ASX Announcement

Major Increase in Mine Life for the Nolans Project

16 March 2020

Updated to include a material assumptions overview, key financial analysis outcomes and additional JORC tables:

- **54% increase in Ore Reserves to 29.5 million tonnes**
- **Ore Reserves now support 33 years of production, an increase of 10 years on the DFS base case**
- **LOM schedule based on mining inventory of 39.9 million tonnes supports 39 years of production**
- **Significant reduction in OPEX for mining inventory schedule to less than US$24/kg of NdPr oxide**

Arafura Resources Limited (**ASX: ARU**) (**Arafura** or the **Company**) is pleased to provide updated Ore Reserves for its 100 per cent-owned Nolans Neodymium-Praseodymium (NdPr) Project in the Northern Territory.

The Ore Reserves (and mining inventory) exclude all mineralisation intersected in deep exploration drilling completed at Nolans Bore during 2019 *(refer to ASX announcement 9 March 2020)*.

The estimate has been independently prepared by leading mining technical services provider Mining Plus Pty Ltd (Mining Plus). It incorporates the updated geometallurgical model derived from the results of beneficiation variability test work on mineralised material types that included samples from the 2019 drilling program at Nolans Bore *(refer to ASX announcements 17 and 18 December 2019)*.

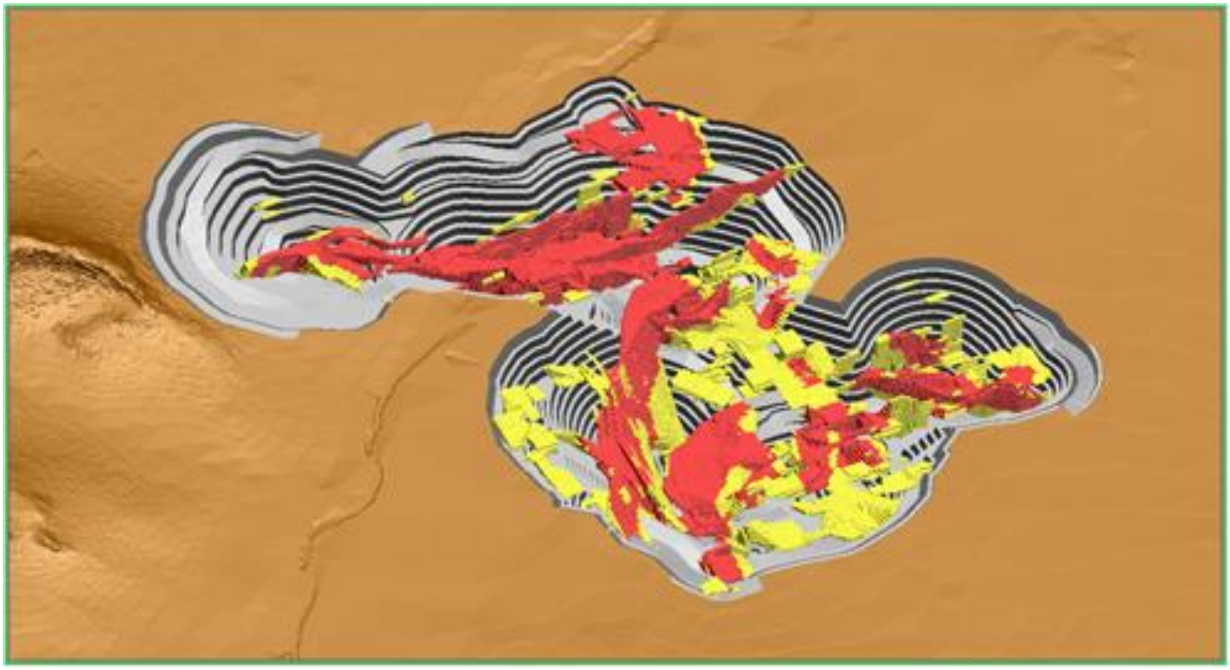
Nolans Project Ore Reserves

Classification	Mt	TREO (%)	P_2O_5 (%)	NdPr Enrichment (%)
Proved	5.0	3.0	13	26.2
Probable	24.6	2.8	13	26.5
Total	**29.5**	**2.9**	**13**	**26.4**

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

These Ore Reserves are based on the Project's Measured and Indicated Mineral Resources *(refer to ASX announcement 7 June 2017)* and on the pricing, processing and cost assumptions developed during the Definitive Feasibility Study (DFS) *(refer to ASX announcement 7 February 2019)*. Only the mine design and scheduling have been revised to reflect the updated geometallurgical model. Using the processing design envelope from the DFS the Ore Reserves support production over 33 years, an increase of 10 years over the 23-year base case in the DFS.

In addition to the updated Ore Reserves, Mining Plus has also prepared a production schedule based on the mining inventory, which includes some of the Project's Inferred Mineral Resources, predominately in the later years of mining and processing. This mining inventory consists of approximately 39.9 Mt grading 2.8% TREO and 12% P_2O_5. The figure below shows the updated preliminary pit design with the Ore Reserves (red) and Inferred Mineral Resources (yellow) included in the mining inventory.



Scheduling of the mining inventory, with some minor changes to the design envelope of the process plant, provides far superior financial outcomes over those delivered in the DFS base case. The mining inventory production schedule supports production over 39 years of an average of approximately 4,325 tonnes per annum of NdPr oxide at an operating cost of less than US$24/kg of NdPr oxide (net of phosphoric acid by-product credit). This operating cost estimate is based on the cost and pricing assumptions used in the DFS.

Arafura Managing Director Gavin Lockyer said, *"The reduction in operating costs cements Arafura as one of the lowest-cost NdPr producers in the world. The increase in Ore Reserves and mining inventory attests to the long-term potential of the Nolans Project and when read in conjunction with the recently announced deep drilling results, reinforces its standing as a world class NdPr development opportunity.*

"I challenge anyone to find a better fully permitted, fully costed NdPr-focused project outside China. It meets all the criteria to be a long term, sustainable supplier of critical minerals into clean energy

technologies, and will deliver intergenerational benefits in a part of Australia that is challenged by limited opportunities for genuine economic development."

Project development, product offtake and financing activities are continuing for the Nolans Project. These include:

- Finalising execution readiness and pre-front-end engineering and design (FEED) activities
- Tendering of the hydrometallurgical plant design and construction contract
- Engaging with potential NdPr product offtake partners in Japan, Europe, South Korea, the USA and China
- Engaging with the Australian Government's Critical Minerals Facilitation Office, Northern Australia Infrastructure Facility (NAIF) and Export Finance Australia (EFA), and with export credit agencies (ECA) in jurisdictions where the Company is targeting product offtake or capital equipment procurement opportunities
- Engaging with corporate and debt advisory groups.

- ENDS -

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COMPETENT PERSON'S STATEMENT

The information in this report that relates to Exploration Results or Mineral Resources is based on information compiled by Mr Kelvin Hussey (BSc (Hons), FGS), a Competent Person who is a Member of the Australian Institute of Geoscientists (MAIG). Mr Hussey is a full-time employee of Arafura Resources Limited. Mr Hussey has sufficient experience that is relevant to the style of mineralization 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. Mr Hussey consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

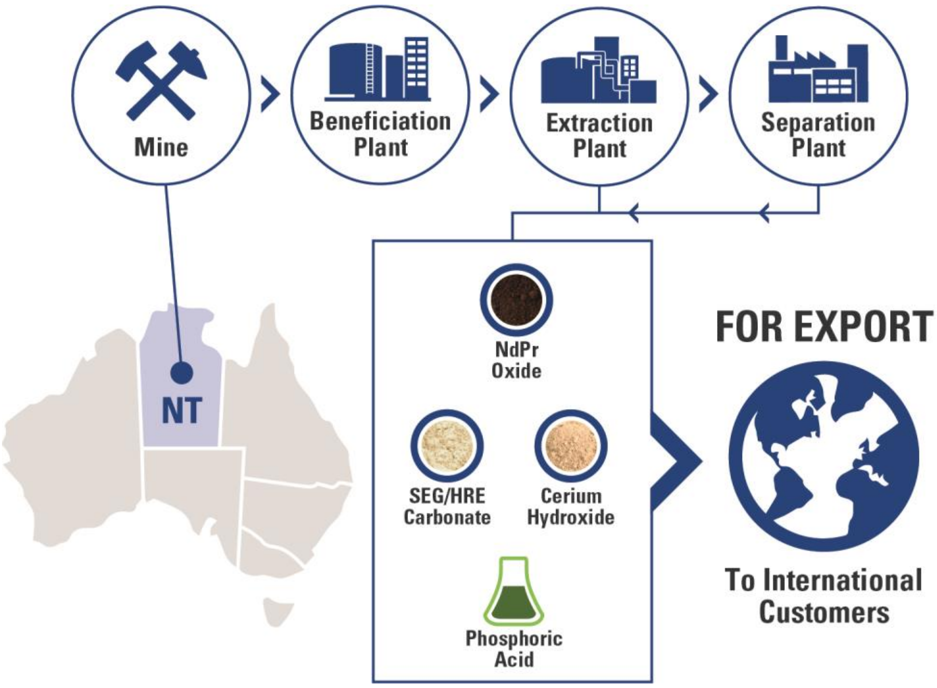
The information in this report that relates to metallurgy and costs is based on information compiled by Mr Stewart Watkins (BEng Chemical (Hons)), a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM). Mr Watkins is a full-time employee of Arafura Resources Limited. Mr Watkins has sufficient experience that is relevant to the style of mineralisation and processing techniques 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. Mr Watkins consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled by Mr David Billington, BEng (Mining), a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (MAusIMM). Mr Billington is a full-time employee of Mining Plus Pty Ltd. Mr Billington 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. Mr Billington consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

PROJECT SCOPE

The Nolans Project will encompass a mine, process plant (comprising beneficiation, extraction and separation plants) and related infrastructure to be constructed and located at the Nolans site, 135 kilometres north of Alice Springs in Australia's Northern Territory. The Project is underpinned by low risk Mineral Resources that have the potential to supply a significant proportion of the world's NdPr demand. It is a globally significant and strategic NdPr project which, once developed, will become a major supplier of these critical minerals to the high-performance NdFeB permanent magnet market.

The Project will benefit from its Australian domicile and its proximity to transport, water and energy infrastructure.



ENVIRONMENT

The Nolans Project has been subject to Northern Territory and Australian environmental assessment processes administered by the Northern Territory Environment Protection Authority (NT EPA) and the Australian Government Department of the Environment and Energy (DoEE). The Company received environmental approval from the NT EPA in 2017 *(refer to ASX announcement 5 January 2018)* and from the DoEE in 2018 *(refer to ASX announcement 14 May 2018)*. These rigorous and lengthy processes included an assessment of the Company's ability to manage mine tailings and process plant waste residues and to progressively rehabilitate the site. This has been fully costed into the DFS.

Nolans is the only NdPr-focused project in Australia that has secured 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.

COMMUNITY AND SOCIAL BENEFITS

The Project is expected to deliver substantial social and economic benefits to local, regional and national stakeholders. These will include indigenous and local employment opportunities, small and medium enterprise business opportunities, royalties and potentially shared infrastructure. The Company estimates the peak construction workforce will be 650 people with a steady state operating workforce of 280. During steady state operations, most of the workforce will reside at site. However, the Project has the potential to accommodate community friendly rosters considering its proximity to the communities of Alice Springs, Ti Tree and Laramba.

MINING LICENCE

Australia’s mining and mineral processing industry is both mature and well-regulated having been developed over many decades under the stewardship of successive state and federal governments. The grant of the Project’s Mineral Leases (MLs) by the Northern Territory Government will provide Arafura tenure over the Nolans asset for 25 years and a licence to operate (subject to annual compliance reviews) for the same period. The Company applied for its primary ML over the Nolans mine site area to the Northern Territory Department of Primary Industry and Resources (DPIR) in 2008, and for its ancillary MLs over other elements of the Project in 2014.

An Indigenous Land Use Agreement (ILUA) covering all parts of the Nolans Project has been agreed in principle by the site’s Native Title Holders *(refer to ASX announcement 2 March 2020)*. On presentation of an executed ILUA to DPIR, administrative procedures leading to the grant of the MLs by the Northern Territory Minister for Primary Industry and Resources will commence.

UPDATED MINING STUDY

In order to update the Ore Reserves estimate for the Nolans Project an updated mining study was undertaken by Mining Plus. The key aspects of this updated mining study included:

- Determination of pit optimisation parameters, including the updated geometallurgical relationships *(refer to ASX announcement 18 December 2019)*, carrying out updated pit optimisations and selection of optimal pit shells.
- Re-design of the final pit and intermediate phases as required, and re-calculation of mining physicals.
- Updating of mining and production schedules for the Ore Reserves and mining inventory.
- Revision of the mining cost model to match the campaign mining approach in the early years of mining and to match the extended life of mine.
- Estimation of Ore Reserves and reporting in accordance with the JORC Code (2012 Edition).

Mineral Resources

The updated mining study was based on the Mineral Resources for the Nolans Bore deposit *(refer to ASX announcement 7 June 2017)* which is unchanged from the Mineral Resources used in the DFS *(refer to ASX announcement 7 February 2019)*. These resources are classified according to the 2012 JORC Code guidelines and shown in the table below.

Statement of Mineral Resources for the Nolans Bore Rare Earth Deposit
Announced 7 June 2017 – 1% TREO lower cut-off grade

Category	Tonnes (Mt)	TREO (%)	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 neodymium oxide Nd_2O_3 and praseodymium oxide Pr_6O_{11}.

The stated TREO grade is based on the sum of the estimated grades for La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3 and Y_2O_3.

The Mineral Resources were further classified by geometallurgical material types based on logging and analysis. Details of the material classification are contained in the DFS *(refer to ASX announcement 7 February 2019)*.

Metallurgy

Following the completion of the DFS it was identified that some geological material types identified as non-preferred for the proposed processing at Nolans were able to be processed in the proposed beneficiation circuit. However, since sufficient metallurgical test work had not been carried out on these material types to provide the required level of confidence, they were excluded from the DFS base case and Ore Reserves estimate.

A further variability metallurgical test work program was undertaken on samples from the recent drilling at Nolans Bore, as well as samples selected from previously drilled diamond drill core. In all, across both variability programs, approximately 25 tests were carried out on material types 5A1 and 5A2 covering a range of grades and other characteristics. Analysis of the flotation results resulted in an update to the geometallurgical model as presented below.

Key Concentrate Composition Equations by Material Groups

Parameter	**Type 1 & 2**	**Type 3B**	**Type 4A, 5A1 & 5A2**
P_2O_5 Recovery	99%	0.63 x P_2O_5 + 87.24 (max 99%)	80%
P_2O_5 Grade	0.9651 x P_2O_5 + 1.6389 (min 27%)	0.2162 x P_2O_5 + 27.276	26.7%
TREO Recovery	0.29 x TREO + 95.96	71.27 x $(TREO)^{0.2382}$ (max 97.5%)	76.23 - 57.66 x (Fe_2O_3/P_2O_5) (max 80%)
Fe_2O_3 Recovery	9.95 x $(Fe_2O_3/P_2O_5)^{-0.606}$		
Al_2O_3 Recovery	6.4 x $e^{(0.0297 \text{ x Fe2O3 Recovery})}$		
MgO Recovery	6.25 x $e^{(0.0291 \text{ x Fe2O3 Recovery})}$		
H_2SO_4 Consumption	828.7 kg/t concentrate		

Details of the additional metallurgical variability test work program were announced by Arafura in December 2019 *(refer to ASX announcement 18 December 2019)*.

