DIATREME
Resources

17 March 2021

Galalar silica resource expands 30% to 61.9Mt

- **Total Mineral Resource for Diatreme's Galalar Silica Sand Project, North Qld, increases by 30% to 61.9 Mt in major boost for emerging premium quality silica mine**

- **Hi purity in-situ SiO_2 grade average 99.24%**

- **Increased potential for long-term operation, generating new jobs and investment for benefit of local community, supplying the fast-growing solar PV industry and supporting region's post-pandemic recovery**

Emerging silica sands developer and explorer, Diatreme Resources Limited (ASX: **DRX**, or the **Company**) announced today another increase in the total JORC Mineral Resource estimate for its Galalar Silica Project in North Queensland, highlighting the project's extraordinary high purity silica resource and potential to generate valuable long-term jobs and investment for the benefit of stakeholders.

Based on an assessment (refer Table 1 below) by independent consultants Ausrocks Pty Ltd, the total JORC Mineral Resource estimate has risen to 61.9 million tonnes (Mt), up 30% on the previous estimate announced last year (refer ASX announcement 12 May 2020). The total resource covers an area of approximately 335ha with an average thickness of 18.8m, of which 99% falls within the Mining Lease Application area.

Diatreme's CEO, Neil McIntyre commented: "*This is another welcome boost for our Galalar project, demonstrating its potential to become a long-term silica sand operation that generates valuable new jobs and investment for the benefit of the local community, including the directly affected native title holders.*

"*Galalar will be transformational for Hope Vale and Cooktown, and together with potential downstream processing opportunities in Townsville has the potential to give the whole region a boost in its post-pandemic recovery.*"

In addition, the Company has also identified large sections of the resource area contain inherently low Fe_2O_3 and further work is being undertaken to potentially optimise the resource and start up mining plan through detailed modelling of the low iron areas. This resource planning will allow targeting on mine start up of the low iron formations within the dune structure to ensure target product specifications are achieved on first production.

Table 1: Resource Estimate, March 2021

JORC Resource Category	Silica Sand (Mt)	Silica Sand (Mm^3)	Cut-off SiO$_2$ %	SiO$_2$ %	Fe$_2$O$_3$ %	Al$_2$O$_3$ %	TiO$_2$ %	LOI %	Density (t/m^3)
Inferred	5.8	3.6	98.50	99.21	0.05	0.07	0.09	0.14	1.6
Indicated	20.6	12.9	98.50	99.20	0.05	0.08	0.07	0.14	1.6
Measured	35.5	22.2	98.50	99.27	0.09	0.12	0.10	0.10	1.6
Total Inferred + Indicated + Measured	61.9	38.7	98.50	99.24	0.07	0.11	0.09	0.12	1.6

Resource Estimate current as of 15 March 2021.

The latest resource expansion follows the release of an economic study showing the project's potential to generate more than 110 full-time jobs, delivering a significant boost to household incomes. It could inject around $23-24m in the construction phase and up to $42m in the operational phase for the benefit of Hope Vale, Cooktown and the surrounding region, with estimated total revenue of $80m per annum (refer ASX announcement 8 April 2020).

Diatreme aims to advance the regulatory approval process to ensure the project plays a role in the region's recovery from the impact of COVID-19. In November 2020, Diatreme announced the receipt of the final terms of reference for the project's environmental impact study (EIS). A draft EIS is now underway, with the Company targeting receiving the necessary environmental approvals and Mining Lease in the fourth quarter of 2021 and potential first production in 2022.

Recent meetings with key stakeholders in Hope Vale together with key federal government ministers in Canberra (refer ASX release 23 February 2021) have highlighted the community support for the project, with affected native title holders having a direct 12.5% stake in the project.

Diatreme's Mr McIntyre added: "*Galalar's latest upgrade has only increased its attractiveness as a secure and stable supplier of valuable, high quality silica for the booming solar PV market. We look forward to playing our part in powering the clean energy revolution and delivering new economic opportunities for the people of North Queensland.*"

This announcement was authorised for release by:

Neil McIntyre   **Greg Starr**

Chief Executive Officer   Chairman

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Ausrocks Consulting – Excerpts from Executive Summary Report:

Project Outline

The project is located adjacent to the coastline approx. 20km north of Cooktown, within the very southern part of Exploration Permit for Minerals (EPM) 17795. Diatreme was granted EPM 17795 on 22/6/2016 for a period of five years, targeting high grade silica sand and potential heavy minerals.

The Galalar Silica Project has now advanced to the stage whereby a Mining Lease Application (MLA) No. 100235 was lodged on 23 December 2019, covering 523 hectares and the vast majority of the project. Note a small proportion (approx. 1%) of the Resource is located outside the Mining Lease Application due to approval timeframes for the adjacent EPM 27265. Additionally, two further neighbouring EPM's related to the project have been taken up by Diatreme, EPM 27265 (granted 30th January 2020), and application EPMA 27430.

