Ventnor Resources Limited

2 October 2018

ASX ANNOUNCEMENT

Arrowsmith North Maiden Mineral Resource

Highlights:

- ***Inferred Mineral Resource of 193.6 million tonnes @ 98% SiO_2***
- ***38% larger than previous Exploration Target****
- ***Result is from shallow hand auger drilling***
- ***Aircore drilling expected to significantly increase the Mineral Resource***
- ***Metallurgical testwork to-date confirms glass making quality achievable***

Ventnor Resources Limited (**Ventnor** or **Company**) (ASX: VRX) is pleased to announce the results from the independent estimate of the Mineral Resource at its Arrowsmith North prospect, which is contained within its Arrowsmith Silica Sand Project, located 270km north of Perth.

The result is based on an exploration program of 62 hand held auger drill holes to a depth of 4-5 metres for a total of 235.6 metres which was conducted December 2017 and is an acceptable standard for use in a Mineral Resource estimate publicly reported in accordance with the JORC Code.

The project area is a substantial prominent dune system that has only been tested with shallow auger. Additional drilling planned for late 2018 will use deeper aircore drill holes and is expected to add substantially to the maiden Mineral Resource.

The initial exploration program also provided a bulk sample which was used for the second iteration of metallurgical testwork and has verified that the sand can be beneficiated to glass making quality (VRX announcement 20 September 2018). An additional third iteration of testwork, which is underway, is expected to improve on the currently known quality.

Ventnor Managing Director Bruce Maluish said: "*This estimation confirms our belief that Arrowsmith has the potential to be a very substantial source of silica sand for glassmaking*."

"*From our testwork we have been able to obtain samples of the final products that we can send to prospective customers. Coupled with this Mineral Resource estimate we can accelerate our marketing program for potential sales in Asia" Maluish said.*

The Company has had a number of enquiries from potential customers in Asia.

ASX: VRX

Capital Structure

Shares on Issue:
365 million

Unlisted Options:
51.75 million

Corporate Directory

Paul Boyatzis
Non-Executive Chairman

Bruce Maluish
Managing Director

Peter Pawlowitsch
Non-Executive Director

John Geary
Company Secretary

Company Projects

Arrowsmith Silica Sands Project, 270km north of Perth, WA.

Muchea Silica Sand Project, 50km north of Perth, WA.

Biranup base metals and gold Project adjacent to the Tropicana Gold Mine, WA.

Warrawanda Nickel Project south of Newman, WA.

The Company is actively assessing other projects in Australia.

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The estimate exceeds the previous Exploration Target of 100 to 140 million tonnes at 95% to 98% SiO_2.

Prior to the Maiden Mineral Resource estimate, the Company had estimated an **Exploration Target** for Arrowsmith North;

Area	Tonnes (Mt)		Grade SiO_2	
	Low	High	Low	High
Arrowsmith North*	100	140	95%	98%

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.

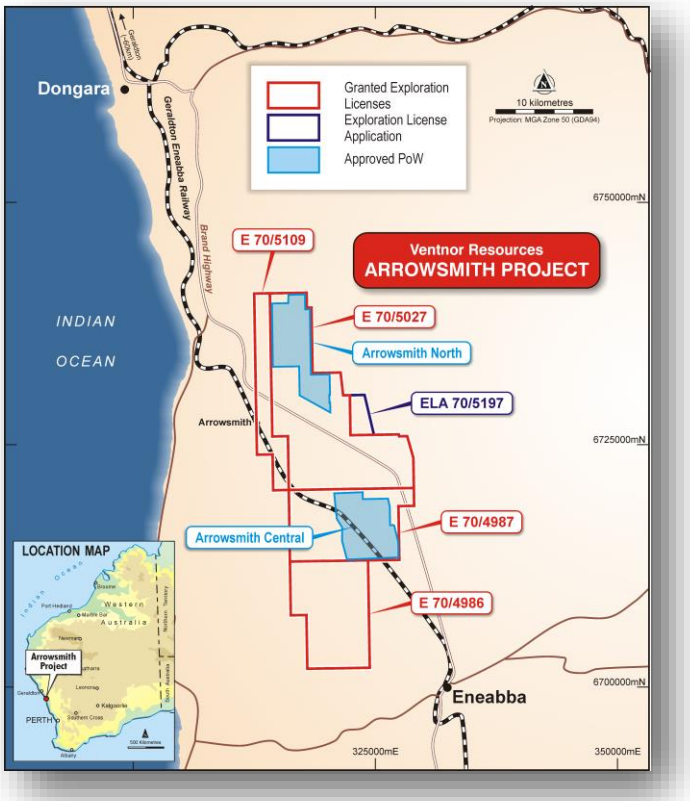
This estimation was based on:

**Arrowsmith North Exploration Target*

- *Exploration Target area 3,600 ha*
- *1.6t/m^3 in situ bulk density*
- *Between 40% and 50% of area contains high grade silica sand*
- *Depth of high-grade sand 4 to 5 metres*

The Mineral Resource estimate at the Company's Arrowsmith Central prospect will be conducted following the next drill program later in 2018.

Figure 1: Arrowsmith Silica Sand Project Location



Executive Summary

Ventnor engaged CSA Global to prepare a maiden Mineral Resource estimate (**MRE**) for the Arrowsmith North target area reportable under the guidelines of the JORC Code. Arrowsmith North is part of the Arrowsmith Project 270km north of Perth. See Figure 1 beside:

The MRE for the Arrowsmith North Deposit comprises 193.6 Mt @ 98% SiO_2 reported in accordance with the JORC Code 2012[1] Edition. The MRE is based on the results obtained from 62 hand auger drill holes for 235.6 m and defines two silica sand types, white and yellow sand, geologically logged and differentiated based on colour and through chemical analysis results. Based on metallurgical testwork completed to-date, both sand types are readily amenable to upgrading by conventional washing and screening methods to produce a

[1] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

high-purity silica sand product with high mass recoveries. The high-purity silica sand product specifications are expected to be suitable for industries such as glass making.

The MRE results are shown in Table 1. Summary information is included in this announcement and a JORC 2012 Table 1 is included as Appendix 1.