Pit Optimisation

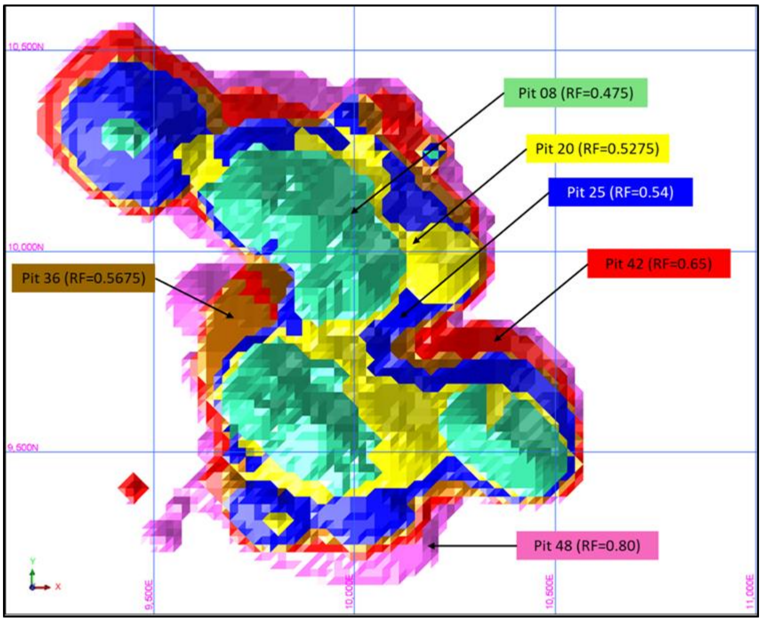
The geological resource model was re-optimised based on the updated geometallurgical model presented above. This included:

- Updating metallurgical recovery to reflect the geological and mineral associations and targets the dominant rare earth minerals in the deposit, which is based on differentiating phosphate-dominated mineralisation from calcsilicate-rich phosphate mineralisation.
- Since the material types are proportionally coded into the resource model such that any number of these material types could be present in any one resource block. Each of the three material groups (as indicated above) has different recovery equations and a number of changes to classification rules were defined in the geometallurgical equations, including:
  - Reclassification of >25% P_2O_5 as massive apatite mineralisation (types 1 and 2).
  - All material <5% P_2O_5 was re-classified as waste.
- The material proportions and multiple recoveries, the concentrate compositions, final product tonnages and elemental revenues were calculated for each ore type within each block and then the totalled revenue was utilised in the optimisations to determine the final pit shells. The mining and non-mining unit costs remain unaltered from the DFS.
- The unit revenues remain unaltered from the DFS.

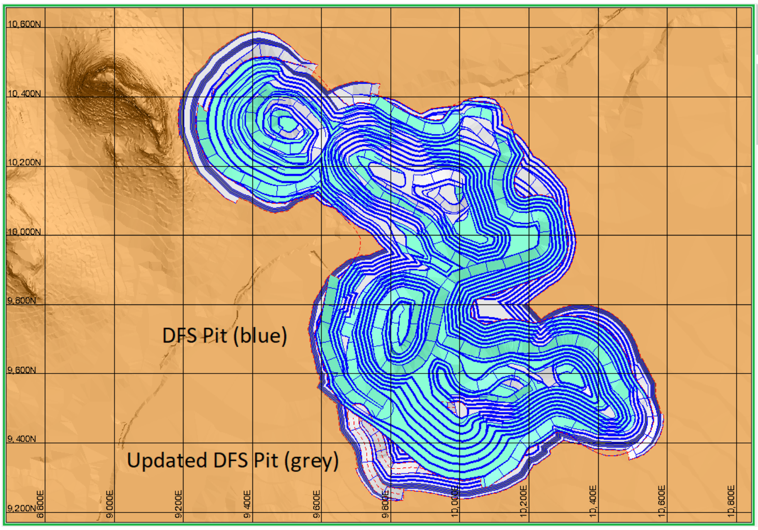
The optimisation results reflected the updated metallurgical recoveries, predominately related to 5A1 and 5A2 material types, which indicated an expansion of the existing pit outline and therefore required a redesign to several intermediate pit stages and the final pit compared to the DFS.

Mine Design

The physical mine design parameters used in the updated mining study have remained unchanged from those applied in the DFS. The physical mine design parameters have been applied to the revised optimisation shapes that are shown in the figure below.



The resultant updated pit design shows some minor expansions over that developed for the DFS with minor expansions to the south, north-east and north-west, as well as a minor deepening. This comparison in final pit geometry is show in the figure below.



The pit inventory for the updated mining study is given in the table below illustrating the increase in ore for processing of 10.3 Mt as well as an increase in the Inferred Mineral Resources contained in the pit for a relatively small increase in overall material movement from the pit.

Pit Inventory

	Updated Mining Study			DFS			Difference	
	Mt	P_2O_5 (%)	TREO (%)	Mt	P_2O_5 (%)	TREO (%)	Mt	%
Ore for Processing	29.5	13	2.9	19.2	13	3.0	10.3	54%
Inferred to Stockpile	10.4	13	2.5	2.8	12	2.6	7.6	271%
Non-Preferred to Stockpile	1.0	11	3.6	9.7	12	2.7	-8.7	-90%
Waste	178.0			140.3			37.7	27%
Total	**218.9**			**172.0**			**46.9**	**27%**

Note: Numbers may not compute due to rounding.

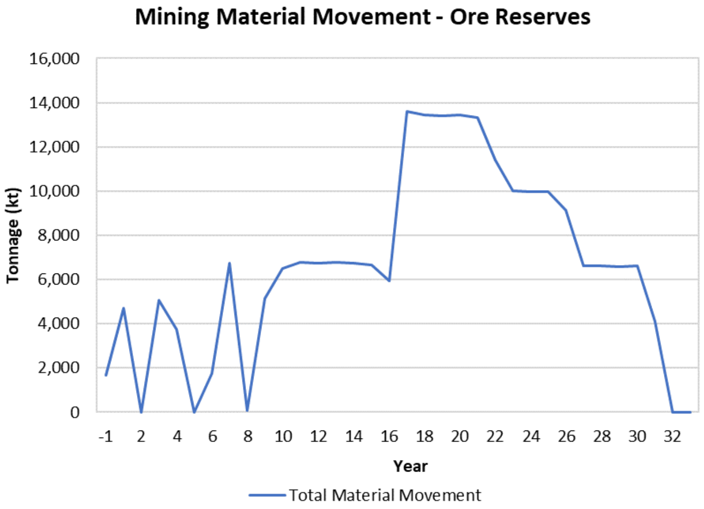
The comparison with the DFS shown above indicates the significance of the updated geometallurgical model based on the recent metallurgical test work giving an increase of 54% in ore for processing and a 271% increase in Inferred Mineral Resources within the pit at similar grades.

Production Scheduling

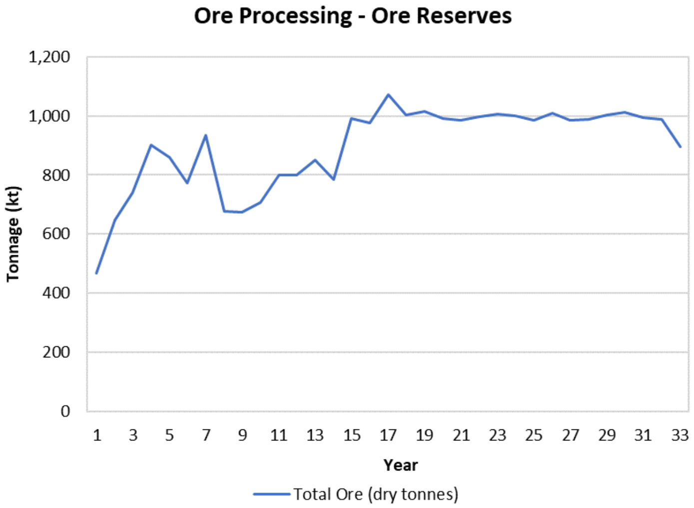
Ore Reserves

Scheduling of production for Measured and Indicated Mineral Resources in the pit inventory was carried out using the same methodology and constraints as those used in the DFS. The outcome of this scheduling is an ore-only production schedule of approximately 33 years with the results of the scheduling presented graphically below.

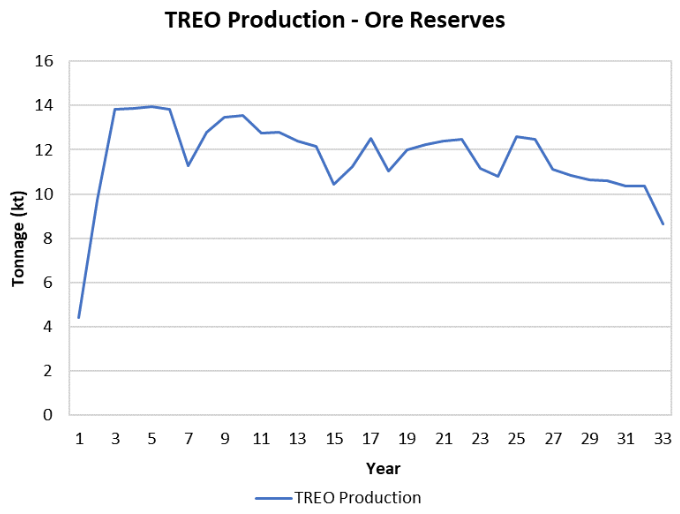
The mining material movement shows the three campaign mining periods during the first ten years of mining with continuous mining being carried out from year nine onwards. This approach results in a reduction in the mining costs over the first ten years of approximately $97 million compared to the DFS using the same cost basis for mining.



The ore processing shows that production is constrained by milling rate from approximately year 15 onwards as ore grades fall in later years of mining.



Production resulting from ore processing will meet the design capacity of the process plant through until approximately year six of production after which production declines and is constrained by both ore milling capacity and concentrate processing capacity.



The resultant NdPr oxide production from ore only, excluding ramp up and the partial final production year, averages 3,923 tonnes per annum over the 33-year production schedule, a reduction from the average production from the DFS over 23 years of 4,357 tonnes per annum.

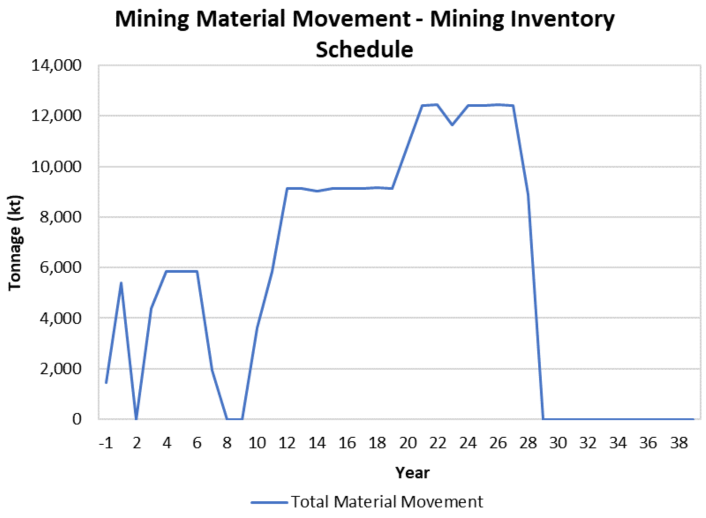
Mining Inventory

Based on this reduced production using the design constraints from the DFS it was determined to investigate the impact of minor changes to the ore and concentrate constraints when scheduling the mining inventory schedule, which includes Inferred Mineral Resources contained in the mining inventory. The changes to the production constraints adopted for the mining inventory schedule were:

- Increase in concentrate processing capacity of 10% from 300,000 tpa to 330,000 tpa which is likely to only require minor changes to the pre-leach, acid bake and rare earth sulphate circuits

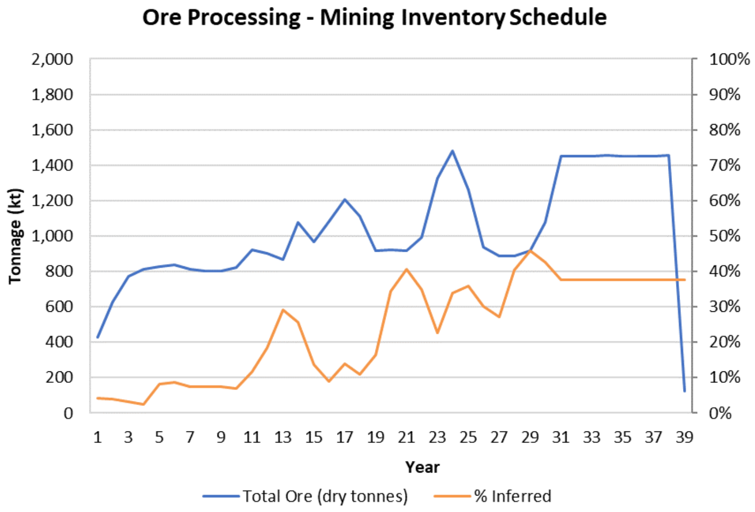
- Increase in ore milling and beneficiation capacity to 1.2 Mtpa, from 1.0 Mtpa, from year 14 of production with a further increase to 1.5 Mtpa from year 23 with these increases likely to be able to be accommodated through inclusion of pebble and or secondary crushing and the addition of flotation and tailings thickening capacity.

Using these updated scheduling constraints, and the application of additional stockpiling to defer processing of lower grade material it is anticipated that mining would be completed by year 29 of production. The mining schedule, as shown below, still incorporates campaign mining in the early years, however it is reduced to two campaigns rather than three. The acceleration of mining in the earlier years to facilitate stockpiling for production results in a slight increase during early years in mining costs over the schedule presented above, however still represents a saving over the first ten years of production of approximately $65 million compared with the DFS.

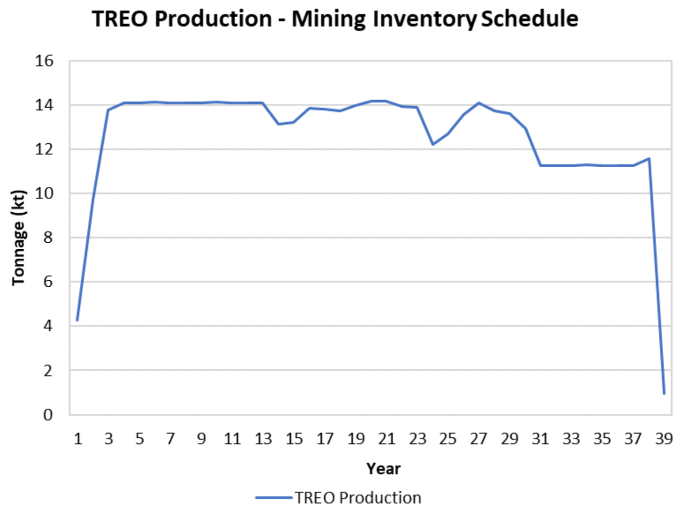


Ore processing for the mining inventory schedule presented below shows the increase to approximately 1.2 Mtpa from year 13 followed by the increase to 1.5 Mtpa from year 23 onwards. This increase in ore processing rate allows the beneficiation plant to maintain production of 330,000 tpa in later years of the production schedule.