In addition to the Galalar Silica Project, Diatreme has also identified a number of significant silica sand (and heavy mineral) Exploration Target Areas, including several in close proximity to the Galalar project, and also a number throughout the wider EPM 17795 (refer ASX release 25 January 2021).

Exploration

Seven exploration and drilling campaigns have been undertaken onsite between September 2017 and October 2021 of which 104 drillholes and 9 hand auger holes were used to define Measured/Indicated/Inferred Resources in accordance with the JORC Code 2012, located within the Galalar area.
Composites for CB120, CB137B and CB100B have been completed with ALS to compare XRF and ICP assaying methods. The result of this assay comparison compares favourably with negligible differences. Further check assaying is in progress and is required to fully validate the database.

Geology
The Galalar Deposit is a large surface deposit of overlying sand dunes that is part of the Quaternary age Cape Flattery-Cape Bedford dunefield complex. The deposit is dominated by clean high purity >98.5% silica (quartz) which is principally white, cream and light grey in colour, but also with variably dispersed yellow, orange and brown overtones.

The Galalar Deposit consists of two major paralleling dunes, nominally named Galalar East and Galalar West. The deposit extends approx. 3.4km long by 1.2km wide and ranges in vertical thickness from 6m to 32m. The dunes are elongate southeast to northwest and are densely but shallowly vegetated with topsoil to approx. 0.3m depth. The dunes are clearly defined on their long sides and by lower topography. The base of exploitable sand is defined by the water table and/or intersection with the basement consisting of either 'B1' orange-brown coloured sand horizon ("coloured sands") or the clay basement of older weathered bedrock.

The silica sand is consistently high grade throughout, >98.5% SiO_2, with variable but minor proportions of Al_2O_3, Fe_2O_3 and TiO_2 due to the presence of minor clay, iron oxides and heavy minerals.

Cut-Off Grade

Based on the final marketable product being a high SiO_2 grade sand the SiO_2 content by percentage was used to quantify in-situ material as a resource. Cut-off grades were adopted based on analysis of raw assay data and grade tonnage plots completed on the block model to optimise the average SiO_2 grade and quantity of the resource at varied reporting levels.

From the 104 drillholes that were used in the resource estimate the %SiO_2 (excluding the bottom of the hole which was contaminated with clays/indurated material) ranged from 96.05%-100%. In addition 9 auger holes with data ranging from 98.67%-99.84% were used.

Drill spacing and interpreted geological continuity has allowed three resource categories to be defined. Based on the three resource reporting levels the following drill spacings and cut-off grades were used for:

- Measured Resource in accordance with the JORC Code 2012 – drill spacing ~150m apart and SiO_2 cut-off grade of 98.5%.
- Indicated Resource in accordance with the JORC Code 2012 – drill spacing ~200-400m apart and SiO_2 cut-off grade of 98.5%.
- Inferred Resource in accordance with the JORC Code 2012 – drilling spaced ~400m apart along dune complex and SiO_2 cut-off grade of 98.5%.

Resource Estimate

Micromine 2021 was used to model and evaluate the resource. The block model was defined by the top of the resource (0.3m below the surface topography to exclude the topsoil layer), the base of the resource (base of the drillholes) and the interpreted geological boundaries. The block model was subject to basic statistical and geostatistical analysis and the Inverse Distance Squared (IDS) method was used to propagate the blocks. Swath plots were used to validate the interpolation technique to ensure accuracy. Parent blocks were sized at 50m E x 50m N x1m (RL). Sub-blocks were sized at 2m E x 2m N x 1m (RL).

In addition to modelling SiO_2 data in the block model, Al_2O_3, Fe_2O_3 and TiO_2 were also block modelled with other assayed elements not modelled due to low values near the detectable limits.

The Galalar Resource Area has three varying levels of resource which have been estimated in accordance with the JORC Code 2012 and are defined as follows:

