11 November 2022

**ASX ANNOUNCEMENT**

# Arrowsmith North
# Mineral Resource and Ore Reserve Update

***Highlights:***

- ***Maiden Proved Ore Reserve of 9.2Mt and updated total Ore Reserve of 221Mt***
- ***Updated Mineral Resource of 768Mt @ 98.0% $SiO_2$, includes a Measured Resource of 10Mt @ 95.9% $SiO_2$***
- ***Pilot plant testwork confirms product specifications for marketing and offtakes***

VRX Silica Limited (ASX: VRX) (**VRX** or **Company**) is pleased to announce an update to the Mineral Resource Estimate (**MRE**) and Ore Reserve Statement (**ORS**) for its Arrowsmith North Silica Sand Project, located 270km north of Perth.

The MRE update is based on an additional 130 close spaced grade control holes[1]. These holes were drilled as a pre-production activity to increase the resource confidence in the initial years of mining, and to produce a bulk sample for pilot scale metallurgical testwork and the generation of bulk samples for potential offtake partners.

The pilot plant testwork of a 3.3 tonne bulk metallurgical composite is complete. In combination with market analysis a suite of 5 saleable products have been determined that will be produced from Arrowsmith North. Process and Engineering design of the proposed Process Plant has been guided by the chemical and physical specifications of these products. The declaration of these five products is used to define the saleable Ore Reserve declared in this Statement.

VRX Silica Managing Director Bruce Maluish said: *"This updated Mineral Resource and Reserve is a culmination of significant metallurgical testwork and evaluation of the Resource to determine the premium products we can produce.*

*"These products include sought after foundry sand as well as glassmaking sand suitable for flat glass, including automobile glass and also container glass.*

*"We have despatched large samples to a number of foundry and glassmaking companies in Korea, Japan and Taiwan for evaluation and subsequent discussions for offtake."*

***ASX: VRX***

***Capital Structure***

*Shares on Issue: 558.4 million*

*Unlisted Options: 35.3 million*

***Corporate Directory***

***Paul Boyatzis***
*Non-Executive Chairman*

***Bruce Maluish***
*Managing Director*

***Peter Pawlowitsch***
*Non-Executive Director*

***David Welch***
*Non-Executive Director*

***Ian Hobson***
*Company Secretary*

***Silica Sand Projects***

*Arrowsmith Silica Sand Projects, 270km north of Perth, WA.*

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

*Boyatup Silica Sand Project, 100km east of Esperance, WA.*

*The Company is actively assessing other silica sand projects in Australia.*

[1] ASX announcement of 11 March 2021, "Arrowsmith North Grade Control Drilling".

The creation of this proved ore reserve has led to a high confidence schedule of the final products that will be available for sale for the initial 6 years of mining. This will allow for a proactive marketing effort to return the best economic outcomes from the project. Future grade control programs and ore reserve updates will occur within 5 years of the commencement of mining.

## VRX Silica Interactive Investor Hub

Engage with us directly by asking questions, watching video summaries, and seeing what other shareholders have to say about this and past announcements at our Investor Hub, at: https://vrx.freshamplify.com/.

## Detailed Information

In March 2021 VRX completed the pre-production activity by conducting a close spaced grade control drilling program of 130 AC holes with the aim of improving the resource confidence for the initial years of mining, and to produce a bulk metallurgical composite that represents the material that will be processed in these initial years and to process this material through a pilot plant that mimics the current designed process flow to generate bulk samples for potential offtake partners.

VRX engaged CSA Global to update the Arrowsmith North MRE with the expectation that the new estimate would not be materially different from the published estimate[2], as the CSA update was confined to the new data generated by the grade control drilling, see Figure 1, which shows the area (shown in green) that was included in the updated MRE.

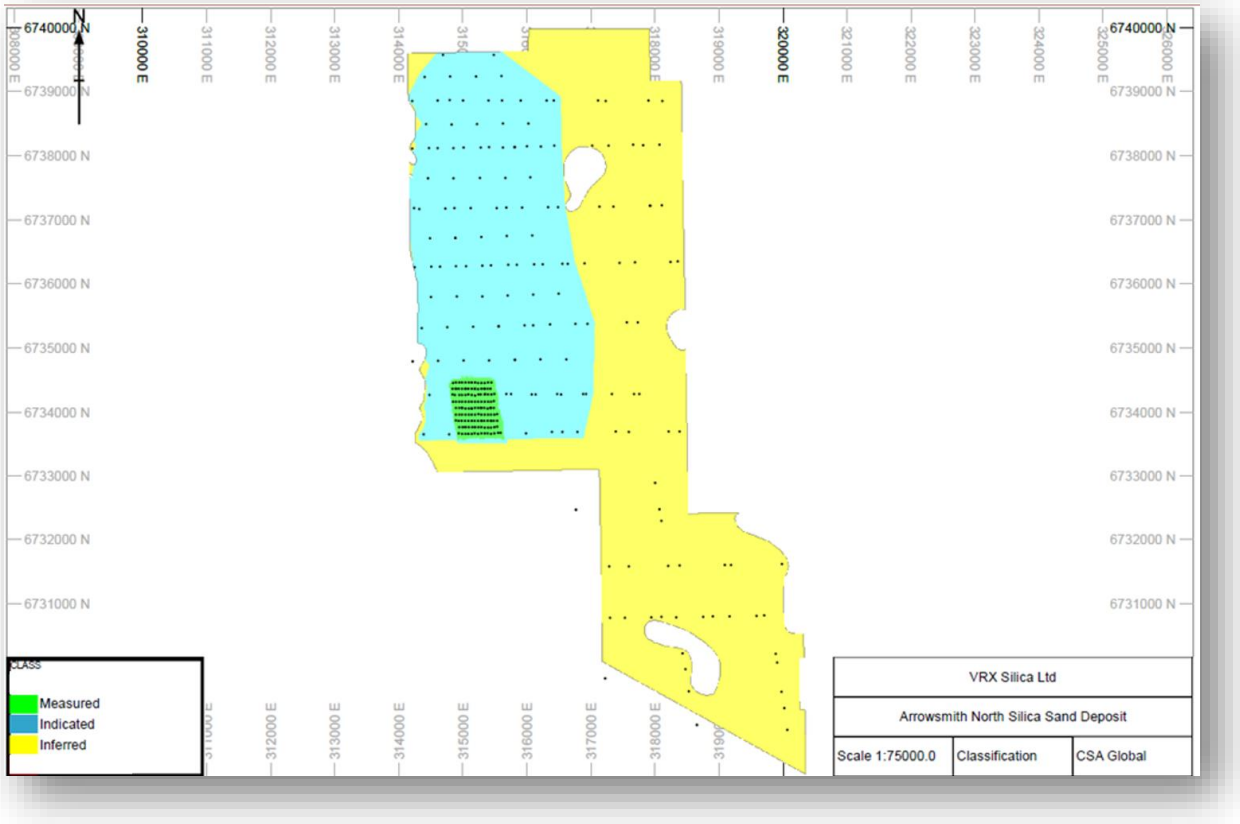


***Figure 1 – CSA MRE Update – Green area updated***

[2] ASX announcement of 9 July 2019, "Arrowsmith North Mineral Resource Estimate Upgrade".

The updated MRE resulted in a category upgrade to the material in the area grade controlled to a measured resource. A summary of the updated MRE is shown in Table 1, and the JORC 2012 Table 1 is included in Appendix 2.

**Arrowsmith North - Mineral Resources**

**9 July 2019 Estimate**

| Classification | Mt | $SiO_2$ % | $Al_2O_3$ % | $Fe_2O_3$ % | $TiO_2$ % | LOI % |
|---|---|---|---|---|---|---|
| Measured | | | | | | |
| Indicated | 248 | 97.7 | 1.0 | 0.4 | 0.2 | 0.5 |
| Inferred | 523 | 98.2 | 0.8 | 0.3 | 0.2 | 0.4 |
| **Total** | **771** | **98.0** | **0.9** | **0.3** | **0.2** | **0.4** |

**Updated Estimate** **Change**

| Classification | Mt | $SiO_2$ % | $Al_2O_3$ % | $Fe_2O_3$ % | $TiO_2$ % | LOI % | Mt | % |
|---|---|---|---|---|---|---|---|---|
| Measured | 10 | 95.9 | 1.9 | 0.7 | 0.3 | 0.7 | 10 | |
| Indicated | 237 | 97.7 | 1.00 | 0.40 | 0.20 | 0.50 | -11 | -4.6% |
| Inferred | 521 | 98.2 | 0.80 | 0.30 | 0.20 | 0.40 | -2 | -0.4% |
| **Total** | **768** | **98.0** | **0.90** | **0.30** | **0.20** | **0.40** | **-3** | **-0.4%** |

**Note: Interpreted mineralisation is domained into different sand types based on drill logging data and chemical analysis results. Depletion zones include the upper 0.5 m for rehabilitation purposes, 2 m base of sands within the 'grade control' area, iron richer sand ridges in the west and minor swamp zones in the east and south of the modelled area. Differences may occur due to rounding.*

***Table 1: Arrowsmith North Mineral Resource Estimate***

## ASX Listing Rule 5.8.1 Summary

The following summary is provided to assist VRX with public reporting of the Mineral Resource estimate.

### *Geology and Geological Interpretation*

Silica sand mineralisation at Arrowsmith North occurs within the coastal regions of the Perth Basin, and the targeted silica sand deposits are aeolian sand dunes that overlie limestones and paleo-coastline.

The geological modelling was completed based on government soil mapping data in conjunction with auger and AC drill logging data. The Mineral Resources were estimated above 3-D wireframe basal surfaces for the white and yellow sands, with the surfaces based on the geological boundaries defined by logged sand types and chemical analysis results from the drill data. The horizontal extents of the interpreted sand layers are limited to within the VRX nominated Arrowsmith North target area and with reference to the publicly available soil mapping data.

The silica sands are covered by a 300 m thick humus layer and are underlain by limestone.

### *Drilling Techniques*

Drilling over the project area was completed by means of AC and hand auger methods. Auger drilling was completed in 2017 along existing tracks, with drill spacing of 400 m (east) by 1,000 m (north) along the section lines.

AC drilling was completed in two stages using a Landcruiser mounted drill rig. Stage 1 drilling was completed in 2019, with holes located on the auger drilling tracks as well as along new section lines, forming an overall nominal 400 m section line spacing with drill holes nominally spaced at 400 m (east) by 400 m (north) over the majority of the modelled area. Stage 2 drilling, also referred to as grade control drilling, was completed in March 2021, with 130 holes drilled for 1,459.1 m. Drilling was completed on a drillhole spacing of 50 m (east) by 100 m (north). AC drilling hole depths range between 3 m and 21 m with an average depth of 10.9 m. All holes were drilled vertically.

Drill hole collar locations are shown in Figure 1, with the full drill hole listing in Appendix 1.

### *Sampling and Sub-sampling Techniques*

The 100 mm screw auger drilling samples were taken from 1 m down hole intervals. The sample was sufficiently moist to allow it to cling to the auger screw, with care taken during screw extraction to prevent sample disaggregating from the screw and falling back into the hole. At the end of each 1 m sample run, the screw was removed from the hole and the sand sample deposited into a plastic tub. The samples typically weighed 8 kg.

AC drilling samples are 1 m down hole intervals with sand collected from a cyclone mounted rotary cone splitter, and approximately 2-3kg (representing 50% of the drilled sand) was collected. Two sub-samples, A and B, of approximately 200 g were taken from the drill samples. Samples were bagged and ticketed with sample numbers prior to transport to the analytical laboratory.

### *Sample Analysis Method*

The “A” samples from all drilling were submitted to Intertek Laboratory, located in Maddington, W.A. The samples were dried and then pulverised in a zircon bowl to reduce the particle size to -75 µm. Multi-element analysis from the pulverised samples was completed by an initial four-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon tubes. The digest was then analysed by means of Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry (ICP-OES) analysis. Loss on Ignition at 1000°C (LOI) was analysed by Thermal Gravimetric Analyser (TGA). Silica is then reported by difference (SiO2 % = 100% - (LOI % + Major oxides)).

The assay results have also undergone internal laboratory quality assurance (QA), which includes the analysis of standards, blanks, and repeat quality control (QC) samples. Standards were included in the drill sample submissions at a ratio of 1:20. Field duplicate samples were submitted in a ratio of 1:20, and the laboratory routinely duplicated analyses from the pulverised samples at a ratio of 1:25.

An analysis of all the QC data was undertaken and validates the drill assay dataset for use in the Mineral Resource estimate.

### *Estimation Methodology*

A single block model with two parent cell sizes was constructed and used for grade interpolation. The first block dimensions of 200 m (E) x 200 m (Y) x 4 m (Z) are considered appropriate for the areas covered by wide spaced drilling. The second block sizes of 25 m (E) x 50 m (Y) x 2 m (Z) cover the area with the grade control drilling.

Grade interpolated into the block model included $SiO_2$, $Al_2O_3$, CaO, $Fe_2O_3$, $K_2O$, LOI (1000°C), MgO and $TiO_2$. Particle size distribution data (PSD) for -150 µm, >500 µm and > 600 µm were also interpolated. Grades from top cut and composited data were interpolated into the parent cells by ordinary kriging. Blocks were estimated using a search ellipse of 150 m (major) x 100 m (semi-major) x 4 m (minor) dimensions, with a minimum of 6 and a maximum of 16 samples from a maximum of 4 samples per drillholes. Cell discretisation of 3 x 3 x 2 (X, Y, Z) was employed.

Hard boundary estimation was used when estimating within the mineralisation domains, such that samples from one sand domain could not be used to interpolate blocks in an adjacent domain.

PSD sample analyses for -150, +500 and +600 fractions were interpolated using ordinary kriging. Blocks were estimated using a search ellipse of 1000 m (major) x 600 m (semi-major) x 2 m (minor) dimensions for the -150 PSD fraction, and 1500 m (major) x 400 m (semi-major) x 2 m (minor) dimensions for the +500 and +600 PSD fractions. A minimum of 2 and a maximum of 6 samples were used for all PSD grade interpolations, from a maximum of 4 samples per drillhole.

A dry bulk density value of 1.66 $t/m^3$ was applied to all blocks in the white and yellow sand domains.

### *Mineral Resource Classification*

The Mineral Resource has been classified based on the guidelines specified in The JORC Code. The classification level is based upon an assessment of geological understanding of the deposit, geological and mineralisation continuity, drillhole spacing, QC results, search and interpolation parameters and an analysis of available density information. JORC Code Clause 49 was also considered when classifying the Mineral Resource.

The Mineral Resource is classified as a combination of Measured, Indicated and Inferred. Figure 1 shows the distribution of the classification across the deposit.

Material that has been classified as Measured was considered by the Competent Person to be sufficiently informed by geological and sampling data to confirm geological and grade continuity between data points. The volumes of silica sand classified as Measured are constrained within the area drilled in 2021 (aircore “grade control” programme).

Silica sand Mineral Resources must be reported at least in terms of purity and size distribution, in addition to $SiO_2$ and tonnes, and should also take account of logistics and proximity to markets. Likely product specifications for the Arrowsmith North deposit are supported by the results of the composite sample process test work program undertaken between 2018 and 2021.

### *Cut-Off Grades*

No cut-off grades were used for reporting the Mineral Resource. The Mineral Resource is reported from all classified blocks with interpolated $SiO_2$ grades.

### *Modifying Factors*

VRX has completed metallurgical test work on composites of selected drill hole samples during 2018, 2019 and 2021 to gain knowledge of attributes including final product size distribution, purity and particle shape, so as to allow consideration of potential product specifications and general product marketability. Discussion of results is presented in JORC Table 1 (Section 3), in Appendix 2.

CSA Global is of the opinion that process test work on the composite drill samples indicates the Arrowsmith North deposit should be suitable for the eventual production of silica sand for glass, ceramic and foundry markets. In addition, project location and logistics support the classification of the Arrowsmith North deposit as an industrial Mineral Resource in terms of Clause 49 of the JORC Code.