The graph below also presents the proportion of Inferred Mineral Resources included in the pit inventory. This shows that the average percentage of inferred material is only 6% for the first ten years, rising to 18% for years 10 to 20.



The resultant production from the mining inventory schedule based on the mining inventory, presented below, has the total production staying close to design production for approximately the first 23 years production during the 39-year production schedule. The resultant NdPr oxide production from pit inventory, excluding ramp up and the partial final production year, averages 4,325 tonnes per annum over the 39-year production schedule, approximately matching the production forecast from the DFS.



In addition to the production, the overall operating costs for the mining inventory schedule were estimated, using all the assumptions adopted in the DFS, to be US$23.71 per kg of NdPr oxide net of phosphoric acid by-product credits.

Ore Reserves

The Project's financial model was prepared by Arafura during the preparation of the DFS and was updated using inputs from the updated mining schedule cost model while leaving all other cost inputs the same as those documented in the DFS. Mining Plus reviewed the cash flow model with Arafura to confirm that the Project has a positive cash flow outcome.

The updated Ore Reserves estimate is shown in the table below.

Nolans Project Ore Reserves

Classification	Mt	TREO (%)	P_2O_5 (%)	NdPr Enrichment (%)
Proved	5.0	3.0	13	26.2
Probable	24.6	2.8	13	26.5
Total	**29.5**	**2.9**	**13**	**26.4**

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

The Ore Reserves include mining factors of 5% for ore-loss and 15% for dilution which leads to the marginal increase in Proved Reserves from Measured Resources.

Mining Plus utilised the mining costs derived from contractor submissions provided during the DFS and processing costs and other information from other consultants as documented in the DFS. Whittle software was used to derive a number of economic pit shells for each deposit. The shell that produces the maximum DCF was selected as the basis for open pit work.

Pit designs were undertaken using Surpac software, allowances were made for the recommended pit wall angles, and pit ramps suitable for the selected mining equipment were incorporated. As the final pit designs were derived, Inferred Resources were included within the mining inventory. This material is excluded from the Ore Reserves and from mill feed in the ore processing schedule for reporting purposes.

The Project, and the pit designs developed by Mining Plus, do not rely on the inclusion of Inferred Mineral Resources as mill feed in order to be feasible.

UPDATED FINANCIAL HIGHLIGHTS

Capital Cost Estimate

The capital costs for the Project were developed as part of the DFS consistent with the requirements of an AACE Class 3 estimate and is consistent with similar projects carried out in Australia. A review of the validity of this capital cost estimate has been completed and Arafura confirms that it is not aware of any new information or data that materially affects the estimate.

A quantitative risk assessment and detailed Monte Carlo simulation was also completed with the mean contingency at 80% confidence calculated to be 12.6% and the accuracy assessed at -13.2% to +16.1%.

The capital cost estimate is expressed in Australian dollars although native currencies have been carried through to the financial model.

The table below summarises the capital cost estimate for the Project by area.

Overall Capital Cost Summary by Area	
Description	**$ million**
Mining Infrastructure	20.9
Pre-Production Mining	19.1
Beneficiation Plant	42.3
Extraction Plant	284.4
Separation Plant	48.1
Reagents & Services	147.9
Non-Process Infrastructure	173.2
Total Direct Cost	**736.0**
Temporary Construction Facilities	15.0
Travel & Accommodation	11.3
Detailed Engineering & PCM	64.9
Spares & First Fills	23.3
Mobile Fleet	5.6
Owner’s Costs	36.7
Import duties	2.8
Total Indirect Cost	**159.6**
Contingency	110.4
Escalation	Excl.
Total	**1,006.1**

Note: Numbers may not compute due to rounding

Deferred capital has been estimated as follows:

- $43.7 million for Modules 2 and 3 of the sulphuric acid plant, which will commence in year one of operations and be completed at the end of year two of operations.
- $54.2 million for the chlor-alkali plant, which is anticipated to commence in year six and become operational at the beginning of year eight of operations.

Additional capital costs for the increase in concentrate capacity associated with the mining inventory production schedule was developed by applying industry standard scaling techniques to the areas of the process plant that are impacted by the increased concentrate processing (phosphate extraction, rare earth extraction, acid plant, and desalinated and demineralised water system). The overall impact of these changes was an increase in the pre-production capital cost of approximately $15 million and an increase in the deferred capital cost for Modules 2 and 3 of the sulphuric acid plant of $2.5 million.

For the mining inventory production schedule an allowance of $20 million was made in years 12 and 13 of production for the expansion of the beneficiation plant to accommodate the increase in ore throughput. This allowance is compared to an initial direct cost of $42.3 million for the beneficiation plant.

Operating Cost Estimate

The operating cost estimate developed as part of the DFS was prepared in line with a Class 3 estimate with a target accuracy of ±15%. A review of the validity of this operating cost estimate has been completed and Arafura confirms that it is not aware of any new information or data that materially affects the estimate.

Operating costs have been estimated from first principles based on the Project design, metallurgical test work, supplier quotations, bulk reagent market research, operating experience and typical allowances.

Operating costs were estimated by cost type (labour, reagents, transport, consumables, energy, general and administration etc.) and then broken down into fixed and variable costs with the variable costs broken down by the following categories which were calculated as part of the production schedule:

- Tonnes of ore throughput
- Tonnes of concentrate produced
- Tonnes of sulphuric acid required
- Tonnes of P_2O_5 in phosphoric acid product
- Kilograms of TREO in rare earth products.

A summary of the nominal operating cost estimate by plant area (in Australian dollars), excluding mining costs which are determined as outlined above, is presented below.

Nominal* Operating Cost Estimate Summary by Area excluding Mining

Area	**Without Chlor-Alkali**		**With Chlor-Alkali**	
	$m/a	**$/kg TREO**	**$m/a**	**$/kg TREO**
Beneficiation	13.9	1.04	13.9	1.04
Extraction	124.5	9.32	107.2	8.03
Separation	25.7	1.93	20.1	1.50
General & Administration	21.0	1.57	21.1	1.58
Product Transport	26.7	2.00	26.7	2.00
Sub Total	**211.8**	**15.86**	**189.0**	**14.15**
Sustaining Capital	10.4	0.78	10.6	0.79
Total	**222.2**	**16.64**	**199.6**	**14.94**

* The operating cost model presented in the table is based on the nominal throughput, production rates and operating parameters determined from the SysCAD process model as opposed to the average production over the LOM.

Product Pricing Forecasts

Product pricing forecasts were developed for the DFS based on independent marketing reports prepared by Roskill Consulting Group (Roskill) for rare earths and CRU International (CRU) for phosphoric acid. A review of the validity of product price forecasts has been completed taking into account forecasts presented by commodity price reports published by reputable industry consultants and Arafura confirms that it is not aware of any new information or data that materially affects the forecasts from the DFS. The product price forecasts for NdPr oxide and P_2O_5 (contained in a 54% phosphoric acid product) used in the analysis is presented in the table below.

Base Case Price Forecast – NdPr Oxide US$/kg; P_2O_5 US$/t

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030+
NdPr Oxide	66.38	69.53	80.52	83.97	80.79	79.89	82.25	84.76	76.16	81.55	89.70
P_2O_5	623	630	637	641	648	659	673	683	683	683	683

Financial Outcomes

The financial evaluation of the Project has been undertaken using a Discounted Cash Flow (DCF) analysis in Australian dollars. The following has been used as the basis for the financial evaluation:

- Project design and construction period of 30 months followed by a 33-year operation period, based on processing Ore Reserves only or a 39-year operation period based on processing the mining inventory, which both include a maximum three-year ramp-up period to full production
- Capital costs as presented above together with inclusions for working capital, deferred capital for modular construction of the sulphuric acid plant, chlor-alkali plant and beneficiation plant expansion (if included), and a 2% escalation factor adjusted against proposed draw down
- Operating costs as presented above have been applied to the mining schedule, with an allowance for additional labour, reagents, consumables and consultants during the ramp-up period with an aim to reducing the ramp-up time
- Sustaining capital distributed across the operating period with a loading towards later years and including $20 million across years one and two of production to assist in debottlenecking and achieving production ramp-up
- US$/A$ exchange rate of 0.726 in 2020, reducing to 0.704 by 2023 and remaining constant thereafter
- Discount rate of 10% with post-tax NPV calculated at the Project commitment date
- A provision for royalties has been made to allow for payments required under the NT mineral royalties act and in accordance with payments anticipated to be made in accordance with the

advanced but incomplete negotiations with the Central Land Council (CLC) and traditional owners (Refer ASX Announcement 2 March 2020).

- Product pricing forecasts as outlined above based on independent marketing reports prepared by Roskill for rare earths and CRU for phosphoric acid.

The key outcomes from the financial evaluation of the Project, for both the updated Ore Reserves and mining inventory, are presented in the table below.

	DFS Ore Reserves	Updated Ore Reserves	Updated Mining Inventory
Annual NdPr Oxide Production* (tonnes)	4,357	3,923	4,325
Project Life (years)	23	33	39
Pre-production Capital Cost ($m)	1,006	1,003	1,026
Operating Cost (US$ per kg NdPr Oxide net of Phosphoric Acid credit)	$25.94	$27.02	$23.71
NPV ($m after tax with 10% discount rate)	729	782	968
IRR after tax (%)	17.43%	17.29%	17.97%

* Average production and costs are calculated as the arithmetic annual average following the anticipated three year ramp up period and excluding the partial final year of production.

The Company is in the process of reviewing the updated Ore Reserves schedule in order to optimise the financial outcomes.

JORC Code, 2012 Edition – Table 1 report

Section 1: Sampling Techniques and Data (for Mineral Resources)

Criteria	Commentary
Sampling techniques	Senior Geologists, including Competent Person (Kelvin Hussey), have ensured sampling is to industry standard across all exploration and resource definition campaigns at Nolans Bore. Quality of sampling and all relevant sampling details were continuously monitored and recorded by the responsible Geologist. Results of the sampling programs detailed below are included in the geological model and Mineral Resource estimate as outlined. Assay results of samples collected from surface mapping, shallow pits and the wide diameter core/auger holes were not included in the Mineral Resource estimate but were considered in the development of the geological model. Sampling has involved both Reverse Circulation (RC) and diamond core drilling methods. Most drill holes were systematically drilled towards the southeast (145 degrees true) at an initial inclination of -60 degrees. Drilling has been completed across most of the area at nominal 40m x 40m spacing on a local grid pattern with infill to 20m x 20m in the central parts of the North Zone (CNZ). Wider spaced exploration RC drilling occurs on the periphery of the main resource. 10 vertical RC holes have been drilled at Nolans Bore and are used to abstract or monitor groundwater. 25 inclined diamond core holes have been drilled nominally east or west (true) on 100 metre-spaced sections to resolve complexities in the geological model in the Central Zone. 19 inclined diamond core holes have been drilled in various other directions. The quantum of drilling and drill core at Nolans Bore is sufficiently high and widespread to ensure adequate sampling and a geological understanding of the deposit. RC drilling was undertaken in 2001, 2004, 2005, 2007-08, 2010, 2011 and 2013. All RC drilling campaigns have employed a 140mm diameter face sampling hammer with sufficient air pressure/volume to ensure adequate representative sample was collected. A total of 63,053 metres in 589 RC drill holes have been completed at Nolans Bore and its immediate surrounds. A total of 532 of these RC holes (60,021 metres) have been drilled in the main area considered in the current resource assessment. RC drill chips were collected at one-metre sample intervals. Assay samples were automatically split via a 12.5/87.5 riffle splitter at the drill rig. One 2011 RC drill rig was adequately setup to enable automated splitting of wet samples. An assessment of wet and dry splitting at this rig and a comparison with the other rigs at that time showed no material biases with acceptable sample sizes. The entire 2007-08 RC program and all other wet samples were manually split to size using Arafura’s 50/50 riffle splitter after the residues were air dried in the sun. The drill rig cyclone and splitter were thoroughly washed, and air dried after each rod in the clay-rich parts of the deposit, to limit cross-contamination of samples and smearing of grade. Automatically split assay sample sizes were typically considered acceptable. However, in some instances, the residue was manually re-split again to achieve an acceptable assay sample size. RC samples were sub-sampled using both rig-mounted and stand-alone riffle splitters into one-metre samples of 3-6 kg in size, averaging about 4 kg. Most samples were collected dry with a small proportion collected moist due to ground conditions or excessive dust suppression. As instructed, RC assay samples were composited on an equal weight basis at the laboratory, typically as 2 metre assay samples although both 1m and 3m RC assay samples occur. Field duplicates are targeted one-metre assay samples that have been specifically selected as representing geological boundaries or corresponding to an anticipated high, medium or low grade based on radiometric and geological logging. Diamond core drilling occurred in 2004, 2005, 2006-07, 2009 and 2011. A total of 27,060 metres have been drilled at Nolans Bore with 92 holes cored from surface and 136 RC holes extended by cored tails; all of which are HQ3, NQ2 or NQ3 in size. Four RC holes have two core tails making 140 cored tails in total. Most diamond core drilling has used a triple-tube configuration to gain the maximum possible recovery. Orientated diamond core drilling was initially attempted in 2006 but this was abandoned due to technical difficulties in the kaolin- and clay-altered zones in the CNZ. Systematic orientated diamond core drilling occurred in 2009 and 2011.