Table 1: Arrowsmith North Mineral Resource

Classification	Domain	Million Tonnes	SiO_2%	Al_2O_3%	Fe_2O_3%	LOI%	TiO_2%
Inferred	Yellow Sand	149.4	97.7	1.1	0.4	0.5	0.2
	White Sand	44.2	99.1	0.3	0.1	0.2	0.2
	All Sand	193.6	98.0	0.9	0.3	0.4	0.2

**Note: Interpreted mineralisation is domained into different sand types based on drill logging data and publicly available soil mapping information, above a basal surface wireframe defined based on the current drill sampling depths. Depletion zones include the upper 0.5 m for rehabilitation purposes, and minor swamp zones in the east and south of the modelled area. Differences may occur due to rounding.*

Competent Persons Statements

The information in this document that relates to Arrowsmith Exploration Results is based on data collected under the supervision of Mr David Reid, in his capacity as Exploration Manager for Ventnor. Mr Reid, BSc (Geology), is a registered member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and the activity being undertaken to qualify as a Competent Person under the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Reid consents to the inclusion of the data in the form and context in which it appears.

The information in this document that relates to Mineral Resources is based on information compiled by Mr Grant Louw, under the direction and supervision of Dr Andrew Scogings, who were both full-time employees of CSA Global at the time of the Mineral Resource estimation. Dr Scogings is a Member of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. He is a Registered Professional Geologist in Industrial Minerals. Dr Scogings has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Dr Scogings consents to the disclosure of information in this report in the form and context in which it appears.

Ventnor Resources Limited

ASX Listing Rule 5.8.1 Summary

The following summary presents a fair and balanced representation of the information contained within the MRE technical report:

- Silica sand mineralisation at Arrowsmith North occurs within the coastal regions of the Perth Basin, and the targeted silica sand deposits are the aeolian sand dunes that overlie the Pleistocene limestones and paleo-coastline. (ASX LR 5.8.1 geology &geological interpretation)
- Samples were obtained from auger drilling. Quality of drilling/sampling and analysis, as assessed by the Competent Person, is of an acceptable standard for use in a Mineral Resource estimate publicly reported in accordance with the JORC Code. (ASX LR 5.8.1 Sampling & 5.8.1 Drilling)
- Major and trace elements apart from SiO2 were analysed using a four-acid digest followed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry (ICP-OES) analysis at the Intertek, Perth laboratory. Loss on Ignition at 1000°C (LOI) was analysed by Thermal Gravimetric Analyser. SiO2 was back-calculated by subtracting all ICP major and trace elements plus LOI from 100%, as this is the most accurate way of determining SiO2 content for samples with very high SiO2. Certain of the ICP results were verified by X-Ray Fluorescence (XRF) analyses. (ASX LR 5.8.1 Analysis).
- The Mineral Resources were estimated above 3-d wireframe basal surfaces for the white and yellow sands. These basal surfaces are nominally limited to the drill hole depths and the extents are limited to within the Ventnor nominated Arrowsmith North target area. The surfaces are based on the geological boundaries defined by logged sand types from the drill data and with reference to the publicly available soil mapping data. The surface humus layer is typically about 300 mm thick. In consultation with Ventnor, CSA Global considered that the upper 500 mm (overburden) is likely to be reserved for rehabilitation purposes. This overburden surface forms the upper boundary of the estimated Mineral Resource and is depleted from the reported Mineral Resources. Comparatively minor areas that are mapped as swamp or sandy swamp are also depleted from the Mineral Resources. (ASX LR 5.8.1 Estimation methodology)
- Grade estimation was completed using inverse distance weighting to the power of two. (ASX LR 5.8.1 Estimation methodology)
- The Mineral Resource is quoted from all classified blocks above the defined basal surface wireframes for white and yellow sand and below the overburden surface layer. (ASX LR 5.8.1 cut-off grades)
- The Mineral Resource was classified as Inferred based on drill hole logging, drill hole sample analytical results, drill spacing, geostatistical analysis, confidence in geological continuity, and metallurgical / process test results. (ASX LR 5.8.1 classification)
- Roughly 15% of the interpreted mineralisation is extrapolated.
- The JORC Code Clause 49 requires that industrial minerals must be reported “in terms of the mineral or minerals on which the project is to be based and must include the specification of those minerals” and that “It may be necessary, prior to the reporting of a Mineral Resource or Ore Reserve, to take particular account of certain key characteristics or qualities such as likely product specifications, proximity to markets and general product marketability.” (ASX LR 5.8.1 Mining, metallurgy & economic modifying factors)
- Therefore, the likelihood of eventual economic extraction was considered in terms of possible open pit mining, likely product specifications, possible product marketability and potentially favourable logistics and it is concluded that Arrowsmith North is an industrial

Mineral Resource in terms of Clause 49. (ASX LR 5.8.1 Mining, metallurgy & economic modifying factors)

Detailed Information

Geology

Most economically significant silica sand deposits in Western Australia are found in the coastal regions of the Perth Basin, and the targeted silica sand deposits are the aeolian sand dunes that overlie the Pleistocene limestones and paleo-coastline, which also host the regional heavy mineral deposits. Within the project area, data obtained from the Department of Agriculture soil mapping shows there are pale and yellow deep sands predominating with lesser swampy areas and occasional ironstone ridges. See Figure 1 below:

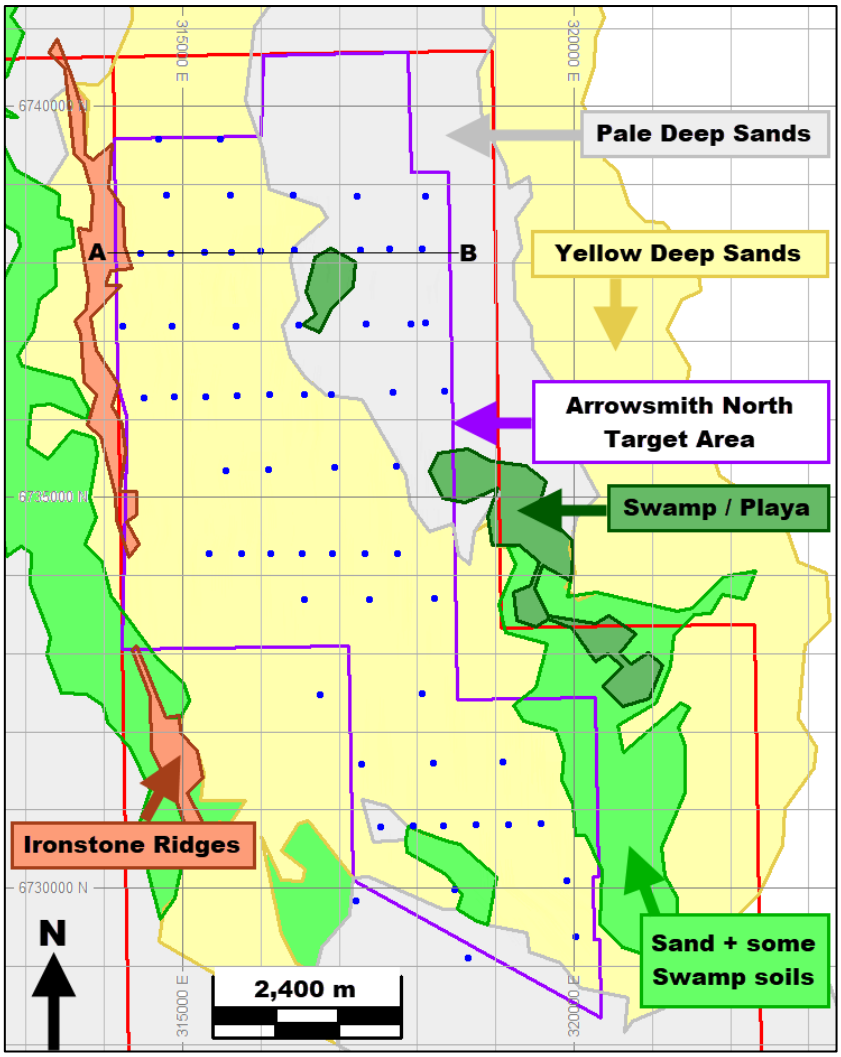


Figure 1: Simplified geology of the Arrowsmith North Area. Figure 6 section line A – B shown. Tenements as in Figure 1
Source: Outlines based on DOAG soil mapping data, refined based on drill data.

Bulk Testwork

As was announced to ASX on 20th September 2018 – "*Silica Sand Bulk Testwork Results*" it has been demonstrated that the Arrowsmith North sand can be upgraded using a simple flowchart to produce glass grade silica sand. A bulk 300kg metallurgical composite was generated from selected auger holes, used in this MRE. See Figure 3 below for holes selected for bulk testwork:

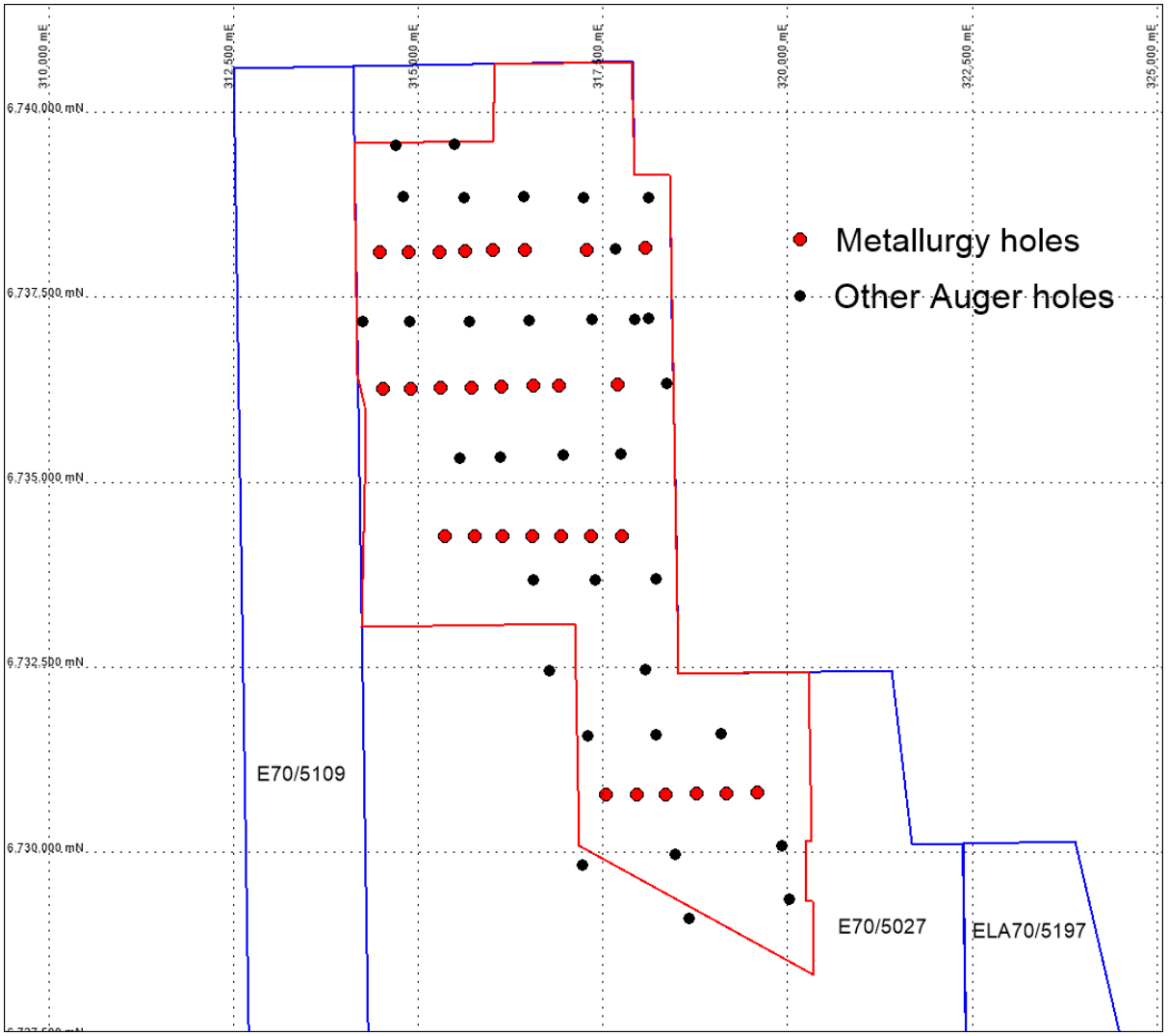


Figure 3: Arrowsmith North Metallurgy holes

The composite was sent to the CDE Global facility in Cookstown, Ireland. The Bulk testwork returned the following results, Table 2 below, after de-sliming, attritioning, spirals and magnetic separation. The final product grade and particle sizes as reported are considered to be of glass making quality.

Table 2: CDE Global Bulk Testwork results

SAMPLE MATERIAL	SAMPLE DESCRIPTION	Al_2O_3	Fe_2O_3	K_2O	TiO_2	LOI_{1000C}	SiO_2 Calc.	SiO_2 + LOI
		ppm	ppm	ppm	ppm	%		
ARROWSMITH NORTH	Raw Material	11,313	3,885	881	1,096	0.58	97.67	98.25
	Non-magnetic	**1,797**	**414**	**276**	**198**	**0.09**	**99.63**	**99.72**

Mineral Resource Estimate

Drilling

Drilling over the project area has been completed by means of hand auger (see Figure 4) with hole depths ranging from 1.2 m to 7 m and an average depth of 3.8 m. Drilling has been completed along existing tracks, that form a nominal 800 m section line spacing, with drill spacing of 400 m to 1,000 m apart along the section lines (see Figure 5).

Figure 4: Hand auguring yellow sand at Arrowsmith

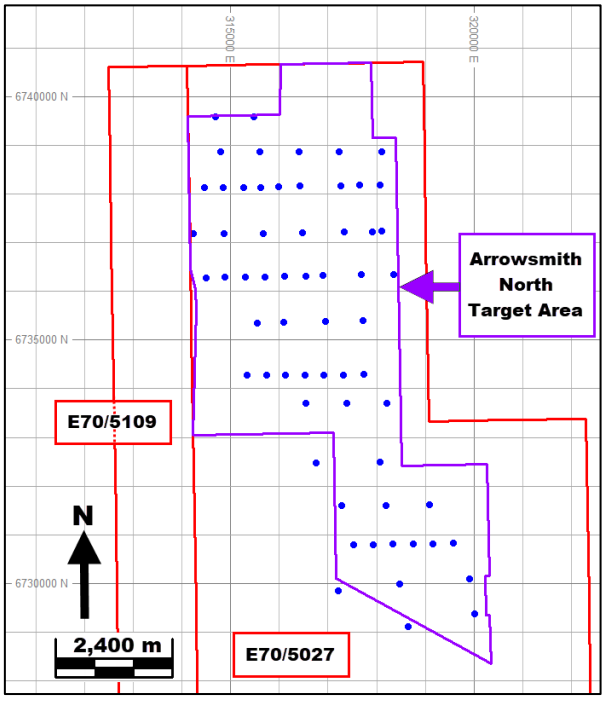


Figure 5: Arrowsmith North auger hole locations

Mineral Resource Modelling

The Mineral Resource is estimated above 3-d wireframe basal surfaces for the white and yellow sands (see Figure 6). These basal surfaces are nominally limited to the auger drill hole depths, it should be noted that the full depth of silica sand was not tested due to the sampling methodology. The modelled extents are limited to within the nominated Arrowsmith North target area based on the geological boundaries defined by logged sand types from the drill data and with reference to the publicly available soil mapping data (see Figure 1). The overburden, reserved for rehabilitation, forms the upper boundary of the estimated Mineral Resource and is depleted from the reported Mineral Resource. Comparatively minor areas that are mapped as swamp or sandy swamp are also depleted from the Mineral Resource (Figure 7).

Despite both white and yellow sands being readily amenable to beneficiation, they have been separately interpreted, as they are separately estimated due to differences in grades of the various mineral components.

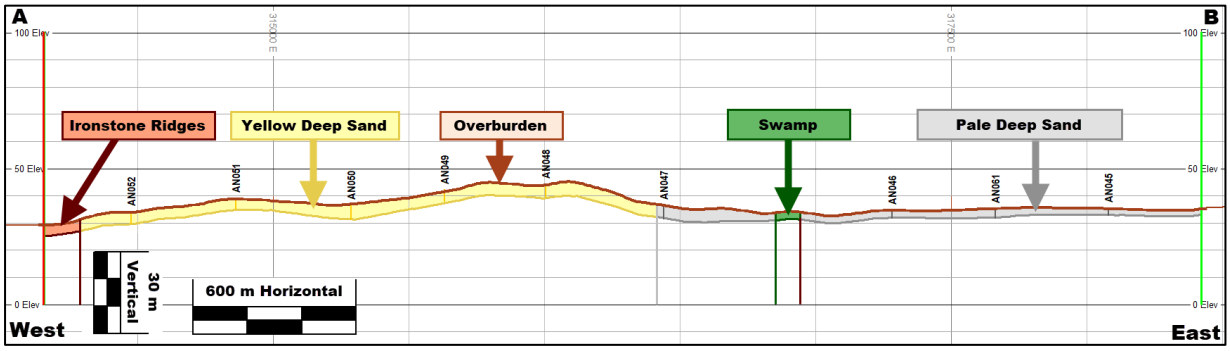


Figure 6: Cross section A – B at 6738150 mN (See Figure 7), Looking north; 10 times Vertical exaggeration