### *Reasonable Prospects Hurdle*

The Competent Person deems that there are reasonable prospects for eventual economic extraction on the following basis:

- Available process testwork indicates that likely product qualities for glass, ceramics and foundry sand are considered appropriate for eventual economic extraction from Arrowsmith North.
- Potentially favourable logistics and project location support the classification of the Arrowsmith North deposit as an industrial Mineral Resource in terms of JORC Clause 49.
- The deposit is located adjacent to major road and rail infrastructure, and is 270 km north of Perth, which offers a large and suitably qualified workforce to develop the Project.
- The Mineral Resource has no overburden (excluding a shallow zone of sand to be retained for rehabilitation purposes) and is of shallow depth.

## Pilot Plant Testwork and Product Specifications

VRX has been conducting a pilot testwork program incorporating key process unit operations reflecting the current process design. Broadly speaking these are elutriation (mimicking the Constant Density (CD) tank), attritioning and a HydroFloat® pilot. This has been conducted on three parcels of material totaling ~ 3t that represent the resource average of Arrowsmith North.

The design of the process flow has been developed around the chemical changes required to meet particular specifications and the subsequent separation into saleable products by the particle size fractions that are required by the end user. The determination of what products are to be produced is the result of an incorporation of end user market intelligence and the in-depth knowledge of the chemistry of the available particle sizes to arrive at the products that return the highest economic value to the project. Appendix 3 contains the technical data sheets of the products that will bring the best economic return.

The Company generated particle size data during its drilling programs. This data has been modelled in the mineral resource to estimate various particle size parameters. A product yield study has been completed using particle size data generated by the pilot plant testwork to determine the yields of each of the products. The Ore Reserve schedule is able to effectively model the tonnages of final products that will be available for marketing and sale to End Users. This model will be an invaluable tool in maximizing the economics of the operating project.

## Ore Reserve Estimate Update

The 2019 Probable Ore Reserve of 223 Mt has been updated to 9.2 Mt Proved and 211.8 Mt Probable Ore Reserves as detailed below. Cube Consulting was engaged by VRX to complete mining engineering work towards a life of mine production schedule to provide an updated Ore Reserve estimate for Arrowsmith North.

The scope of work included importing and reconciling the supplied mineral resource block model, defining mining boundaries for successive schedule timing, preparing the mining area into appropriate blocks which would form the basis of the mining schedule, preparing a mining schedule for the total mine life, reporting of the mining schedule physicals including material mined and the associated products, for inclusion in the financial model, culminating in the reporting of an updated Ore Reserves estimate for the project.

The production schedule was completed in quarterly increments for the first 7 years, followed by annual increments for the following 38 years after which the schedule was aggregated and reported in 5 year increments to the end of the mine's 111 year life.

Total material movements planned are shown for the first seven years in quarterly increments in Figure 2 and annually for years 8 to 45 in Figure 3.

The work completed supports the reporting of an updated Ore Reserve estimate for this project in accordance with the guidelines in the JORC Code. Proved and Probable Ore Reserves have been derived from the Measured and Indicated Mineral Resources respectively contained within the mining lease area M70/1389. The Arrowsmith North updated Ore Reserve estimate is shown in Table 2.

***Table 2 Arrowsmith North Open Pit Ore Reserve Estimate – November 2022***

**Arrowsmith North - Ore Reserves**

**Updated Estimate**

| Classification | 2019 Ore Reserve | 2022 Update | AFS20 | AFS35 | AFS55 | Local |
|---|---|---|---|---|---|---|
| | | Mt | Mt | Mt | Mt | Mt |
| Proved | - | 9.2 | 0.8 | 3.9 | 2.7 | 1.8 |
| Probable | 223 | 211.8 | 24.2 | 102.5 | 51.1 | 34.1 |
| **Total** | **223** | **221.0** | **25.0** | **106.4** | **53.8** | **35.9** |

The rounding in the above table is an attempt to represent levels of precision implied in the estimation process which may result in apparent errors of summation in totals shown in rows or columns.

The prior estimate relies on VRX's bankable feasibility study for Arrowsmith North announced to ASX on 28 August 2019[3]. Given the immaterial change to the updated Ore Reserve, all material assumptions contained in that study continue to apply and have not materially changed from the date of release of that study. While VRX considers all of the material assumptions to be based on reasonable grounds, there is no certainty they will be correct or that the range of outcomes indicated within the study will be achieved.

[3] ASX announcement of 28 August 2019, "Arrowsmith North BFS and Maiden Ore Reserve".

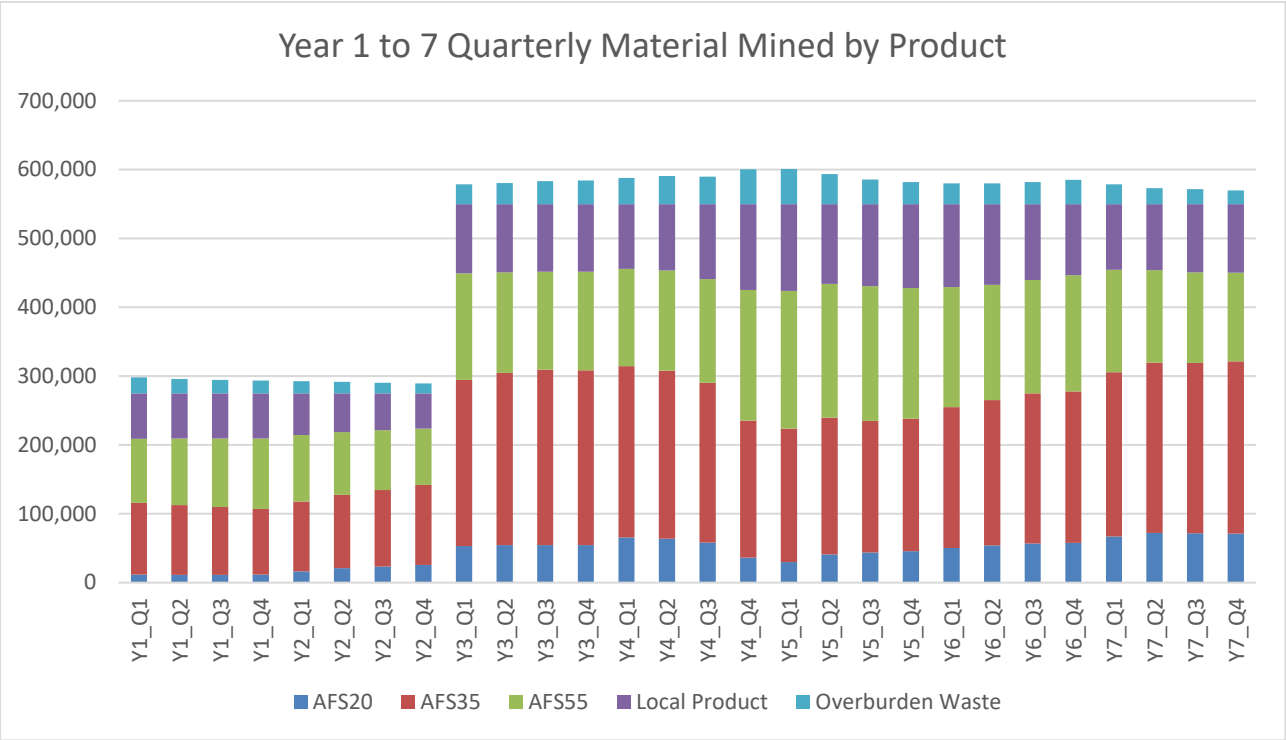


***Figure 2 First 7 Years Production Profile***

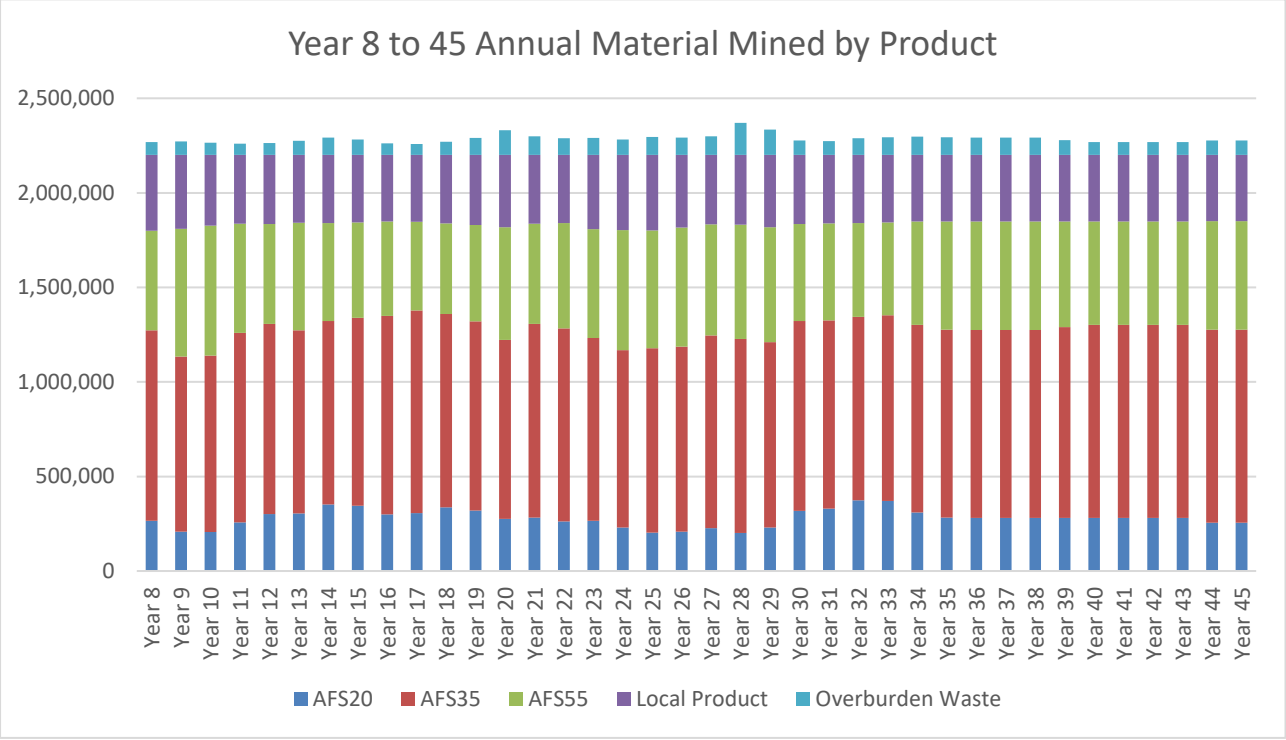


***Figure 3 Years 8 to 45 Production Profile***

*Mining Parameters and Scheduling*

The development of the life of mine schedule and ore reserves for the project does not follow a conventional open pit approach which would normally consist of open pit optimisations and detailed pit designs prior to the scheduling. This is due to the fact that the entire resource is planned to be mined and processed into four distinct product categories.

The mined product material is fed onto a conveyor which delivers it to the processing facility where it to sorted into four product categories as shown in Figure 4.

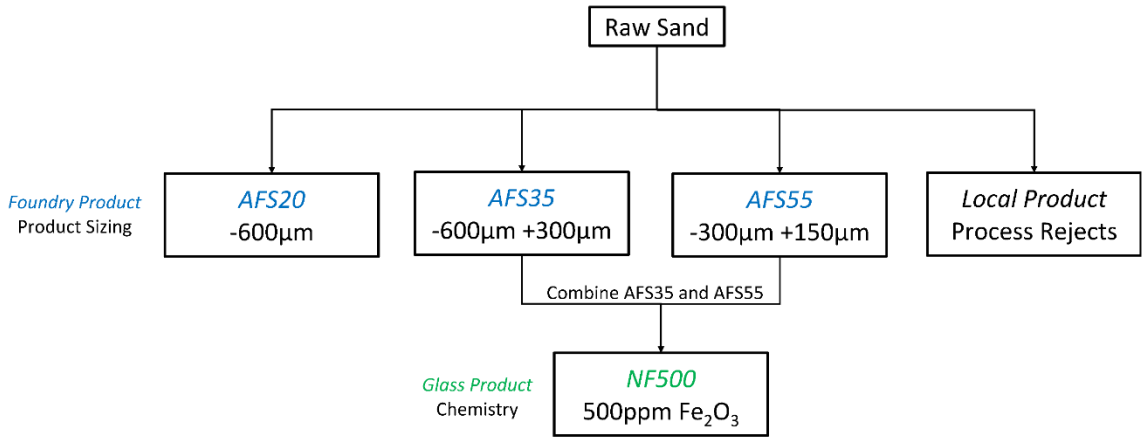


***Figure 4 Product Summary***

The Tails, Local Product, shown in Table 3 result from sizing processes for the -150µm size and from the hydrofloat for the coarser sizings. This mass deportment can therefore be used to estimate the yield of each of the 4 products from the information contained within the Mineral Resource Estimate (MRE) blockmodel.

***Table 3 Nominal Feed Sizing***

| | Mass Deportment (%) | | | | |
|---|---|---|---|---|---|
| **Stream** | Total | +600um | -600um, +300 | -300um, +150 | -150um |
| ***Feed*** | | ***12.3%*** | ***47.0%*** | ***34.4%*** | ***6.4%*** |
| Fines Product stockpile | 29.0% | 0.00% | 2.13% | 81.0% | 2.33% |
| Coarse Product stockpile | 10.5% | 82.9% | 0.84% | 0.00% | 0.00% |
| Intermediate Product stockpile | 42.5% | 0.00% | 83.2% | 9.71% | 0.00% |
| Tails | 18.0% | 17.1% | 13.8% | 9.28% | 97.7% |

The MRE block model has estimated within each block attributes representing the following;

1. % of sand -150µm
2. % of sand +300µm
3. % of sand +600µm

New attributes were generated in the Ore Reserve block model to represent 4 sizing groups, the formula refers to above:

A. % of sand +600µm = 3
B. % of sand -600µm +300µm = 2 – 3
C. % of sand -300µm +150µm = (100- 1) – 2
D. % of sand -150µm = 1
E. There should be a check attribute created adding A, B, C, D which should = 100%

The yield of each final product was then generated by using the mass deportment from Table 6, rounded as follows:

- +600µm = 17%
- -600µm +300µm = 14%
- -300µm +150µm = 9%
- -150µm = 97.5%

New attributes were then generated in the Ore Reserve block model to reflect the products shown in Figure 4, and the % calculation of each final product is therefore:

- **AFS20** = A x (100% - 17%)
- **AFS35** = B x (100% - 14%) + (C x 10%)
- **AFS55** = C x (100% - (9% + 10%)

**Local Product** = D + (A x 17%) + (B x 14%) + (C x 9%)

The next step in the process was to divide the resource into schedule ‘blocks’ to enable the schedule to achieve mining in a specified sequence to satisfy practical and strategic objectives. The primary guide for the schedule was to commence mining in the southwest corner of the project, where the initial processing facility is planned to be set up. The next target for the schedule is the Development Envelope which is an area specifically delineated in support of the primary EPA approvals. This area is to be the source of production for approximately the first 25 years of the operations. Following the depletion of the Development Envelope area, the remainder of the deposit is to be mined out in a northerly direction.

The schedule mines out the total resource which includes approximately 10Mt outside of the mining lease area, however the Ore Reserves estimated and reported here were limited to inside the mining lease area M70/1389. The total blocks scheduled together with the target Development Area and the Mining Lease are shown in Figure 5 together with the sequencing of the schedule shown in various progressive increments of Years 1-7; Years 8 to 25 and Years 25 to 45.