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Sampling techniques</td><td>
<p>Diamond core assay samples were collected by cutting the core in half using a diamond saw and sampled to lithological boundaries or core loss breaks. Assay samples are continuous intervals and do not include core loss intervals. Core loss is recorded as no recovery and a zero grade is assigned to the interval. Geotechnical and metallurgical drill core has been sampled at metre marks, but where possible has also been sampled to lithological boundaries. Holes cored for metallurgical purposes are typically twins of a previous RC or cored hole and were quartered for assay. The minimum sample size length was nominally set at 25 cm although smaller sample intervals were collected, mostly due to core loss. Most of drill core assay sample lengths range from 0.25-2.5m. All drill core samples were assayed as individual samples. Duplicates were prepared from a split of the coarse crush.</p>
<p>Costeaning was done in 2000 and 2007. Nine 1-2.5-metre-deep costeans totalling 1,222 metres have been excavated across the mineralisation. Costeans have been mapped and then representatively channel-sampled by hand using a pick to dig a channel at a constant depth below the ground surface along one side of the costean. Channel sample sizes are considered representative of the material, and in 2007 weighed 4-6kg per metre.</p>
<p>A summary of the drilling and costeaning data used for geological logging and sampling is presented below.</p>
<table>
<tr><th>Year</th><th colspan="2">Costean</th><th colspan="2">RC</th><th colspan="3">Core</th></tr>
<tr><td></td><td>number</td><td>metres</td><td>number</td><td>metres</td><td>number from surface</td><td>number of tails</td><td>cored metres</td></tr>
<tr><td>2000</td><td>6</td><td>890</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2001</td><td></td><td></td><td>12</td><td>856</td><td></td><td></td><td></td></tr>
<tr><td>2004</td><td></td><td></td><td>20</td><td>1,525</td><td>5</td><td></td><td>518</td></tr>
<tr><td>2005</td><td></td><td></td><td>58</td><td>7,532</td><td>1</td><td>11</td><td>1,042</td></tr>
<tr><td>2006</td><td></td><td></td><td>41</td><td>3,462</td><td>17</td><td></td><td>1,322</td></tr>
<tr><td>2007</td><td>3</td><td>222</td><td>103</td><td>10,018</td><td>6</td><td>3</td><td>704</td></tr>
<tr><td>2008</td><td></td><td></td><td>85</td><td>7,815</td><td></td><td></td><td></td></tr>
<tr><td>2009</td><td></td><td></td><td></td><td></td><td>7</td><td></td><td>793</td></tr>
<tr><td>2010</td><td></td><td></td><td>9</td><td>992</td><td></td><td></td><td></td></tr>
<tr><td>2011</td><td></td><td></td><td>208</td><td>27,761</td><td>56</td><td>126</td><td>22,681</td></tr>
<tr><td>2013</td><td></td><td></td><td>1</td><td>60</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>9</td><td>1,112</td><td>536</td><td>60,021</td><td>92</td><td>140</td><td>27,060</td></tr>
</table>
<p>Samples were selected for assay by the Competent Person or Senior Geologist following Arafura’s standard sampling procedures and protocols. Not all drilling and costeaning was sampled or assayed. Assayed intervals typically include samples with logged mineralisation, alteration, or samples with above background levels of radioactivity. In addition, the adjacent material was sampled for up to at least two metres away from possible alteration/mineralisation. Additional follow up sampling was undertaken where and when appropriate.</p>
</td></tr>
</table>

Criteria	Commentary
Drilling techniques	Reverse Circulation (RC) drilling employed a 140mm diameter face sampling hammer with drill hole depths ranging from 18-210 metres. The drill rig's air capacity was typically boosted via an auxiliary compressor to ensure adequate sample recovery and the driest possible sample. Water injection was used to minimize dust emissions at the rig. Diamond core drilling mostly employed HQ3 and NQ3 to ensure maximum recovery via triple-tube configurations with a maximum drilling depth of 492 metres. Drill holes cored from surface are HQ3 in size while cored tails were typically NQ3 in size. A total of 11 twinned holes have been completed to investigate differences between the two drilling techniques with proximal comparisons of RC vs core, and core vs core. Despite some short-range variability, twinned RC vs core and core vs core generally yield similar assay results for the mineralised intervals with no material differences observed between the two drilling techniques in most areas. Comparisons indicate some loss of grade in the fines for RC. A direct comparison of twinned core vs core demonstrates that poor recoveries in highly variable ground conditions can be problematic and to a large extent depend on driller's competence and supervision by Arafura. Hence despite lower RC sample recovery in clay-altered zones and a reduction in grade in medium-high grade zones, the core vs core twins showed that coinciding core loss in twinned intervals of mineralisation is likely to be a more significant issue than lower RC sample recovery. The recovered drill data is considered adequate given the quantum of surrounding data, however grades are likely to be under-estimated in some parts. Drill collars were sited and pegged by hand-held GPS in 2001-2004 with subsequent drill collar locations surveyed and pegged by professional surveyor prior to drilling. All completed drill collars have been accurately re-surveyed using a professional surveyor. Hole orientations were surveyed by the driller typically at 30 metre intervals using Eastman or single shot digital cameras. Where possible all holes were open hole surveyed by Borehole Wireline Pty Ltd (Borehole Wireline) and survey data recorded at 5 cm intervals as Log ASCII Standard (LAS) data
Drill sample recovery	To ensure representivity and maximum sample recovery, the responsible Geologist was present during all drilling operations to monitor the drilling and sampling process. RC sample recovery and moisture content were routinely recorded by the responsible Geologist and is entered into the database. RC sample recovery is based on a subjective assessment of the volume recovered and has been recorded as high (H), medium (M) or low (L), and since 2007 has also been determined via the weight of the bulk sample returned, averaging about 75-80% nominal mass recovery. RC recoveries are generally considered acceptable although lower volumes are recovered at depths greater than about 100-150 metres in areas of large groundwater volumes. Lower recoveries are also typically observed in the kaolin- and or clay-altered zones. Assessments indicate that RC sample recovery is typically adequate for the first 150m although the deepest RC hole (210m) returned adequate sample volume throughout. RC holes deeper than 150 metres make up only a small fraction and most RC holes are terminated in favour of cored tails and better recoveries. RC holes were typically terminated when recovery was too low. Drill core recovery is typically 95-100% although moderate to significant core loss is recorded in scattered intervals in some holes. The host rocks and the more massive mineralised zones tend to show good recoveries in most cases. Higher core losses typically correspond to clay-rich zones with rare intervals showing 10-20% recovery per run, although most runs achieve 50-100% core recovery in poor ground. Some low recovery intervals are coincident with strongly mineralised zones. Core loss intervals are recorded as no recovery (NREC) and have a zero grade in the database. Based on an analysis of twinned core holes, grade may be significantly understated due to the assignment of zero grade to core loss intervals. The largest amount of diamond core drilling occurred in 2011 (84% of total drill core metres) and achieved a total recovery of 98.7%. However, 14 cored holes from 2011 only achieved 80-95% recovery. The results achieved in 2011 are very similar to previous core drilling campaigns although the 2006-07

Criteria	Commentary
	core drilling campaign provided the best recovery and record of strongly mineralised intervals in poor ground conditions. Arafura's constant supervision of cored holes informed the drillers of expected ground conditions and aided higher recoveries in the clay rich zones.
Logging	Qualitative geological logging has occurred for all holes in their entirety using pre-designed in-house paper log sheets. Completed log sheets have been scanned and are stored electronically. Data has been manually entered into Arafura's GeoBank database. Experienced senior geologists have provided guidance and overseen all logging and sampling based on the recorded logging details and measured radioactivity. Arafura has reviewed all geological logging information and developed synthesised geological summaries for each drill hole. Arafura's revision process has modified some of the originally logged boundaries and rock types. Geological summaries have been entered into the database using formatted spreadsheets with validation rules to minimise data entry errors. Geological summaries have been internally reviewed for consistency and audited and used together with assay and geophysical logging data to construct the geological model for Nolans Bore. RC holes were logged at one-metre intervals at the rig by the Geologist. RC chips were collected from the polyweave bag, sieved and washed clean for geological logging purposes. Each individual one-metre drill interval was logged by the responsible Geologist, recording sample ID, sample recovery information, grainsize, texture, colour, mineralogy and rock type. The background radioactivity and the radioactivity of each one-metre polyweave bagged sample was measured with a Geiger meter and the dosage recorded. Representative RC chips for each metre interval were placed into pre-numbered chip trays by the responsible Geologist. Chip trays were routinely reviewed and re-logged where necessary as part of the geological synthesis and the material type reclassification. These are retained and stored in Darwin for reference. Diamond core was logged by the responsible Geologist in the coreyard at Aileron or Nolans Bore. All diamond core was carefully reconstructed, cleaned and marked up prior to logging. For orientated core, bottom of hole (BOH) marks were extended where reliable and consistent in accordance with industry standards to allow pertinent structural information to be accurately recorded. RQD logs were completed by either the responsible Geologist or a trained field assistant. All diamond core was geologically logged in detail at intervals consistent with recovered geological boundaries. After all logging, assay sample ID and cut-marks were clearly marked on the core by the responsible Geologist. All diamond core was photographed both wet and dry showing metre marks and assay sample intervals prior to the sampling process. Downhole geophysical logging data (azimuth, inclination, total magnetic field, natural gamma, gamma density, caliper and resistivity) was collected for all drill holes where possible using open-hole wireline survey methods and a number of different geophysical tools. Downhole geophysical probes were routinely run through the Nolans Bore calibration test hole at the start of each logging campaign to confirm the tools were operating correctly and performing within accepted margins of error. A comprehensive comparison of all azimuths for 2007/08 holes tailed in 2011 shows a consistent error for some of the downhole probes used in 2007. Accordingly, the reported azimuth data has been thoroughly reviewed and adjusted by 4 or 8 degrees as appropriate. These corrections were overlooked in the previous model because all pre-2011 LAS data was not loaded into the database and deviations of 5 degrees inclination and 10 degrees in azimuth were considered acceptable between 30 or 40m surveys. In 2012, the mineralised intervals were extracted from the geological model, reviewed and reclassified into six different material types representing two broad mineralisation styles. These were then entered into the database and estimated into the 2012 model. These initial materials types provide a broad assessment of the mineralisation in 5m intervals but have since been superseded. The oxidation state, lithology and form of all RC chips and drill core were reviewed and re-assessed using 2m intervals in 2015 as part of waste rock characterisation studies for the EIS. This data is loaded into the database and used to develop the oxidation surfaces used in the 2015 and 2017 models. Mineralised material types were initially identified and assigned to one of six different types in 2012 based on 5m intervals (Material types 1 through 6 now referred to as MAT2012). Internal country rock was logged as type zero in MAT2012 although the amount was limited as only the mineralised bodies

Criteria	Commentary
Logging	were considered in MAT2012. A more comprehensive and detailed assessment of material types was completed in 2016. In 2016, a specific material type was identified for each assay interval within the main part of the deposit. This means all newly assigned material types are now aligned to REE-P grades and detailed whole rock assays, where available. Furthermore, MAT2016 significantly expanded upon the MAT2012 classification scheme and was designed to suit Arafura's current flowsheet, and a phosphate concentrate with high recoveries of REE and P. The MAT2016 classification scheme focussed on the REE mineralogy and included types 0A,0B1,0B2,0B3, 0C, 1,2,3A,3B,3C, 4A, 4B, 5A1,5A2,5B1,5B2, 6A,6B and 6C. MAT2016 types 5B1 and 6A are possible but were not observed during the re-logging of core and RC chips. Clearly the original MAT2012 type have been subdivided and refined. It should be note that types 1 and 2 occur in both classification schemes but there are subtle differences with less oxidised material assigned to MAT2016 type 1 in MAT2016 compared to MAT2012 type 1. The different material type schemes reside in different database tables to avoid confusion. For 2017 geological modelling purposes, MAT2016 types have been grouped into four categories (PAPLP, NP1, NP2 and WASTE) and composited in to 5m intervals for modelling purposes. This level of logging detail and its assessment supports appropriate Mineral Resource estimation, mining studies and metallurgical studies.
Sub-sampling techniques and sample preparation	RC chip samples averaging ~4kg were automatically collected via riffle splitter into a pre-numbered calico bag for each one-metre interval drilled. A consistent sample size of 3-6 kg has been achieved across all RC drilling campaigns. Following an assessment by the Competent Person, all 2007/08 RC samples were manually riffle split to avoid potential sampling biases at the rig. With the exception of one RC rig in 2011, all wet samples have been manually riffle split after air drying. Where possible small (<2kg) automatically split RC samples were manually riffle split to achieve the desired ~4kg sample size. Assay samples were collected within 1-3 days, placed in polyweave bags in lots of 4-5 samples and kept dry after collection. Where possible a composited two metre interval was used for RC assay samples. One- and three-metre assay intervals have also been used. Not all RC drilling was assayed. RC assay sample selection was done by the Competent Person or a Senior Geologist and involved an assessment of logged geology and radiometric data. As a general rule, composited samples were broadly similar in lithology, radioactivity and sample recovery. Assay samples typically extended at least two metres past identified mineralisation and where possible follow up sampling occurred to close off mineralisation. Field duplicate RC samples were routinely collected in all programs about every 20 RC samples to monitor the precision of the field sampling process. Field duplicate samples were selected by the Competent Person or a Senior Geologist to span the range of expected grades, including waste, and to confirm lithological variations and or contacts. Field duplicate samples always corresponded to individual one-metre RC assay samples. Follow up check samples were also collected to confirm unexpected or unusual assay results. Checks and field duplicates were assigned to the same number series but different to the routine samples. Diamond core was cut in half with a diamond saw and sampled to major lithological boundaries and core loss breaks. Assayed core sample intervals range from 0.08-4.03 metres but intervals less than 0.2 metres and greater than 3.0 metres are not common. In 2011, the most significant diamond core drilling campaign, 99.4% of core samples ranged from 0.2-2.5 metres in length averaging 1.32 metres. The 2006/07 core assay interval averaged 1.41 metres while the 2005 campaigned averaged 1.77 metres largely because the minimum length limit was set at 0.5 metres in 2005. Metallurgical and geotechnical holes have been sampled to a combination of metre-marks and lithological boundaries. Metallurgical holes were typically sampled as quarter core for assay. Duplicate core samples were collected at the preparation lab in Pine Creek in 2007 and at Nolans Bore in 2011 by taking a 50/50 split of the coarse crush prior to milling. Core duplicate samples were pre-determined by the Competent Person or a Senior Geologist and assigned to a different number series. Sample preparation was completed at North Australian Laboratories (NAL) in Pine Creek up to 2008, at Northern Territory Environmental Laboratories (NTEL) in Darwin in 2009-10 and at Arafura's onsite preparation laboratory in 2011. Arafura's onsite preparation laboratory was supervised by the Competent Person or an experienced Senior Geologist and operated by experienced technical staff supplied by Intertek Pty Ltd. Assay sample