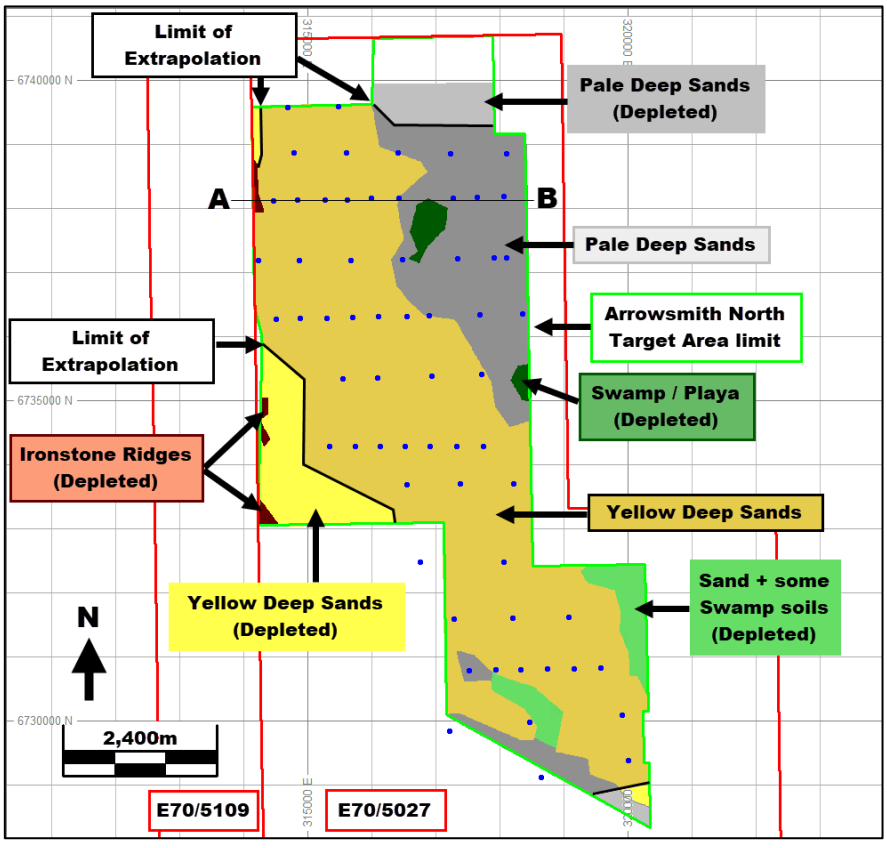


Figure 7: Modelled extents of mineralisation and depletion domains

Mineral Resource Classification

The Mineral Resource is classified as Inferred according to the principles contained in the JORC Code. Material that has been classified as Inferred was considered by the Competent Person to be sufficiently informed by geological and sampling data to imply but not verify geological and grade continuity between data points. The results of the MRE are presented in Table 3.

Table 3 Arrowsmith North Mineral Resource

Classification	Domain	Million Tonnes	SiO_2%	Al_2O_3%	Fe_2O_3%	LOI%	TiO_2%
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**Note: Interpreted mineralisation is domained into different sand types based on drill logging data and publicly available soil mapping information, above a basal surface wireframe defined based on the current drill sampling depths. Depletion zones include the upper 0.5 m for rehabilitation purposes, and minor swamp zones in the east and south of the modelled area. Differences may occur due to rounding.*

Future Work

A further iteration of testwork has been commenced by CDE Global using a refined flow sheet to incorporate additional attritioning to further improve the quality of the potential final products. The results of this work are expected to be available early in the December 2018 quarter. Process circuit design and engineering will then follow, allowing for capital cost estimates to be generated before the end of 2018.

The Company has an approved program of works to infill the Arrowsmith North Inferred Mineral Resource with the intention of upgrading the resource to an Indicated category. This drilling will be done by an Aircore drill rig which will not have the depth limitations of the hand auger technique and the full depth of sand will be drill tested. The drilling program will consist of 105 holes with an average depth of 11.3m (in comparison, the average depth of hand auger holes was 3.8m).

The drill program is expected to commence early in 2019 due to limited drill rig availability and the requirement for native title heritage clearance.

Further information:

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Ventnor Resources Limited

About Ventnor

Ventnor Resources Ltd (Ventnor) (ASX: VRX) has significant silica sand projects including four granted exploration licences and one application pending over the Arrowsmith Silica Sand Project, located 270km north of Perth, Western Australia. Initial testwork has confirmed that the projects' sand can be upgraded to glassmaking quality. Further work is under way to enable feasibility studies to be completed.

Ventnor has also completed the acquisition of the Muchea Silica Sand Project, 50km north of Perth, which complements the Arrowsmith Silica Sand Project with additional significant silica sand resources. Further work is also under way at this project to enable a feasibility study to be completed.

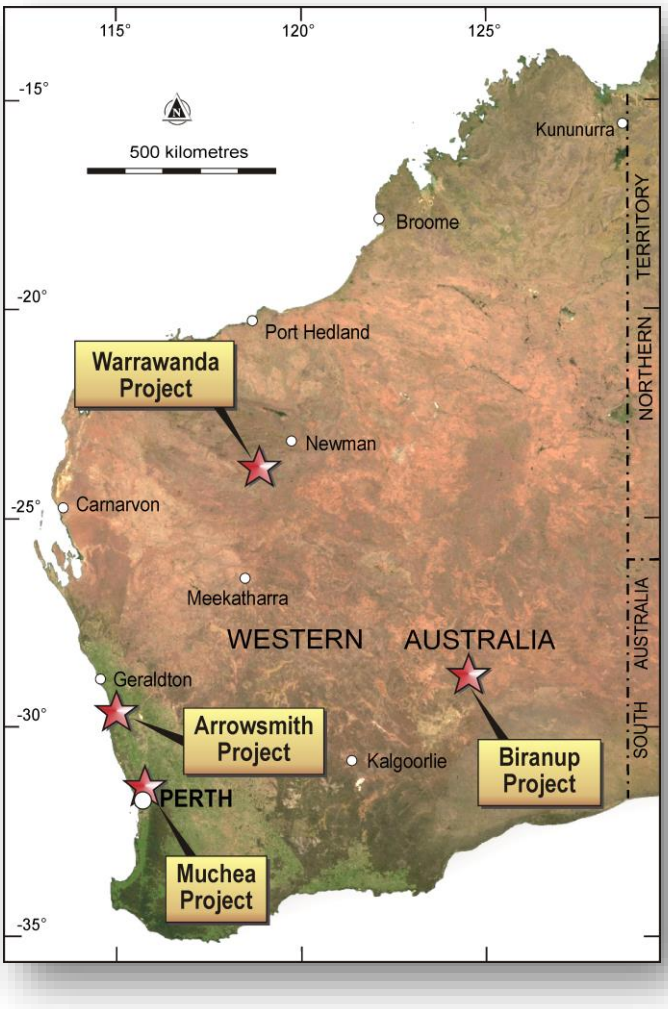
Ventnor also has granted tenements adjacent to the Tropicana Gold Mine in Western Australia's Goldfields that are prospective for gold and base metals (Biranup Project), with prospects identified following an extensive review of historical data.

