

## March 2021 Quarterly Activities Report

### ASX RELEASE

28<sup>th</sup> April 2021

ASX: PEC

### **CORPORATE DIRECTORY**

#### **Executive Chairman**

Julian Babarczy

#### **Managing Director**

Robert Benussi

#### **Non-Executive Director**

Brett Grosvenor

#### **Non-Executive Director &**

#### **Company Secretary**

George Karafotias

### Projects

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Sargon Hub  
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### Quarterly Highlights

#### **Exploration**

- Updated resource estimate which resulted in a 25% increase in the Indicated Resource Estimate from previous 111Mt to 139Mt at 98.6% SiO<sub>2</sub>.
- Extension of high-grade silica sand at the northern extent of the exploration area confirmed.
- Probable Ore Reserves estimated at 64.1Mt at 98.6% SiO<sub>2</sub>.

#### **Project Development**

- PFS Metallurgical test work completed resulting in product grades >99.6% SiO<sub>2</sub> and <280ppm Fe<sub>2</sub>O<sub>3</sub>.
- Subsequent to the quarter end, Perpetual announced the results of a white sand only testing program that demonstrated potential for Beharra to produce an even higher quality end product with 99.8% SiO<sub>2</sub> and 120ppm Fe<sub>2</sub>O<sub>3</sub> using gravity and magnetic separation techniques only.
- Beharra PFS released based on a 2Mtpa mining rate to produce 47.6Mt of 99.6% SiO<sub>2</sub> over a 32-year mine life (see summary table below)

Beharra Summary PFS Data	Unit	Value
Total Silica Sand Produced	Mt	48
Annual Production	Mt	1.5
Processed Sand Price FOB	US\$/t	50
Exchange Rate AUD:USD	Rate	0.75
Total Life of Mine Sales (undiscounted)	A\$M	4,983
Unit Operating Cost including Royalty	A\$/t	43.07
Start Up Capital	A\$M	39
Post Tax NPV <sub>10</sub> - Ungearred	A\$M	231
Post Tax IRR -Ungearred	%	55
Payback Period	Years	2

- Initial Beharra silica sand product technical specification announced that includes three products suitable for clear glass manufacture, further testing is now ongoing

### **Corporate**

- Placement of A\$2M completed with Delphi Unternehmensberatung AG and Deutsch Balaton AGA.
- Project updates provided by the Board in March that includes coverage of the PFS and the Company's silica sand portfolio and strategy.

We wish to acknowledge the Traditional Custodians of the land (Yamatji Southern Regional) on which we are developing the Beharra Project, and pay our respects to their Elders past, present and emerging.

## Exploration

### Beharra Silica Sand Project

The March quarter 2021 saw further encouraging advances at Perpetual Resources Ltd (PEC) Western Australian Beharra Silica Sand Project. These advances included the release of an updated Mineral Resource Estimate (MRE) and subsequent release of a Probable Ore Reserve Estimate as part of the completion of a Pre-feasibility Study (PFS).

The MRE was updated with the addition of air core samples (phase 3 drill campaign) which was completed in October 2020 and reported to the ASX on 7<sup>th</sup> December 2020. This drilling included 18 drill holes and 1 twinned hole that were drilled in the northern section of the exploration area which resulted in defining additional high grade silica sand mineralisation in this region.

From the same program an additional 14 air core holes, which also included two twinned holes, were drilled south of Mt Adams Road, with the purpose of providing information for an update of the resource estimate.

An updated MRE was carried out by Snowden Group which resulted in an increase of the Indicated Resource by 25% from the earlier maiden MRE (announced to ASX on 22<sup>nd</sup> July 2020). The maiden MRE totalled 111Mt at 98.6% SiO<sub>2</sub> and was updated to the current MRE totalling 139Mt at 98.6% SiO<sub>2</sub>, (refer to ASX announcement dated 9th March 2021 and Table 1 below).

**Table 1. Upgraded Beharra Indicated Mineral Resource Estimate (March 2021)**

Sand	Volume (Mm <sup>3</sup> )	Density (t/m <sup>3</sup> )	Tonnes (Mt)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	LOI (%)
Yellow	8.1	1.64	13.2	98.2	0.50	0.23	0.23	0.51
White	76.7	1.64	125.8	98.6	0.41	0.23	0.36	0.21
<b>Total</b>	<b>84.8</b>	<b>1.64</b>	<b>139.0</b>	<b>98.6</b>	<b>0.42</b>	<b>0.23</b>	<b>0.35</b>	<b>0.24</b>

As part of the Beharra Pre-feasibility Study that was completed and released to the ASX on 17<sup>th</sup> March 2021, a Probable Ore Reserve was estimated. This estimate was undertaken by Snowden Group and is reported in Table 2, below. The Ore Reserve is reported in accordance with Clause 49 of the JORC Code (2012), for reporting of Industrial Minerals and Ore Reserves.