Criteria	Commentary
Sub-sampling techniques and sample preparation	preparation typically comprised of oven drying, coarse crush of entire assay sample to -2.0 mm nominal size, pulvervising a 1-1.5kg split to plus 80% passing 100 microns, and then compositing as per instruction lists. Pulp sizing has not occurred, but NTEL and Genalysis have advised that samples have easily met this specification given material types and milling times. Compositing instructions were provided for all RC samples and this was done in clean rooms at NAL in Pine Creek and on site at Nolans Bore. A 200-500g master pulp was collected and retained for each milled sample. All diamond core and a portion of the RC samples were analysed as individual samples. The two- and three-metre composited RC assay samples were prepared by combining equal weights from the master pulp of each consecutive one-metre RC sample and thoroughly mixing to form a homogenised composited master pulp. The composited master pulp was sub-split into a 50g assay pulp and a stored master sample pulp. All master and assay pulps have been recovered and are safely stored in Arafura's warehouse in Darwin. Some of the pre-2007 assay masters were destroyed by termites while in storage at NAL in Pine Creek. The confirmatory inter-laboratory assay samples were prepared at NTEL. These were either the original or a sub-split of the original assay sample submitted to them and dispatched to the referee laboratory by NTEL. Internal standards are sourced from typical Nolans Bore type mineralisation and host rocks using representative assay samples or its master pulp sample after confirmatory inter-laboratory analysis. In 2011, blind standards were inserted by the Competent Person or Senior Geologist at about 1 in 40 basis before dispatch to the assay lab. Blind standards were identical in appearance to the submitted assay pulps and used the same SampleID number series as the field duplicates. The 2016 XRF assay samples were collected by Arafura staff from stored pulps and mostly sourced the original routine assay pulp used in previous laboratory job sequence. Numerous samples have been assayed more than once so care was taken to ensure the actual laboratory job was recorded on the collection sheets to ensure potential errors could be tracked back to their source. No new sample handling errors were identified however a small number of pre-existing issued were identified or resolved. The primary assay sample size is considered appropriate to correctly represent this style of rare earth element (REE) mineralisation and associated alteration, the thickness and consistency of the intersections, sampling methodology, and the assay ranges for the primary elements of interest.
Quality of assay data and laboratory tests	Almost all primary routine laboratory analyses have been assayed at NTEL (now Intertek NTEL), or its predecessor Chemnorth, by ICPMS/OES using Arafura's standard Nolans Bore assay scheme and standard suite of elements. Assay samples were digested using NTEL's G321 scheme which uses $HCl/HNO_3/HClO_4$ and is considered an "ore-grade" digest suitable for Nolans Bore-type mineralisation. Values for Al, Ba, Ca, Ce, Dy, Er, Eu, Fe, Gd, Ho, La, Lu, Nd, P, Pr, Sm, Sr, Tb, Th, Tm, U, Y and Yb were determined by ICPMS/OES. Eu values were not reported for one NTEL assay job (EL03639). NTEL has used the same ore-grade digest method and ICPMS/OES assay scheme for all Nolans Bore material. Hence all results are comparable. Minor amendments were made to NTEL's digest protocols in 2005. NTEL advised this revision solved some digest solution issues and improved the repeatability of REE results. Some of the early routine and confirmatory analyses were assayed at AMDEL Adelaide using IC3EX and IC3MX which is analogous to NTEL's digest and assay methods. NTEL's values were routinely monitored via the systematic use of Arafura's internal and certified standards, and duplicates. Early confirmatory analyses at AMDEL Adelaide also involved the use of four-acid digest methods (IC4 and IC4R) to confirm their three-acid digest values. Most of the systematic confirmatory inter-laboratory assays (93.8%) have been done at Genalysis Laboratories (Perth) using fusion and ICPMS/OES determinations. These data strongly support NTEL's assay values and attest to the quoted accuracy and precision of NTEL's data as reported for elements of interest. NTEL's REE, P, U and Th values are typically within error for mineralised samples in inter-laboratory checks; however, their values for Al, Ba, Ca, Fe and Sr often differ to varying degrees and should be considered informative only. NTEL's G321 digest values and AMDEL's IC3 digest values for Al, Ba, Ca, Fe and Sr have been excluded and are not used in the 2017 resource assessment and material type analysis.

Criteria	Commentary
Quality of assay data and laboratory tests	In 2016, Arafura completed a representative fusion XRF re-assay program to aid material type re-classification. The higher-quality XRF whole rock results supersede NTEL's data. The program involved 3,500 re-assays of stored pulps using Intertek Genalysis' method FB1/XRF74-901 for SiO_2, TiO_2, Al_2O_3, Fe_2O_3, MgO, MnO, CaO, Na_2O, K_2O, P_2O_5, SO_3, BaO, SrO, La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Y_2O_3, U_3O_8, ThO_2 and Total. All XRF pulps were also analysed by TGA (1000ºC) for LOI and a selection of pulps were assayed for F by FC7/SIE. The results were monitored for accuracy and precision at the laboratory using agreed upon CRM. Arafura's CRM and internal samples were also utilised, but these were all inserted as blind samples. Arafura's blind CRM and duplicates of routine samples were systematically inserted on a 1 in 40 basis. The original routine pulps and/or master pulps of Arafura's internal standards were also inserted randomly throughout most jobs. These check results re-confirm the values of the internal standards. In general, the results for all standards and duplicates are very well constrained. The XRF dataset is considered a very robust and accurate dataset. The XRF results are more precise than the original routine values based on detailed analysis of all CRM, internal standards, duplicates and blind samples. The XRF results of each individual sample assayed in 2017 were directly compared with the original routine results for La, Ce, Nd, P, U and Th as part of QAQC. Most of the NTEL's and AMDEL's original routine values agree to within stated laboratory errors. This confirms the overall quality of the original assay dataset however there are a small number of samples with obvious differences. Genalysis' XRF results indicate the rare earth values for some mineralised samples are under reported in some cases. This difference is attributed to the sample's mineralogy and differing digest methods (ie. partial digest versus total) and has been observed in small fraction of all samples submitted as inter-laboratory checks using total digest methods. Comparisons show that most routine mineralised samples are well correlated, and the results agree to within acceptable tolerance limits based on stated laboratory errors for the different digest methods. The number of under reported samples is small and the impact of this difference is considered essentially immaterial. Direct comparisons of Al, Ca, Fe and Sr results also clearly demonstrate that NTEL's and AMDEL three-acid digest results are indicative only. Whilst some values are acceptable, others are clearly different to the whole rock value. Hence, they are not included in detailed resource assessments or modelling. A handful of the re-assayed XRF samples yielded very different REE-P results to those previously reported by the primary laboratory. Based on Arafura's detailed material type analysis of each assay sample interval and repeat re-assaying by XRF to confirm the validity of the new result, these samples have been resolved as previously unidentified sample mix-ups. The results of these sample mix ups are consistent with assay pulp being derived from the adjacent sample interval. These mix ups are deemed rare events and may have occurred either during sample preparation or at the primary laboratory during assay preparation. The impact of these mix ups is negligible given they are a very small fraction of the total population. The 2016 XRF data also identified that three NTEL assay jobs from 2004 are in general less well controlled than previously understood, with the lower precision resulting in greater laboratory errors than advised. The data from these older jobs is still considered acceptable. While the proportion of these lower quality assay results is small in the overall scheme, the use of the 2016 XRF results has largely removed most of the lower quality NTEL assay data of mineralised samples in these jobs. Furthermore, the general quantum of higher quality data surrounding this lower quality assay data also limits the impact of the remainder. Arafura adopts QA/QC protocols using blind standards, laboratory and field blanks and duplicates, Certified Reference Material and internal reference standards all supported by systematic 1:20 inter-laboratory check assays. Assay jobs are rejected, and the laboratory instructed to repeat the entire job if the reported assay values for the standards fail to be within acceptable tolerance limits. Up until 2008, the assessment of assay results was done by Mr John Goulevitch of Exploremin Pty Ltd. His assessment is considered appropriate as the individual REE, P and U levels of the internal standards and P/REE of all samples were closely monitored. In addition to a thorough assessment of the standards and laboratory duplicate assay results, all laboratory results since 2009 have been carefully evaluated by the Competent Person (Kelvin Hussey) by assessing key elemental ratios prior to loading into the database. All suspect results have been confirmed or rejected by repeat assay as appropriate. A total of 1,942 field duplicate samples have been routinely collected at a rate of about 1 in 20 of the assayed samples. Field duplicates were selected by the Competent Person or a Senior Geologist as individual samples that cover the variations in measured radioactivity and logged

Criteria	Commentary
Quality of assay data and laboratory tests	mineralisation intensity and also include non-mineralised country rocks and lithological contacts to confirm the accuracy of the sampling protocols. RC field duplicate assay samples have been manually riffle split and assigned to a different number series. Assay mismatches are typically investigated by repeat sampling and assaying of the original RC sample and the two adjacent samples. Core duplicates were sampled as 50/50 splits of the coarse crush. Despite a small number of mismatches, the outcomes of the field duplicate assay samples are within acceptable tolerance limits with similar results achieved across all programs. The duplicate samples confirm the integrity of the assay sampling protocols and indicate that confidence in sampling protocols and the assay database is sufficiently high to be reliable. Since 2009, there have been slight modifications to Arafura's protocols for assay QA/QC. These changes bring Arafura's data collection and QA/QC in-line with industry standards and include the systematic inclusion of Certified Reference Material. Despite the absence of Certified Reference Material in routine assay jobs at the primary laboratory prior to 2009, Arafura's systematic use of internal standards is sound practice and the routine assaying of 1:20 inter-laboratory check assays against Certified Reference Material at an independent referee laboratory confirms the primary laboratory results are acceptable. The precision and accuracy of the results from the primary laboratory has been monitored by 3,216 determinations on 64 internal standards from 2000 to 2012. In addition to these internal standards, Arafura's CRM ARA09-01 has been monitored as part of routine assay programs since 2009. These standards show the data from the primary laboratory are well constrained and under control for the elements of interest. Laboratory and field blanks demonstrate there are no significant contamination issues and laboratory duplicates show that laboratory practices and protocols are repeatable to a high degree of precision. Up to 2012, a total of 1,881 determinations have been done on 1,702 samples at other laboratories as part of confirmatory referee analyses. 1,770 of these determinations or 93.8% of this population have been done at Genalysis Laboratories (Perth) since 2007. Genalysis also systematically assayed Arafura's CRM ARA09-01 a total 34 times during this period and was involved in the certification of ARA09-01. Despite a small proportion of sample mismatches, the inter-laboratory assay dataset indicates the check assays are typically within the stated ±10% accuracy and precision quoted by primary laboratory. The inter-laboratory assay results strongly support and confirm NTEL's assay data and attest to its accuracy and precision for mineralised samples. The inter-laboratory check assays also support the rare and unusual elemental ratios reported by NTEL and indicate that these are real geochemical features. As such, the systematic inter-laboratory check assays confirm and strongly support the use of NTEL's reported assay results. NTEL's G321/ICPMS results are sometimes slightly understated for very low levels of REE, Y, P, U and Th as observed in the country rocks. This difference is most likely due to the laboratory digest methods and trace amounts of G321 digest resistant minerals in the country rocks which are digested using fusion or four-acid digests. Despite both Genalysis and NTEL being owned by the same parent company (Intertek), the individual laboratories, digest methods and laboratory protocols are sufficiently different to offer an objective and independent opinion of the assay results. Clearly, Genalysis' fusion/ICPMS method should be regarded as the benchmark and utilised in the resource estimate. However, these results are essentially identical to NTEL's results for mineralised samples and until recently total digest results were only a small fraction (about 1 in 20) of the total assay population. The 2016 XRF results were supported by the systematic use of publicly available CRM, specifically chosen to monitor Nolans Bore-type mineralisation and country rocks (OREAS460-OREAS465 inclusive, AMIS185, SARM1 and SARM32). These standards cover a wide spectrum of REE grades and utilise a high-grade phosphate standard. A granite standard was also included as a control to monitor other elements of interests in the country rock and low-grade mineralisation. Each CRM was typically assayed once per job. These standard results were monitored, with all elements of interest within recommended tolerance limits. To monitor the robustness of the 2016 XRF data and to assess laboratory variations, Arafura's CRM ARA0-01 was also systematically assayed as blind sample about 5 times per job along with randomly selected pre-made blind duplicates encompassing the spectrum of known REE grades expected throughout each job for the entire program. ARA09-01 was assayed a total of 96 times in 2016 by XRF with the results yielding very low COV values for the major elements of interest (i.e. La_2O_3, CeO_2, Nd_2O_3 and P_2O_5 are all less than or equal to 0.01). In comparison,

Criteria	Commentary
Quality of assay data and laboratory tests	NTEL's COV for these elements/oxides in ARA09-01 are 0.02-0.04 while Genalysis' fusion ICPMS results are 0.03-0.06. Hence the standard results and the QAQC program attests to the overall robustness, and the accuracy and precision of reported 2016 XRF data. The data of potential economic interest used in previous Mineral Resource estimates is again accepted. However, it is again noted that the AMDEL assays are less precise and of slightly lower quality than the NTEL data. The AMDEL data is generally considered conservative for REE and the results of a single twinned interval of mineralisation comparing AMDEL and NTEL data is comparable to other twinned intervals at Nolans Bore. The 2016 XRF results show that both the NTEL and AMDEL data is acceptable but in the re-assayed cases, these older data are superseded by the higher quality XRF dataset. Overall, the quantum of fusion digest results is now substantial and hence Genalysis' XRF and ICPMS/OES whole rock data have been fully utilised in the current resource estimate where appropriate. The entire assay dataset has been thoroughly reviewed and priority is now given to better quality data. The Chain of Custody has been routinely monitored for all assay samples by Sample Tracker since 2009. All dispatch samples have been received and all accepted results are loaded and randomly audited to ensure the veracity of the database. As an added QA/QC process all previous data was randomly audited and reviewed in 2011. Down hole geophysical probes have been calibrated by Borehole Wireline and were routinely run through Arafura's calibration test hole at Nolans Bore at the start of the logging campaign to ensure and monitor the quality of the logging data.
Verification of sampling and assaying	Geologists have logged all recovered RC chip and diamond core samples and completed a review of all geological and sampling data. Diamond core has been photographed with metre-marks and sample intervals clearly labelled. Significant intersections have been independently reviewed and verified by alternative company personnel and the Competent Person. The Competent Person has inspected the sample preparation facility at North Australian Laboratories in Pine Creek, Intertek NTEL in Darwin, Intertek Genalysis at Alice Springs and Maddington Perth, and supervised sample preparation onsite at Nolans Bore. A total of 413 routine jobs have been assayed and officially reported by NTEL Darwin and its predecessor Chemnorth between 2000 and 2012. This represents the bulk of the routine and QAQC assay data. Four additional routine assay and QAQC jobs were also assayed by AMDEL Adelaide in 2005. Confirmatory inter-laboratory and QAQC assays have been predominantly done by Genalysis Laboratories in Maddington Perth since 2007 (16 jobs) with AMDEL Adelaide completing three confirmatory assays jobs prior to this. All confirmatory assay samples were prepared from the same pulp assayed by NTEL or a sub-split and dispatched directly to the referee laboratory by NTEL on behalf of Arafura. A total of 18 routine jobs were re-assayed in 2016 by XRF at by Intertek Genalysis in Maddington Perth. The results of all drilling, assays and sampling have been reported to the NTGS in annual technical reports. The 2016 XRF results will be reported to the NTGS in 2017. Official laboratory reports are available and were also reported for all laboratory assay jobs. No adjustments have been made to assay data reported by the laboratory, apart from the conversion to equivalent element or oxides values, the addition of elements or oxides as shown below, and as appropriate, the conversion from ppm values to % values. The reported laboratory vale is stored in the Company's database, except for assays that produced below detection limit values which are stored as negative detection value and reset to view on export as positive half detection value. Eu values were not reported by NTEL job EL03639 and have been recorded as NULL. Numerous oxides have been calculated from the reported elemental values by using the conversion factors listed below. For example, the La_2O_3 value is La x 1.173.