- **Inferred Resource:** Areas within Galalar East defined as below the base of the hand auger holes in the northern portion, on the western flank where drillholes exceed indicated spacing as well as above the current drillholes in the central high dune. Geostatistics and block modelling was completed and geological control was applied to constrain the resource volume to the elongated dune shape rather than a blanket radius or depth with hand auger holes spaced at ~400m along the dune.
- **Indicated Resource:** Area with hand auger holes in the northern portion as well as the eastern portion where air core drill holes at a wide spacing were completed, geostatistics and block modelling completed. No defined basement/water table intersected and ~200m-400m between drillholes.
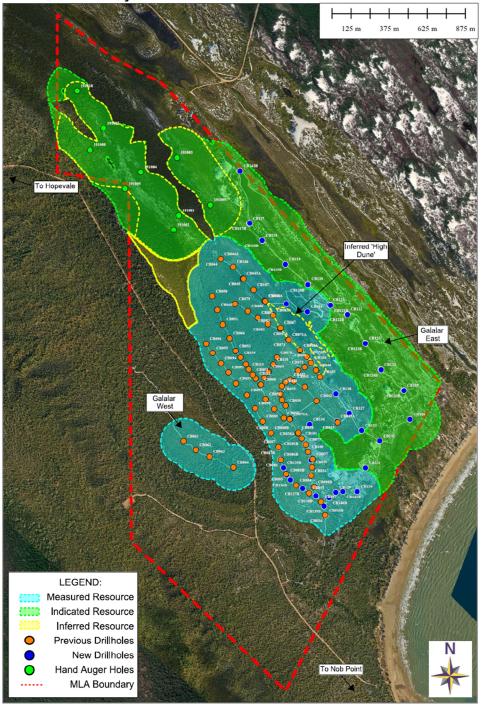
- **Measured Resource:** Area with air-core drillholes have been completed at confirmatory spacing <150m x 150m, geostatistics and block modelling with holes ending in basement/water table.

Based on the above definitions the block model was split into Indicated and Measured Resources and the Inferred Resource Estimated on a volume basis with the total Galalar Silica Sand Project – Resource Estimate – March 2021 shown in the Table 1 above.

Density testing was completed on 79 samples with an average of 1.6 t/m^3 adopted and was deemed sufficient to report Measured Resources. The Total Resource covers an area of approximately 334.3ha with an average thickness of 18.5m, 95% of which falls within the Mining Lease Application area. Portions of the resource area contain low Fe_2O_3 and further work is being undertaken to potentially optimise the resource and mining plan.
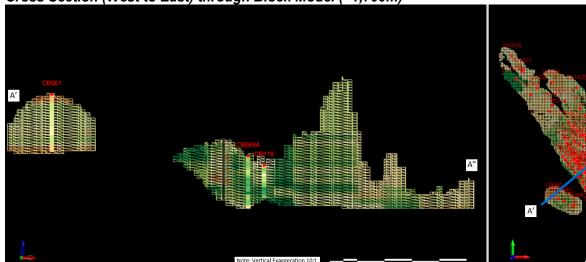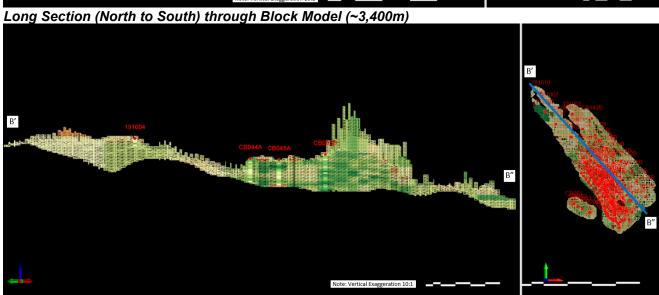
Resource Boundary and Drillholes Used for Measured/Indicated/Inferred Resource Estimation

Cross Section (West to East) through Block Model (~1,700m)

Note: Vertical Exaggeration 10:1

Long Section (North to South) through Block Model (~3,400m)

Note: Vertical Exaggeration 10:1

Conclusions

The Galalar Deposit has been well defined by drilling and the geological controls are reasonably well understood. The Galalar Deposit contains pure white, high purity silica sands with averaging 99.24% SiO_2 and low iron averaging 0.07%. The dunes within the Galalar Deposit average 18.5m in overall thickness. Additional drilling within the Resource Area is not anticipated to significantly alter the resource size but will improve the resource category. Based on progress of the resource estimation, the following can be stated.

- Measured Resource Estimate of 35.5 Mt at 99.27% SiO_2, which represents 57.4% of the total (61.9Mt) Mineral Resource that has been identified.
- Indicated Resource Estimate of 20.6 Mt at 99.20% SiO_2, which represents 33.3% of the total (61.9Mt) Mineral Resource that has been identified.
- Inferred Resource Estimate of 5.8 Mt at 99.21% SiO_2, which represents 9.4% of the total (61.9Mt) Mineral Resource that has been identified.
- **Total Inferred, Indicated & Measured Mineral Resource Estimate of 61.9 Mt at 99.24% SiO_2,** which represents a 30% increase on the previous stated JORC Mineral Resource of 47.5Mt (12 May 2020).

[END OF EXECUTIVE SUMMARY EXCERPT]

MINERAL SANDS AND SILICA - COMPETENT PERSON STATEMENTS

The information in this report that relates to Mineral Resources at the Galalar Silica Project is based on information and modelling carried out by Dale Brown, Mining Engineer and Chris Ainslie, Geotechnical Engineer who are employed by Ausrocks Pty Ltd and are Members of the Australasian Institute of Mining & Metallurgy. The work was supervised by Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy and by Mr Brice Mutton who is a Senior Associate Geologist for Ausrocks Pty Ltd.

