017, successfully negotiated the terms of an agreement during the December quarter, and in early January 2018 signed two contracts comprising:

- A **Co-operation Agreement**, under which ENFI will use its network within China's state-owned enterprise (SOE) and banking sectors to assist in sourcing project investors, offtakers and project debt funding;
- A **Consulting Services Agreement**, detailing the remaining DFS aspects to be completed by ENFI, including project costings and economics, engineering studies and implementation planning. The DFS is expected to be completed in Q3 of 2018.

The support of ENFI's commercial and Chinese SOE networks is invaluable in securing potential project partners for Cyclone, including investors, offtakers and providers of project debt funding. ENFI has also been provided with the necessary Cyclone project information to undertake the outstanding items of the DFS, which when completed will provide lenders with the level of confidence required to finance the mine's development.

During a visit to China in March, strong interest was shown in the Cyclone Project from potential project partners over construction, finance and product offtake, with Diatreme now working to formalise agreements and detailed commercial understandings (refer ASX announcement 4 April 2018).

ENFI's technical and assessment team in July 2018 undertook as part of the DFS finalisation process a detailed study and assessment tour of the Cyclone Project site, proposed rail transport site at Forrest (on the trans-Australian railway) and examined product export ports including Port Adelaide.

Mineral Resource and Ore Resource

Discovered in 2007, the Cyclone Deposit is located along the Barton shoreline within the northern Eucla Basin. 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 %	Leuc %	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*
- *Leucoxene (Leuc) – Ti-oxides containing 85 – 95% TiO2, HiTi - Ti-oxides containing 70 - 85% TiO2, Altered Ilmenite (Alt Ilm) - Ti-oxides containing <70% TiO2, 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.*

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 (refer ASX announcement 15 June 2016).

Sustained Market Upturn Underway for Mineral Sands

Recent market commentary and analysis has pointed to increasing demand for heavy mineral sands such as zircon, along with constrained supply, adding to the necessity for new projects such as Cyclone.

Major producer Iluka Resources increased its zircon reference price by nearly 15% to US$1,410 per tonne, having reported a 40% increase in the zircon price since the start of 2017. Industrial Minerals' assessment for zircon premium grade, min 66.5% Zr02, bulk CIF China was at US$1,410 - $1,700 per tonne as at 19th July 2018.

Iluka's mid-year review reaffirmed the continuation of strong market conditions with zircon supply remaining tight with no evidence of market substitution.

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 (refer ASX announcement 18 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 2017 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 mineralised bulk sample from near Elim Beach indicates the sands to be amenable to the use of standard mineral sands process methodologies and equipment.

Diatreme has completed a 41 air-core infill drilling program totaling 823m at the Nob Point sand dune to determine sand quality and continuity to determine potential resources. A bulk sample was also composited from the drilling for metallurgical purposes, namely a conceptual process methodology for the recovery of high purity silica sands.

Exploration Drilling

Exploration drilling with a combination of infill drilling and further reconnaissance drilling was completed in the Nob Point dune area drilled in June 2018. This will provide further data for geological interpretation and confirmation of the continuity of the white sand mass. This drilling is planned to allow a mineral resource estimate to be compiled for part of the Nob Point dune system.

A total 41 Air Core holes were completed for a total meterage of 823m.

Holes CB056 to CB064 targeted a sand dune on the western side of Alligator Creek.

Holes CB065 to CB096 targeted the Nob Point dune system to continue the investigation into potential silica sand resources. Drill hole spacing was reduced from 200m to a nominal 100m spacing with the addition of cross lines where topography allowed. The results indicated there maybe scope to estimate an inferred resource based on this drilling.

Drilling is still preliminary with 3m composite samples collected to minimize analysis costs, as well to provide a bulk sample for more metallurgical testwork.