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Verification of sampling and assaying</td><td>
<table>
<tr><th>Element</th><th>Oxide</th><th>Element to Oxide conversion factor</th></tr>
<tr><td>La</td><td>La_2O_3</td><td>1.173</td></tr>
<tr><td>Ce</td><td>CeO_2</td><td>1.228</td></tr>
<tr><td>Pr</td><td>Pr_6O_{11}</td><td>1.208</td></tr>
<tr><td>Nd</td><td>Nd_2O_3</td><td>1.166</td></tr>
<tr><td>Sm</td><td>Sm_2O_3</td><td>1.160</td></tr>
<tr><td>Eu</td><td>Eu_2O_3</td><td>1.158</td></tr>
<tr><td>Gd</td><td>Gd_2O_3</td><td>1.153</td></tr>
<tr><td>Tb</td><td>Tb_4O_7</td><td>1.176</td></tr>
<tr><td>Dy</td><td>Dy_2O_3</td><td>1.148</td></tr>
<tr><td>Ho</td><td>Ho_2O_3</td><td>1.146</td></tr>
<tr><td>Er</td><td>Er_2O_3</td><td>1.143</td></tr>
<tr><td>Tm</td><td>Tm_2O_3</td><td>1.142</td></tr>
<tr><td>Yb</td><td>Yb_2O_3</td><td>1.139</td></tr>
<tr><td>Lu</td><td>Lu_2O_3</td><td>1.137</td></tr>
<tr><td>Y</td><td>Y_2O_3</td><td>1.270</td></tr>
<tr><td>Al</td><td>Al_2O_3</td><td>1.889</td></tr>
<tr><td>Ba</td><td>BaO</td><td>1.117</td></tr>
<tr><td>Ca</td><td>CaO</td><td>1.399</td></tr>
<tr><td>Fe</td><td>Fe_2O_3</td><td>1.430</td></tr>
<tr><td>Mg</td><td>MgO</td><td>1.658</td></tr>
<tr><td>K</td><td>K_2O</td><td>1.205</td></tr>
<tr><td>P</td><td>P_2O_5</td><td>2.291</td></tr>
<tr><td>Si</td><td>SiO_2</td><td>2.139</td></tr>
<tr><td>Sr</td><td>SrO</td><td>1.183</td></tr>
<tr><td>S</td><td>SO_3</td><td>2.497</td></tr>
<tr><td>U</td><td>U_3O_8</td><td>1.179</td></tr>
<tr><td>Th</td><td>ThO_2</td><td>1.138</td></tr>
</table>
<p>Selected elemental oxides or summed elemental/oxide products are exported as defined fields from the database and are clearly labelled to avoid any confusion. Elemental yttrium values are exported as Ytm to avoid any confusion with Y as Northing.</p>
<p>Summed rare earth values are calculated and exported from the database using the following formula:</p>
</td></tr>
</table>

Criteria	Commentary
Verification of sampling and assaying	REE = La + Ce + Pr + Nd + Sm + Eu + Gd + Tb + Dy + Ho + Er + Tm + Yb + Lu TREE = La + Ce + Pr + Nd + Sm + Eu + Gd + Tb + Dy + Ho + Er + Tm + Yb + Lu + Y The calculated REE and TREE fields are now essentially defunct as Arafura mostly uses rare earth oxides for data analysis and reporting. Total rare earth oxide is the industry standard and accepted form of reporting rare earths. The TREO (Total Rare Earth Oxide) is calculated as follows: TREO = La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3. The 2016 XRF data was loaded into the database and stored as oxides as reported. Hence this data did not require an oxide conversion upon export. The Competent Person has used geological logs, assay results and selected geochemical ratios to determine and assess the REE mineralisation.
Location of data points	The grid system for Nolans Bore has historically been based on GDA94 and MGA94 Zone 53 coordinates. All drill collars up to 2004 were pegged by hand-held GPS or by compass and tape with an accuracy of about five metres prior to drilling. Almost all drill collars since 2005 have been accurately pegged by a professional Surveyor (Brain Blakeman Surveys) before drilling. All drill collars were capped and clearly labelled when completed and have been accurately re-surveyed after drilling by Brian Blakeman Surveys. All collars have been cut, capped and buried in accordance with rehabilitation guidelines. The Nolans Bore calibration test hole remains open. Directional down-hole surveys have been routinely determined by the relevant Driller at 30 or 40m intervals by either single-shot Eastman camera surveys or single shot electronic orientation probes. Continuous downhole surveys have been acquired by Borehole Wireline for almost all open holes. Most holes have been surveyed by Borehole Wireline to some extent with data collected and reported for more than 60% of the total drilled metres. All LAS data for all surveyed holes is loaded into the database and assigned a unique label based on the SITE_ID and the survey run number. The run number is sequential and based on the surveyed date. The results from all drillholes surveyed more than once have all been directly compared against each other and the data for calibration hole checked to ensure conformity and accuracy. This process led to the identification of systematic errors in the reported azimuth values for drill holes surveyed by two different probes in 2007/08 (NB0171-NB0315 inclusive). The surveys conducted in October-December 2007 require an average azimuth correction of -4 degrees (NB0171-NB0260). This error in azimuth was within the accepted 5-degree tolerance and was not identified until all data was loaded and thoroughly analysed in 2015. The downhole surveys acquired in February 2008 for holes NB0261-NB0315 are considered inaccurate and require a systematic average correction of -8 degrees. This azimuth error was initially identified in 2008 at the end of the survey period when the data was report however it was thought at the time that the error was around 6 degrees. The data was considered borderline at the time and the tool removed from site. The azimuth error in the February 2008 tool was accepted in former models because it was within the 10-degree tolerance limit set for successive azimuth picks between drillers surveys. As a result of the detailed analysis of all down hole survey data in 2015, the azimuth values for all holes were re-assessed and new azimuth values assigned based on prioritised data, as appropriate. As part of the azimuth revision and correction process the actual magnetic declination for the project area was also correctly applied for the first time (ie. 4.7 degrees, instead of 3.5 degrees which was uniformly applied since the project commenced). The surveys with azimuth corrections are noted in a comments field in the database. The collar and the end of hole azimuths have been assigned based on the shallowest and deepest surveys, respectively. This level of accuracy is considered sufficient for the scope of the program undertaken. Brian Blakeman Surveys surveyed and prepared a Digital Elevation Model (DEM) for the Nolans Mineral Lease application area (MLA26659) in 2008. This DEM was amended to include all additional collars surveyed during 2011 drilling program. The surface RL for a number of wide-diameter holes and

Criteria	Commentary
Location of data points	one RC hole (NB1100) outside of the Mineral Resource were originally set to a default of 660mRL and adjusted to match this new DEM. In 2015, a local metre-based grid system was developed for Nolans Bore. This local grid system is based on the key tie-points used to define the primary drill section (historically referred to as Section “O”) at Nolans Bore. This section has a bearing of about 145 degrees true. The local grid has been developed such that the original Section O is now set as 10,000mE and most of the NZ occurs north of 10,000mN. The NW end of Section “O” occurs at 318579.7mE 7502623.7mN in MGA94 Zone 53 coordinates which corresponds to 10000mE 10630mN in the local grid. The SE end of Section “O” occurs at 319579.9mE 7501201mN in MGA94 Zone 53 coordinates which corresponds to 10000mE 8890.898mN in the local grid. SURPAC 6.7.1 indicates the angular difference for the grid transform is 35.063 degrees. All locations were transformed into the local grid system using SURPAC v6.6 and the corresponding local coordinates extracted and added back into new local coordinate fields in database. Geological objects and surfaces were also transformed into the new grid system using a combination of SURPAC v6.6 and v 6.7.
Data spacing and distribution	The principal drilling grid is orientated at 145 degrees from true North. Drilling has a nominal 40m x 40m spacing over the main parts of Nolans Bore. Localised infill drilling to a nominal 20m by 20m spacing occurs in the central North Zone. The deposit has been systematically drilled to about 150-180m drilling depth in most places with systematic deeper diamond core drilling to 250m drilling depth on every second drill section across most of the deposit. Wider spaced RC drilling occurs in the peripheral areas. This data is complimented by drilling on six 100m spaced E-W drill sections in the Central Zone and targeted metallurgical and geotechnical across the main part of the deposit.
Orientation of data in relation to geological structure	The deposit has been systematically defined using drill holes inclined at -60 towards 145 degrees. The costeans also closely match this principal drilling direction which typically yields geological data at a moderate to high angle to the general strike and dip of the mineralisation in the North and Southeast Zones of the deposit. In 2011 it was realised that a massive body of mineralisation trends close to north-south in the Central Zone. Hence 24 diamond core holes were specifically drilled from surface on six 100-metre spaced east-west sections to resolve the geological complexity of the zone.
Sample security	The project area is remote and no unauthorised persons entered the property during drilling and sampling operations. Up to 2008, all RC assay samples were collected from the drill site and placed into sealed polyweave bagged lots of four to five samples. These were then placed in one tonne bulka bags which were temporarily stored at Aileron in readiness for transport by freight companies to NAL in Pine Creek. The bulka bags were loaded into locked shipping containers and transported to the laboratory for sample preparation. Drill core samples were logged, marked up and photographed at Aileron before the trays were palletised and transported to NAL in Pine Creek for SG determinations, cutting and sampling. Drill core assay samples were bagged and delivered directly to the preparation facility at NAL, Pine Creek. Assay sample pulps were dispatched in batches by courier from NAL to NTEL in Darwin. Back up master assay pulps were stored on pallets at Pine Creek until no longer needed. In 2009, drill core was logged, cut and sampled on site at Nolans Bore and assay samples placed in polyweave bags, stored in 205 litre steel drums and transported to NTEL in Darwin for sample preparation and analysis. In 2010, RC samples were placed in sealed polyweave bagged lots of four to five samples, placed in drums and transported to NTEL in Darwin for sample preparation and analysis. In 2011, RC assay samples were collected from the drill site, placed in sealed polyweave bagged lots of four to five samples and temporarily stored at onsite in a fenced laydown storage area adjacent to Arafura’s preparation facility. Cut core samples were individually bagged and temporarily stored on pallets in the laydown area. RC and core assay samples were then “delivered” in batches to a designated area adjacent to the preparation laboratory. Prepared assay sample pulps were checked by the Competent Person or Senior Geologist, and blind standards were inserted before transporting to the

Criteria	Commentary
Sample security	Alice Springs and then on to NTEL in Darwin in sealed space-cases. Master pulps were stored in a locked shipping container adjacent to the onsite preparation laboratory. Chain of custody documentation and lists of all submitted samples was included with all assay jobs. Assay sample pulps have been recovered from the laboratory for safe long-term storage at Arafura's exploration storage facility in Darwin. All drill core has been transported to Darwin for safe long-term storage.
Audits or reviews	Arafura's Geologists have reviewed and audited all geological data in the database. The Competent Person has randomly audited the reported assay data against that loaded in the database. The geology of all mineralised intersections in the model were reviewed as part of a new material type classification.

Section 2 Reporting of Exploration Results (for Mineral Resources)

Criteria	Commentary
Mineral tenement and land tenure status	The Nolans Bore deposit is located wholly within Exploration Licence (EL) 28473 which is 100% owned by Arafura Resources Ltd. The deposit lies within the area covered by Mineral Lease (ML) application 26659 which is 100% owned by Arafura Rare Earths Pty Ltd., a wholly-owned subsidiary of Arafura Resources Ltd. Mineral Lease applications 30702, 30703 and 30704 have been lodged over the sites of the proposed process plant, residue storage facilities and accommodation village. These are also 100% owned by Arafura Rare Earths Pty Ltd. Arafura Resources Limited also has 100% ownership of ELs which cover all proposed project infrastructure, including the bore field (ELs 28498, 29509, 31224, 31284 and 31957). The deposit is situated on Pastoral Land with known mineralisation spanning the boundary between Aileron (PPL 1097) and Pine Hill (PPL 1030) Stations. All stated Mineral Resources and Ore Reserves lie on Aileron. Arafura Resources has executed a Native Title Exploration Agreement with the Central Land Council (CLC) on behalf of the Native Title Holders for this tenement. The Nolans project is subject to Native Title claims. In February 2020 Arafura reached an in-principle agreement with the Native Title Holder groups for the Nolans Project (ASX: ARU 02/03/2020). Arafura was issued Sacred Site Clearance Certificates which provides clearance for the exploration and drilling activities conducted at Nolans Bore. A comprehensive clearance has recently been issued for the project area. Arafura Rare Earths has also applied for a water abstraction licence to support the development of this project. At the time of reporting, there are no known impediments to obtaining a license to operate in the area and the tenement is in good standing.
Exploration done by other parties	PNC Exploration (Australia) Pty Ltd conducted regional exploration programs in the project area in 1994-1996. They discovered the Nolans Bore prospect by following up a substantial airborne radiometric anomaly. PNC conducted ground radiometric surveys and sampled and assayed the surface outcrops. No other work has been done at Nolans Bore by other parties.
Geology	The Nolans Bore REE-P-U deposit is a complex, 3D stockwork vein-style deposit which occurs in the Aileron Province of the Arunta Region in the Northern Territory, Australia. Isolated parts of the deposit crop out, but most of it is concealed beneath a thin layer of alluvial and colluvial transported cover. The deposit is characterised by massive fluorapatite mineralisation which ranges from discrete narrow fine-grained veins to wide intervals of massive coarse-grained breccias. The massive fluorapatite-rich rocks contain up to about 95% fluorapatite and typically contain abundant mineral inclusions of REE-bearing minerals, such as monazite group minerals, allanite, thorite and numerous other REE phosphates, silicates and carbonates. The fluorapatite itself contains variable amounts of REE but a higher proportion of REE is hosted in the fine-grained mineral inclusions. The associated calcsilicate style of mineralisation can contain fluorapatite and other REE-bearing minerals and are typically dominated by pyroxene, amphibole, epidote-allanite, carbonate, quartz, plagioclase, zeolites, garnet, scapolite and titanite. The calcsilicate rocks are strongly associated with the massive fluorapatite mineralisation but tend to be lower grade where mineralised. The Nolans Bore mineralisation and its associated alteration are hosted by metamorphosed Palaeoproterozoic igneous and sedimentary rocks of the Aileron Province in the Arunta Region. Some of the country rocks also contain low grade REE mineralisation (e.g. the coarse-grained to pegmatitic granitoid commonly contains up to 0.3% REE and can locally exceed 1% REE, present as metamorphic monazite) but these rock types and grades markedly contrast with the typical Nolans Bore mineralisation and have not been included in the resource estimate.

Criteria	Commentary
Geology	The metamorphosed Proterozoic sedimentary and igneous rock units that have undergone high-grade metamorphism during the 1600-1525Ma Chewings Orogeny and are interpreted to be parts of the Aileron Metamorphics, Lander Rock beds and the Boothby Orthogneiss as mapped in nearby outcrops. Large intrusive bodies of coarse-grained to pegmatitic granitoid form a major component of the host country rocks at Nolans Bore. These units can be traced as coherent bodies (dykes and sills) and can be differentiated geophysically and geochemically from other country rocks and mineralisation. As such, these rocks form important marker units. The interpreted geological distribution suggests these granitoid bodies are mutually exclusive of mineralisation. However, relationships in drill core clearly indicate the mineralisation postdates the granitoids. The currently favoured geological model suggests that mineralisation is preferentially formed in strain zones within the country rock gneisses and schists adjacent to the more competent, massive coherent coarse-grained to pegmatitic granitoid bodies. This structural relationship was first proposed in 2006 and is still supported. Nolans Bore-type mineralisation and its associated alteration is geologically and geochemically distinct from the surrounding host rocks and clearly post-dates the high-grade metamorphism in the host rocks. Large parts of the deposit remain relatively undeformed however some (all) parts are overprinted by the Devonian-Carboniferous Alice Springs Orogeny. Cainozoic weathering and oxidation also occurs. Despite localized overprinting effects, the geochemistry of the mineralisation is very similar throughout, hence the mineralisation is defined by an enveloping surface which encompasses all Nolans Bore-type mineralisation at a cut-off of >0.5% TREO. Systematic drilling indicates the widespread presence of mineralised veins up to tens of metres in thickness and hundreds of metres in length, extending below 250 m drilled depth across parts of the deposit. The full extent of the deposit is yet to be outlined but deeper drilling has demonstrated mineralisation and alteration at about 490 m drilled depth in the central North Zone. Nolans Bore-type mineralisation and associated alteration has been recognised in surface exposures and drilling over an area of about 4 km x 3 km.
Drill hole information	This section is not relevant to reporting Mineral Resources. No exploration results have been reported in this release
Data aggregation methods	This section is not relevant to reporting Mineral Resources. No exploration results have been reported in this release.
Relationship between mineralisation widths and intercept lengths	This section is not relevant to reporting Mineral Resources. No exploration results have been reported in this release.
Diagrams	This section is not relevant to reporting Mineral Resources. No exploration results have been reported in this release.
Balanced reporting	This section is not relevant to reporting Mineral Resources. No exploration results have been reported in this release.
Other substantive exploration data	Arafura has drilled 548 RC and diamond core holes into Nolans Bore between 2001 and 2013, for a total of 87,081 metres. These holes together with data from 9 costeans (1,112m) have been used to outline and define the identified Mineral Resources at Nolans Bore. In addition to these Arafura has drilled 48 wide-diameter (780mm) holes (1,658m) into the deposit and excavated a number of small pits for exploration and geotechnical purposes in and around Nolans Bore. Additional drilling has been done to the N, SE and SW of the deposit.