Also, in Western Australia, 40km south of Newman, is Ventnor's Warrawanda Nickel Project, which is prospective for nickel sulphides.

Proven Management

The Ventnor directors have extensive experience in mineral exploration and mine development in to production and in the management of publicly listed mining and exploration companies.

Project Locations



ASX Announcements

Ventnor Resources (2017). New Arrowsmith Silica Sand Project. ASX Release 12 October 2017.

Ventnor Resources (2017). Arrowsmith Silica Sands Project Sampling. ASX Release 14 December 2017.

Ventnor Resources (2017). Arrowsmith Silica Sands Project Testwork. ASX Release 30 January 2018.

Ventnor Resources (2018). Arrowsmith Silica Sand Project Tenement Grants. ASX Release 12 April 2018.

Ventnor Resources (2018). Arrowsmith Silica Sand Project Update. ASX Release 15 August 2018.

Ventnor Resources (2018). Arrowsmith Silica Sand Project. ASX Release 30 August 2018.

Ventnor Resources (2018). Silica Sand Bulk Testwork Results. ASX Release 20 September 2018.

APPENDIX 1 – JORC 2012 Table 1

Sections 1 and 2 provided by Ventnor Resources Ltd., Section 3 provided by CSA Global

Section 1: Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	Auger drilling samples are 1m down hole intervals with sand collected from a plastic tub which received the full sample, ~8kg, from the hole. The sand was homogenised prior to sub sampling, two sub-samples, A and B, of ~200g were taken from the drill samples. A bulk sample of ~5kg was retained for each 1m interval for metallurgical testwork. The "A" sample was submitted to the Intertek Laboratory in Maddington, Perth for drying, splitting (if required), pulverisation in a zircon bowl and a specialised silica sand 4 Acid digest and ICP analysis. All auger samples were weighed to determine if down hole collapse was occurring, if the samples weights increased significantly the hole was terminated to avoid up hole contamination. The targeted mineralisation is unconsolidated silica sand dunes, the sampling techniques are "industry standard". Due to the visual nature of the material, geological logging of the drill material is the primary method of identifying mineralisation.
Drilling techniques	A 100mm diameter hand screw auger was used to drill until hole collapse.
Drill sample recovery	All material recovered from the hole is collected in a plastic drum and weighed, the weights are used to determine when the hole is collapsing, and drilling is terminated. No relationship is evident between sample recovery and grade.
Logging	Geological logging of drill samples is done by the field geologist with samples retained in chip trays for later interpretation. Logging is captured in an excel spreadsheet, validated and uploaded into an Access database.
Subsampling techniques and sample preparation	Auger drill material, ~8kg, is collected in a plastic tub and homogenised, 2 x 200g sub-samples, A and B, are taken from the drill material. The A sample is submitted to the laboratory and the B sample is retained for repeat analysis and QAQC purposes. A 5kg bulk sample is retained for later metallurgical testwork. The sample size is considered appropriate for the material sampled. The 200g samples are submitted to the Intertek Laboratory in Maddington, Intertek use a zircon bowl pulveriser to reduce the particle size to -75µm.
Quality of analytical data and laboratory tests	Samples were submitted for analysis to the Intertek Laboratory in Maddington in Perth WA. The assay methods used by Intertek are as follows: multi-elements are determined by a specialised four-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon tubes. Analysed by Inductively Coupled Plasma Mass Spectrometry, silica is reported by difference. The assay results have also undergone internal laboratory QAQC, which includes the analysis of standards, blanks, and repeat measurements.

Criteria	Commentary
	The Company has been validating a high-purity silica standard that was created for the Company by OREAS Pty Ltd. This was required as there is no commercial standard available for high purity silica sand. The standard was "round robin" assayed at several laboratory's in Perth prior to the commencement of drilling. The standard was then included in the drill sample submissions to Intertek, in sequence, on a ratio of 1:20. Field duplicate samples were submitted in a ratio of 1:20 and in addition to this Intertek routinely duplicated analysis from the pulverised samples in a ratio of 1:25. The number of QAQC samples therefore represents ~14% of the total assays. A full analysis of all the quality control data has been undertaken. This analysis validates the drill assay dataset and conforms with the guidelines for reporting under the JORC 2012 code.
Verification of sampling and analyses	Significant intersections validated against geological logging. No twinned holes have been completed.
Location of data points	Drill hole locations were measured by hand-held GPS with the expected relative accuracy; GDA94 MGA Zone 51 grid coordinate system is used. The reduced level (RL) of the drilling collars is generated from publicly available SRTM data. The SRTM data is compared to the available Landgate Geodetic Survey Marks to validate the data that it is appropriate for use.
Data spacing and distribution	Auger holes were spaced 400-1,000m apart along existing tracks. Due to the relatively low variability of assays between drill holes the current spacing is sufficient for the estimation of a Mineral Resource. No sample compositing (down hole) has been done.
Orientation of data in relation to geological structure	Sampling is being done on aeolian sand dunes the auger orientation is therefore considered appropriate.
Sample security	All samples are selected onsite under the supervision of Ventnor Geological staff. Samples are delivered to the Intertek laboratory in Maddington. Intertek receipt received samples against the sample dispatch documents and issued a reconciliation report for every sample batch.
Audits or reviews	There has been no audit or review of sampling techniques and data yet.