Drilling on dune feature in Nob point area, June 2018

Drill hole collars overlain on Google Earth – blue line EPM boundary

Table 1: Drill Hole Collar & Assay Information

Hole ID	MGA_E	MGA_N	RL	Depth	From	To	Int	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	TiO2 (%)
CB056	314103	8306997	29	18	N/A						
CB057	314075	8306787	53	17	N/A						
CB058	314122	8306655	49	18	N/A						
CB059	314208	8306473	57	18	N/A						
CB060	314312	8306306	59	18	0	9	9	98.82	0.13	0.14	0.16
CB061	314365	8306231	53	24	0	21	21	99.01	0.10	0.17	0.14
CB062	314446	8306174	50	21	0	18	18	99.25	0.11	0.18	0.13
CB063	314536	8306130	43	15	0	12	12	99.38	0.08	0.10	0.13
CB064	314693	8306059	34	15	0	12	12	98.91	0.15	0.15	0.20
CB065	314587	8307091	41	27	0	27	27	99.43	0.13	0.09	0.08
CB066	314668	8306909	40	23	0	23	23	99.23	0.12	0.15	0.09
CB067	314774	8306736	37	21	0	21	21	99.30	0.06	0.09	0.06
CB068	314871	8306602	34	20	0	18	18	99.16	0.11	0.11	0.10
CB069	314925	8306688	32	18	0	18	18	99.48	0.07	0.09	0.09
CB070	314979	8306780	26	12	0	12	12	99.72	0.06	0.08	0.08
CB071	315054	8306900	20	27	0	27	27	99.29	0.05	0.08	0.07
CB072	315174	8306784	40	21	0	21	21	99.28	0.06	0.08	0.10
CB073	315117	8306694	40	27	0	27	27	98.76	0.20	0.16	0.11
CB074	315162	8306587	49	35	0	33	33	98.85	0.17	0.10	0.10
CB075	315000	8306540	53	33	0	30	30	98.89	0.16	0.10	0.09
CB076	315064	8306377	41	27	0	21	21	99.07	0.12	0.17	0.10
CB077	315168	8306208	40	21	0	18	18	99.38	0.11	0.10	0.09
CB078	314961	8306442	40	17	0	15	15	99.37	0.12	0.09	0.10
CB079	314703	8307129	39	21	0	21	21	99.15	0.14	0.12	0.15
CB080	314788	8307083	37	21	0	21	21	99.25	0.08	0.06	0.11
CB081	314853	8307040	34	24	0	24	24	99.02	0.09	0.09	0.13
CB082	314920	8307001	38	24	0	24	24	98.95	0.07	0.15	0.11
CB083	314954	8307055	37	24	0	24	24	99.09	0.07	0.04	0.09
CB084	315104	8305940	51	30	0	27	27	99.05	0.08	0.08	0.11

Hole ID	MGA_E	MGA_N	RL	Depth	From	To	Int	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	TiO2 (%)
CB085	315039	8306015	42	25	0	24	24	99.26	0.10	0.06	0.09
CB086	315004	8306109	37	18	0	15	15	98.74	0.39	0.10	0.18
CB087	314988	8306193	31	10	0	9	9	99.32	0.12	0.08	0.13
CB088	314940	8306285	34	11	0	6	6	99.59	0.12	0.11	0.17
CB089	314885	8306361	39	12	0	9	9	99.48	0.13	0.08	0.10
CB090	314836	8306447	39	10	0	9	9	99.50	0.13	0.11	0.11
CB091	314782	8306533	32	7.5	0	6	6	99.65	0.16	0.11	0.07
CB092	314709	8306609	36	12	0	9	9	99.52	0.09	0.13	0.13
CB093	314660	8306683	38	18	0	15	15	99.64	0.08	0.11	0.15
CB094	314612	8306743	39	24	0	21	21	99.13	0.12	0.15	0.18
CB095	314557	8306811	40	20	0	18	18	99.35	0.10	0.13	0.17
CB096	314514	8306873	37	19	0	15	15	99.00	0.11	0.13	0.15

Bulk Sample Metallurgical Testwork

Using the 3m composited samples from drilling, a selection of samples containing white silica sand with an in-situ percentage of SiO2 >99%, were collected and delivered to Brisbane for metallurgical testwork. A target of a minimum of 500kg was used to develop a conceptual process methodology for the production of a silica sand product.

The work is being conducted by IHC Robbins and results are pending.