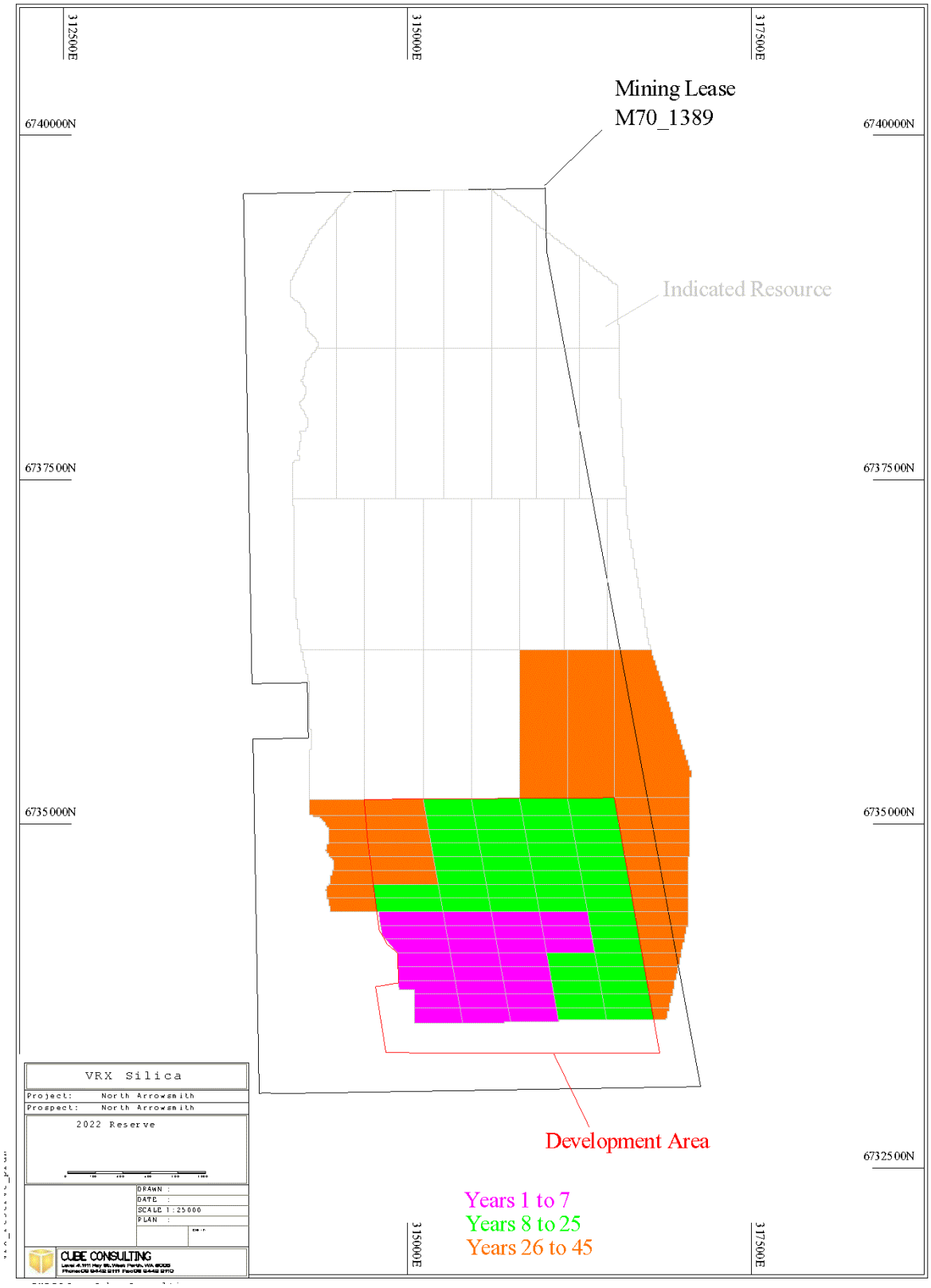


***Figure 5 Mine Schedule Blocks, Development area and Mining Lease Area***

The schedule targets total product tonnes of 2.2 Mt per annum over the full mine life with the exception of the first 2 years which are scheduled at half of the full production target as part of a conservative ramp up plan. The total material mined averages just over the target of product tonnes, which is due to the very low volumes of overburden waste to be moved to expose the target product material. Total material movements planned are shown for the first seven years, in quarters in Figure 2 and annually for years eight to forty five in Figure 3.

### *Ore Reserve Estimate*

At the conclusion of this study, it was demonstrated that the project is economically viable considering all relevant factors, test work and design criteria, culminating in a financial analysis with favourable economic metrics.

The work completed supports the reporting of an updated Ore Reserve estimate for this project in accordance with the guidelines in the JORC Code. Proved and Probable Ore Reserves have been derived from the Measured and Indicated Mineral Resources respectively, contained within the mining lease area M70/1389. The Arrowsmith North updated Ore Reserve estimate is shown in Table 4.

***Table 4 Arrowsmith North Open Pit Ore Reserve Estimate – November 2022***

| | Product | | | | |
|---|---|---|---|---|---|
| **Ore Reserve Classification** | **Total Mt** | **AFS20 Mt** | **AFS35 Mt** | **AFS55 Mt** | **Local Mt** |
| **Proved** | 9.2 | 0.8 | 3.9 | 2.7 | 1.8 |
| **Probable** | 211.8 | 24.2 | 102.5 | 51.1 | 34.1 |
| **Total** | **221.0** | **25.0** | **106.4** | **53.8** | **35.9** |

The rounding in the above table is an attempt to represent levels of precision implied in the estimation process which can result in apparent errors of summation in some columns.

Figure 6 shows the Arrowsmith North ore reserve area.

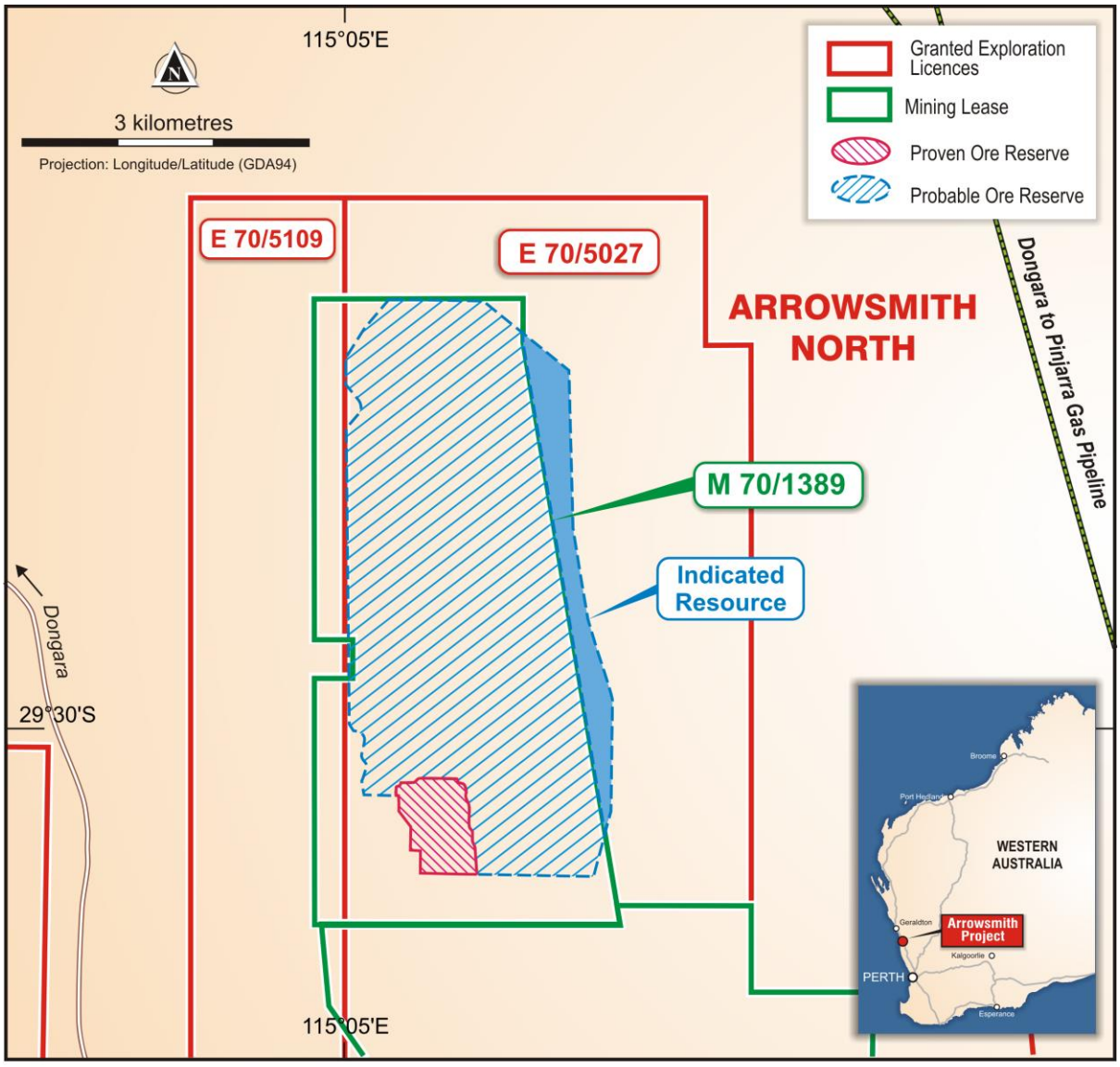


***Figure 6 Arrowsmith North Ore Reserve Area***

## Future Work

VRX has now completed all mining and processing pre-production works as well as the production of bulk material of the various final products and detailed engineering design of the planned processing plant is close to completion. VRX in in the final stages of gaining regulatory approval to commence construction in 2023.

## Competent Person's Statement

The information in this announcement that relates to Arrowsmith Exploration Results are based on data collected and complied under the supervision of Mr David Reid, in his capacity as Exploration Manager. 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 report that relates to Mineral Resources is based on, and fairly reflects, information compiled by Mr David Williams, a Competent Person, who is an employee of CSA Global and a Member of the Australian Institute of Geoscientists. Mr Williams 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). Mr Williams consents to the disclosure of information in this report in the form and context in which it appears.

The information in this report that relates to Industrial Minerals considerations with respect to Clause 49 of the JORC Code is based on, and fairly reflects, information compiled by Dr Andrew Scogings, a Competent Person, who is an employee of CSA Global, a Member of the Australian Institute of Geoscientists and is a Registered Professional Geoscientist (RP Geo. 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.

The information in this report that relates to metallurgical test work is based on information compiled by Mr Steven Hoban who is the Principal Metallurgist and a Director of BHM Process Consultants. Mr. Hoban is a Member of the Australasian Institute of Mining and Metallurgy. Mr Hoban 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). Mr Hoban consents to the disclosure of information in this report in the form and context in which it appears.

The information in this announcement that relates to Ore Reserves is based on information compiled by Mr Quinton de Klerk, who is employed by Cube Consulting. Mr de Klerk is a fellow of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the activity 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). Mr de Klerk consents to the inclusion in the report of the matters based on his information in the form and context in which it appears

This announcement has been authorised for release to ASX by the Managing Director, Bruce Maluish.

**Further information:**

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## About VRX Silica

VRX Silica Ltd (ASX: VRX) is developing world-class, high-grade silica sand projects in Western Australia.

The Arrowsmith North and Arrowsmith Central Silica Sand Projects, 270km north of Perth, comprise five granted exploration licences and two granted mining leases. Bankable feasibility studies for both projects have demonstrated exceptional financial metrics.

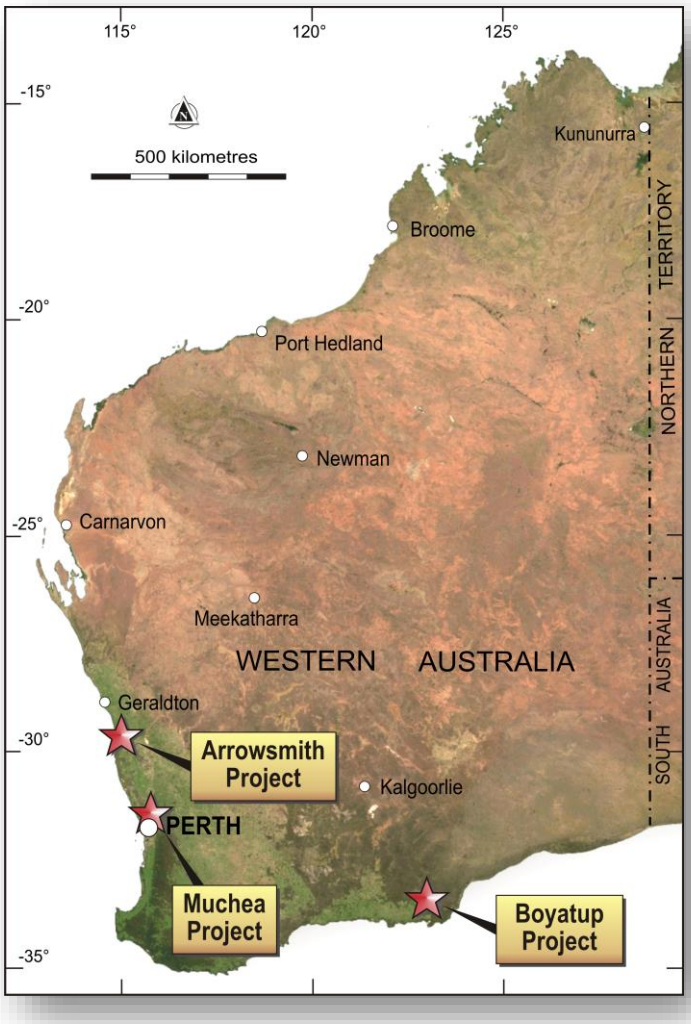
The Muchea Silica Sand Project, 50km north of Perth, comprises two granted and one under-application exploration licences as well as one granted mining lease. Muchea is a world-class project with high-purity silica sand in situ. A bankable feasibility study has demonstrated outstanding financial metrics.

The Boyatup Silica Sand Project, 100km east of Esperance, comprises two adjacent granted exploration licences. Initial indications are that this project can complement the Arrowsmith and Muchea projects and add to the range of silica products VRX Silica may be capable of producing.

## Proven Management

VRX Silica's Board and Leadership Team have extensive experience in mineral exploration and mine development-to-production and in the management of publicly listed mining and exploration companies.