Mr Mutton is a Fellow of the Australasian Institute of Mining & Metallurgy and a Fellow of the Australian Institute of Geoscientists. Mr Brown, Mr Morandy, Mr Ainslie and Mutton are employed by Ausrocks Pty Ltd who have been engaged by Diatreme Resources Limited to prepare this independent report. This is no conflict of interest between the parties. Mr Brown, Mr Morandy, Mr Ainslie and Mr Mutton consent to the disclosure of information in the form and context in which it appears in this release/report.

Brice 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).

Brice 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 Galalar Silica 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.

JORC CODE, 2012 EDITION – TABLE 1 REPORT
GALALAR SILICA SAND PROJECT – NOB POINT DEPOSIT: UPDATED RESOURCE ESTIMATE (MEASURED, INDICATED & INFERRED) MARCH 2021

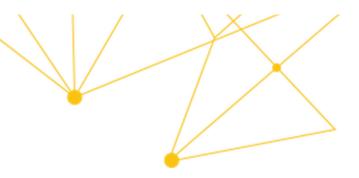## SECTION 1 SAMPLING TECHNIQUES AND DATA
(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g., 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 (e.g., '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 (e.g., submarine nodules) may warrant disclosure of detailed information.*	• Drilling samples range from 1m-3m down hole intervals of air-core drill cuttings collected from cyclone mounted rotary splitter, approximately 3-4kg (representing approximately 20% of drill material returned via the cyclone is sampled). • Where bulk samples are collected, 100% of sample from cyclone is collected and a 'spear' sample is collected for geochemical analysis. • Two hundred (200) drill holes have been completed to an average depth of 20.9m. • Hand Auger holes were sampled in 1m intervals with 1-2kg (representing 50% of drill material returned via the auger is sampled). Twelve (12) holes have been completed, to a max. depth of 7m and averaging 5.4m deep. • Samples were submitted to a commercial laboratory, ALS, for drying, splitting (if required), pulverization in tungsten carbide bowl, and XRF analysis. • Sampling techniques are mineral sands "industry standard" for dry beach sands with low levels of impurities, induration and slime. • As the targeted mineralisation is silica sand (quartz/SiO_2), geological logging of the drill material is a primary method for identifying mineralization. • 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/hand auger samples into large plastic samples bags.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• *Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g., 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 utilising blade bit, initially 3m runs were used for drilling campaigns in (September 2017, October 2017, April 2018 and June 2018) which was decreased to 1m increments in the most recent drilling campaigns (November/December 2018 and August/October 2020). 104 drillholes were used for the resource estimate. • Hand Auger holes were used in areas where access did not permit access for air core drilling. Nine (9) Hand Auger Holes were used for the resource estimate, two (2) holes were twinned with air-core holes, and the remaining hole was excluded as it was located in coloured sands. • Holes were terminated in a basement layer (clay/coloured sands) or when the water table was intersected.
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 rod. • Sample chute cleaned between samples and regular cleaning of cyclone to prevent sample contamination. • No sample bias occurred between sample recovery and grade. • The perimeter of the hand auger was excluded from the sub-samples to prevent cross-contamination.
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.* • *The total length and percentage of the relevant intersections logged.*	• 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 initially at 3m intervals which was decreased to 1m in 2018; logging includes qualitative descriptions of colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilising panning. • Logging has been captured through field drill log sheets and transferred through to an excel spreadsheet with daily update of field database 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.*	• Drilling samples were rotary split on site (approximately 20% subsample drilling, resulting in approximately 3 – 4kg of dry sample. • Hand Auger was collected 100% after cleaning of auger perimeter and any apparent contamination, which would result in approximately 50% of cuttings. • Sample size (3kg - 4kg) is considered appropriate for the grain size of material, average grain size (87% material by weight between 0.125mm and 0.5mm).

Criteria	JORC Code explanation	Commentary
	• *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.*	
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 utilising a Tungsten Carbide pulverization, ME-XRF26 (whole rock by Fusion/XRF) and ME-GRA05 (H_2O/LOI by TGA furnace). • Samples were assayed for SiO_2, including other major oxides (Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SO_3, and TiO_2). • Assay results were subject to internal laboratory QA/QC checks. • Analysis undertaken determined by a sample code which correlates to drill logs to ensure no sample bias. • A full analysis of sample controls and assay data has been undertaken. The analysis validates the drill assay dataset. • Metallurgical samples were submitted to IHC Robbins for characterization test work (screening, de-sliming, sizing, HLS and XRF analysis) and wet tabling (two stage). • Testing undertaken by Qinfeng Mining Co Ltd (QMCL) in China, on selected samples, followed their established commercial practice, and were reported to a format provided by Diatreme for review and interpretation.
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 were validated against geological logging and local geology/ geological model. • Thirty nine (39) drill holes were twinned with sampling and logging undertaken in 1m increments which were used to validate the 3m sample and drill increments that have been previously completed. • Two (2) auger holes were twinned with drillholes to show correlation. • All data captured and stored in both hard copy and electronic format. • No assay data had to be adjusted.
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 and Y. • UTM coordinates, Zone 55L, GDA94 datum. • Contract registered surveyor from Veris Ltd used a differential GPS to pick up drillhole Easting, Northing and Elevation values for holes within the resource area.