Exploration Target

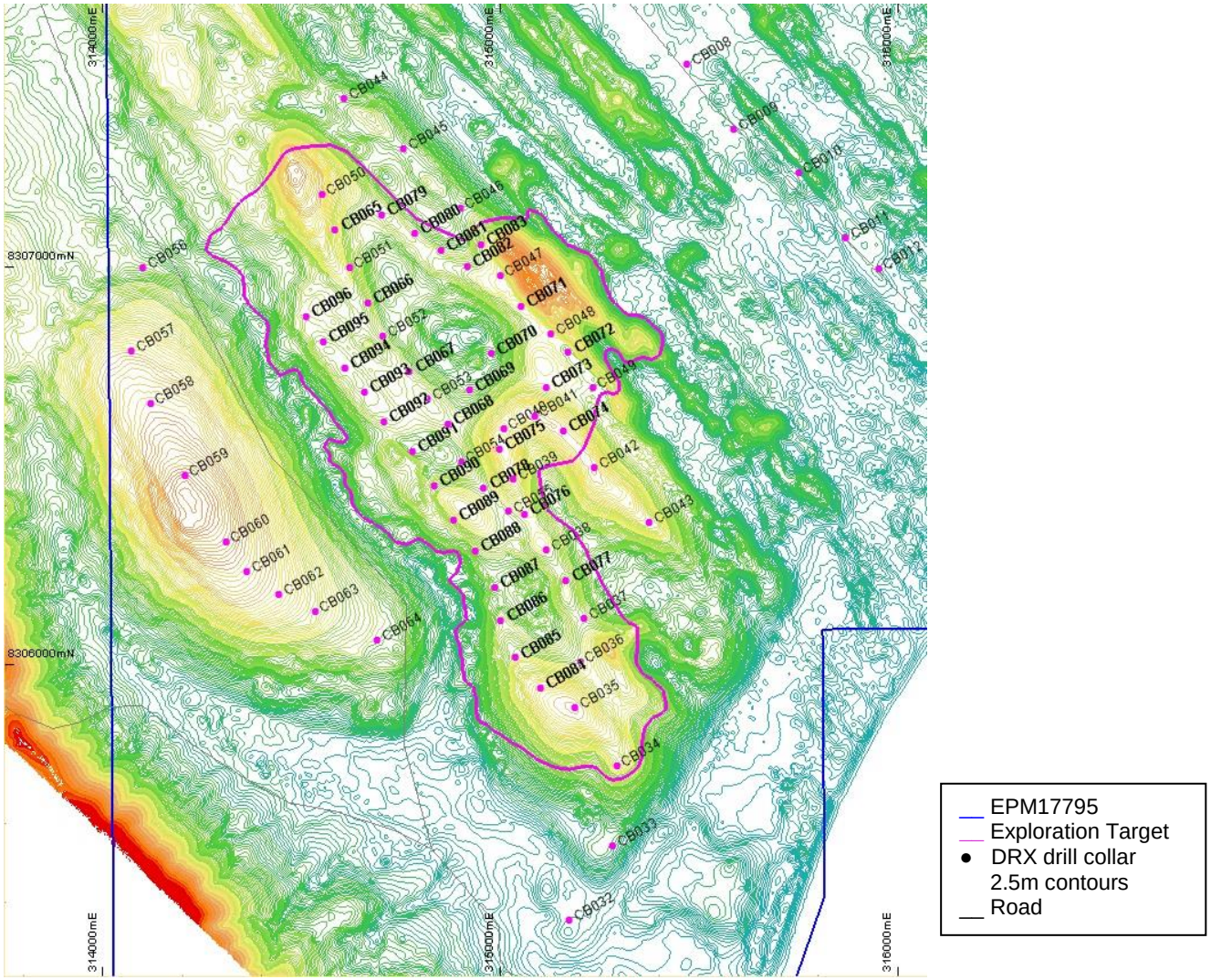
Based upon the results from reconnaissance and infill drilling and the initial metallurgical testwork, an Exploration Target for potential high-grade silica sand has been generated for the Nob Point dune area of 15 million to 20 million tonnes of high quality silica sand.

The potential quality and grade of this Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource; it is uncertain if further exploration will result in the estimation of a Mineral Resource.

The Exploration Target includes two interconnected dune ridges within the broad dune structure between the Nob Point access road to the SW and the Deep Creek lowlands and swamp to the NE.

The estimate assumes that between 60% and 90% of the dune sand is mineable and an in-situ bulk density of 1.6t/m^3 is used to calculate tonnage. A target grade of 99% SiO_2 is considered appropriate as drill samples assayed to date exceed this value, and metallurgical testwork has demonstrated an increase in grade using conventional processes. The area is readily accessible from existing roads, and in close proximity to a potential barge / ship loading site.

Detailed information for the Exploration Target was presented in an announcement released to the **ASX on 13 March 2018.**



Silica Sand Exploration Target over Nob Point dune system

TICK HILL GOLD PROJECT (QLD)

On 4 June 2018, Diatreme Resources Limited **(Diatreme**) entered into a binding Terms Sheet with Carnaby Resources Limited (**Carnaby**) and Superior Resources Limited (**SPQ**) (**Terms Sheet**), which grants Carnaby an option to acquire 100% of the Tick Hill Gold Project (**Project**), located approximately 150 kms SSE of Mount Isa, Queensland (refer ASX announcement 5 June 2018).