**Table 2. Beharra Probable Ore Reserves (March 2021)**

Sand	Tonnes (Mt)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (ppm)	Fe <sub>2</sub> O <sub>3</sub> (ppm)	TiO <sub>2</sub> (ppm)	LOI (%)
In-situ	64.1	98.6	4,240	1,950	3,460	0.235
Saleable Product	47.6	99.6	1,789	276	369	0.100

*Note 1. Million tonnes are rounded to one decimal place.*

*Grades are rounded to 3 significant figures.*

*Note 2. No cut-off is applied to the silica sand product.*

*Note 3. The In-situ and Saleable Product are not additive, and the Saleable product is a portion of the In-situ sand tonnage.*

## **Project Development**

### **Beharra Silica Sand Project**

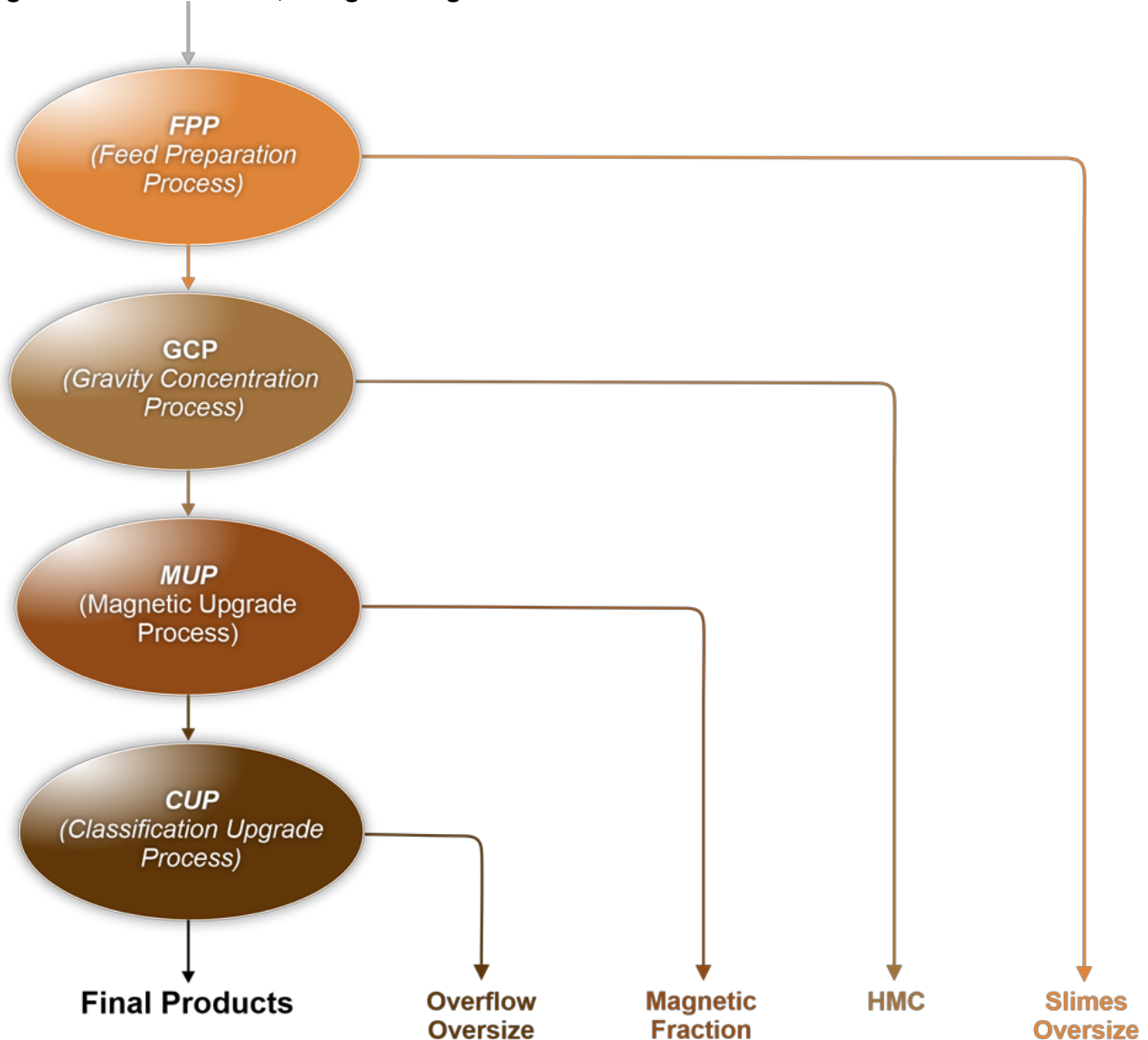
Bulk sample metallurgical testwork was completed within the quarter as part of the requirements for the PFS, and to confirm capability of production of a high-quality silica sand.