Criteria	JORC Code explanation	Commentary
		• Topographic surface generated from processing Veris Ltd LiDAR topography and imagery (July 2020), Geoimage imagery and DGPS control points, collar RL's leveled against this surface to ensure consistency in the database.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• Drilling has been completed at varying intervals for each section of the resource, three original drill lines at peaks along the dune system at Galalar East were 125m and 250m apart from west to east with a 50-100m spacing perpendicular to the drill lines. Most recent drilling in Galalar East extended one drill line to the south and added another drill line ~300-400m to the east, with holes spaced ~200m apart along the drill lines. Galalar West had one drill line with 50-100m spacing between holes. Hand Auger holes in the north section of Galalar East are spaced at 200 – 400 m apart. • Drill spacing and distribution is sufficient to allow valid interpretation of geological and grade continuity for an Inferred Mineral Resource, Indicated Mineral Resource and Measured Mineral Resource where determined.
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 320º - 330°. • The drill access tracks typically run along or sub-parallel to dune ridges which suggest unbiased sampling. Some cross-dune tracks linking the ridges were also drilled. • Silica deposition occurs as windblown sand with angle of rest approximately 35º (Galalar East). Drilling orientation is appropriate for the nature of deposition.
Sample security	• *The measures taken to ensure sample security.*	• Sample collection and transport directly from the field was undertaken by company personnel following company procedures. • Samples were placed into plastic bags, which were labelled and put into canvas sample bags, sealed and palletized, then directly truck transported to ALS Townsville. • Received samples were checked against the sample dispatch documents and a reconciliation report provided by the laboratory.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The Updated Resource Estimate is based on updated geological and geochemical data which were used to validate and audit previous Resource Estimates. • Reviews were conducted internally by Diatreme Resources Ltd and third-party consultants Ausrocks Pty Ltd and found to be consistent.

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 Galalar Silica Sand Project's (near Nob Point) Deposit occurs within the southern part of EPM 17795 in Far North Queensland and is held by Diatreme Resources Ltd. It should be noted that previously this project has been referred to as Cape Bedford Silica Project. The name of the project was changed to reflect the landowner agreement with the Hopevale Congress Aboriginal Corporation in 2018. - The tenement was granted 22 June 2016 for five (5) years and is in good standing. - A compensation and conduct agreement along with a cultural heritage agreement is in place with the landholder and native title party (Hopevale Congress). - A Mining Lease Application (MLA 100235) has been lodged for the Galalar Silica Sand Project (ASX announcement 23/12/19), encompassing 523 hectares and covering the vast majority of this Updated Resources Estimate. Note a small proportion (~5%) of the Resource is located outside the Mining Lease Application due to approval timeframes for the adjacent EPM's. - Additionally, three further neighbouring EPM's related to the project have been taken up by Diatreme, EPMA 27212, EPM 27265 (granted 30th January 2020), and, application EPMA 27430. - EPM 17795 tenement is large, elongate north-south and covers the bulk of the Cape Flattery/Cape Bedford dune field complex. Additionally, Diatreme has also identified Exploration Targets totaling 210 million to 2.1 billion tonnes of silica (ASX announcement DRX 25/3/19, 11/4/19, 20/6/19) within the wider EPM 17795. Exploration Targets were further prioritized, and drilling planned for 2021 (ASX announcement 25/01/2021).

Criteria	JORC Code explanation	Commentary
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 Industrial Silica Qld Pty Ltd, primarily at reconnaissance level. • The historical exploration data is of limited use for resource estimation 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 (silica) dune deposits associated with Quaternary age sand-dune complex. The mineralisation is high grade quartz (silica) and it occurs as sand deposits within an aeolian dune complex. • The Galalar Silica Sand Project's Galalar Deposit is located at the southern end of the Cape Flattery/Cape Bedford dune field complex, located approx. 20km north of Cooktown. The dune field fringes the coastline as a part of a large Quaternary (Pleistocene to Holocene) silica sand mass, extending along the coastline for approx. 50km and up to 10km inland, and, averaging 25-30m in thickness, with some dunes extending over 90m high. Cape Flattery Silica Mines, which lies at the northern end of the dune field, has been in operation since 1967 and is Queensland's largest producer of world class silica and the highest production of silica sand of any mine in the world. • The linear sand dunes developed predominantly during the dry Pleistocene glacial and interglacial periods when the sea-level receded and fluctuated approx. 100m below present. Prior to sea level rises in the Holocene (10,000 years before present) sand was blown inland by the prevailing south-easterly winds to form linear dunes. The land sand masses form mainly as high transgressive or parabolic dunes. Multiple episodes of dune building are evident. Most dunes are stabilised by vegetation, but some active dune fronts occur. The high dunes occupy a low interdune sandplain that is 5-10m above sea level and interspersed with numerous lakes and swamps. Periods of water level table fluctuations, erosion and depositional phases have occurred. Mesozoic Dalrymple Sandstone forms numerous headlands along the coast and acts as a bounding escarpment along the western margin of the dune field. • The Galalar Silica Sand Project's Galalar Deposit is located 12km south-west of Cape Bedford and immediately west of Nob Point. The Galalar Deposit is divided into two adjoining dune sand areas known as Galalar East and Galalar West. Both consist of pure white, sharp featured, transgressive, elongate- parabolic active dunes, stabilised by vegetation. The pure white sands are high grade, consistently