Criteria	Commentary
Other substantive exploration data	Arafura acquired a detailed low-level, 50m spaced N-S airborne magnetic and radiometric survey over Nolans Bore and surrounds in 2008. Additional adjoining 100m spaced N-S regional airborne surveys were acquired across other parts of the Aileron-Reynolds project area in 2011 and 2013. A detailed airborne hyperspectral survey was acquired over most of the Aileron-Reynolds project area in 2008. This survey covers the Nolans Bore and surrounds and was used to explore the regional for similar mineralogy. Arafura acquired aerial photography over the deposit in 2008. This resulted in a detailed orthophoto coincident with a professionally surveyed detailed DEM over most of ML26659. This detailed DEM has been updated and revised several times based on new survey data. Arafura acquired detailed World View 2 satellite imagery (0.5m pixel resolution) over Nolans Bore in 2012. Additional regional and less detailed SPOT5 satellite imagery (2.5m pixel resolution) was also purchased over the project area in 2012 for the EIS and regional exploration. Arafura also acquired additional World View imagery covering the proposed developments to the S and SE of Nolans Bore in 2013. Arafura acquired detailed imagery via a drone survey with an associated DEM over the main project area in 2018. Arafura has collected extensive geological, geotechnical and metallurgical data from the Nolans Bore deposit and surrounds in support of its exploration and resource definition programs. Arafura has collected a substantial biogeochemical dataset over the Nolans Bore deposit and surrounds and has used this to assist in targeting exploration in areas of cover (e.g. Mulga prospect ASX: ARU 08/11/2013). Arafura discovered substantial ground water resources to S and SW of Nolans Bore and has applied for a water abstraction licence with the Northern Territory Department of Environment and Natural Resources (ASX: ARU 22/10/2014). Arafura’s EIS for the Nolans project gained regulatory approval from the Northern Territory Environment Protection Authority (NTEPA) in December 2017 (ASX: ARU 05/01/2018) and from the Australian Government’s Department of Environment and Energy in May 2018 (ASX: ARU 14/05/2018). Amendments to the project configuration were also approved by the NTEPA in September 2019. Arafura has acquired onsite environmental data since 2008 (dust and weather information). Arafura has also routinely collected baseline groundwater information since 2010. Additional baseline environmental data (chemical and radiation) was collected from 25 sites during EIS studies. Arafura investigated the sulfide content of the waste rocks during the EIS completed AMD studies. As expected, the results were very low however twelve representative samples have been subjected to barrel leach test work to satisfy the Northern Territory Department of Primary Industry and Resources and NTEPA. Arafura obtained additional representative whole rock assays and updated the material types and Mineral Resources in 2016-18. Arafura completed detailed metallurgical and mining studies resulting in a Definitive Feasibility Study (DFS) and updated Ore Reserves for the Nolans Bore deposit in 2019 (ASX: ARU 07/02/2019).
Further work	The deposit’s host rocks are currently being reviewed in light of the results of an exploration drilling program in 2019. Arafura is intending to mine and process this world-class rare earth deposit with additional work likely as the project develops.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database Integrity	All relevant data is stored in Arafura's SQL Geobank database. This database was originally developed and populated in 2009/10 in conjunction with Micromine. Micromine assisted Arafura in the development of its relational database structure with internal checks and validation procedures as per industry standard. Primary data sources were used during the initial database load to minimize transcription or keying-in load errors. The data was audited during the initial load stage. A small number of load issues have since been discovered and rectified. Prior to this SQL database, all digital data was stored in various master spreadsheets. Ongoing but minor structural changes have been made to the database since its inception. These changes are mainly due to the development and addition of new fields or data tables. Only trained personnel approved by Arafura's database administrator can add or edit data, and all new data is audited on import to ensure integrity. The database has routinely scheduled monthly backups and all data entries or modifications are date stamped with the responsible person's name. Additional backups are done as required to ensure the overall long-term data integrity and security. Copies of critical backups are kept at both offices, and off-site. All data is digitally captured and retained in the database and can be viewed. Exported data is prioritized as and where appropriate such that only prioritized data can be used for certain fields. For example, numerous holes have been surveyed more than once but only the highest ranked "priority" data is exported. Extracted database tables and a Microsoft Access database snapshot for the current estimate is stored digitally in the Nolans project directory on Arafura's server as a permanent record of the data used in this estimate. All RC logging data and all geological summaries for the RC and drill core have been transferred to digital form and loaded into the database. All drillhole information was originally logged directly onto paper logging sheets by the geologist, then scanned and securely filed or stored digitally in the Nolans Bore project directory on Arafura's server. The original paper logsheet, and the scanned copy, are available for all drill holes and have been used to validate and cross-reference audits, edits and geological reviews. Extensive geological descriptions were allowed for and acquired by most geologists on the drill core logsheets. Concise lithological summaries have been developed for the drill core following geological revision, synthesis and recoding with standardised lithological information. These have been entered into the database instead of the more extensive entries recorded on the paper log sheets. The digital capture process involved data entry using specifically formatted spreadsheets with drop-down lists and built-in validation checks to minimize transcription and keying load errors. The database administrator has carefully checked and audited all digitally captured data. Arafura have conducted a number of in-house workshops to review and re-interpret geological summaries for each drill hole. In 2011, geological summaries were prepared by the responsible geologist on the formatted spreadsheet and reviewed and checked by the Arafura team for internal consistency. Earlier drillhole summaries used in the previous resource estimate were reviewed in 2011 to ensure internal consistency across all programs. All geological summaries were reviewed audited for consistency by Arafura's database administrator in 2011. All logging and survey information was reviewed by the responsible rig Geologist prior to the Senior Geologist and team review. The data was again reviewed by the database administrator prior to the final data load into the database. The rig Geologist is the first to validate of the field data by the reviewing the geological log and chips checking sample ID, missing data entries, obvious logging errors or atypical surveys or radiometric readings. The next stage occurs as part of the assay sample selection process by the onsite Senior Geologist or Competent Person. The third stage occurred during the data entry and load supervised by the Database Administrator. The fourth stage occurred during the review and synthesis of the geological summaries when all data was exported from the database and

Criteria	Commentary
Database Integrity	reviewed prior to the development of the geological model and mineral resource estimate. During this stage geological summary is again checked for its integrity against its associated downhole logging data and the drill chips, core photographs or drill core (if required) to ensure the validity of the data. Sample identification numbers are all unique. Routine sample number series differ to field duplicate and any supporting field check samples. Certified and Internal Standards and blanks are assigned unique numbers in the database to match their assay job number. Since 2010, all assay samples have been dispatched and receipted using the Sample Tracker module in Geobank. This ensures all assay results despatched to and received from the laboratory are accounted for and loaded against the correct sample interval. All specifically dispatched samples have been specifically receipted. Assays within the database are accepted as final once they passed the Competent Person's (Kelvin Hussey) review. Assay samples prior to 2009 were re-dispatched and re-receipted as part of a bulk load soon after the database was developed. A small number of load errors identified during the previous resource estimate were corrected in 2014. No other data load or export issues have been detected. No assay data has been keyed-in. Assay loads are validated by manually checking the actual reported results of at least two samples per assay job on the laboratory assay certificate against the electronic results loaded and stored in the database. This ensures the electronic results in the loaded data fields matches the reported values for each job and prevents load errors. All downhole probe logging results are loaded into the database using LAS data files supplied by Borehole Wireline. This includes all revisions and corrections. The database has specific views and tables that show 10m survey data, as well as density and gamma data averaged over one metre-intervals using database routines. The LAS survey data is ranked as the highest priority azimuth and is used instead of the driller's single shot surveys. The driller's single shot survey is recorded in the database and are used where LAS survey data is not available, providing the single shot survey records passes within tolerance limits. The combined survey data is checked for azimuth and inclination deviations >5 degrees. Excessive deviations are considered unlikely and not accepted. The survey data was loaded in SURPAC for 3D spatial viewing and verification to ensure the conformity of the surveyed drillhole path. There is clearly some localised magnetic interference evident in the downhole azimuth data. Unrealistic localised azimuth deviations are omitted from the 10m picks or replaced by more realistic values at different locations based on the Competent Person's assessment of the continuous 5cm LAS data. The chosen survey data is considered the best currently available however gyroscopic downhole surveys may improve the survey accuracy in some areas. GeoBank has internal validation procedures that must be met when new data is loaded into database. The database is routinely backed up and all entries and modifications to the database are date stamped with the responsible person's name. Export rules have been developed and verified to ensure that only the designated data is exported. The Competent Person checked the data for missing intervals, missing samples, downhole survey deviations of ±10º in azimuth and ±5º in inclination after loading into SURPAC.
Site Visits	Kelvin Hussey is a full time employee of Arafura Resources and regularly visits Nolans Bore during site operations.
Geological interpretation	Other styles of REE mineralisation were considered however many do not have the same geological host rocks, alteration styles or mineralogy as Nolans Bore. Structurally controlled vein deposits show similarities to Nolans Bore.

Criteria	Commentary
	The mineralisation is hosted within structurally controlled veins and breccias, with localised structural reworking and overprinting alteration resulting in some geological complexity. The geometry of the deposit is 3D and complex and typically shows a close spatial relationship to sheared contacts to adjacent coarse-grained to pegmatitic granitoids/orthogneisses. Geological observation has underpinned the geological model and the resource estimation. Rock type, mineralogy, alteration style, geochemistry and radioactivity were used to define the geological boundaries. The geological model was developed as an iterative process of checking against logging, geological summaries, photography, radiometric data, geochemistry and re-assessing drill core and drill chips where necessary. Interpretation of the massive pegmatitic units and the adjacent mineralised bodies are considered important aspects of the deposit's geological model.
Geological interpretation	The observations regarding the geological model and the extent of the interpreted mineralised envelope are typically robust. However, parts of the Southeast and Southwest Zones are less certain geologically given the small amount of near surface drill core and the wider spaced drilling in this area. The mineralisation and its associated alteration has a characteristic and uniform REE signature which together with P, U, Th and Sr clearly differentiates it from all surrounding host rocks. The pegmatitic granitoid units typically contain up to 0.3% TREO although locally they can exceed 1% TREO. The REE, Th, U and P signature of the pegmatite units are distinctly different from typical Nolans Bore type mineralisation and unless the pegmatite is internal waste or overprinted by Nolans Bore type alteration, it has been excluded from the mineralised bodies in the geological interpretation. All geological units were revised and updated in 2015. The geological model for Nolans Bore is subdivided into the following geological units: • MIN; • RAD; • PEGMATITE; • GNEISS; • SCHIST; and • SOIL. Surfaces were also re-modelled for • Topography • Standing Water Level • Base of complete oxidation • Top of Fresh Apart from SOIL, all geological units are widespread and occur throughout the deposit at all depths. The RAD unit was modelled in 2015 as an all-encompassing interconnected unit to quickly capture all potentially radioactive material at Nolans Bore for EIS purposes The RAD unit includes all geological rock types, including MIN, that were considered potentially radioactive based on assays and radioactivity measurements. Narrow mineralised drill intersections with no geological support in adjacent holes which are not included within a MIN object, and therefore not classified as Mineral Resources, are in almost all cases been captured within RAD. The units outside of the RAD DOMAIN can be regarded as benign non-radioactive material. RAD was initially modelled because natural material which has an activity greater than 1Bq/g is classified as Naturally Occurring Radioactive Material (NORM). The RAD unit is no longer utilised and is now essentially defunct although it still serves as an overall guide. All host rock units (SCH, PEG and GNE) have been independently modelled in the current model. The zones of NORM within the host rocks are due to either unclassified resources (i.e. narrow or discrete bodies of mineralisation) or to natural variations in the host rock itself. To a large

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Geological interpretation</td><td>
<p>extent, the schist (SCH) and pegmatite (PEG) units mostly represent well-foliated and very coarse-grained equivalents, respectively, of the gneisses (GNE) which dominate the region. The SOIL, SCH, PEG and mineralisation (MIN) bodies have been individually digitized where appropriate. The remainder of the country rock within the model is assigned to GNE.</p>
<p>The MIN bodies outlined in the current geological model are numbered into DOMAINs and ZONECODEs (see Table below). To aid in the analysis and estimation process, all 138 MIN DOMAINs have been subdivided into eight distinct ZONECODEs based on their geographic location and geological character, chemistry, OXSTATE and size. This is the same scheme as used for the 2015 model, except for zc31 and zc32 which have been merged into zc30 for the 2017 model. The number of assay samples occurring within each ZONECODE was considered for each geographical grouping with a lower limit of no less than 300 composited samples applied to each for statistical purposes. Where possible large DOMAINs are subdivided using their OXSTATE. This was done to essentially limit smearing between fresh and oxidised material and was considered geologically important in the North and Central Zones. For example, DOMAIN 101 is a large inter-connected object spanning most of the North Zone and contrasts with the other smaller DOMAINs in the North Zone that are often not as deeply weathered. DOMAINs 143 and 144 have been specifically differentiated from DOMAIN 101 using an irregularly shaped hard geological boundary. The oxidised mineralisation contained within DOMAINs 143 and 144 is characterised by a different P/REE ratio and contrasts with the adjacent and surrounding geology in DOMAIN 101 (ZONECODE11). It was considered important to develop a robust hard boundary for this geochemically different material to limit smearing of grade across this geological boundary. A very small part of DOMAIN 335 also contains some mineralisation similar to that in DOMAINs 143 and 144 but the volume is way too small to be treated separately.</p>
<p>Mineralised DOMAINs and ZONECODEs used in the 2017 Mineral Resource Estimate.</p>
<table>
<tr><th>LOCATION</th><th>UNIT [1]</th><th>ZONECODE</th><th>DOMAIN</th><th>OXSTATE</th></tr>
<tr><td>North</td><td>MIN</td><td>11</td><td>101</td><td>Oxide/mixed</td></tr>
<tr><td>North</td><td>MIN</td><td>12</td><td>101</td><td>Fresh</td></tr>
<tr><td>North</td><td>MIN</td><td>13</td><td>102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142</td><td>All</td></tr>
<tr><td>North</td><td>MIN</td><td>14</td><td>143, 144</td><td>All</td></tr>
<tr><td>Central</td><td>MIN</td><td>21</td><td>201, 202, 203, 204, 205</td><td>Oxide /mixed</td></tr>
<tr><td>Central</td><td>MIN</td><td>22</td><td>201, 202, 203, 204, 205</td><td>Fresh</td></tr>
<tr><td>Southeast</td><td>MIN</td><td>30</td><td>301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 314, 313, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357</td><td>All</td></tr>
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<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Geological interpretation</td><td>
<table>
<tr><td>Southwest</td><td>MIN</td><td>40</td><td>401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432</td><td>All</td></tr>
</table>
<p>[1] All MIN objects are clipped to the base of SOIL.</p>
<p>The extents of the geological model are constrained by drilling and costeaning data. Geological boundaries are extrapolated a uniform 20m from known intersections following the same geological trend. This is in line with the industry standard of extrapolating half-principal drill spacing. This methodology also provides an equal representation of both mineralisation and waste rock volumes. Given the absence of uniform deeper drilling on all sections, geological boundaries are sometimes interpolated between every second principal drill section at depth, but only where the model is supported across multiple drill sections. This interpolation methodology is geologically justified for this deposit type and removes unrealistic zig-zag shapes in the geology at depth.</p>
<p>Key factors that are likely to affect the continuity of grade are:</p>

The inherent variability of brecciated rocks. Breccia characteristics can change rapidly on a centimetre to metre scale.
The inherent variability of veins. The continuity and thickness of veins can change along strike. The veins can show sharp but irregular boundaries. The vein intensity and amount of altered host rocks included with the mineralised vein system can change.

