ASX Announcement

Arafura Extends Nolans Mine Life To Beyond Thirty Years

20 September 2017

- **Two-thirds of Measured and Indicated Resources inventory identified as NdPr-bearing phosphate-rich material types**
- **Full benefits of flowsheet development on phosphate-rich material types apparent in mine planning study**
- **More Mineral Resources available for potential conversion to Ore Reserves and longer mine life**

Arafura Resources Limited (**ASX: ARU**) ("**Arafura**" or "**the Company**") is pleased to announce that mine planning work undertaken in advance of the Nolans Definitive Feasibility Study (DFS) has established a mining inventory that could support in excess of thirty years' of mining and processing at its 100 per cent-owned Nolans Neodymium-Praseodymium (NdPr) project in the Northern Territory.

The Company's beneficiation, phosphate extraction and bulk pre-leach pilot plants have demonstrated that processing of phosphate-rich material types in the Nolans Bore resource achieves high recoveries of NdPr and phosphate (P_2O_5). These material types were identified through comprehensive programs of detailed geological, geochemical and metallurgical analysis of the resource, enabling the Company to quantify that 66% of the project's higher-confidence Measured and Indicated Mineral Resources are phosphate-rich material types (Figure 1) *(refer to ASX announcement 7 June 2017)*.

These successes have led Arafura to commission one of Australia's leading independent mining consultancies AMC Consultants (AMC) to undertake a mine planning study to understand the impact on the development of the project. The study reported a mining inventory and annual strategic (production) schedules that could allow Arafura to produce 14,000 tonnes of total rare earth oxide (TREO) per annum, including 3,600 tonnes of NdPr oxide annually, for a period in excess of thirty years.

Study outcome highlights include:

- 34-year indicative life of operation (mining and processing) in seven pit scheduling stages (Figure 2);
- Maximum annual mining rate of 5 million tonnes for the majority of the mine life;
- Average mining strip ratio of 6 over the life of mine; and
- Steady-state beneficiation plant feed rate of 525,000 tonnes per annum for the first 11

years of operation (including preproduction).

Figure 1: Distribution and proportion phosphate-rich mineralised material types in Measured and Indicated Resources at Nolans Bore.