Section 2: Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	Auger drilling was done on Tenement E70/4987 and E70/5027 which are 100% held by a wholly owned subsidiary of Ventnor Resources Limited. The tenements were granted on 06/04/2018 and 13/06/2018 respectively, and all drilling was conducted on vacant Crown land.
Exploration done by other parties	Minor exploration for mineral sands has been completed by various Companies. No exploration for silica sand has been done.
Geology	The targeted silica sand deposits are the aeolian sand dunes that overlie the Pleistocene limestones and paleo-coastline which host the Gingin heavy mineral deposits.
Drillhole information	Not relevant. Exploration results are not being reported. Mineral Resources are being disclosed (see Section 3). Sample and drillhole coordinates are provided in previous market announcements.
Data aggregation methods	Not relevant. Exploration results are not being reported. Mineral Resources are being disclosed (see Section 3).
Relationship between mineralisation widths and intercept lengths	Not relevant. Exploration results are not being reported. Mineral Resources are being disclosed (see Section 3).
Diagrams	Refer to figures within the main body of this report.
Balanced reporting	Not relevant. Exploration results are not being reported. Mineral Resources are being disclosed (see Section 3).
Other substantive exploration data	Geological observations are consistent with aeolian dune mineralisation. Seven, certified, dry *in situ* bulk density measurements were completed by Construction Sciences Pty Ltd using a nuclear densometer. No groundwater was intersected during drilling. The mineralisation is unconsolidated sand.
Further work	A first pass Metallurgical testwork program has been completed with demonstrates conventional sand processing techniques can upgrade the sand to a high value product. Further testwork is required to determine the best quality final product. Infill drilling will be undertaken to further assess the depth and variability of the high-grade silica sand.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	Data used in the MRE is sourced from a Microsoft Access database. Relevant tables from the Microsoft Access database are exported to Microsoft Excel format and converted to csv format for import into Datamine Studio 3 software. Validation of the data imported comprises checks for overlapping intervals, missing survey data, missing analytical data, missing lithological data, and missing collars.
Site visits	No site visit by representatives of CSA Global has taken place at this early stage of project development. CSA Global has previous experience with this project in the form of an Independent Technical Assessment Report completed for Ventnor. Based on this work and publicly available data relating to the area CSA Global has no reason to believe that the interpreted mineralisation does not exist. It is envisaged that a site visit would be required by a Competent Person, or their representative when further drilling is undertaken that may result in a higher classification than Inferred under the guidelines of the JORC Code.
Geological interpretation	Silica sand mineralisation at Arrowsmith North occurs within the coastal regions of the Perth Basin, and the targeted silica sand deposits are the aeolian sand dunes that overlie the Pleistocene limestones and paleo-coastline. Within the project area, data obtained from the Department of Agriculture soil mapping shows there are pale (logged by Ventnor as white sands) and yellow deep sands predominating, with lesser swampy areas and occasional ironstone ridges. The geological modelling was completed based on this soil mapping data in conjunction with the auger drill logging data. The Mineral Resource is estimated above 3-d wireframe basal surfaces for the white and yellow sands. These basal surfaces are nominally limited to the auger drill hole depths, and it should be noted that the full depth of silica sand was not tested due to the sampling methodology. The modelled extents of the yellow and white sands are further limited to within the Ventnor nominated Arrowsmith North target area. The surface humus layer is typically about 300 mm thick. In consultation with Ventnor, CSA Global decided that the upper 500 mm (overburden) is likely to be reserved for rehabilitation purposes. This overburden surface forms the upper boundary of the estimated Mineral Resource and is depleted from the reported Mineral Resources. The comparatively minor areas that are mapped as ironstone ridges, swamp or sandy swamp are also depleted from the Mineral Resources. Despite both white and yellow sands being readily amenable to beneficiation, they have been separately modelled, based on the drill logging data and mapped soil type boundaries, as they are separately estimated due to differences in grades of the various mineral components.

Criteria	Commentary
	Assumptions have been made on the horizontal extents of the mineralisation based on the soil mapping data and the spacing and extents of the drilling information. A nominal maximum horizontal extrapolation limit of 200 m past known drill data points has been applied with the material types additionally constrained within the Ventnor nominated target area and by the mapped material type boundaries. Although it is understood that the thickness of the sand layers is likely to be much more than current auger drilling depths over significant areas of the modelled area, the vertical extents have been nominally limited to the current auger drilling depths. Approximately 15% of the modelled mineralisation zones can be considered to be extrapolated. Alternative interpretations based on the currently available data are considered unlikely to have a significant influence on the global MRE. Continuity of geology and grade can be identified and traced between drillholes by visual and geochemical characteristics. Confidence in the grade and geological continuity is reflected in the Mineral Resource classification.
Dimensions	The modelled and classified extents of the yellow sand material within the target area are roughly 10 km north to south, and on average roughly 2.5 km west to east. The modelled and classified extents of the white sand material within the target area are roughly 4.6 km north to south, and on average roughly 1.5 km west to east. The modelled aeolian sand is roughly horizontal, with low relief. The currently modelled thickness of the sands is on average about 4 m, ranging up to the maximum depth of auger drilling of 7 m.