A 2,000kg bulk sample composited from the March 2020 drill samples was used to establish an interim preferred processing route and deliver final products that could be further assessed by end users, focusing on the clear glass and foundry sand markets. Please refer to the results from this test program that were announced to ASX on 29<sup>th</sup> January 2021.

The metallurgical test work program used a composite of both white and yellow sands with the prime objective to produce, via a simplified process route, a high-grade silica sand with reduced levels of key impurities including oxides of iron, aluminum, and titanium. The test work was carried out by IHC Robbins in Brisbane.

The resultant testwork process flow sheet which formed the basis of the PFS metallurgical testing comprised conventional methods and used scalable production equipment including feed preparation, gravity concentration, magnetic upgrade, and final product classification. Refer to Figure 1 below.

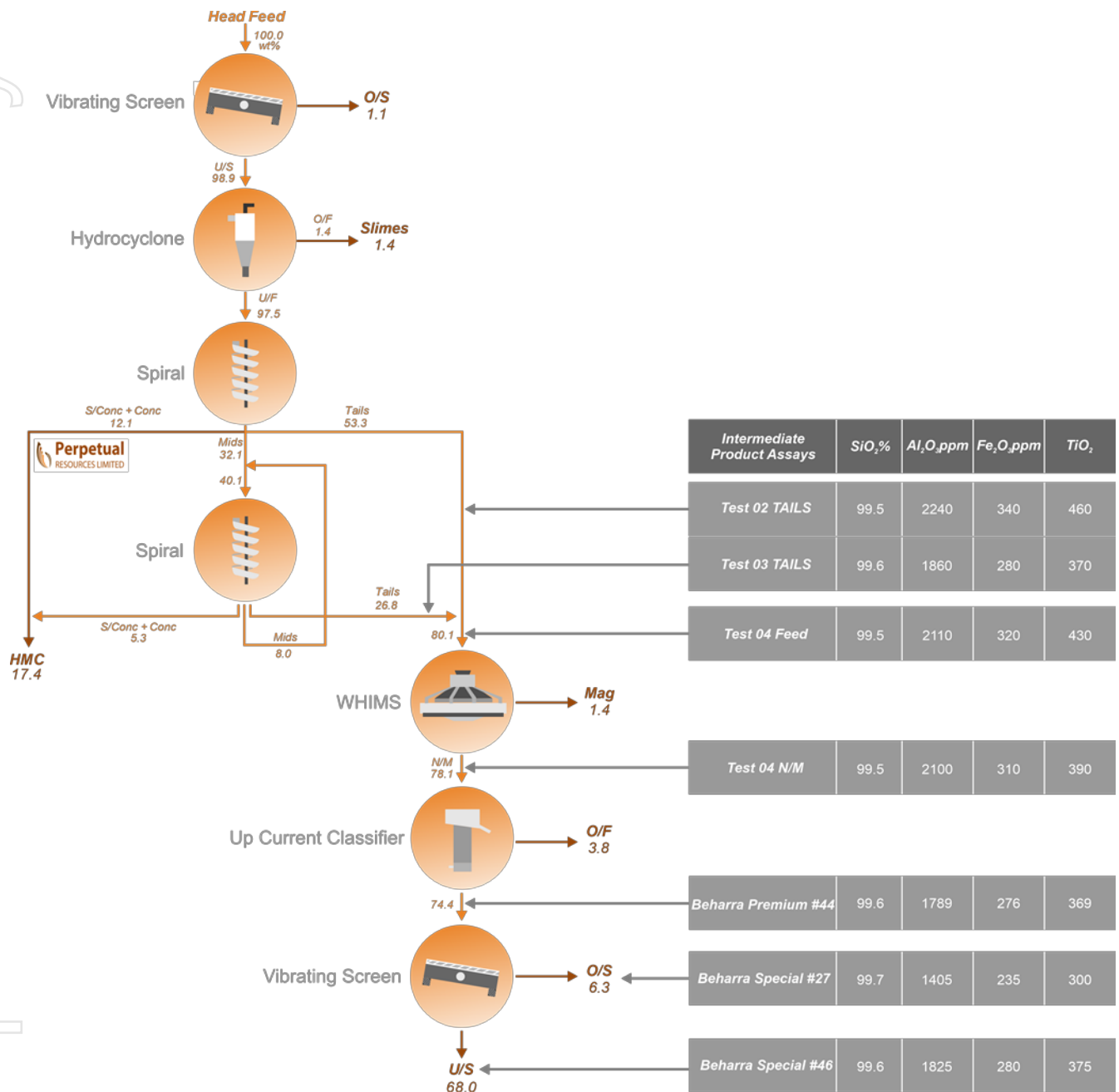
Figure 1. Beharra 2,000kg Testing Flowsheet