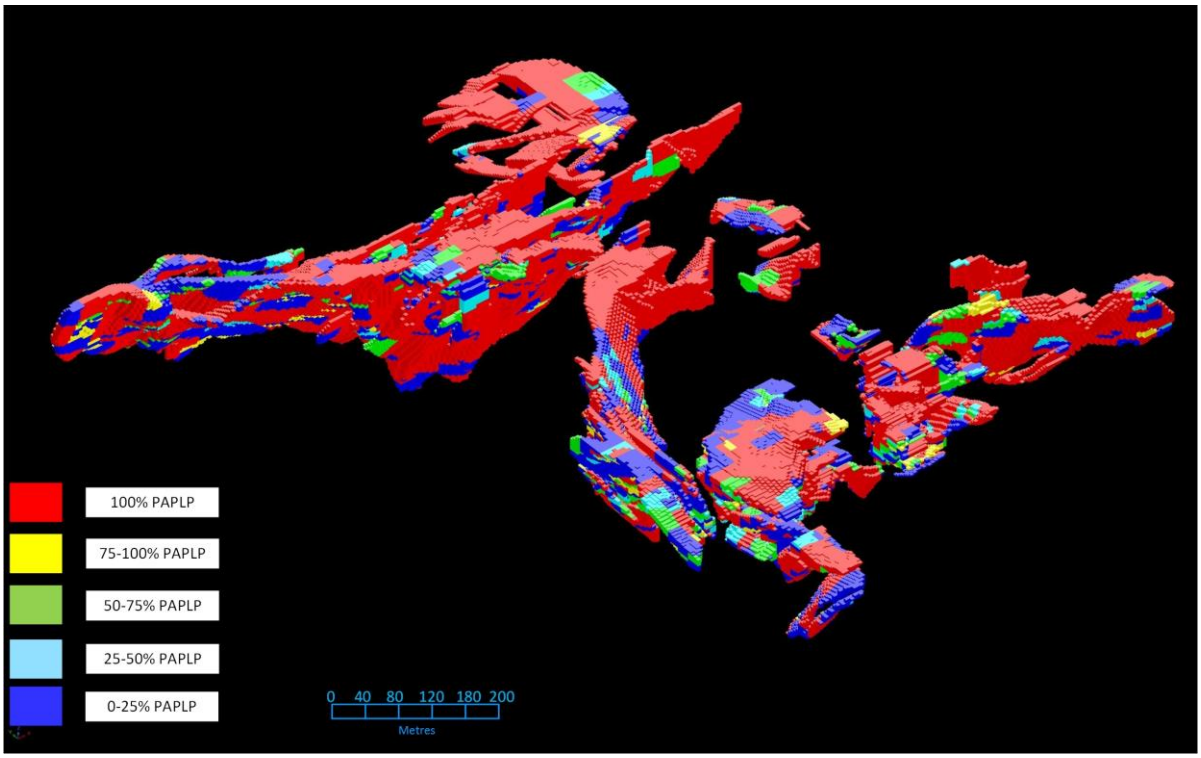
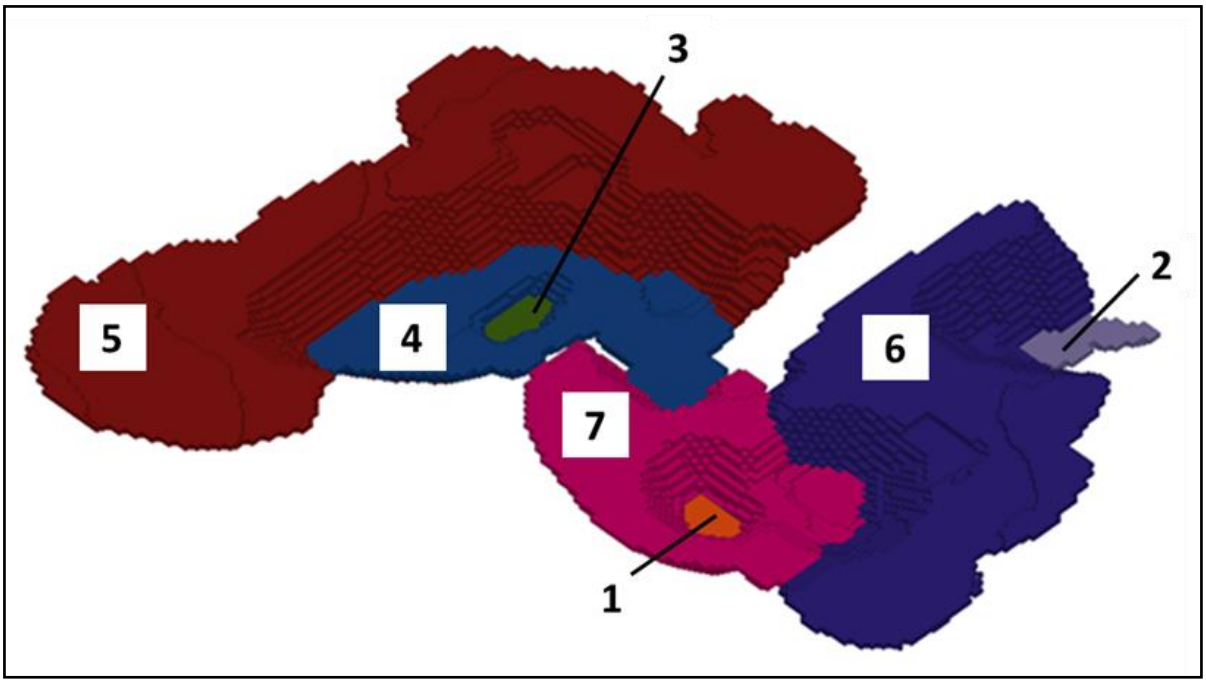


Figure 2: Pit Shells showing Scheduling Stages (at Year 10)



The study did not consider 21 million tonnes of Inferred Mineral Resources in the analysis, nor did it consider approximately 9 million tonnes of rare earths mineralisation from which

lower metallurgical recoveries are predicted using the high-phosphate metallurgical process being piloted. Considering the abundance of phosphate-rich plant feed available (34-year indicative life of operation), Arafura plans to prioritise this material for processing and recovery of NdPr.