Consideration for the sale will comprise fully paid ordinary shares in Carnaby upon Carnaby's admission to the Official List of the ASX via an upcoming initial public offering (**IPO**). Carnaby is seeking to raise between $10 million and $15 million under the IPO. Diatreme will receive 4.5% of the total capitalisation of Carnaby upon listing, comprising a minimum of 3,225,000 shares and a maximum of 4,500,000 shares priced at $0.25 per share (valued at up to $1.125m), depending on the level of subscriptions under the IPO.

Superior's current interest in the Project is an earn-in interest under an Exploration Farm-in and Joint Venture Agreement (**JV Agreement**) with DRX. Under the JV Agreement, Superior may earn a 50% interest in the project by:

- spending a minimum of $750,000 on exploration;
- paying DRX $100,000; and
- paying DRX 50% of the environmental bond (current bond totals $298,000).
-

To date, Superior has spent approximately $350,000 on the Project and has not met its earn-in requirements. But for the Carnaby transaction, the JV Agreement would have terminated on 31 December 2017.

As a result of the expenditure to date, Superior holds a 50% interest in the surface gold (separate from any interest in the tenements), comprising mainly the residual gold contained in the Tick Hill Tailings Ponds (630,000t @ 1.08 g/t Au, for 22,000 ounces (@ 0.5 g/t cut-off grade)).

The results of a scoping study and additional work by Superior during 2016 did not result in defining a pathway to viable extraction of the residual gold contained in the tailings.

For the purposes of the sale Terms Sheet, Superior's interest in the Project is deemed to be a 25% beneficial interest with DRX's interest deemed to be 75% legal and beneficial interest.

Key terms of Terms Sheet:

Under the Terms Sheet, Diatreme and Superior separately grant Carnaby an option to acquire 100% of each party's interests subject to the following key conditions:

- each option must be concurrently exercised on or before 30 June 2018;

- Carnaby must lodge a prospectus with ASIC and raise a minimum of $10,000,000 and up to $15,000,000 (before costs) via the IPO;
- any escrow of the consideration shares is not more than 12 months; and
- Carnaby must receive approval to be admitted to the Official List of the ASX within 120 days of signing the Terms Sheet.

Carnaby exercised its option under the Terms Sheet on 28 June 2018.

CLERMONT COPPER PROJECT (QLD)

Diatreme management and external consultants are currently undertaking a review of the Clermont project, primarily the Rosevale Porphyry Corridor (RPC), in order to determine whether to proceed with a proposed exploration or disposal strategy for the tenement area.

CASH POSITION

The Company's cash position at 30th June 2018 (Appendix 5B) was $ 39K*.

***Note:** During July 2018, the Company undertook a sophisticated investor private placement program with $927,000 being committed to further fund project development and working capital. (Refer ASX announcement 31 July 2018)

Dated 31st July 2018
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 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 from the Cyclone Zircon 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 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	Tenement	Location	Interes	Holder	Comment
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	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	Tenement	Location	Interes	Holder	Comment
-	-	-	-	-	-	-

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	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, announced Jun 2018 sale to Carnaby subject to successful IPO

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	Comments
-	-	-	-	-	-

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	

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	• *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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *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.*	• Drilling 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 returned via the cyclone is sampled. • Sample was submitted to commercial laboratory for drying, splitting (if required), pulverisation in a tungsten carbide bowl, and XRF analysis • Sampling techniques are mineral sands "industry standard' for dry beach sands with low levels of induration and slime. • As the targeted mineralisation is silica sand, geological logging of the drill material is a primary method for identifying mineralisation • Metallurgical samples are composited intervals of white and cream sands logged in drilling with collection of the entire volume of air-core drill cuttings from the cyclone in to large plastic sample bags. • A twinned hole was drilled to collect the bulk sample from the logged interval of interest.
Drilling techniques	• *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).*	• Vertical NQ air-core drilling utilizing blade bit, 3m drill runs
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	• Visual assessment and logging of sample recovery and sample quality • Reaming of hole and clearance of drill string after every 3m drill rod • Sample chute cleaned between samples and regular cleaning of cyclone to prevent sample contamination • No relationship is evident between sample recovery and grade
Logging	• *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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*	• Geological logging of the total hole by field geologist, with retention of sample in chip trays to allow subsequent re-interpretation of data if required. • The total hole is logged; logging includes colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilizing panning. • Logging is captured in Micromine data tables, with daily update of field database