## Silica Sand Projects Locations



## APPENDIX 1 – Grade Control Drill Hole Listing

| Hole_ID | MGA_Nth | MGA_East | RL | Hole_Depth | Date Drilled |
|---|---|---|---|---|---|
| ANGC001 | 6734450 | 315452 | 45.1 | 18 | 22/03/2021 |
| ANGC002 | 6734447 | 315400 | 46.0 | 19 | 22/03/2021 |
| ANGC003 | 6734446 | 315349 | 46.6 | 20 | 22/03/2021 |
| ANGC004 | 6734445 | 315300 | 47.1 | 20 | 22/03/2021 |
| ANGC005 | 6734445 | 315247 | 47.2 | 20 | 22/03/2021 |
| ANGC006 | 6734447 | 315200 | 47.0 | 19.5 | 22/03/2021 |
| ANGC007 | 6734447 | 315149 | 46.6 | 17.2 | 22/03/2021 |
| ANGC008 | 6734448 | 315100 | 46.3 | 17.8 | 22/03/2021 |
| ANGC009 | 6734447 | 315050 | 46.0 | 14.5 | 22/03/2021 |
| ANGC010 | 6734448 | 315000 | 45.5 | 15.7 | 22/03/2021 |
| ANGC011 | 6734449 | 314949 | 44.8 | 17 | 22/03/2021 |
| ANGC012 | 6734448 | 314900 | 43.7 | 17 | 22/03/2021 |
| ANGC013 | 6734446 | 314855 | 42.5 | 14.8 | 22/03/2021 |
| ANGC014 | 6734349 | 314849 | 41.3 | 11.3 | 22/03/2021 |
| ANGC015 | 6734351 | 314897 | 41.7 | 11.2 | 22/03/2021 |
| ANGC016 | 6734351 | 314947 | 42.3 | 10.9 | 22/03/2021 |
| ANGC017 | 6734350 | 314997 | 43.3 | 10.5 | 22/03/2021 |
| ANGC018 | 6734351 | 315046 | 44.6 | 11 | 22/03/2021 |
| ANGC019 | 6734350 | 315097 | 46.2 | 12 | 22/03/2021 |
| ANGC020 | 6734350 | 315148 | 47.7 | 12.4 | 22/03/2021 |
| ANGC021 | 6734349 | 315196 | 48.8 | 12.5 | 23/03/2021 |
| ANGC022 | 6734349 | 315246 | 49.3 | 12.2 | 23/03/2021 |
| ANGC023 | 6734350 | 315297 | 48.9 | 11.8 | 23/03/2021 |
| ANGC024 | 6734350 | 315347 | 47.8 | 11.3 | 23/03/2021 |
| ANGC025 | 6734351 | 315396 | 46.2 | 15 | 23/03/2021 |
| ANGC026 | 6734350 | 315438 | 44.8 | 11.9 | 23/03/2021 |
| ANGC027 | 6734268 | 315501 | 41.7 | 8.8 | 23/03/2021 |
| ANGC028 | 6734266 | 315452 | 43.1 | 11.3 | 23/03/2021 |
| ANGC029 | 6734266 | 315400 | 45.2 | 12 | 23/03/2021 |
| ANGC030 | 6734264 | 315351 | 47.1 | 11.5 | 23/03/2021 |
| ANGC031 | 6734263 | 315250 | 50.0 | 10.5 | 23/03/2021 |
| ANGC032 | 6734247 | 315201 | 49.9 | 15.5 | 23/03/2021 |
| ANGC033 | 6734254 | 315150 | 48.2 | 11.5 | 23/03/2021 |
| ANGC034 | 6734261 | 315098 | 45.7 | 10.5 | 23/03/2021 |
| ANGC035 | 6734254 | 315048 | 43.3 | 11.2 | 23/03/2021 |
| ANGC036 | 6734252 | 314998 | 41.2 | 10.8 | 23/03/2021 |
| ANGC037 | 6734254 | 314949 | 39.4 | 9.7 | 23/03/2021 |
| ANGC038 | 6734261 | 314851 | 39.2 | 9.5 | 23/03/2021 |
| ANGC039 | 6734147 | 314856 | 36.9 | 5.6 | 23/03/2021 |
| ANGC040 | 6734147 | 314900 | 36.9 | 3.6 | 23/03/2021 |

| Hole_ID | MGA_Nth | MGA_East | RL | Hole_Depth | Date Drilled |
|---|---|---|---|---|---|
| ANGC041 | 6734148 | 314950 | 38.2 | 8.3 | 23/03/2021 |
| ANGC042 | 6734149 | 315000 | 40.5 | 13.7 | 23/03/2021 |
| ANGC043 | 6734150 | 315051 | 43.2 | 14 | 23/03/2021 |
| ANGC044 | 6734148 | 315099 | 45.9 | 14 | 23/03/2021 |
| ANGC045 | 6734148 | 315150 | 48.3 | 15.6 | 23/03/2021 |
| ANGC046 | 6734148 | 315201 | 49.8 | 14.5 | 23/03/2021 |
| ANGC047 | 6734149 | 315248 | 49.9 | 20 | 23/03/2021 |
| ANGC048 | 6734149 | 315300 | 48.7 | 16.5 | 23/03/2021 |
| ANGC049 | 6734148 | 315350 | 46.5 | 10.7 | 23/03/2021 |
| ANGC050 | 6734149 | 315401 | 44.4 | 10.5 | 23/03/2021 |
| ANGC051 | 6734152 | 315450 | 42.7 | 7.8 | 23/03/2021 |
| ANGC052 | 6734154 | 315490 | 41.7 | 8.5 | 23/03/2021 |
| ANGC053 | 6734053 | 315493 | 42.0 | 5.5 | 24/03/2021 |
| ANGC054 | 6734051 | 315444 | 43.2 | 10.5 | 24/03/2021 |
| ANGC055 | 6734049 | 315393 | 44.7 | 11 | 24/03/2021 |
| ANGC056 | 6734050 | 315342 | 46.1 | 11.5 | 24/03/2021 |
| ANGC057 | 6734051 | 315295 | 47.3 | 18.8 | 24/03/2021 |
| ANGC058 | 6734051 | 315243 | 48.0 | 17.7 | 24/03/2021 |
| ANGC059 | 6734050 | 315198 | 48.0 | 15 | 24/03/2021 |
| ANGC060 | 6734049 | 315150 | 46.9 | 14.8 | 24/03/2021 |
| ANGC061 | 6734048 | 315099 | 44.7 | 11.7 | 24/03/2021 |
| ANGC062 | 6734048 | 315049 | 42.1 | 9.7 | 24/03/2021 |
| ANGC063 | 6734050 | 315001 | 39.9 | 9.8 | 24/03/2021 |
| ANGC064 | 6734052 | 314952 | 38.4 | 5.7 | 24/03/2021 |
| ANGC065 | 6734055 | 314900 | 38.5 | 0.2 | 24/03/2021 |
| ANGC066 | 6733947 | 314903 | 39.6 | 0.3 | 24/03/2021 |
| ANGC067 | 6733948 | 314949 | 37.8 | 4 | 24/03/2021 |
| ANGC068 | 6733949 | 314999 | 38.6 | 8.3 | 24/03/2021 |
| ANGC069 | 6733949 | 315049 | 40.7 | 8 | 24/03/2021 |
| ANGC070 | 6733949 | 315100 | 43.2 | 9.5 | 24/03/2021 |
| ANGC071 | 6733951 | 315149 | 45.5 | 16.5 | 24/03/2021 |
| ANGC072 | 6733949 | 315200 | 46.2 | 14.5 | 24/03/2021 |
| ANGC073 | 6733951 | 315249 | 45.7 | 14.5 | 24/03/2021 |
| ANGC074 | 6733950 | 315299 | 45.3 | 14.5 | 24/03/2021 |
| ANGC075 | 6733950 | 315349 | 44.8 | 14.6 | 24/03/2021 |
| ANGC076 | 6733949 | 315399 | 44.6 | 11 | 24/03/2021 |
| ANGC077 | 6733947 | 315449 | 43.9 | 10.5 | 24/03/2021 |
| ANGC078 | 6733950 | 315500 | 42.7 | 11.7 | 24/03/2021 |
| ANGC079 | 6733957 | 315541 | 41.6 | 9.8 | 24/03/2021 |
| ANGC080 | 6733851 | 315544 | 41.8 | 5 | 25/03/2021 |
| ANGC081 | 6733853 | 315495 | 42.6 | 6.8 | 25/03/2021 |
| ANGC082 | 6733853 | 315447 | 42.8 | 7.4 | 25/03/2021 |

| Hole_ID | MGA_Nth | MGA_East | RL | Hole_Depth | Date Drilled |
|---|---|---|---|---|---|
| ANGC083 | 6733854 | 315396 | 43.0 | 7.3 | 25/03/2021 |
| ANGC084 | 6733853 | 315346 | 43.5 | 10.5 | 25/03/2021 |
| ANGC085 | 6733852 | 315297 | 44.4 | 12 | 25/03/2021 |
| ANGC086 | 6733851 | 315247 | 45.2 | 18 | 25/03/2021 |
| ANGC087 | 6733851 | 315195 | 45.4 | 18 | 25/03/2021 |
| ANGC088 | 6733852 | 315146 | 44.1 | 10.3 | 25/03/2021 |
| ANGC089 | 6733848 | 315097 | 41.6 | 7.3 | 25/03/2021 |
| ANGC090 | 6733849 | 315044 | 39.6 | 8 | 24/03/2021 |
| ANGC091 | 6733851 | 314993 | 38.5 | 8.9 | 24/03/2021 |
| ANGC092 | 6733853 | 314946 | 37.6 | 7.3 | 24/03/2021 |
| ANGC093 | 6733856 | 314899 | 38.2 | 0.5 | 24/03/2021 |
| ANGC094 | 6733752 | 314954 | 36.5 | 6 | 25/03/2021 |
| ANGC095 | 6733750 | 315002 | 37.7 | 7.7 | 25/03/2021 |
| ANGC096 | 6733749 | 315051 | 38.5 | 6.5 | 25/03/2021 |
| ANGC097 | 6733750 | 315101 | 40.0 | 5.5 | 25/03/2021 |
| ANGC098 | 6733750 | 315151 | 42.7 | 8.3 | 25/03/2021 |
| ANGC099 | 6733752 | 315201 | 44.8 | 12 | 25/03/2021 |
| ANGC100 | 6733752 | 315249 | 45.5 | 17 | 25/03/2021 |
| ANGC101 | 6733749 | 315300 | 45.2 | 13.5 | 25/03/2021 |
| ANGC102 | 6733748 | 315350 | 44.4 | 12.3 | 25/03/2021 |
| ANGC103 | 6733747 | 315400 | 43.5 | 8.8 | 25/03/2021 |
| ANGC104 | 6733747 | 315449 | 43.1 | 9 | 25/03/2021 |
| ANGC105 | 6733749 | 315500 | 42.6 | 5.5 | 25/03/2021 |
| ANGC106 | 6733757 | 315546 | 42.2 | 2.5 | 25/03/2021 |
| ANGC107 | 6733659 | 315563 | 40.9 | 7.5 | 25/03/2021 |
| ANGC108 | 6733658 | 315497 | 42.2 | 7 | 25/03/2021 |
| ANGC109 | 6733649 | 315446 | 42.6 | 8.5 | 25/03/2021 |
| ANGC110 | 6733653 | 315397 | 43.1 | 7.4 | 25/03/2021 |
| ANGC111 | 6733657 | 315346 | 44.2 | 9.2 | 25/03/2021 |
| ANGC112 | 6733654 | 315297 | 44.8 | 9.9 | 25/03/2021 |
| ANGC113 | 6733651 | 315246 | 44.8 | 9.3 | 25/03/2021 |
| ANGC114 | 6733648 | 315146 | 42.1 | 8 | 25/03/2021 |
| ANGC115 | 6733648 | 315098 | 40.3 | 6.9 | 25/03/2021 |
| ANGC116 | 6733648 | 315047 | 39.3 | 8.7 | 25/03/2021 |
| ANGC117 | 6733651 | 314997 | 37.7 | 8 | 25/03/2021 |
| ANGC118 | 6733652 | 314948 | 35.7 | 7 | 25/03/2021 |
| ANGC119 | 6734351 | 314896 | 41.6 | 11.4 | 26/03/2021 |
| ANGC120 | 6734350 | 315046 | 44.6 | 10.8 | 26/03/2021 |
| ANGC121 | 6734349 | 315197 | 48.8 | 12.4 | 26/03/2021 |
| ANGC122 | 6734350 | 315346 | 47.8 | 11.4 | 26/03/2021 |
| ANGC123 | 6734051 | 315442 | 43.2 | 11 | 26/03/2021 |
| ANGC124 | 6734051 | 315293 | 47.3 | 19.8 | 26/03/2021 |

| Hole_ID | MGA_Nth | MGA_East | RL | Hole_Depth | Date Drilled |
|---|---|---|---|---|---|
| ANGC125 | 6734049 | 315150 | 46.9 | 14.6 | 26/03/2021 |
| ANGC126 | 6734050 | 314999 | 39.8 | 9.8 | 26/03/2021 |
| ANGC127 | 6733853 | 315446 | 42.8 | 7.5 | 25/03/2021 |
| ANGC128 | 6733852 | 315296 | 44.4 | 12 | 25/03/2021 |
| ANGC129 | 6733750 | 315051 | 38.6 | 16.9 | 25/03/2021 |
| ANGC130 | 6733752 | 315202 | 44.9 | 12 | 25/03/2021 |

## APPENDIX 2 – JORC 2012 Table 1

Section 1: Sampling Techniques and Data

| Criteria | Commentary |
|---|---|
| *Sampling techniques* | Aircore drilling samples are 1 m down hole intervals with sand collected from a cyclone mounted rotary cone splitter, ~2-3kg (representing 50% of the drilled sand) was collected. Two sub-samples, A and B, of ~200g were taken from the drill samples. The remainder was retained for metallurgical testwork.<br>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.<br>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 Inductively Coupled Plasma Mass Spectrometry analysis.<br>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.<br>The targeted mineralisation is unconsolidated silica sand dunes, the sampling techniques are "industry standard".<br>Due to the visual nature of the material, geological logging of the drill material is the primary method of identifying mineralisation.<br>The Competent Person is satisfied that the sampling techniques are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Drilling techniques* | Vertical NQ sized aircore drilling was completed by a Contract Drilling Company using a Landcruiser mounted Mantis 82 drill rig.<br>A 100mm diameter hand screw auger was used to drill until hole collapse.<br>The Competent Person is satisfied that the drilling techniques are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Drill sample recovery* | Aircore:<br>• Visual assessment and logging of sample recovery and sample quality.<br>• Reaming of hole and clearance of drill string after every 3m drill rod.<br>• Sample splitter and cyclone cleaned regularly to prevent sample contamination.<br>• No relationship is evident between sample recovery and grade.<br>Auger:<br>• 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.<br>• No relationship is evident between sample recovery and grade.<br>The Competent Person is satisfied that the sample recoveries are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Logging* | Geological logging of drill samples is done by the field geologist with samples retained in chip trays for later interpretation.<br>Logging is captured in an Excel spreadsheet, validated and uploaded into an Access database.<br>This information is of a sufficient level of detail to support the Mineral Resource estimate. |

| Criteria | Commentary |
|---|---|
| | The Competent Person is satisfied that the geological logging techniques are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Subsampling techniques and sample preparation* | Aircore drill samples are rotary split 50:50 into a calico bag resulting in 2-3kg of dry sample, 2 x 200g sub-samples, A and B, are taken from the drill sample. The A sample is submitted to the laboratory and the B sample is retained for repeat analysis and QA/QC purposes. The bulk sample is retained for later metallurgical testwork.<br>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.<br>The sample size is considered appropriate for the material sampled.<br>The 200g samples are submitted to the Intertek Laboratory in Maddington. Intertek use a zircon bowl pulveriser to reduce the particle size to -75µm.<br>The Competent Person is satisfied that the sub-sampling techniques and sample preparation are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *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.<br>The assay results have also undergone internal laboratory quality assurance (QA), which includes the analysis of standards, blanks, and repeat quality control (QC) samples.<br>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 laboratories in Perth prior to the commencement of drilling.<br>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 QC samples therefore represents ~14% of the total assays.<br>A full analysis of all the QC data has been undertaken. This analysis validates the drill assay dataset and conforms with the guidelines for reporting under the JORC Code.<br>The Competent Person is satisfied that the QA procedures put in place are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Verification of sampling and analyses* | Significant intersections were validated against geological logging.<br>Three aircore twinned holes have been completed which shows strong correlation between the paired assays. |
| *Location of data points* | Auger drill hole locations were measured by hand-held GPS with the expected relative accuracy; GDA94 MGA Zone 50 grid coordinate system is used.<br>Aircore drill holes were surveyed by RM Surveys using base stations on GOLA SSM DON53 and a Project Control point established as GFM001, situated within the Arrowsmith North prospect and coordinated by RTK from DON53, with the |

| Criteria | Commentary |
|---|---|
| | expected relative accuracy of 0.05m E, N and RL. The drill collar RL's were transformed to the topographic DTM surface.<br>The Competent Person is satisfied that the surveying techniques and accuracy of data are appropriate for this style of deposit, and for use in Mineral Resource estimation. |
| *Data spacing and distribution* | Auger holes were spaced 400-1,000m apart along existing tracks.<br>The aircore drilling in the indicated resource was spaced 400m, along lines spaced 450m apart. In the Inferred area holes were spaces 800m apart, on line spaces 800m apart.<br>Within the area containing the 2021 aircore drilling, drilling was completed on a drillhole spacing of 50 m (east) by 100 m (north).<br>No sample compositing (down hole) has been completed. |
| *Orientation of data in relation to geological structure* | Sampling is being undertaken on aeolian sand dunes and all holes were drilled vertically. The drill orientation is therefore considered appropriate to the geological controls affecting mineralisation. |
| *Sample security* | All samples are selected onsite under the supervision of VRX Geological staff.<br>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. |

