ASX Announcement

Completion of Rare Earth Separation Pilot Plant

20 February 2020

- **Arafura successfully completes Rare Earth Separation pilot operations**
- **NdPr/TREE >99.9% and SEG-HRE/TREE >99.5% specifications achieved**
- **NdPr oxide and SEG-HRE carbonate product samples to be made available for assessment as previously agreed with potential customers**
- **Arafura demonstrates its capability to be a reliable long-term supplier of downstream NdPr oxide and to assist target customer objectives for supply diversification**

Arafura Resources Limited (**ASX: ARU**) (**Arafura** or the **Company**) is pleased to announce the successful completion of Rare Earth Separation piloting, the seventh and final stage in the Company's flowsheet piloting program for its 100 per cent-owned Nolans Neodymium-Praseodymium (NdPr) Project in the Northern Territory. This program commenced in November 2016 with the preparation of 14 tonnes of ore feed from the Nolans Bore deposit.

The Rare Earth Separation pilot program had two primary objectives:

1. To produce NdPr and SEG-HRE (middle and heavy rare earth) products that align with the raw material specifications of customers; and
2. To acquire process information that allows the basis of design for the Separation Plant to be updated prior to front-end engineering and design (FEED).

The capability of rare earth projects to produce high-purity separated NdPr oxide has gained prominence in recent times as end users, component manufacturers, financiers and governments attach greater importance to the provenance and traceability of raw materials feeding, and the diversification of, the NdFeB magnet supply chain. Accordingly, the Australian Government's recently established Critical Minerals Facilitation Office is working closely with other countries such as Japan, South Korea, Germany and the USA to address supply chain risks and promote ethical sustainable practice by focusing on strategically important projects that have the potential to deliver new NdPr separation and processing capacity in Australia.

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Arafura's high purity NdPr and SEG-HRE products will be used to complement its sales and marketing engagement, which is pivotal in securing project finance.

Managing Director Gavin Lockyer said, *"The results of the pilot are not unexpected and confirm our ability to produce separate rare earth products at Nolans. Producing final product at a time when countries are re-assessing their supply chains for critical materials such as NdPr oxide puts us in a great position to enhance our reputation as a long-term potential supplier in the market. Nolans is the only NdPr-focused development in Australia that has full environmental approvals. This provides international customers with confidence that their product is being sourced from reliable and ethical practices through the full lifecycle of the project including rehabilitation."*

The Program

The second of two solvent extraction (SX) pilot plant circuits operated at ANSTO Minerals (ANSTO) in Sydney over a 14-day period during January (Figures 1 and 2). This circuit produced a refined liquor in which NdPr constitutes >99.9% of the total contained rare earth elements (TREE). This followed the earlier operation of the pilot plant over a seven-day period in December *(refer to ASX announcement 23 December 2019)* from which a refined liquor was produced where SEG-HRE comprised >99.5% of the TREE.

These liquors are being processed using conventional methods to prepare final products – NdPr oxide and SEG-HRE carbonate – for assessment by potential customers in Arafura's target jurisdictions (Figure 3) using conventional processing steps. The Company's marketing efforts are aimed at placing a substantial proportion of the project's planned production of NdPr oxide into binding offtake agreements to support project financing.

Arafura completed substantial test work for rare earth separation at ANSTO during 2008-2010 and pilot plant trials for continuous testing of SX circuits were completed at ANSTO in 2012. Data from the 2012 trials were used as the basis for the Separation Plant capital and operating cost estimates for the project's definitive feasibility study *(refer to ASX announcement 7 February 2019)*. Data acquired during the operation of the current pilot plant are being used to update the final basis of design documents for FEED.

The basis of design for the Nolans Project includes the construction and operation of a Separation Plant that delivers 4,360 tonnes per annum of NdPr oxide and 600 tonnes per annum of SEG-HRE carbonate for a minimum of 23 years[1], and Nolans remains the only NdPr project in Australia that has complete environmental permitting for mining, beneficiation, extraction and separation of rare earths, including the on-site management and disposal of attendant radioactive tailings and process wastes, as well as progressive site rehabilitation.