– ENDS –

For further information:

Gavin Lockyer
Managing Director
T: +61 8 6210 7666

Media enquiries:

Ben Henri
Media and Capital Partners
M: +61 473 246 040

Nameplate Production

Measured and Indicated Mineral Resources at Nolans support the project's nameplate production target of 14,000 tonnes per annum of TREO equivalent. The Mineral Resources were estimated and reported by the Company *(refer to ASX announcement 7 June 2017)* following the guidelines of the JORC Code 2012. Classification of total Mineral Resources at Nolans into Measured, Indicated and Inferred, using a 1.0% TREO cut-off grade, is shown below.

Mineral Resources	Tonnes (Millions)	Rare Earths (% TREO)	Phosphate (% P_2O_5)	NdPr Enrichment (%)
Measured	4.9	3.2	13	26.1
Indicated	30	2.7	12	26.4
Inferred	21	2.3	10	26.5
Total	**56**	**2.6**	**11**	**26.4**

Note: Numbers may not compute due to rounding. "NdPr Enrichment" is the proportion of TREO comprising Nd_2O_3 and Pr_6O_{11}.

Competent Persons Statement

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Mr Kelvin Hussey, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Hussey is a full-time employee of Arafura Resources Limited. Mr Hussey has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). Mr Hussey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

In undertaking the assignments referred to in this report, AMC acted as an independent party, has no interest in the outcome of the Nolans Project and has no business relationship with Arafura Resources other than undertaking those individual technical consulting assignments as engaged, and being remunerated according to standard per diem rates with reimbursement for out-of-pocket expenses. Therefore, AMC believes that there is no conflict of interest in undertaking the assignments which are referred to in this report.

MINE PLANNING STUDY – TECHNICAL INFORMATION

INTRODUCTION

The mine planning study (Study) undertaken by AMC is at a Scoping Study level of accuracy, and is insufficient to support estimation of Ore Reserves, or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Study will be realised. The Study report summarises recent enhancements to the Nolans NdPr project, including updated Mineral Resources, material type reclassification and metallurgical flowsheet piloting, and follows on from the significant detailed mine planning studies which have been undertaken by Arafura since 2007 as part of various work programs including scoping, pre-feasibility and feasibility studies.

MINE PLANNING CRITERIA

The same resource model was used for estimating the Mineral Resources for Nolans in 2017 (detailed above) and as the basis for the Study.

MINING METHOD, MINING LOSS AND DILUTION

Following previous studies, and considering mining selectivity, the mining method selected remains as hydraulic excavators and trucks. Drilling and blasting will be required for all mined materials. All plant feed will be crushed at the beneficiation plant located at the mine. All mined waste will be stored in land forms outside the pit limits.

Diluted block models were generated for the Study. The amount of mining loss was negligible, and dilution was estimated at 8.3%.

GEOTECHNICAL

Geotechnical design criteria generated by analysis of previous geotechnical drilling, testwork and analytical studies were applied in the Study. The geotechnical design parameters are considered to be at DFS level of confidence.

SELECTIVE MINING

The Company's recently updated and improved understanding of mineralogical and metallurgical material types at Nolans allows classification of the mineralisation into two broad material types – rare earth-bearing phosphate-rich plant feed, and rare earth-bearing calcsilicate mineralisation which is planned to be stockpiled for possible later treatment.

The rare earth-bearing calcsilicate mineralisation is readily distinguishable in appearance from the more abundant and preferred rare earth-bearing phosphate-rich plant feed, and its distribution is such that the preferred plant feed can be selectively mined using the selected mining equipment.