## Section 2: Reporting of Exploration Results

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

| Criteria | Commentary |
|---|---|
| *Mineral tenement and land tenure status* | VRX has six granted exploration licenses covering 342.9 km2 and has two granted mining leases, covering 36.3km2 of that area, which are excised from the exploration licences.<br>The granted exploration licences E70/5027, E70/5109, E70/5197 and E70/5817 at Arrowsmith North; E70/4987 at Arrowsmith Central and E70/4986 at Arrowsmith South. The granted mining leases are M70/1389 at Arrowsmith North and M70/1392 at Arrowsmith Central.<br>All drilling supporting the Arrowsmith North Mineral Resource has been within tenement E70/5027, which is owned by Ventnor Mining Pty Ltd, a 100% owned subsidiary of VRX Silica Limited. The tenement was granted 14 June 2018 and all drilling was conducted on vacant crown land. |
| *Exploration done by other parties* | Minor exploration for oil and gas, and for mineral sands was completed by various companies.<br>Other than work completed by VRX, no exploration for silica sand has been completed. |
| *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 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 iron rich sand ridges. |

| Criteria | Commentary |
|---|---|
| | Locally the silica sand deposit is understood to be layered where yellow sand is deposited it is underlain by white sand. The silica sand deposit is bounded at depth by a basal limestone which is closer to the surface in the south and deeper in the north. |
| *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.<br>Seven, certified, dry *in situ* bulk density measurements were completed by Construction Sciences Pty Ltd using a nuclear densometer.<br>Groundwater was intersected in only a few holes that were drilled deeper deliberately to ascertain the position of the water table. The water table is typically below 15m depth.<br>The mineralisation is unconsolidated sand.<br>There are no known deleterious substances. |
| *Further work* | The Company is progressing the Project into a Development phase having formally referred the project to the Department of Agriculture, Water, and the Environment for assessment under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) and to the Environmental Protection Authority for assessment under Part IV of the Environmental Protection Act 1986 (WA).<br>In parallel Approvals under the Mining Act are being prepared with a view to lodgment in the near future. Approval under Part V of the EP Act will also be required (Works Approval and Licence) to allow construction and operation of a mine and processing facility to produce a bulk product for transport to the Geraldton Port for bulk shipment to customers in Asia. VRX plans to commence preparation of a Works Approval application in the near future. |

## Section 3: Estimation and Reporting of Mineral Resources

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

| Criteria | Commentary |
|---|---|
| *Database integrity* | Data used in the Mineral Resource estimate 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.<br>Validation of the data imported comprises checks for overlapping intervals, missing survey data, missing analytical data, missing lithological data, and missing collars. |

| Criteria | Commentary |
|---|---|
| *Site visits* | A site visit by the previous Competent Person, Mr Grant Louw of CSA Global, took place on 3 July 2019.<br>Geology – Mr Louw noted that the Arrowsmith tenements are primarily underlain by unconsolidated white / yellow silica sand, covered by low scrub and very few trees. Topographic relief is low. It was noted that the material recorded as ironstone ridges by the DOAG mapping is in fact a more iron rich sand unit, and not an ironstone.<br>Drill collars – Mr Louw recorded and verified several marked drill sites using hand-held GPS.<br>Project location – several points such as road intersections were located and plotted in Google Earth™ to verify the tenement location.<br>Mr Louw visited the VRX sample storage on 17 October 2018 and noted the following:<br>Sample storage – originals, field duplicates, pulps, standards and chip trays are housed appropriately. Some chip trays were photographed by the Competent Person as a check against company photographs and geology logs. |
| *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 limestones and paleo-coastline.<br>Within the project area, data obtained from the Department of Agriculture soil mapping shows there are pale (logged by VRX as white sands) and yellow deep sands predominating, with lesser swampy areas and occasional iron rich sand ridges.<br>The geological modelling was completed based on this soil mapping data in conjunction with the auger and aircore drill logging data. The Mineral Resources were estimated above 3-D wireframe basal surfaces for the white and yellow sands, with the surfaces being based on the geological boundaries defined by logged sand types and chemical analysis results from the drill data. The aircore drilling demonstrated that the white sand layer extends to the west, past the interpreted contact, under the yellow sand in approximately the northern half of the modelled area. The basal surface of the yellow sand is defined by this lithological contact, or is limited by interpretation of nominal average thickness of the sand layer based on the data from surrounding deeper drill holes as required. The white sand layer basal surface is similarly defined by the drilling data and or is limited by interpretation of nominal average thickness of the sand layer based on data from surrounding deeper drill holes as required. The horizontal extents of the interpreted sand layers are limited to within the VRX nominated Arrowsmith North target area and with reference to the publicly available soil mapping data.<br>The surface humus layer is typically about 300mm thick. In consultation with VRX, 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 iron richer sand ridges, swamp or sandy swamp are also depleted from the Mineral Resources.<br>A surficial zone of enriched CaO was modelled in the area drilled in 2021. This CaO zone is within the yellow sand domain and SiO2 population is reduced by negligible amounts compared to the non-calcareous domain. The purpose of the domain was to separate high and low grade CaO populations. |

| Criteria | Commentary |
|---|---|
| | The basal 2 m of the sands unit is not intended to be mined, and is therefore not reported as part of the Mineral Resource.<br>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.<br>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 200m past known drill data points has been applied with the material types additionally constrained within the VRX nominated target area and by the mapped material type boundaries. The vertical extents of the sand layers have been limited by interpretation of the nominal average thickness of each layer based on data from the deeper drilled aircore holes. The nominal maximum interpreted combined layer sand vertical thickness is roughly 25 m and the nominal average interpreted thickness of sand is about 12 m. Approximately 15% of the modelled mineralisation zones can be considered to be extrapolated.<br>Alternative interpretations based on the currently available data are considered unlikely to have a significant influence on the global Mineral Resource.<br>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 2.5km west to east.<br>The modelled and classified extents of the white sand material within the target area are roughly 4.6km north to south, and on average roughly 1.5km west to east.<br>The modelled aeolian sand is roughly horizontal, with low relief. The currently modelled thickness of the sands is on average about 12m, ranging up to a nominal maximum thickness of 25m. |
| *Estimation and modelling techniques* | Ordinary Kriging (OK) was the selected interpolation method, with Inverse distance squared (IDS) used as a check estimate.<br>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.<br>Statistical analysis on the 1m 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 some outlier grades in the interpreted sand types that required top-cutting. Top cuts for the white sand were applied to $Fe_2O_3$ (0.5%), and LOI (1%). Top cuts for the yellow sand domain in the Indicated volumes were applied to $Al_2O_3$ (2.8%), $Fe_2O_3$ (1.5%), and LOI (1.5%).<br>In addition to $SiO_2$, the grade variables $Al_2O_3$, $Fe_2O_3$, LOI, K2O, MgO, CaO and $TiO_2$ are estimated into the model and reported.<br>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. |

| Criteria | Commentary |
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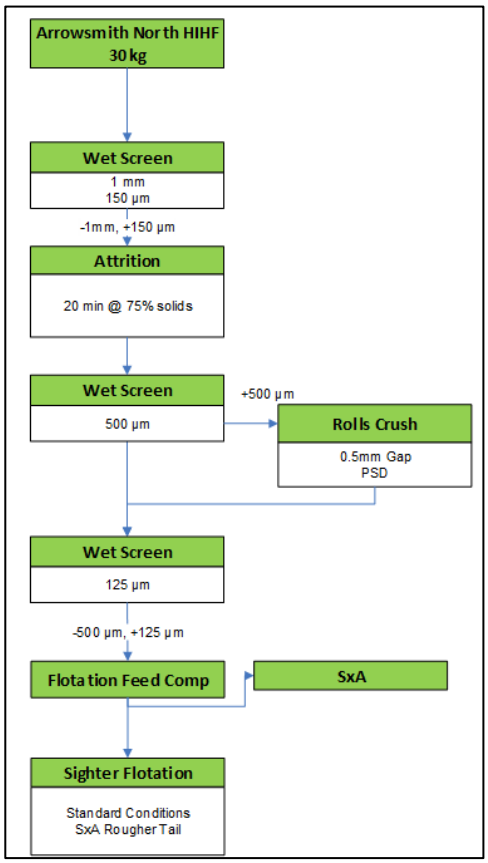
| | Analysis of the drill spacing shows that the nominal average drill section spacing is 400m with drill holes nominally at 400m apart on each section over majority of the modelled area. The area drilled in 2021 has drill hole spacing of 50m (east) by 100m (north).<br>Spatial (variogram) analysis was completed on $SiO_2$ from the 1m drill composite samples from the yellow sand zone, as this zone has the most samples. Two sets of variograms were modelled, one from the samples collected during the 2021 aircore programme, and the other from the 2019 drilling data. The resultant single spherical modelled variogram parameters were applied to an OK estimation as the primary grade estimation technique.<br>For the variograms modelled from the 2021 aircore data: The modelled nugget was 13%, with 40% of the population variance constrained within a range of 130m. The primary orientation is 140°. For the variograms modelled from the samples from the 2017 and 2019 drilling programmes: The modelled nugget was a fairly low 15%. There was no preferred orientation for the horizontal variogram so the major axis is modelled towards 000° with the same 700 m range modelled for both major and semi-major axes. The minor vertical axis was modelled with a range of 8.5m.<br>Based on the sample spacing of 50m(E) x 100m(N) within the 2021 drilling area, a block model covering the 2021 aircore grade control area was constructed, with block sizes and model limits designed to allow it to be stamped onto the 2019 block model. The block model used a parent cell size of 25m(E) x 50m(N) x 2m(RL) with sub-celling to 6.25m(E) x 12.5m(N) x 0.25 m(RL) to maintain appropriate resolution at the surface boundaries. The volume block model was validated on screen to ensure blocks were coded correctly according to the input wireframes.<br>The block model was stamped onto the 2019 MRE block model, with the latter's block sizes of 200m(E) x 200m(N) x 4m(RL) retained in the output model.<br>For the interpolated blocks within the 2021 aircore drilling area, the following grade interpolation parameters were applied: Blocks were estimated using a search ellipse of 150m (major) x 100m (semi-major) x 4m (minor) dimensions, with a minimum of 6 and maximum of 16 samples from a minimum of four drillholes per cell interpolation. Search radii were increased, and the minimum number of samples reduced in subsequent sample searches if cells were not interpolated in the first two passes. Cell discretization of 3 x 3 x 2 (X, Y, Z) was employed.<br>For the interpolated blocks within the 2017/2019 drilling area, the following grade interpolation parameters were applied: Blocks were estimated using a search ellipse of 700m (major) x 700m (semi-major) x 10m (minor) dimensions, with a minimum of 16 and maximum of 24 samples from a minimum of four drillholes per cell interpolation. Search radii were increased, and the minimum number of samples reduced in subsequent sample searches if cells were not interpolated in the first two passes. Cell discretization of 3 x 3 x 4 (X, Y, Z) was employed.<br>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.<br>Statistical comparison of the mean drillhole grades with the block model grade shows reasonably similar mean grades. The IDS check estimate shows similar |

| Criteria | Commentary |
|---|---|
| | grades to the OK 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.<br>Swath or trend plots were generated to compare drillhole and block model with $SiO_2$% grades. 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.<br>No reconciliation data is available as no mining has taken place. |
| *Moisture* | Tonnages have been estimated on a dry, *in situ,* basis.<br>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 reported metallurgical testing results. |
| *Mining factors or assumptions* | The Project aims to mine high-grade silica sand via extraction and mechanical upgrading. Proposed activities include the sequential block mining of silica sand, development of a mine feed plant, moveable surface conveyor, pipeline, processing plant, freshwater supply bore, access corridor, laydown, administration, water storage and associated infrastructure including a gas fired power station, communications equipment, offices, workshop and laydown areas.<br>The deposit is amenable to a shallow excavation where the upper surface is removed and continuously rehabilitated and are economic to exploit to the depths currently modelled.<br>The deposit will be bulk mined and processed and therefore no requirement for minimum mining widths and dilution needs to be made.<br>No mining has yet taken place. |
| *Metallurgical factors or assumptions* | 2018 testing: A composite auger sand sample from Arrowsmith North was tested in Ireland. 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.<br>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 $Al_2O_3$.<br>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 fraction. Magnetic separation indicated that the largest fraction of $SiO_2$ was in the middling fraction. |

| Criteria | Commentary |
|---|---|
| | 2019 testing: raw material remaining from 2018 was removed from storage and was screened at 1mm to remove oversize material and organics. The sand was then wet screened through a 0.212mm sieve and PSD test run which showed that the +0.212 mm material contains some fines (3.25% passing the 0.212 mm sieve) and in contrast the -0.212mm sample contains a large amount of fines with 27.2% passing the 0.053mm sieve. Chemical analysis showed that the -0.212 mm fraction contains more $Al_2O_3$ and Fe2O3 than the +0.212 mm fraction, due to higher clay fraction in the finer sample.<br>The 0.212-1 mm fraction was then attritioned for 5 minutes and washed over a 0.063 mm sieve, highlighting that the attrition and washing process removed fine particles, and reduced $Al_2O_3$, $Fe_2O_3$ and $TiO_2$ contents.<br>The 0.212 mm material was then processed in a spirals test unit and three fractions were produced, namely heavy, middling and light. Particle size distribution analysis showed that the heavies contain the highest amount of fines and that the lights contain the lowest amount of fines, probably because fine-grained dense minerals containing Fe and Ti are concentrated with the heavy fraction. This observation was borne out by chemical analysis which showed that $Al_2O_3$, $Fe_2O_3$and $TiO_2$ are highest in the heavy fraction.<br>Magnetic separation results in an increase in $SiO_2$ and a decrease in $Al_2O_3$, $Fe_2O_3$ and $TiO_2$ in the non-magnetic fraction compared with the feed material.<br>The composite sample tested by CDE in 2018 and 2019 indicated that a product with AFS ~45 should be achievable and that some coarser AFS ~20 product may also be achievable. Most foundry sands fall into the range of ~0.1mm to 0.5mm and they are produced to meet specific size distributions which are commonly described by a number known as the 'AFS number'. The higher the AFS number, the finer the sand. Other foundry sand specifications include roundness and sphericity, clay content (generally <0.5%), moisture and $SiO_2$ content, which should be achievable with suitably processed Arrowsmith North silica sand.<br>It was concluded that Process test work during 2018 and 2019 on composite drill samples indicated that the Arrowsmith North deposit is potentially suitable for producing silica sand for glass, ceramic and foundry markets.<br>2021 testing by BHM Perth indicated that some process steps could be eliminated from the previous flowsheet. The counter current classification (elutriation) and spiral stages were removed and replaced by flotation. High pressure grinding rolls (HPGR) were added to the flowsheet to crush all -1mm +500 µm sand to minus 500 µm which improved recoveries for glass sand products.<br>The 2021 testing by BHM Perth was carried out on three sand types described by Ventnor as Low Feldspar (LF), Medium Feldspar (MF) and High Iron High Feldspar (HIHF) sands in the deposit.<br>The LF and MF composites were from north of the March 2021 detailed QC drilling area. The HIHF composite was from the southern part of the 2021 drilling area. The HIHF product is higher in fines than LF and MF products.<br>Bulk scale testwork on LF, MF and HIHF composites used a new flowsheet incorporating flotation and crushing as summarised below. |