Criteria	JORC Code explanation	Commentary
	• *The total length and percentage of the relevant intersections logged.*	and regular update of master database.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Drilling samples rotary split on site (approx. 80:20), resulting in approximately 3 – 4kg of dry sample • Sample was coned and quartered to generate a 1-2kg sample for submission to the laboratory, with surplus retained as a reference sample. • Sample size is considered appropriate for the material sampled
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.* • *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.*	• Drilling samples were submitted to ALS Townsville, where they were dried, weighed and split. • Analysis was undertaken by ALS Brisbane utilizing a Tungsten Carbide pulverization, ME-XRF26 (whole rock by Fusion/XRF) and ME-GRA05 (H_2O/LOI by TGA furnace) • Metallurgical samples were submitted to IHC Robbins for characterisation testwork (screening, de-sliming, sizing, HLS and XRF analysis) and wet-tabling (two stage) to generate products for sizing and XRF analysis. • A composited metallurgical samples were submitted to IHC Robbins for conceptual process methodology for the recovery of high purity silica sand.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Significant intersections validated against geological logging and local geology / geological model. • Twinned holes were completed to generate material for bulk sampling and metallurgical testwork. Geological logging is comparable, no direct assay comparison has been made at this time. • All data captured and stored in both hard copy and electronic format.
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All holes initially located using handheld GPS with an accuracy of 5m for X,Y. • UTM coordinates, Zone 55L, GDA94 datum. • 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.
Data spacing and	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the*	• 2018 drill lines were ~100m spaced infill drilling along prepared access tracks • Drill spacing and distribution is sufficient to allow valid interpretation of

Criteria	JORC Code explanation	Commentary
distribution	*degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	geological and grade continuity for Mineral Resource estimation. • No sample compositing (down hole) has been undertaken for XRF analysis of drill samples. Down hole sample compositing was undertaken to generate a single bulk sample for holes CB037, CB038, CB047, CB048, CB053 and CB054. • Sample compositing was c
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *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.*	• The dune field has ridges dominantly trending 320° - 330°. • The drill access tracks typically run along or sub-parallel to dune ridges which suggests unbiased sampling, some cross dune tracks linking the ridges were also drilled.
Sample security	• *The measures taken to ensure sample security.*	• Sample collection and transport from the field was undertaken by company personnel following company procedures. • Samples were delivered direct to ALS in Townsville.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• There has been no audit or review of sampling techniques and data at this time.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *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.* • *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.*	• The Cape Bedford Project occurs within EPM17795 in Queensland and is held by Diatreme Resources. • The tenement is in good standing • A Compensation and Conduct Agreement, and a Cultural Heritage Agreement is in place with the landholder and native title party (Hopevale Congress)
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration has been carried out in the area during the 1970's by Ocean Mining and 1980's by Breen Organisation. • The historical exploration data is of limited use since it comprises shallow hand auger drilling and is typically not accurately located.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The geology comprises variably re-worked aeolian sand dune deposits associated with a Quaternary age sand dune complex. • Mineralisation occurs within aeolian dune sands.

Drill hole Information	• *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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *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.*
		• A tabulation of the material drill holes is presented in the main body of this report.

Data aggregation methods	• *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.* • *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.* • *The assumptions used for any reporting of metal equivalent values*	• The assay data presented for the silica sand is an arithmetic average of the 3m individual sample results. • No minimum of maximum grade truncations have been used. • The grade is relatively consistent and the aggregate intercepts use a simple arithmetic average.

Criteria	JORC Code explanation	Commentary
	should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *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').*	• 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. • All drilling is vertical; hence the drill intersection is essentially equivalent to the true width of mineralisation.
Diagrams	• *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.*	• 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.
Balanced reporting	• *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.*	• All exploration assay results have been reported at this time.
Other substantive exploration data	• *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.*	• Geological observations are consistent with aeolian dune mineralisation • No bulk density measurements have been undertaken • Abundant groundwater was intersected during drilling, as expected given the dune complex is an aquifer and drilling was undertaken to considerable depth. • The mineralisation is unconsolidated sand • There are no known deleterious substances at this time. • Metallurgical test results from 6 bulk samples from 6 individual drill holes demonstrate that a high-quality glass grade silica sand product could be produced from the material using conventional wet separation techniques (i.e. washing and gravity separation)
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Additional drilling to test for lateral extensions of mineralisation are planned. • The areas of possible extensions are considered to be potentially politically and culturally sensitive, and not appropriate for publishing at this time.