Criteria	JORC Code explanation	Commentary
		averaging over 99% silica. Whilst some coloured cream, yellow and brown sands have been returned in drill samples, no obvious zonation or domaining has been recognised across the project area. Petrographics identifies the sand as free single or as composite crystalline aggregates of quartz, that is clean and rounded. • There is some potential for occurrence of heavy minerals within the greater dune system.

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:*
	  o *easting and northing of the drill hole collar*
	  o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  o *dip and azimuth of the hole*
	  o *down hole length and interception depth*
	  o *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 used in this Mineral Resource Estimation is attached to this JORC Table 1.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., 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 should be clearly stated.*	• A cut-off grade of 98.5% silica has been used for all three Resource classifications. • No minimum or maximum grade truncations have been used. • Drillhole samples were normalized to 1m intervals to determine continuity between 3m samples and 1m samples.
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 (e.g., 'down hole length, true width not known').*	• All drilling was vertical (-90°) and as the mineralisation is associated with aeolian dune sands the majority sub-horizontal, some variability will be apparent on dune slopes, edges and faces.
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*	• A map of the drill collar locations is incorporated within the main body of the report. Representative cross-sections have been attached within the main body of this report.

Criteria	JORC Code explanation	Commentary
	drill hole collar locations and appropriate sectional views.	• Maps of the deposit area, drill hole locations and drill and other data have been previous tabled and are available in Diatreme Resources Ltd ASX public releases and company website.
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 relevant exploration assay results have been reported.
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. • The mineralisation is unconsolidated sand (silica). • A total of 2,346 SiO_2 assays were completed (from downhole composites over various drilling programs). • Groundwater was intersected during drilling determining the base of holes. • Air-core drilling at Galalar ceased at the water table or just below to prevent potential sample contamination from wet sand. • Drilling in Galalar West also ceased at the water table or just below to prevent potential sample contamination from wet sand. However not all the samples at depth were sampled for SiO_2, only samples that were assayed were included in the model. • There are no known deleterious substances. • Iron (Fe_2O_3) in various forms potentially may act as a contaminant for very high-quality "processed" end products. The raw assay data has been investigated to provide guidance. • Heavy mineral elements (Titanium & Chrome) have also been investigated but are sub-marginal/negligible to the silica sand grades. • IHC Robins completed a bulk (1.8t) laboratory sample to determine viability of product through a one stage of Mineral Technologies MG12 spiral, which yielded 99.9% SiO_2 at 88% recovery. • (CNBM) Bengbu Design & Research Institute for Glass Industry Co., Ltd December 2018 completed bulk (0.35t) laboratory sample to determine the viability of the product as high value glass product which resulted in 78% recovery of a >99% SiO_2 raw sample to 99.9% SiO_2. • Qinfeng Mining Co Ltd (QMCL) have conducted initial small-scale evaluations that demonstrated the suitability of some of the raw sand to be processed by additional chemical treatment to produce an upgrade, low iron high value product.
Further work	• *The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Further infill drilling to upgrade the resource categories. • The area of possible extension is to the north of the existing resource

Criteria	JORC Code explanation	Commentary
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	boundary which is constrained based on drilling data. • Further assaying checks and protocols need to be examined (use of standards, blanks, duplicates and external laboratory checks). • Further representative metallurgical testing utilising information and data from this resource block modelling is planned. These results along with a pre-feasibility or feasibility study will contribute to upgrading the resource and status, potentially to "Probable Reserves".