The outcomes from this metallurgical testing program have resulted in the development of detailed product specification and technical sheets for currently proven multiple end products. The Beharra project has so far shown it can deliver three discrete product streams for the Asian markets, with the key differentiator being  $\text{Fe}_2\text{O}_3$  impurity levels, and secondly  $\text{Al}_2\text{O}_3$  impurity levels.

A more detailed diagram of the flow sheet and products (Beharra Premium #44, Beharra Special #27, and Beharra Special #46) and tails is shown in Figure 2. The overall yield from this process was 74.4%.

**Figure 2. Beharra 2,000kg Flow Sheet**



A copy of the detailed Product Technical Data Sheets was announced to ASX on 1<sup>st</sup> February 2021 and can also be found on the Perpetual website.

The PFS was completed in March 2021 and announced to the ASX on the 17<sup>th</sup> of March 2021. This announcement also included a full copy of the PFS report.

The PFS confirmed the Beharra Silica Sand Project was technically and economically feasible with no fatal floors identified. The study demonstrated the project has capability to become an essential low impurity supplier of high-quality silica sand products to the rapidly growing Asia Pacific glass and foundry sand markets.

The financial results confirmed a robust project based on nameplate production of 1.5Mtpa for 32 years mine life via simple industry standard mining and processing methods.

The project economics results in a post-tax ungeared NPV A\$M231 and a post-tax IRR of 55% using a 10% discount rate. Payback period for the project is 2 years.

Summary details of project economics are shown in Table 3, below. Full details are available in the ASX announcement dated 17<sup>th</sup> March 2021 which also includes a complete copy of the PFS report.

**Table 3. Beharra Project Economics Overview**

Measure	Unit	Value
Total Silica Sand Produced	Mt	48
Annual Production	Mt	1.5
Processed Sand Price FOB	US\$/t	50
Exchange Rate AUD:USD	Rate	0.75
Total Life of Mine Sales (undiscounted)	A\$M	4,983
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Post Tax NPV <sub>10</sub> - Ungeared	A\$M	231
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## Corporate

In this reporting quarter PEC successfully completed a capital raising with German based Institutions Delphi Unternehmensberatung AG and Deutsche Balaton AG. A placement of A\$2 million at 8 cents per share was completed. The placement shares were also issued with 5 million attaching options which have a 24-month expiry period and are exercisable at A\$0.13. Refer to ASX announcement dated 22<sup>nd</sup> February 2021.

The Board of Directors provided shareholders with two corporate presentations that were also released to market. The presentations included a review of the PFS, and an overview of the company's investment and current position in the silica sand business. These presentations were released to the ASX on 19<sup>th</sup> and 30<sup>th</sup> of March 2021, respectively.

The total land area of granted tenure across PEC's portfolio as of 31<sup>st</sup> March 2020 is 145.92km<sup>2</sup>, refer to table 1 below.

The company has advised that Perpetual will submit a Mining Lease application for Beharra April 2021.

## Details of related party payments

Pursuant to ASX LR4.7C.1 and as outlined in the Appendix 5.B the aggregate amount of payments to related parties and their associates of \$94,899 represent directors' fees and salaries.

This report has been authorised for release to ASX by the Board of Directors.

**Table 1. Tenement Schedule**

Project	Licence	Location	Interest as at 30 <sup>th</sup> September 2020	Interest as at 31 <sup>st</sup> December 2020	Status	Area (Km <sup>2</sup> )
Eneabba	E70/5220	WA	100%	100%	Granted	35.34
Sargon	E70/5227	WA	100%	100%	Granted	30.03
Beharra	E70/5221	WA	100%	100%	Granted	48.55
Eneabba North	E70/5250	WA	100%	100%	Granted	14.00
Sargon North	E70/5376	WA	0%	100%	Granted	18.00
<b>Total</b>						<b>145.92</b>

#### Competent Persons Statement

The information in this announcement that relates to the Exploration Results for the Beharra Project and is based on information compiled and fairly represented by Mr. Colin Ross Hastings, who is a Member of the Australian Institute of Mining & Metallurgy and consultant to Perpetual Resources Ltd. Mr. Hastings is also a shareholder of Perpetual Resources Ltd. Mr. Hastings has sufficient experience relevant to the style of mineralisation and type of deposits under consideration, and to the activity which he has undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Hastings consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.