## Flowsheet incorporating crushing and flotation

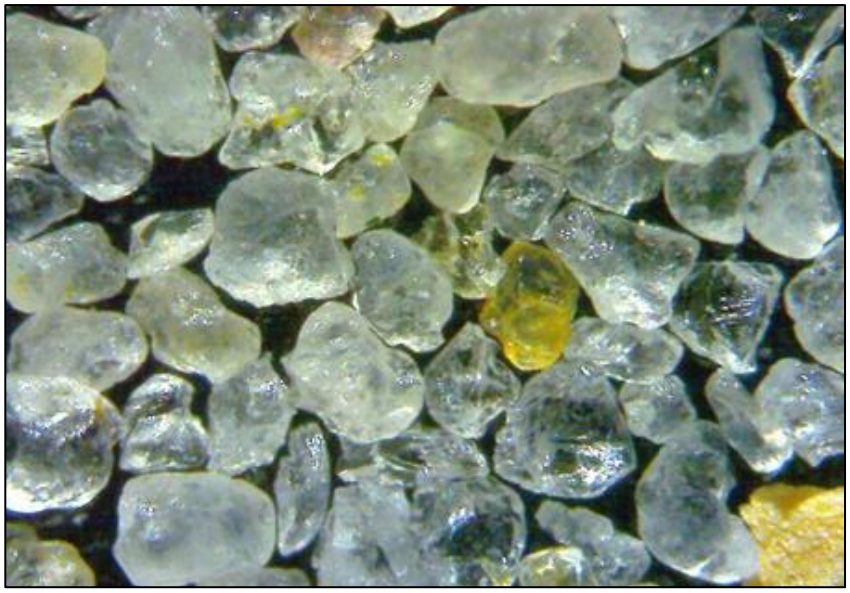



## Comparison of HIHF with LF and MF products (XRF analyses)

| Stage | Mass | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $K_2O$ | $TiO_2$ |
|---|---|---|---|---|---|---|
| | % | % | ppm | ppm | ppm | ppm |
| -0.6, +0.425mm, NF500 | | | | | | |
| LF Bulk | 24.10% | 99.548 | 1,650 | 550 | 110 | 320 |
| MF Bulk | 34.50% | 99.540 | 1,730 | 610 | 330 | 310 |
| HIHF | 16.85% | 99.528 | 2,290 | 440 | 170 | 300 |
| | | | | | | |
| -0.425mm, +0.150mm, NF55 | | | | | | |
| LF Bulk | 74.20% | 99.512 | 2,106 | 584 | 493 | 320 |
| MF Bulk | 64.90% | 99.278 | 3,088 | 786 | 1,177 | 322 |
| HIHF | 82.56% | 99.084 | 4,088 | 563 | 1,473 | 302 |

**Photomicrograph of rougher tail (product) from the HIHF composite**


**Photomicrograph of VRX 'AFS55' foundry sand product, showing sub-rounded quartz grains**



BHM and VRX are of the opinion that the revised flowsheet, which includes flotation and high-pressure grinding rolls offers potential cost savings, may have lower environmental impact and should produce products suitable for glass, foundry and other industries. BHM are further of the opinion that the flotation process displays, to a high degree of confidence, that the material and mineralogical nature of the Arrowsmith North Silica Project can be processed to a consistent saleable glass sand product specification via the flotation process proposed.

CSA Global considers that the sample preparation, sample testing and analytical techniques are appropriate for this type of deposit, at this stage of the exploration process.

| Criteria | Commentary |
|---|---|
| | CSA Global notes that metallurgical (process) test methods can have a significant effect on the quality of concentrate produced at a laboratory scale, and that such tests should be tailored for specific geological and mineralogical conditions and desired product outcomes for specific markets.<br>Therefore, it is cautioned that laboratory process test results used to estimate Mineral Resources for industrial minerals such as silica sand may not reflect either the process flowsheet adopted after completion of technical studies, or the layout of the final process plant.<br>CSA Global is of the opinion that process test work on the composite drill samples indicates that the Arrowsmith North deposit should be suitable for the eventual production of silica sand for glass, ceramic and foundry markets. In addition, project location and logistics support the classification of the Arrowsmith North deposit as an industrial Mineral Resource in terms of Clause 49 of the JORC Code. |
| *Environmental factors or assumptions* | VRX is aiming to minimise impacts and speed up ecological recovery by employing modern and innovative mining and rehabilitation techniques. Mining will be progressively rehabilitated using Vegetation Direct Transfer (VDT). VDT is the practice of salvaging and replacing intact sods of vegetation with the underlying soil still intact (Ross et al. 2000). This results in faster regeneration of the ecosystem (Mattiske 2019) and increased survival rates of sensitive plant species that are often missing in other rehabilitation methods (Mattiske 2019, and references within). This form of mining and rehabilitation has the potential to minimise disturbance to fauna and their habitats. This includes minimising impacts to SRE species and allowing establishment and/or recolonisation of invertebrates much faster than traditional methods, as has been shown in trials by Rodgers et al. (2011). |
| *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 Mineral Resource estimate. |
| *Classification* | Classification of the Mineral Resource estimate was carried out accounting for the level of geological understanding of the deposit, quality of samples, density data and drillhole spacing.<br>The Mineral Resource estimate 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.<br>Material that has been classified as Measured was considered by the Competent Person to be sufficiently informed by geological and sampling data to confirm geological and grade continuity between data points. The volumes of silica sand classified as Measured are constrained within the area drilled in 2021 (aircore “grade control” programme).<br>Material that has been classified as Indicated was considered by the Competent Person to be sufficiently informed by geological and sampling data to assume geological and grade continuity between data points.<br>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. |

| Criteria | Commentary |
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| | Overall, the mineralisation trends are reasonably consistent over the drill sections.<br>The Mineral Resource estimate 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.<br>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.<br>The Mineral Resource statement relates to global estimates of *in situ* tonnes and grade. |

## Section 4: Estimation and Reporting of Ore Reserves

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

| Criteria | Commentary |
|---|---|
| *Mineral Resource estimate for conversion to Ore Reserves* | The Mineral Resource Estimate (MRE) used as a basis for conversion to the Ore Reserve was provided by CSA Global Pty Ltd, with David Williams and Andrew Scogings as the Competent Persons on the Estimation and David Reid, a full time employee of VRX Silica as the Competent Person on the Exploration Results and data collection. The Arrowsmith North Mineral; Resource Estimate used in this conversion is dated 7 December 2021.<br>The Mineral Resources as reported are inclusive of the Ore Reserves. |
| *Site visits* | The Competent Person, Quinton de Klerk, is a Principal Mining Consultant for Cube Consulting and has not attended a site visit due to the limitation of what such a visit would achieve based on his general knowledge of the area and has relied on discussions with VRX personnel to confirm the local conditions as outlined below. The competent person is satisfied that this does not limit the confidence in these estimated Ore Reserves.<br>The following observations are applicable to this Conversion;<br>The mining area is located between mid-west towns Eneabba and Dongara in Western Australia, ~270km north of Perth. The area is accessed via the Brand Highway, with the northern section of the area accessed via the Mount Adams gravel road. There are numerous existing tracks that also allow for alternative access.<br>The regional population density is low, 147 persons in Eneabba, and 1,380 persons in Dongara. There are a small number of farming properties in the local area.<br>The mining area is located on Unallocated Crown Land, VRX Silica has 100% ownership of the underlying mining tenure.<br>The topographical relief is a series of low rolling sand dunes covered by low Kwongan Heath vegetation.<br>The proposed mining operation will excavate the sand from the top of the sand dunes to a nominal undulating base as defined by the mineral resource. The eastern and southern sides of the mining area will be graded at 1:10 gradient. |

| Criteria | Commentary |
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| | No ground water was intersected in the mining area drilling and rainfall is expected to drain into the surrounding sand with little or no runoff that could affect the mining operation.<br><br>The sand to be mined is unconsolidated and will not require blasting. All mining can be carried out by a wheeled front-end loader.<br><br>There are no power lines or water lines in the mining area. There are gas pipelines and gas production wells to the east of the mining area, however these will not be impacted during mining of these estimated Ore Reserves.<br><br>There are Shire of Irwin road reserves within the mining area which VRX has permission from the Shire to mine over. |
| *Study status* | VRX Silica announced a Feasibility Study on the ASX platform on 28 August 2019. All the inputs to the Feasibility Study are available to the Competent Person to be able to make this conversion of Mineral Resources to Ore Reserves. The Ore Reserves stated here are the result of an updated mine production schedule completed by Cube Consulting taking into account the physical, practical considerations for the project. This updated schedule has been evaluated within the financial model which was developed for the above mentioned Feasibility Study. |
| *Cut-off parameters* | Only Measured and Indicated Resources have been considered for conversion to Ore Reserves.<br><br>The MRE defines two types of sand “yellow” and “white”, both of which have been demonstrated are able to be beneficiated to a saleable product via non-chemical means in a custom sand processing plant. The MRE did not apply any cut-of grades during estimation as it simply modelled the two different types of sand, there is no waste in the MRE.<br><br>The MRE differentiated the top 500mm as “topsoil” and excluded it from the estimation as it would be retained for rehabilitation purposes. |
| *Mining factors or assumptions* | The mining method chosen for Arrowsmith North is a rubber wheeled front-end loader, feeding into a 2mm trommel screen to remove organic material. The undersize sand is slurried and pumped to a sand processing plant which is located in the south west corner of the Mining Lease M70/1389. After processing the silica sand will be initially trucked to the Geraldton Port for bulk export. Ultimately transport to the Geraldton Port will utilise the Eneabba to Geraldton railway line once infrastructure works are completed.<br><br>The front-end loader was chosen due to the flexible nature of the machine combined with a high load rate and low material handling cost.<br><br>Mining of the dune sand will extract to the base of the mineral resource / ore reserve and will leave a slightly undulating surface. On the eastern side of the mining area the sand will slope upward at a 10% gradient to the top of the adjacent dunes.<br><br>Mining will not create a void and there are no geotechnical requirements. Active mining faces exceeding 10m may be required, face stability issues will be determined during mining.<br><br>Pre-production drilling is unlikely to be required due to the low in-situ variation of the bulk sand resource, the aircore drilling used in the MRE is considered to be sufficient. |

| Criteria | Commentary |
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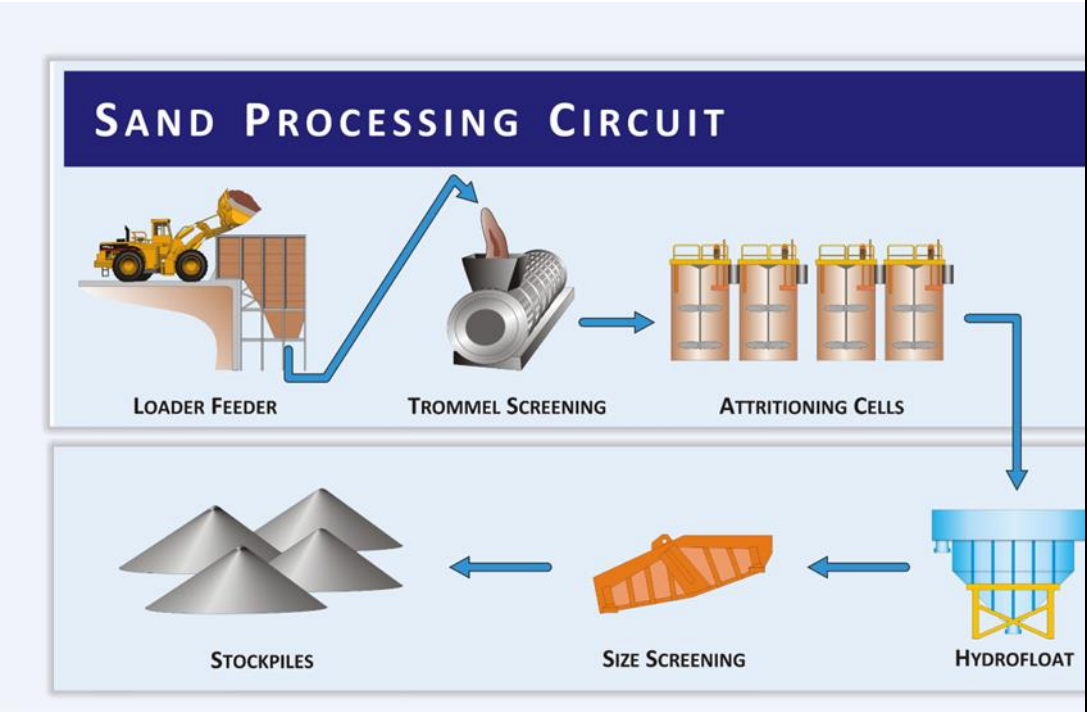
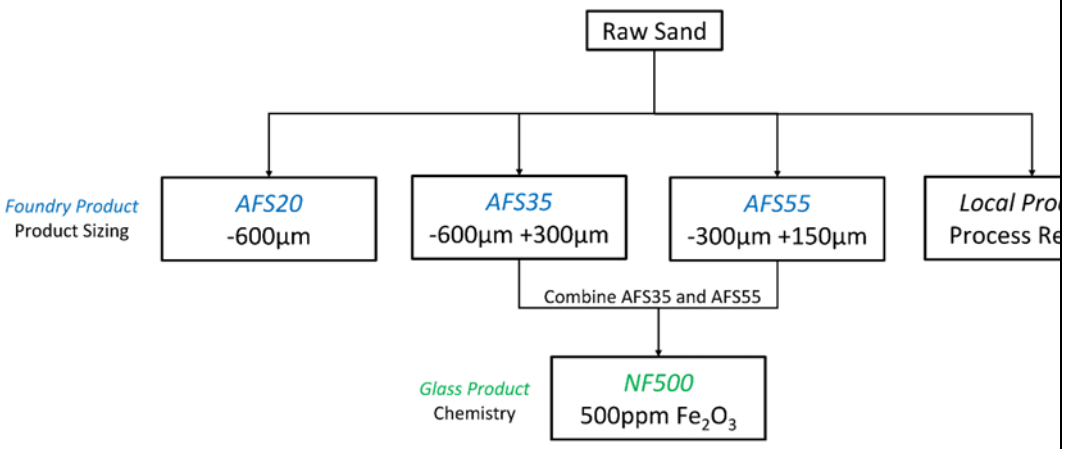
| | 100% of the material in the Mining Lease application area is considered to be sand that can be beneficiated to a saleable silica sand project. The top 500mm has been excluded from the MRE as it will be reserved for rehabilitation purposes. As there is no waste material, the recovery factor is considered to be 100% into the various products and ore loss therefore is considered to be 0%. The Ore Reserves reported here have been limited to within mining lease M70/1389.<br><br>Depending on the thicknesses of white and yellow sand that are available at any one time, the decision may be taken to mine as separate units as they have different physical and chemical compositions. This may also depend on the customer's specification. The details of this separated mining have not been accounted for within the Life of Mine production schedule and are considered to be dealt with at an operational level.<br><br>Inferred Resources are not used in the Ore Reserve output. There may be a small amount of Inferred material that falls into the Mining Area as the edges are mined, the relative amount of this material is insignificant and has been excluded.<br><br>Infrastructure required will be a processing plant, administration office, mining contractor workshop and associated facilities. |
| *Metallurgical factors or assumptions* | VRX Silica has completed a rigorous and extensive metallurgical testwork program. The original process flow has evolved from a predominantly physical separation process to the use of flotation to remove deleterious minerals from the in-situ mineral resource. The Process flowsheet, below, has been developed from the testwork program.<br><br>  <br><br><br>Metallurgical testwork has completed under the supervision of Mr Steven Hoban who is the Principal Metallurgist and a Director of BHM Process Consultants. Mr. Hoban is a Member of the Australasian Institute of Mining and Metallurgy. Mr Hoban 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 |