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• The database was originally constructed by Diatreme Resources Ltd and provided to Ausrocks Pty Ltd in various file formats. Ausrocks reformatted these databases into appropriate file formats checking that assay results matched the documents provided from the respective laboratories and the logs aligned with the chip tray samples. • Scoping of areas of resource that may be suitable for production of higher value products.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Ausrocks Pty Ltd representative (Mining Engineer/Micromine Modeler) has visited the site as a quality assurance/quality control exercise. • Each drillhole was logged, sampled, photographed and kept in chip trays. The photographs and chip trays were investigated by the Competent Person to verify the previous logs. • No site visits have been undertaken by the Competent Person to the specific project area. The Competent Person has visited (2020) and has experience of the Cape Flattery/Cape Bedford dunefield complex.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The nature of the dune geology, consistent high silica grades throughout the deposit and the deposit modelling place a high degree of confidence in the geological interpretation. Continuity of geology and grade can be identified and traced between drillholes by visual and geochemical results and characteristics. • The deposit extends from surface (less 0.3m vegetation rich layer) to the base of 104 sampled vertical drill holes. The northern portion of Galalar East has a limited depth of 6m by spaced hand auger holes,

Criteria	JORC Code explanation	Commentary
		below this portion of the deposit has been categorised as Inferred Resource to reflect the confidence of this area. The resource has also been interpreted to ~150m past the last auger hole shaped to the dune contours using geological controls. It is expected the resource extends considerably further north in this part of the deposit, which will be subject to future drilling. • Alternative interpretation of the deposit based on currently available data are considered unlikely to have a significant influence on the total Mineral Resource estimate. • The geology, geological testing, assaying, observations, modelling and interpretation are consistent with aeolian dune mineralisation. Continuity in the grade and geological continuity is reflected in the this stated Mineral Resource Classification.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The resource boundary that has been formed is approximately 3.4km in length and 1000m at its widest point at Galalar East and 650m in length and 400m at it is widest point at Galalar West. • For Galalar East the top of the resource predominantly follows the topography, at its highest point is 69mRL to the lowest at 3mRL. The base is variable based on the drillhole depths with a floor at ~0mRL in portions of the south and ~36mRL in the north. The base varies ~36m over 3,300m of strike mainly due to the limited Inferred Resource depth in the north. • Galalar West also had the top of the resource follow the topography the resource at its highest point is 56m with a low of 14m. The base ranges from 12mRL to 26mRL, which has a ~14m change in elevation over the 650m strike. • Average thickness of the total resource within the boundary is 18.5m.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. Sulphur for acid mine drainage characterisation).*	• Inverse Distance Squared (IDS) was used as the primary interpolation method for both the auger and drilled holes. A search ellipse was used based on the geometry of the sand dunes • All sample intervals have been normalized to 1m sample intervals which underwent statistical analysis for basic statistics (min, max, range), variance/co-variance, Q-Q Plots and histograms for all assayed variables. All variables showed that there were no requirements for top or bottom cutting. • Although SiO_2 grade is the main reporting variable Al_2O_3, Fe_2O_3, LOI and TiO_2 have been estimated in the model. Other assayed values were examined, however, due to their very low grades (near detection range) they were not modelled. • Block model was constrained to the base of the topsoil which also

Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. *Any assumptions behind modelling of selective mining units.* *Any assumptions about correlation between variables.* *Description of how the geological interpretation was used to control the resource estimates.* *Discussion of basis for using or not using grade cutting or capping.* *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	forms the top of the resource which is 0.3m below topography, some assays were adjusted to account for the topsoil layer. The base of the drillholes and the area intersecting these two layers. This boundary was also limited to the regional geology boundary where encountered. - Drilling has been completed at varying intervals for each section of the resource. Three original drill lines at peaks along the dune system at Galalar East were 125m and 250m apart from west to east with a 50-100m spacing perpendicular to the drill lines. Additional drilling in Galalar East was undertaken on another drill line ~300-400m further east of the drill lines at a spacing of ~200m. Galalar West had one drill line with 50-100m spacing between holes and the Hand Auger holes in the north section of Galalar East spaced at ~200 – 400 m apart. - Geostatistics were undertaken on Al_2O_3, Fe_2O_3, SiO_2 and TiO_2 based on the normalized 1m drill composite samples. This was completed in Micromine 2020 using a Variogram Direction Map and then fitting models to said Variograms. - Parent block sizes were defined as 50mE x 50mN x 1m (RL). Sub-blocks down to 2mE x 2mN x 1m(RL) were used sub-block the model and adhere to the geometric boundaries of the resource. - A search ellipse was used in Micromine 2021 based on the geometry of the sand dunes. - The block model was validated by comparing basic statistics and histograms of the modelled data (block model) against the input data (drilling data) which showed similar means, range of data and data distribution. Additionally, cross-sections throughout the block model were compared with the same sections through the drillhole data to showing that the modelling completed was indicative of the input data and the mineralisation. - Inverse Distance Squared (IDS) check estimates were undertaken which showed similar grades to the OK completed. Histograms and probability plots were then compared for the two interpolation techniques showing similar distributions. - Swath plots comparing the drillhole and block model with SiO_2 grades were compared at 10m thickness intervals along the dune orientation of 330°. The trend plots showed sufficient spatial correlation between both modelled estimates and input drillhole grades. - No deleterious elements were detected during the testing which was compiled. - Grade cutting or capping was not applicable as no SiO_2 values