Estimation and modelling techniques	Inverse distance squared (IDS) was the selected interpolation method, with Ordinary Kriging (OK) used as a check estimate. Grade estimation was carried out at the parent cell scale, with sub-blocks assigned parent block grades. Grade estimation was carried out using hard boundaries between the two sand type zones. Statistical analysis on the 1 m downhole composited drillhole data to check grade population distributions using histograms, probability plots and summary statistics and the co-efficient of variation, was completed on each sand type for the estimated grade variables. The checks showed there were no significant outlier grades in the interpreted sand types that required top-cutting. In addition to SiO_2, the grade variables Al_2O_3, Fe_2O_3, LOI, and TiO_2 are estimated into the model. A volume block model was constructed in Datamine constrained by the topography, overburden layer, sand type zones, material depletion zones and target area limiting wireframes. Analysis of the drill spacing shows that the nominal average drill section spacing is 800 m with drill holes nominally between 400 m and 800 m apart on each section over majority of the modelled area. Spatial (variogram) analysis was completed on SiO_2 from the 1 m drill composite samples from the yellow sand zone, as this zone has the most samples. The resultant modelled variograms were not considered robust enough to allow an OK estimation based on their parameters to be used as the primary grade estimation technique. The parameters have been used for an OK check estimate on the selected primary IDS estimate Based on the sample spacing and validated by means of a kriging neighbourhood analysis (KNA), a parent block size of 200 m(E) x 400 m(N) x 4 m(RL) or nominally half the average drill section spacing, was selected for the model. Sub-cells down to 12.5 m(E) x 25 m(N) x 0.25 m(RL) were used to honour the geometric shapes of the modelled mineralisation. The search ellipse orientations were defined as being horizontal based on the overall geometry of the mineralisation and with reference to the variogram modelling study. The search ellipse was doubled for the second search volume and then increased ten-fold for the third search volume to ensure all blocks found sufficient samples to be estimated. The search ellipse dimensions of 1250 m x 1250 m x 10 m, have been optimised by means of the KNA. A minimum of 18 and a maximum of 36 samples, based on the KNA results, were used to estimate each parent block for both zones. These numbers were reduced for the second search volume to 15 and 30 samples and in the third search volume to 12 and 24 samples. A maximum number of six samples per drillhole were allowed. Based on the results from the KNA, cell discretisation was 3 (E) x 3 (N) x 4 (RL) and no octant-based searching was utilised. Model validation was carried out visually, graphically, and statistically to ensure that the block model grade reasonably represents the drillhole data. Cross sections, long sections and plan views were initially examined visually to ensure that the model grades honour the local composite drillhole grade trends. These visual checks confirm the model reflects the trends of grades in the drillholes.

Criteria	Commentary
	Statistical comparison of the mean drillhole grades with the block model grade shows reasonably similar mean grades. The OK check estimate shows similar grades to the IDS model, adding confidence that the grade estimate has performed well. The model grades and drill grades were then plotted on histograms and probability plots to compare the grade population distributions. This showed reasonably similar distributions with the expected smoothing effect from the estimation taken into account. Swath or trend plots were generated to compare drillhole and block model with SiO_2% grades compared at 400 m E, 800 m N and 2 m RL intervals. The trend plots generally demonstrate reasonable spatial correlation between the model estimate and drillhole grades after consideration of drill coverage, volume variance effects and expected smoothing. No reconciliation data is available as no mining has taken place.
Moisture	Tonnages have been estimated on a dry, *in situ,* basis. The sampled sand material was generally reasonably dry, with data collected from the density testing of seven intervals showing an average moisture content of 2.9%.
Cut-off parameters	No cut-off parameters have been applied, as both sand types appear to be readily amenable to beneficiation to a suitable product specification through relatively simple metallurgical processes as demonstrated by initial reported metallurgical testing results.
Mining factors or assumptions	It has been assumed that these deposits will be amenable to open cut mining methods and are economic to exploit to the depths currently modelled. No assumptions regarding minimum mining widths and dilution have been made. No mining has yet taken place.
Metallurgical factors or assumptions	A composite auger sand sample from Arrowsmith North was tested in Ireland during 2018. The sample was screened at 4mm to remove oversize particles. The remaining material was then subjected to an attrition process followed by spiral and magnetic separation methods. Attrition testing was carried out a retention period of 5 minutes, with the sample washed after attritioning to remove any liberated fine particles. Spiral testing was then carried out with approximately 80kg of attritioned material, after which the samples then underwent wet magnetic separation to explore the possibility of reducing the magnetic mineral content. Chemical analysis showed a general decrease in the Al_2O_3. Processing, attritioning and washing the material removed the largest fraction of Al_2O_3. The spiral separation process produced samples where the largest fraction of Al_2O_3 was found in the heavy mineral fraction. Magnetic separation resulted in the largest fraction of Al_2O_3 being in the magnetic fraction. The results for Fe_2O_3 follow the same general trend as for Al_2O_3. The percentage fraction of SiO_2 in the samples increased during the test process. Attritioning and washing the material removed fines and silt, which increased the SiO_2 content. The spirals test produced samples where the largest fraction of SiO_2 was found in the light

Criteria	Commentary
	fraction. Magnetic separation indicated that the largest fraction of SiO_2 was in the middling fraction. CSA Global is of the opinion that available process testwork indicates that product quality is considered favourable for eventual economic extraction and production of silica sand for glass markets. In addition, project location and logistics support the classification of the Arrowsmith North deposit as an Inferred industrial Mineral Resource in terms of Clause 49 of the JORC Code.
Environmental factors or assumptions	No assumptions regarding waste and process residue disposal options have been made. It is assumed that such disposal will not present a significant hurdle to exploitation of the deposit and that any disposal and potential environmental impacts would be correctly managed as required under the regulatory permitting conditions. Ventnor has indicated that initial botanical studies are underway, and in the modelling the top 500 mm is reserved for rehabilitation purposes and is depleted from the model and is not reported.
Bulk density	Seven, certified, dry *in situ* bulk density measurements were completed by Construction Sciences Pty Ltd using a nuclear densometer. The results from the seven measurements are corrected based on the measured moisture factor. The mean dry *in situ* density result of 1.66 t/m^3 is used for all modelled material reported in the MRE.
Classification	Classification of the MRE was carried out accounting for the level of geological understanding of the deposit, quality of samples, density data and drillhole spacing. The MRE has been classified in accordance with the JORC Code (2012 Edition) using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this Table. Overall the mineralisation trends are reasonably consistent over the drill sections. The MRE appropriately reflects the view of the Competent Person.
Audits or reviews	Internal audits were completed by CSA Global, which verified the technical inputs, methodology, parameters, and results of the estimate. No external audits have been undertaken.
Discussion of relative accuracy/ confidence	The relative accuracy of the MRE is reflected in the reporting of the Mineral Resource as per the guidelines of the JORC Code (2012). The Mineral Resource statement relates to global estimates of *in situ* tonnes and grade.