PIT OPTIMISATION

A series of pit optimisations using GEOVIA Whittle™ software were completed using the key parameters summarised in Table 1.

Table 1: Pit Optimisation Parameters

Parameter	Unit	Value
Metal Prices TREO	US$/kg	27.07
P_2O_5	US$/t	300.10
Exchange Rate	A$:US$	0.72
Discount Rate	%	10
Processing, Admin and ROM Costs	A$/t processed	$217
Mining Costs	A$/t mined	$5.69
Total Recovery TREO (ROM to final separated product)	%	74
P_2O_5	%	89
Diluted Resource Model	-	Yes
Selective Mining by Mineralization Type	-	Yes
Nominal Annual TREO Production	tpa	14,000

PIT DESIGN

The pit optimisation software produced a series of pit shells. Pit shells were selected for the Study to allow for minimum mining width considerations and to determine optimum pit staging and mine scheduling. Seven pit stages were selected for mine scheduling. Detailed pit designs will be finalised when final pit optimisations are completed as part of the DFS.

PRODUCTION SCHEDULES

Mine production schedules were generated using the selected pit shells with regard to selective mining and processing of phosphate-rich mineralisation, with calcsilicate mineralisation sent to stockpiles.

The strategic mining schedule is based on a maximum overall mining rate of 5 Mtpa for the majority of the mine life, as shown in Figure 3. Pre-stripping commences in Year 1 and provides waste for ROM pad construction and sufficient plant feed for beneficiation plant start-up and commissioning which commences in Year 2. The selective mining and stockpiling strategies result in plant feed and TREO production profiles shown in Figure 4.

Figure 3: Mine Production Schedule – Material Mined

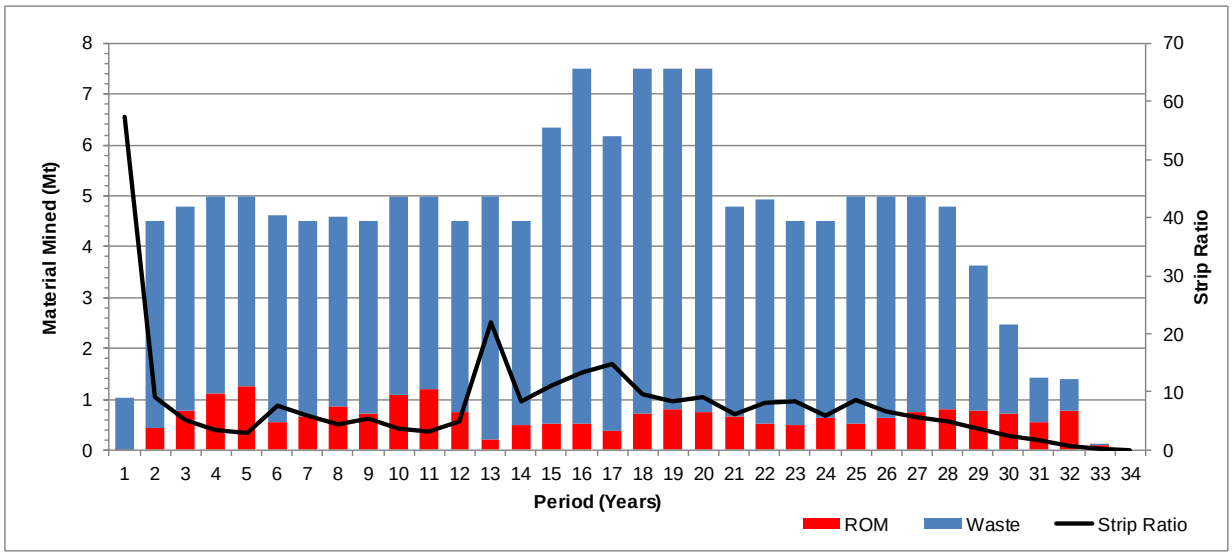


Figure 4: Mine Production Schedule – Plant Feed and TREO Production