Criteria	JORC Code explanation	Commentary
		exceeded 100%.
		• There was an assumption that an increase in Al_2O3 levels and moisture content indicated that the base material was clay, which indicated that this is the bottom of the hole and this was excluded from the resource estimate.
		• The Inferred Resource estimate in the north has been modelled with the floor calculated ~10m below the existing Indicated Resource Floor in the area where hand auger holes have been drilled. The extension of the Inferred Resource base to ~10m below the Indicated is based on the depth of nearby located (400m) holes (CB044A, CB106, CB050) being at least 10m deeper than the hand auger holes and the floor staying at a consistent RL further north into the dune. Hand Auger holes were used to ensure that there was minimal environmental disturbance however were limited to 7m in depth. The majority of these holes finished in high SiO2 material so is reasonable to assume resource continues to the lower depth nominated.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Moisture content testing has been conducted on eight (8) holes which were logged in 1m intervals with samples sealed within plastic bags and then placed in canvas sample bags and were sent to ALS Townsville.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A cut-off grade of 98.5% SiO_2 was used to classify the Measured, Indicated and Inferred Resource Estimate.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• It is expected that a truck/shovel or dozer push to conveyor mining method would be selected subject to additional reviews which the deposit size does not constrain either of these methods. The resource was also limited to above the water table to make both mining methods plausible. • Dilution was not considered in the resource estimate. In some holes there was additional resource below the >98.5% silica floor which is slightly lower grade material and would only marginally dilute the product. • Based on the sample assays and geological logs, the top 0.3m of the deposit has been excluded from the resource estimate as it is assumed that this would be a soil and vegetation layer and would be scalped when mining the deposit and re-used for rehabilitation.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions*	• Down hole sample compositing was undertaken to generate a single bulk sample for holes CB037, CB038, CBO047, CB048, CB053 and CB054 was completed as part of the previous Exploration Target with infill drilling and samples on downhole composites completed for the

Criteria	JORC Code explanation	Commentary
	regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	previous Inferred Resource. • It is assumed that the feed material for the proposed processing plant be in excess to 99% SiO_2. IHC Robins completed a bulk (1.8t) laboratory sample to determine viability of product through a one stage of Mineral Technologies MG12 spiral, which yielded 99.9% SiO_2 at 88% recovery. • (CNBM) Bengbu Design & Research Institute for Glass Industry Co., Ltd December 2018 completed another bulk (0.35t) laboratory sample to determine the viability of the product as high value glass product which resulted in 78% recovery of a >99% SiO_2 raw sample to 99.9% SiO_2. • Qinfeng Mining Co Ltd (QMCL) demonstrated in small-scale the potential to increase the value of final product through additional chemical processing. • As this is a Mineral Resource estimate, no metallurgical factors were considered in the resource calculation, with the bulk testing showing that >99% SiO_2 raw feed material is a suitable cut-off grade to produce a 99.9% SiO_2 processed material.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Due to the high-grade nature of the deposit, it is expected that there will be minimal tailings produced through processing and thus minimal disposal. • There is a small offset applied on either side of Alligator Creek which bisects Galalar East and Galalar West as well as Deep Creek located east of Galalar East. • Some potential environmentally sensitive areas have been identified within the resource area however these have yet to be excluded from any resource figures until these areas have been accurately categorized.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Seventy-nine (79) density samples have been undertaken on site using a Dormer Push Tube. The in-situ density of 1.6 t/m^3 was an average of the samples across the deposit and was used to calculate the Measured, Indicated and Inferred Resource estimate. Both are reported as in-situ densities with the natural moisture profile not yet determined, with further testing required to determine the dry density if/when the resource is taken to a Reserve Classification. Bulk Density sampling procedure is considered industry standard for this type of field assessment.

Criteria	JORC Code explanation	Commentary
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The deposit has a Measured Resource Estimate of 35.5Mt, Indicated Resource Estimate of 20.6Mt, Inferred Resource Estimate of 5.8Mt in accordance with the JORC Code 2012. This equates to a Total Resource (Measured, Indicated, Inferred) of 61.9 Mt. • The most recent drilling campaign using 1m increments for logging and sampling through the continuity of the twinned holes to those previously drilled in 3m increments shows an appropriate correlation. Over 2,346 silica (SiO_2) samples have been taken to accurately show correlation between drillholes. • The result accurately reflects the Competent Person's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Previous resource estimations have been completed by separate Competent Persons and reviewed internally by Ausrocks Pty Ltd.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• It is the opinion of the Competent Person that the relative accuracy and confidence level across the reported geological intervals is adequate, given the drill density and continuity of geochemical samples. • The Resource boundary and the reported geological confidence intervals is tightly constrained based on the drill density. • No production data is available at present as this is a Greenfields project. However, Cape Flattery Silica Mine lies in the same adjoining coastal dunes immediately to the North, suggesting potential viability.