| Criteria | Commentary |
|---|---|
| | Code). Mr Hoban consents to the disclosure of information in this report in the form and context in which it appears.<br><br>An independent Technical Summary Report by CSA Global on the Metallurgical Testwork to satisfy Clause 49 of the JORC 2012 code is included in the Minerals Resource Report.<br><br>The BHM supervised testwork identified that the proposed process flowsheet could consistently and reliably produce products of acceptable chemical specification and sizing to supply the target supply markets. The bulk product is separated in the final stage of processing into saleable bulk products as shown below,<br><br>  <br><br><br>The yield of each product has been determined by the testwork and is shown in the table below,<br><br>**Table 6 - Nominal Feed Sizing**<br><br>| Stream | Mass Deportment (%) Total | +600um | -600um, +300 | -300um, +150 |<br>|---|---|---|---|---|<br>| ***Feed*** | | ***12.3%*** | ***47.0%*** | ***34.4%*** |<br>| Fines Product stockpile | 29.0% | 0.00% | 2.13% | 81.0% |<br>| Coarse Product stockpile | 10.5% | 82.9% | 0.84% | 0.00% |<br>| Intermediate Product stockpile | 42.5% | 0.00% | 83.2% | 9.71% |<br>| Tails | 18.0% | 17.1% | 13.8% | 9.28% |<br><br>The Tails mass deportment represents the separating effect pf the process flowsheet on the 4 different size fractions, which represent classifier or screened final products. The mineral resource model has size fraction block attributes estimated,<br><br>1. % of sand -150µm<br>2. % of sand +300µm<br>3. % of sand +600µm |

| Criteria | Commentary |
|---|---|
| | New Attributes can be generated in the Ore Reserve block model to represent 4 sizing groups, the formula refers to above;<br><br>A. % of sand +600µm = 3<br>B. % of sand -600µm +300µm = 2 – 3<br>C. % of sand -300µm +150µm = (100- 1) – 2<br>D. % of sand -150µm = 1<br>E. There should be a check attribute created adding A, B, C, D which should = 100%<br>The yield of each final product can then be generated by using the mass deportment from Table 6, rounded as follows;<br><br>• +600µm = 17%<br>• -600µm +300µm = 14%<br>• -300µm +150µm = 9%<br>• -150µm = 97.5%<br>New Attributes are then generated in the Ore Reserve block model to reflect the products shown in Figure 4, and the % calculation of each final product is therefore;<br><br>• **AFS20** = A x (100% - 17%)<br>• **AFS35** = B x (100% - 14%) + (C x 10%*)<br>• **AFS55** = C x (100% - (9% + 10%*)<br>• **Local Product** = D + (A x 17%) + (B x 14%) + (C x 9%)<br>*The 10% factor allows for the mass transfer from the finer AFS55 to the midsized AFS35 due to the use of up current classifiers in cutting the particle size at 300 µm in the Process Flow.<br><br>The Mining Schedule produced by the Ore Reserve Model can now report the tonnage produced of each of the 4 final products above. The Financial Model then can reflect the sales of each product as determined from Marketing.<br><br>The Ore Reserve conversion is declared as a plant recovered tonnage and is represented by the chemical and physical compositions of the final products that are produced for export, or for the local market. |
| *Environmental* | Environmental Characteristics of the Area<br><br>The development is located:<br><br>• South of the Yardanogo Nature Reserve;<br>• Approximately 10 km inland of the coast;<br>• North of the Arrowsmith River (Registered Aboriginal Heritage Site); and<br>• Outside of World Heritage Areas, National Heritage Places, Ramsar Wetlands, Conservation Reserves or Commonwealth Marine Reserves.<br><br>The Ore Reserve is located within an area of deep sands, leached of nutrients.<br><br>The vegetation is coastal scrub heath (known as Kwongan heath).<br><br>There are relict dune structures which are represented as low rolling hills. |

| Criteria | Commentary |
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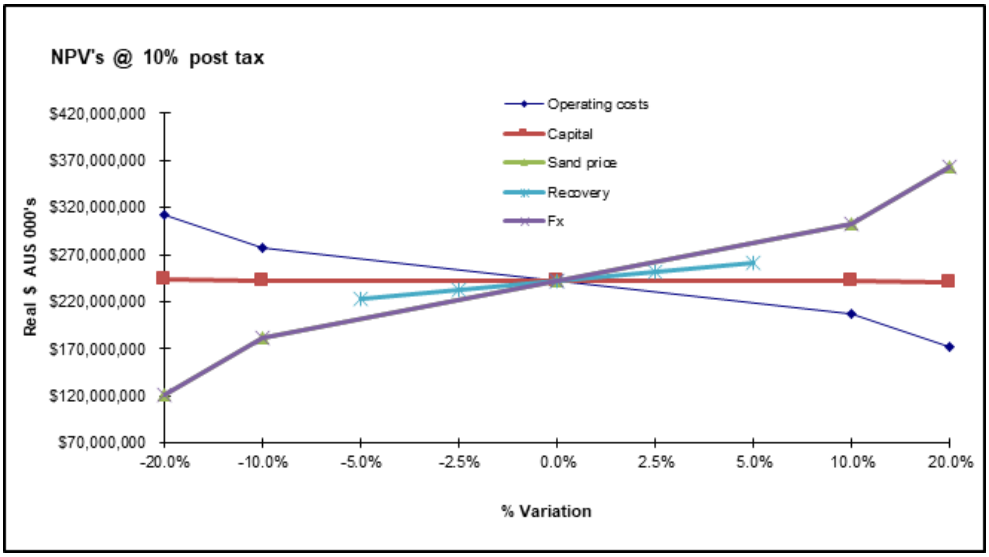
| | VRX are currently working through the Environmental Protection Authority of Western Australia (EPA) to gain approval to disturb native vegetation. On 15 March 2022 the EPA approved the Company's Environmental Scoping Document (ESD) for the proposed mining activities. On 14 April 2022 the Company submitted the Environmental Review Document (ERD), being a comprehensive summary of the project environmental setting, the physical elements of the mine and infrastructure, operational elements, the extent of effects on the environment and the proposed rehabilitation and closure plan. Currently the Company awaits the EPA to publish the ERD for public review. According to the EPA's indicative timeline the Company anticipates approval from the EPA towards the end of the 2022 calendar year.<br><br>In parallel the Company is preparing the necessary approvals through DMIRS;<br>• Mining Proposal and Closure Plan<br>• Environmental Management Plan<br>• Project Management Plan<br><br>There is no reason to expect that the approval to mine will not be granted. |
| *Infrastructure* | The project is located east of the Brand highway and will construct a dedicated access road constructed for development and later haulage to the Geraldton Port.<br><br>The project will require its own installed power and water infrastructure. The Company has completed a 400m deep water bore into the Yarragadee North Aquifer and is in the process of applying for a 5C water abstraction licence.<br><br>Labour will be sourced from the nearest towns (35kms) Dongara and Eneabba<br><br>There will be no accommodation installed at the mine site. |
| *Costs* | Operating costs<br><br>Costs were determined from first principles and are estimated to include all costs to mine, process, transport and load product on to ships, including;<br>• Mulching<br>• Topsoil cut<br>• Topsoil re-location<br>• Excavation<br>• Plant Feed<br>• Operating the trommel and pumping station<br>• Processing<br>• QA/QC<br>• Power and Water<br>• Administration<br>• Product Handling<br>• Road Transport<br>• Port Storage<br>• Ship Loading<br><br>Product Quality<br>• Multiple products will be differentiated during processing subject to required particle size distribution by screening |

| Criteria | Commentary |
|---|---|
| | • Recovery of products has been independently assessed by BHM Process Consultants, an independent expert in metallurgical testwork and process circuit design.<br><br>Commodity Prices<br>• Commodity prices for VRX silica sand products have been determined by independent industry source Stratum Resources<br>• The industry standard is that sales contracts are in US dollars<br>• The exchange rate to convert to Australian dollars will be the prevailing at the time of payment<br>• Subject to final quality produced the current prices for the commodity will range from US$38 to US$48 per dry metric tonne Free on Board<br>• There are no shipping cost estimates with all contracts to be based on FOBsales<br><br>QA/QC<br>• The company will undertake constant surveillance of product quality during production<br>• An independent laboratory will be used to verify the product during loading on behalf of the buyer<br>Royalties<br>• The prevailing rate of Royalty due to the State is used in VRX economic assessments<br>• The Royalty rate is per dry metric tonne ($1.17) and reviewed every 5 years with the next review due 2020<br>• There are no other private Royalties. |
| *Revenue factors* | Revenue will be based on a negotiated per shipment basis per dry metric tonne FOB with payment by demand on an accredited bank irrevocable Letter of Credit<br><br>There are no other treatment, smelting or refining charges. |
| *Market assessment* | The Company has commissioned an independent assessment of the current market prices for proposed products by industry leader Stratum Resources<br><br>The assessment includes projections for future demand and supply of Silica Sand<br><br>The assessment concludes that there is a future tightening of supply suitable glassmaking and foundry silica sand with a commensurate increase in price<br><br>Sales volumes have been estimated as a result of received Letters of Intent to purchase products |
| *Economic* | The Company economic analysis has been calculated a 10% and 20% discounted ungeared post tax NPV<br><br>The Company assessment has not escalated future product prices nor any inflation to operating costs<br><br>The analysis has used a US$/A$ exchange rate of $0.70<br><br>Analysis is based on a conservative 25-year production profile despite the Reserves far exceeding that project life<br><br>Tax rate used is 27% of profit<br><br>Capital requirements are based on independent estimates |

| Criteria | Commentary |
|---|---|
| | Capital borrowings are based on a 12% borrowing rate<br><br>Capital expenditure contingency is 20% of capital estimates<br><br>Plant spares are estimated at 5% of capital value<br><br>The economic analysis is most sensitive to the exchange rate<br><br>  |
| *Social* | The Arrowsmith North Project is on a granted mining lease M70/1389, expiry 15/11/2041. There is no reason to expect that future extensions of this mining lease will not be approved to cover the life span of this ore reserve. The mining area is within the Yamatji Nation State Agreement and the Company will operate under the Yamatji Nation Indigenous Land Use Agreement which was registered on 30 July 2020. The Company has executed a Standard Heritage agreement with the Yamatji Southern Regional Corporation which covers the area of operation.<br><br>The Project is wholly on vacant, Unallocated Crown Land.<br><br>The Company has completed an Air Emissions Assessment which concluded that, due to the sparsely populated area and the nature of the proposed operating mine, it is considered unlikely that the Operation will have a significant impact on air quality. The nature and scale of the Operation, and the separation distance to surrounding sensitive receptors (residences) is such that adverse impacts to human health and amenity are not expected to occur. Similarly, the Operation is not expected to adversely impact native vegetation as a result of dust deposition. Additionally, through the implementation of the proposed dust controls airborne dust generation can be maintained within acceptable levels. |
| *Other* | There are no known obvious or naturally occurring risks that have been identified which could affect the project and no reason why the Company cannot gain all approvals to mine the project from the relevant Regulatory Bodies, both State and Federal.<br><br>The Company signed an offtake term sheet with two Korean based foundry sand suppliers in November 2021 for the supply of 200,000t per annum of AFS55 certified foundry sand. |

| Criteria | Commentary |
|---|---|
| | The Company has received expressions of interest from 20 manufacturers across the Asia Pacific Region for various silica sand products in its published catalogue, including specific requests for Arrowsmith North products.<br><br>A number of Letters of Intent to purchase the Project's proposed products have been received from potential customers. |
| *Classification* | Proved and Probable Reserves are converted from Measured and Indicated Resource materials respectively due to the nature of the deposit (consistency, homogeneity, low variability). This is considered reasonable. |
| *Audits or reviews* | The Ore Reserve estimate has been reviewed internally by VRX.<br><br>No external reviews or audits have been undertaken on the Ore Reserve estimate. |
| *Discussion of relative accuracy/ confidence* | The Mineral Resource, and hence the associated Ore Reserve, relate to global estimates.<br><br>To date there has been no commercial production, therefore no reconciliation can be made.<br><br>A feasibility study was completed in August 2019 and the results of that study are available to the Competent Person. The Feasibility Study and additional information available to the Competent Person has been completed to an appropriate level of detail that the Competent Person can be confident the project is robust and produce positive economic benefit to the Company once in production.<br><br>Sensitivity analyses made during the Feasibility Study and this updated life of mine schedule have indicated that the economics are most sensitive to the USD/AUD exchange rate. It is believed that the revenue model is sufficiently conservative to ensure a positive economic return. |

## APPENDIX 3 – Technical Data Sheets

Arrowsmith North

# TECHNICAL DATA SHEET

**Reference No:**

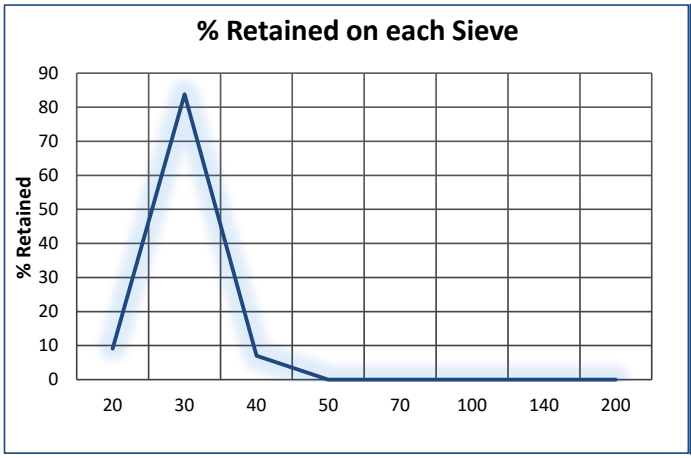
**Product:** **Arrowsmith-N20**

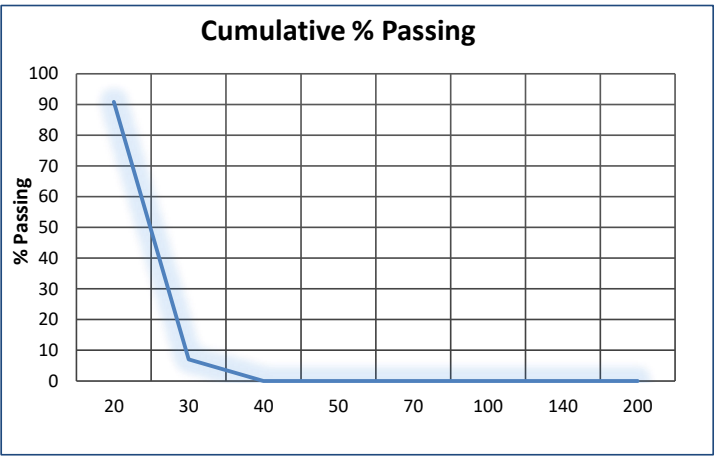
**Appearance:** Silica Sand

**Main Application:** Foundry

VRXSILICA

## Indicative Grain Analysis




Note: Indicative grading only. Grading analysis may vary from time to time due to changes in raw feed.

| SIEVE SIZE | TYPICAL VALUES | |
|---|---|---|
| | % RETAINED | % PASSING |
| ASTM SIEVE SERIES NUMBER | INDIVIDUAL | CUMULATIVE |
| 16 | 0.1 | 99.9 |
| 20 | 9.1 | 90.9 |
| 30 | 83.8 | 7.1 |
| 40 | 7.05 | 0.0 |
| 50 | 0.0 | 0.0 |
| 70 | 0.0 | 0.0 |
| 100 | 0.0 | 0.0 |
| 140 | 0.0 | 0.0 |
| 200 | 0.0 | 0.0 |
| 270 | 0.0 | 0.0 |
| Pan | 0.0 | 0.0 |
| | **AFS** | **20** |

## Chemical composition (All results in %)

The following properties listed below are to be used as guidelines only. Minor variation to these is to be expected due to slight variations in raw feed

| $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $TiO_2$ | CaO | MgO | $K_2O$ |
|---|---|---|---|---|---|---|
| 99.5 | 0.25 | 0.070 | 0.050 | 0.01 | 0.002 | 0.02 |

## Physical properties

| Density | Hardness | Colour | Ph | Moisture | LOI |
|---|---|---|---|---|---|
| 2.65 | 7 | Yellow | 7 | <5% | 0.1 |

DISCLAIMER: The information set forth in this Technical Data Sheet represents actual properties of the product sampled. The information listed as the typical chemical analysis is supplied as a guide only.