- ENDS -

[1] *Information in relation to the production targets included in this announcement is extracted from an ASX announcement dated 7 February 2019 (Nolans Project Definitive Feasibility Study). Arafura Resources confirms that all material assumptions underpinning the production targets set out in the announcement released on 7 February 2019 continue to apply and have not materially changed.*

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Figure 1: Arafura's NdPr separation circuit during pilot operation at ANSTO

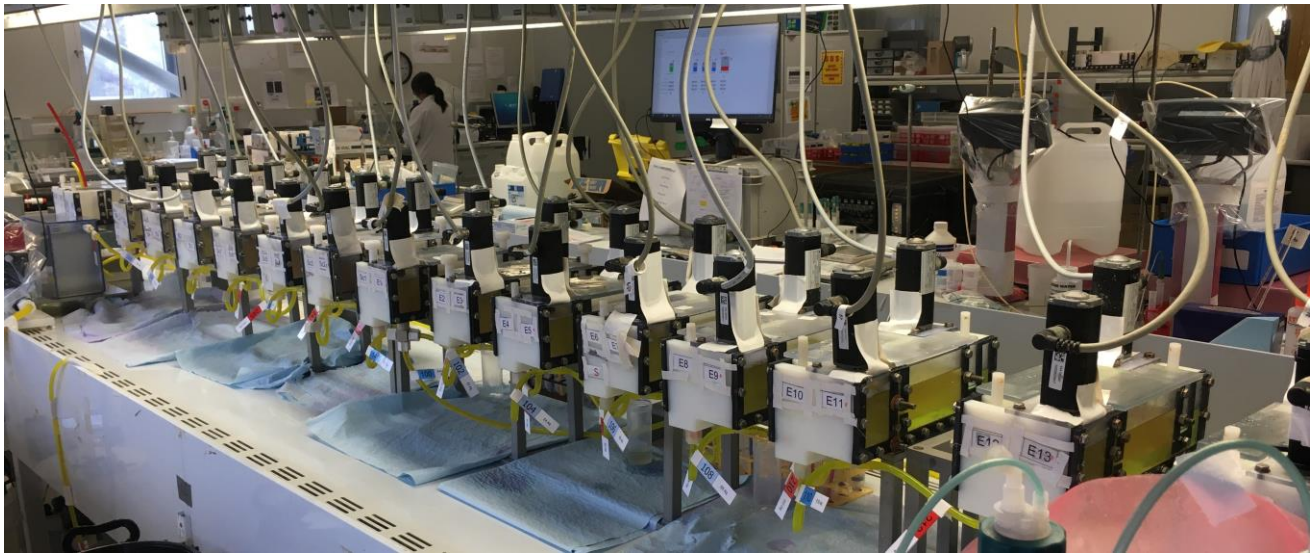

Figure 2: Side on view of SX mixer-settlers in the NdPr separation circuit during pilot operation

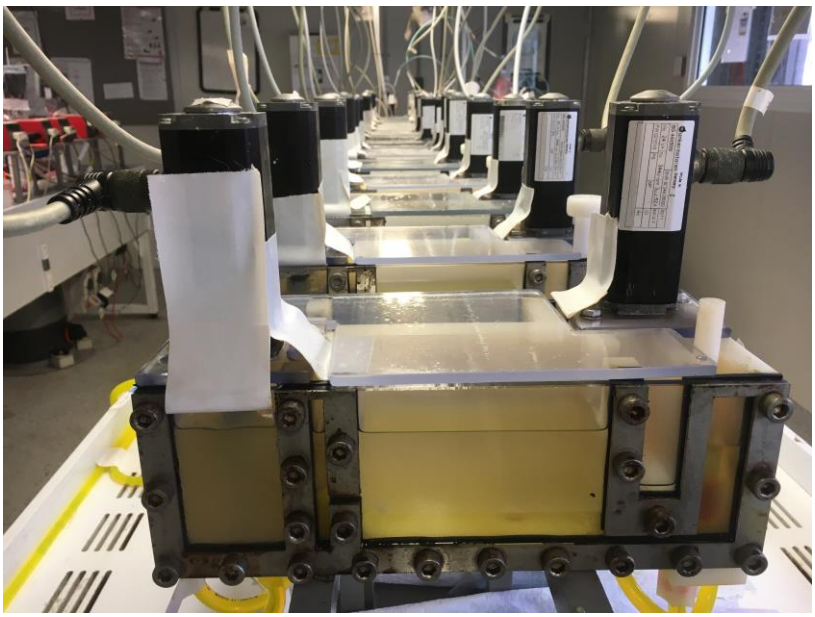

Figure 3: Arafura's target jurisdictions for product offtake