Note: Please remember product segregation can occur through transport and handling.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# TECHNICAL DATA SHEET

**Reference No:**

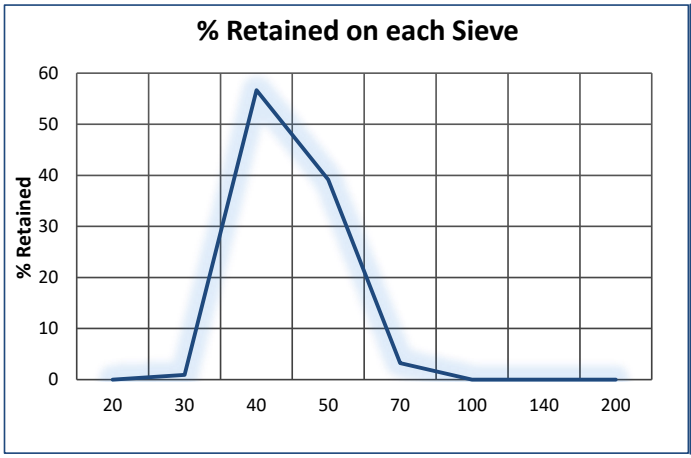
**Product:** **Arrowsmith-N35**

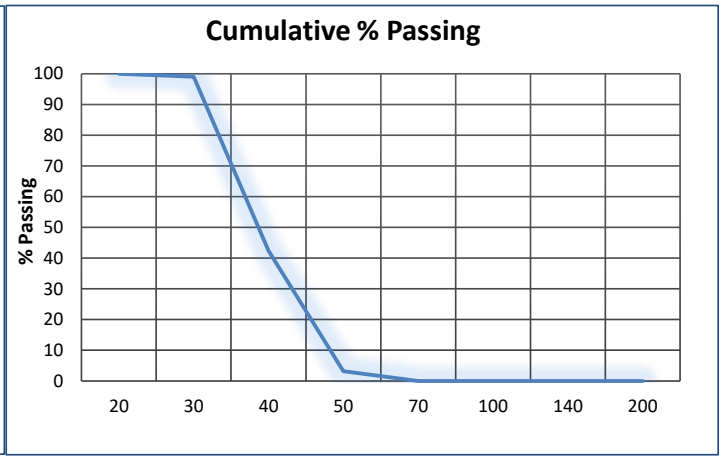
**Appearance:** Silica Sand

**Main Application:** Foundry

VRXSILICA

## Indicative Grain Analysis




Note: Indicative grading only. Grading analysis may vary from time to time due to changes in raw feed.

| SIEVE SIZE | TYPICAL VALUES | |
|---|---|---|
| | % RETAINED | % PASSING |
| ASTM SIEVE SERIES NUMBER | INDIVIDUAL | CUMULATIVE |
| 16 | 0.0 | 100.0 |
| 20 | 0.0 | 100.0 |
| 30 | 0.9 | 99.1 |
| 40 | 56.67 | 42.4 |
| 50 | 39.2 | 3.3 |
| 70 | 3.2 | 0.0 |
| 100 | 0.0 | 0.0 |
| 140 | 0.0 | 0.0 |
| 200 | 0.0 | 0.0 |
| 270 | 0.0 | 0.0 |
| Pan | 0.0 | 0.0 |
| | **AFS** | **35.0** |

## Chemical composition (All results in %)

The following properties listed below are to be used as guidelines only. Minor variation to these is to be expected due to slight variations in raw feed

| $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $TiO_2$ | CaO | MgO | $K_2O$ |
|---|---|---|---|---|---|---|
| 99.5 | 0.5 | 0.060 | 0.050 | 0.01 | 0.002 | 0.03 |

## Physical properties

| Density | Hardness | Colour | Ph | Moisture | LOI |
|---|---|---|---|---|---|
| 2.65 | 7 | Yellow | 7 | <5% | 0.1 |

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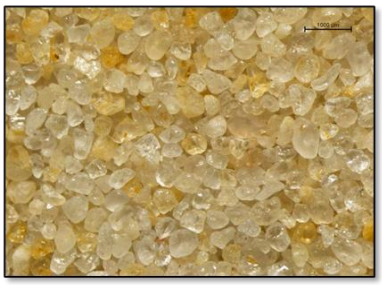
# TECHNICAL DATA SHEET

**Reference No:**

**Product:** **Arrowsmith-N40**

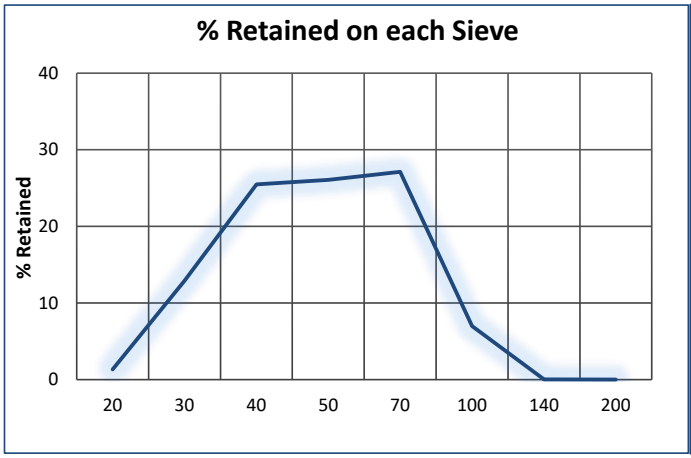
**Appearance:** Silica Sand

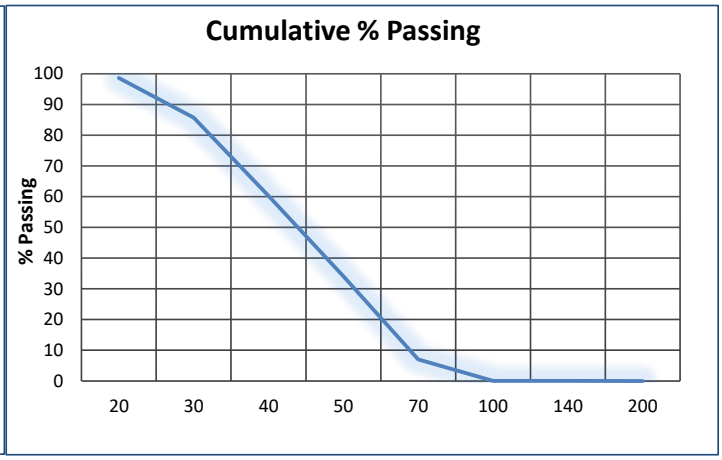
**Main Application:** Foundry



VRXSILICA

## Indicative Grain Analysis




Note: Indicative grading only. Grading analysis may vary from time to time due to changes in raw feed.

| SIEVE SIZE | TYPICAL VALUES | |
|---|---|---|
| | % RETAINED | % PASSING |
| ASTM SIEVE SERIES NUMBER | INDIVIDUAL | CUMULATIVE |
| 16 | 0.0 | 100.0 |
| 20 | 1.4 | 98.6 |
| 30 | 12.9 | 85.7 |
| 40 | 25.48 | 60.3 |
| 50 | 26.1 | 34.2 |
| 70 | 27.1 | 7.1 |
| 100 | 7.0 | 0.1 |
| 140 | 0.1 | 0.0 |
| 200 | 0.0 | 0.0 |
| 270 | 0.0 | 0.0 |
| Pan | 0.0 | 0.0 |
| | **AFS** | **40.0** |

## Chemical composition (All results in %)

The following properties listed below are to be used as guidelines only. Minor variation to these is to be expected due to slight variations in raw feed

| $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $TiO_2$ | CaO | MgO | $K_2O$ |
|---|---|---|---|---|---|---|
| 99.3 | 0.4 | 0.100 | 0.050 | 0.01 | 0.002 | 0.08 |

## Physical properties

| Density | Hardness | Colour | Ph | Moisture | LOI |
|---|---|---|---|---|---|
| 2.65 | 7 | Yellow | 7 | <5% | 0.1 |

DISCLAIMER: The information set forth in this Technical Data Sheet represents actual properties of the product sampled. The information listed as the typical chemical analysis is supplied as a guide only.

Note: Please remember product segregation can occur through transport and handling.

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# TECHNICAL DATA SHEET

**Reference No:**

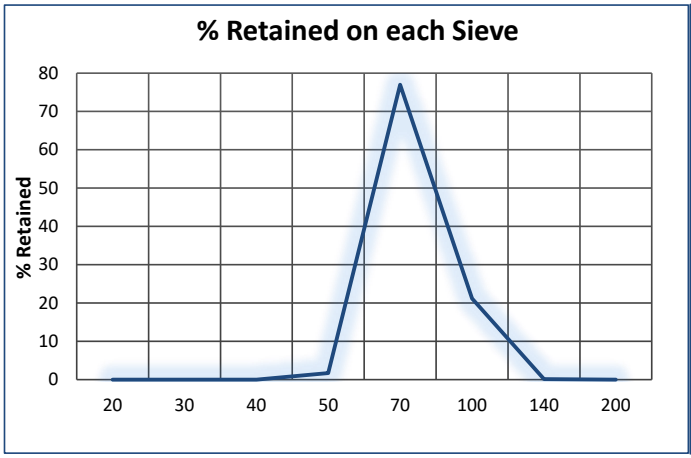
**Product:** **Arrowsmith-N55**

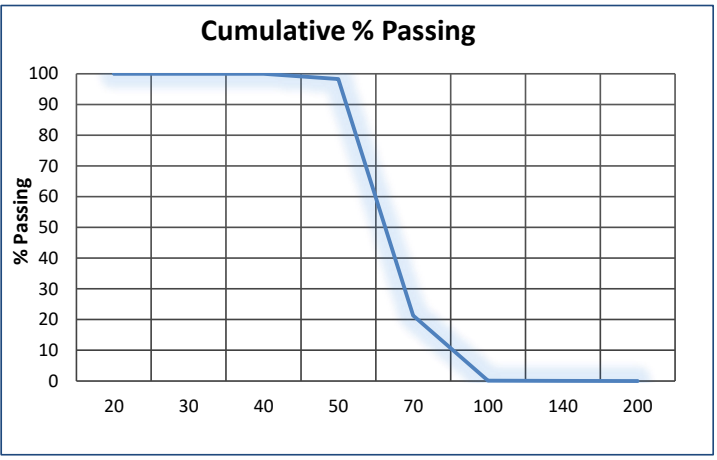
**Appearance:** Silica Sand

**Main Application:** Foundry

VRXSILICA

## Indicative Grain Analysis




Note: Indicative grading only. Grading analysis may vary from time to time due to changes in raw feed.

| SIEVE SIZE | TYPICAL VALUES | |
|---|---|---|
| | % RETAINED | % PASSING |
| ASTM SIEVE SERIES NUMBER | INDIVIDUAL | CUMULATIVE |
| 16 | 0.0 | 100.0 |
| 20 | 0.0 | 100.0 |
| 30 | 0.0 | 100.0 |
| 40 | 0.00 | 100.0 |
| 50 | 1.7 | 98.3 |
| 70 | 77.0 | 21.3 |
| 100 | 21.2 | 0.2 |
| 140 | 0.1 | 0.0 |
| 200 | 0.0 | 0.0 |
| 270 | 0.0 | 0.0 |
| Pan | 0.0 | 0.0 |
| | **AFS** | **55.0** |

## Chemical composition (All results in %)

The following properties listed below are to be used as guidelines only. Minor variation to these is to be expected due to slight variations in raw feed

| $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $TiO_2$ | CaO | MgO | $K_2O$ |
|---|---|---|---|---|---|---|
| 99.2 | 0.5 | 0.10 | 0.050 | 0.01 | 0.002 | 0.1 |

## Physical properties

| Density | Hardness | Colour | Ph | Moisture | LOI |
|---|---|---|---|---|---|
| 2.65 | 7 | Yellow | 7 | <5% | 0.1 |

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Arrowsmith North

# TECHNICAL DATA SHEET

**Reference No:**

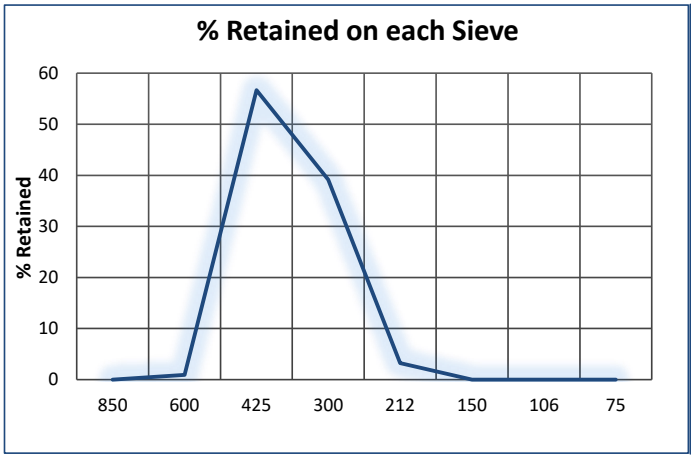
**Product:** **Arrowsmith-NF500**

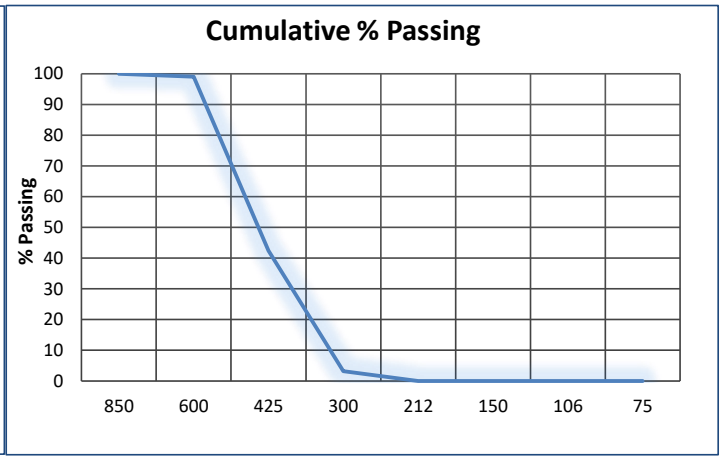
**Appearance:** Silica Sand

**Main Application:** Glass

VRXSILICA

## Indicative Grain Analysis




Note: Indicative grading only. Grading analysis may vary from time to time due to changes in raw feed.

| SIEVE SIZE | TYPICAL VALUES | |
|---|---|---|
| | % RETAINED | % PASSING |
| SIEVE OPENING Micron(µm) | INDIVIDUAL | CUMULATIVE |
| 2000 | 0.0 | 100.0 |
| 850 | 0.0 | 100.0 |
| 600 | 0.9 | 99.1 |
| 425 | 56.7 | 42.4 |
| 300 | 39.2 | 3.3 |
| 212 | 3.2 | 0.0 |
| 150 | 0.0 | 0.0 |
| 106 | 0.0 | 0.0 |
| 75 | 0.0 | 0.0 |
| 53 | 0.0 | 0.0 |
| PAN | 0.0 | 0.0 |

## Chemical composition (All results in %)

The following properties listed below are to be used as guidelines only. Minor variation to these is to be expected due to slight variations in raw feed

| $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | $TiO_2$ | CaO | MgO | $K_2O$ |
|---|---|---|---|---|---|---|
| 99.5 | 0.3 | 0.050 | 0.030 | 0.01 | 0.002 | 0.03 |

## Physical properties

| Density | Hardness | Colour | Ph | Moisture | LOI |
|---|---|---|---|---|---|
| 2.65 | 7 | Yellow | 7 | <5% | 0.1 |

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Note: Please remember product segregation can occur through transport and handling.


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