<p>Overprinting structures can disrupt or influence the continuity of the mineralised system.</p>
</td></tr>
<tr><td>Dimensions</td><td>
<p>The Nolans Bore mineralisation is mostly concentrated in an area of about 1,100m north-south by 1,500m east-west. Systematic drilling has typically confirmed down dip extensions from the surface or near surface down to vertical depths of 215m, with many veins and zones remaining open at depth.</p>
<p>The North Zone has a strike length of around 1,000m and local deep drilling has demonstrated mineralised veins and bodies extending from surface or near surface down dip to a vertical depth of about 400m in the central parts of the North Zone. The main mineralised lodes in the North Zone collectively trend slightly north of east with the main lodes predominantly aligned with the strike direction at approximately 060º, dipping steeply to the north. The main mineralised lodes in the central zone strike approximately north-south and have a strike extent of about 500m. Parts of the North and Central Zones have mineralised bodies that are more than 50m thick. Mineralised lodes in the southeast zone are up to 350m long and defined into two broad zones dominated by a southeast to northwest strike of approximately 330º and an approximate east-west strike of approximately 075º to 080º. All dips are steep to sub-vertical and are to the north-north- west in the north and south-east zones and are a combination of east and north-north- east dips in the central area.</p>
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<tr><td>Estimation and modelling techniques</td><td>
<p>Access database tables and fields were mapped in SURPAC and cut up into DOMAINs and ZONECODEs using the geological and oxidation state boundaries as hard boundaries. The mineralisation was then flagged for DOMAINs, ZONECODEs, OXSTATE and INSITU. Assay data was composited into 2m intervals for statistical analysis and estimation purposes.</p>
<p>The volume model was developed based in the local grid coordinate system shown below and was developed such that its extent exceeds the defined Mineral Resources and the topography. The blocks are aligned to the principal drilling section direction and the local grid. Their parent size is equal to half of the systematic deposit-wide drill spacing (ie. blocks are 20m x 20m in X and Y whereas the principal drill spacing is nominally</p>
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<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Estimation and modelling techniques</td><td>

40m x 40m). This block model therefore adequately accommodates the infill 20m x 20m drilling in the North Zone and the more widely spaced 40m x80m spaced drilling at depth. This model has the same dimensions and extents as the previous 2015 model.

The volume block model was created using the same wireframes for the geological units as used for sample flagging. Block model volumes and wireframed volumes are within acceptable tolerances.

<table>
<tr><th>Axis</th><th>Minimum coordinates (local grid m)</th><th>Maximum coordinates (local grid m)</th><th>Parent Cell Dimensions (m)</th><th>Number of Parent Cells</th><th>Number of Splits</th><th>Smallest sub-cell Size</th></tr>
<tr><td>X</td><td>8900</td><td>10760</td><td>20</td><td>93</td><td>4</td><td>5</td></tr>
<tr><td>Y</td><td>9000</td><td>10700</td><td>20</td><td>85</td><td>4</td><td>5</td></tr>
<tr><td>Z</td><td>300</td><td>730</td><td>5</td><td>86</td><td>4</td><td>1.25</td></tr>
</table>

Density was estimated by ID^2 using SURPAC version 6.7.1. To support this density estimate, the number of informing values, average distance and the estimation pass is also recorded as an attribute in the block model. Geological and OXSTATE boundaries were used as hard boundaries to select all informing density data. A series of three successive estimation passes were run for each oxidation state in each ZONECODE, expanding the search distance after each pass. Within the MIN ZONECODEs, the data was selected using the 3D search ellipse parameters that were used to inform the grade estimate. The initial search distance was set to two-thirds of the maximum axis, and expanded 2.5 and four times, for the second and third passes, respectively. Within the host rocks (SCH, PEG and GNE), searches were isotropic and utilised 40m, 100m and 200m search radii for each successive pass. In all cases, a total of 10-30 informing values were used for the first and second passes, and this was reduced to 5-30 in the third pass. A maximum of 15 values were allowed per drill hole for all geological units. These criteria effectively allow the estimated density to be informed by the nearest data coinciding with the local and adjacent blocks in areas of continuous probe data. The density estimate is considered more likely to represent the local variations within the deposit than averages, and especially in the first pass estimate where continuous downhole density probe data exists. Average density values for each geological unit, ZONECODE and OXSTATE were assigned in a fourth pass if a value was not estimated during the third pass. The density estimate for the 2017 Mineral Resource estimate is consistent with that of the former model.

Grade estimation was completed using Ordinary Kriging (OK) for the identified Mineral Resources, using SURPAC version 6.7.1. Additional attributes which are pertinent to the OK estimation have also been populated for each block. The potentially economic lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium and yttrium are summed as standard oxides and to obtain TREO. TREO, P_2O_5, U_3O_8, ThO_2 and the individual rare earth oxides have all been estimated by OK. TREO, P_2O_5, U_3O_8, ThO_2 have been estimated into the country rocks using ID^2. The individual rare earth oxides have not been estimated in the country rocks. SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, K_2O, SO_3 and LOI have been estimated into the block model using ID^2 for all DOMAINs using their OXSTATE as a hard boundary. The ID^2 estimates utilised the same search ellipses for their respective ZONECODEs within the mineralisation.

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Criteria	Commentary
Estimation and modelling techniques	Search ellipses were isotropic in the country rocks using 20-40 samples and 40, 100 and 200m search distances for passes 1,2 and 3, respectively. To complete the estimate, an average or median value was applied in a fourth pass in the host rocks. Composite statistics for the primary variables for estimation TREO, P_2O_5, U_3O_8, ThO_2 and all individual rare earth oxides were analysed for statistical relationships and to determine if any domain had unusually high-grade outliers that would need to be top-cut. The composite statistics indicate the data in each ZONECODE are strongly to very strongly correlated. The ZONECODEs typically have very low coefficients of variation, usually less than 1.0. No ZONECODE had any values that necessitated top-cut strategies for TREO, P_2O_5, U_3O_8 or the individual rare earth oxides. ZONECODE 14 contains 8-10 elevated ThO_2 values that are clear statistical outliers, and a few borderline high U_3O_8 values. To limit the impact of these high values to the estimate, at top-cut of 2% ThO_2 was applied. This top-cut value approximately equates to the top 5% of the sample population. No top-cut was applied to the elevated U_3O_8 values as these were considered borderline but statistically acceptable. No top cut was applied to other values in this ZONECODE. Variography was performed to determine the best estimation strategy for each ZONECODE. Downhole and omni-directional variography was performed on the three main variables (TREO, P_2O_5 and U_3O_8) and ThO_2 in ZONECODEs 11, 14, 21 and 30. However due to similarities of these variograms and the strong to very strong correlation between the main variables, 3D anisotropic variograms were only modelled for TREO. These are the only areas with sufficient data to generate robust 3D variograms. The remaining mineralisation ZONECODEs use the most appropriate variogram from the same geological zone and lithology, scaled to the local variance. No variography was performed on the waste domains. All variography was completed in three-dimensional space, to allow for any plunge component to be modelled. The maximum continuity directions were steeply down-dip for ZONECODE11, steeply inclined for ZONECODEs 21 and 32 and almost horizontal for ZONECODE14. These directions are consistent with anticipated geological search parameters. The near horizontal search ellipse for ZONECODE 14 is consistent geological features observed in the costeans and the supergene nature of the mineralisation. Downhole variograms generally show low to moderate nugget values, reflecting the generally low coefficient of variation values seen in the descriptive statistics. All grades were estimated into parent cells, with all sub-cells receiving the same grade as their parent. Cell discretisation was set to 5, 5, and 3 in the cell X, Y and Z directions respectively. Constraints and parameter files were created for search, variogram and estimation parameters. Initial search ellipses were set to the directions and ranges of the respective variograms. These were tested by iterative means and the final ellipses were chosen to be approximately two-thirds the longest variogram ranges in each direction, with the longest axis (for the anisotropic searches) being down-dip or steeply inclined within the strike of the major continuity direction for most ZONECODEs. Each OK grade estimate is performed in a series of three passes. Blocks not estimated in the first pass were estimated using an expanded search ellipse for the second pass and likewise for the third pass. The expansion factors are times 2.5 for the second pass and times five for the third pass. The maximum number of composite samples allowed for the first pass estimate ranges from 30, with a minimum of ten. The third pass uses a maximum of 30 samples and a minimum of 2-5 depending on the ZONECODE. ZONECODEs 11 and 12, and 21 and 22, were estimated using hard boundaries to limit smearing of grades between different OXSTATEs. A small number of blocks were not estimated, and fourth pass was required in ZONECODE 22. This pass was expanded to ten times and was considered necessary to limit smearing and to cater for the complex three-dimensional nature of the depth to the top of fresh rock in this area. During the OK estimation, kriging weights were allowed to be negative and a maximum of six samples were allowed per drillhole. The variogram and search parameters for each estimated ZONECODE domain used the TREO% variables from the initial estimate. This strategy is sensible as, TREO, P_2O_5, U_3O_8, ThO_2 and the individual rare earths are all in general strongly to very strongly correlated. TREO, P_2O_5, U_3O_8, ThO_2 were estimated first. The individual rare earth oxides were then estimated and summed using a formula written into the block model. The TREO value

Criteria	Commentary
Estimation and modelling techniques	and the summed TREO value differ slightly due to the number of significant figures used in the database export. This difference is insignificant and essentially a mathematical artefact of rounding. The geological interpretation was used to define the mineralised domains. The oxidation state was also used to define hard boundaries where substantial data existed in the North and Central Zones. The mineralised domains were used as hard boundaries to select sample populations for data analysis. The same geological boundaries were used for estimation, however both hard and soft domaining strategies were used. The final model was validated both visually and statistically. The model was compared with drillholes and wireframes on sections to check for errors. Block model volumes were also cross-checked against wireframe volumes. Plots were produced comparing the estimated model grades (TREO%) with the composite grades in a series of slices through the model and data. The model profiles are generally slightly smoother than the composite profiles (i.e. show less variance) but are usually still constrained between the extremes of the composite data. This is expected, as the estimation process normally selects multiple data in overlapping search ellipses and smooths the more variable drillhole data by placing one discrete value per parent cell volume. All of these models had hard boundaries so that no grade from the mineralisation was smeared into the background waste domains. Elevated grades within the waste rock domains are due to unclassified resources within the waste rocks and the natural variations in the waste rock itself.
Moisture	All tonnages are estimated on a dry basis.
Cut-off parameters	The geological model was developed in 2015 using all available geological data and uses a 0.5% TREO lower cut-off grade. This geological model differentiates typical Nolans Bore-type mineralisation from the pegmatitic granitoids in the area which typically assay up to about 0.3% TREO. The resources were estimated using the wireframed geological model and a 1% TREO lower cut-off.
Mining factors or assumptions	It is assumed that the deposit will be mined using traditional drill and blast open-cut methods.
Metallurgical factors or assumptions	Metallurgical information is based on an extensive dataset of various material types sourced from 2004-2011 exploration programs at Nolans Bore using representative RC drilling residues and HQ3 drill core intervals, plus larger bulk samples obtained from two shallow (2.5 metre deep) costeans and deeper material collected from wide-diameter auger/core holes (7-64.5m deep). The sampled material is considered representative of the initial production from the mine. Initial variability and comminution studies have been conducted on representative intervals using RC and drill core samples. Further work is in planned. Qualitative mineralogical and geochemical analysis of bulk samples previously submitted for metallurgical test work has been completed. This assessment has essentially addressed all material types and a range of head grades typical of Nolans Bore type mineralisation. A comparative detailed study has been completed on 21 thin sections selected from representative type examples in drill core with supportive and less detailed microanalysis conducted on about 50 other thin sections.

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<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Metallurgical factors or assumptions</td><td>
Arafura has designed and developed a flowsheet to process Nolans Bore-type mineralisation and generate REO products that meet customer specifications and requirements. Arafura is currently piloting its flowsheet. Lab scale and pilot metallurgical test work programs using various material types have demonstrated that Nolans Bore type mineralisation can be beneficiated into a phosphate-rich rare earth mineral concentrate. Phase 1 (beneficiation) and Phase 2 (phosphate extraction- PLR and RE recovery precipitate) have been completed but some results are still pending.

All mineralised material types can be processed using Arafura's flowsheet however rare earth and phosphate recoveries depend on the minerology of the various material types. A thorough review and analysis or material types was done in 2016. This analysis also utilised 3500 new whole rock XRF analyses and involved a detailed systematic review of all assay sample intervals within the main part of the deposit. The main mineralised material types of the 2016 re-classification scheme are shown below. Material types where a high P-REE recovery is considered likely in the current flowsheet have been grouped into PAPLP. Quantities of MAT2016 type 3A have been included in Arafura's test work however this type has been separated out as group NP1 given it may have some performance issues. Based on petrological studies and test work material types with significant epidote-allanite are expected to have lower REE-P recoveries in a phosphate concentrate. Hence these have been grouped and modelled as NP2. The remainder of the material types have been modelled as Waste. The Fe_2O_3 and Al_2O_3 grades have also been modelled because piloting test work has indicated that these may impact recoveries.
<table>
<tr><th>MAT2016 classification</th><th>Description</th><th>High P-REE recovery considered likely in phosphate con</th></tr>
<tr><td>1</td><td>Massive cream/green apatite with<2% allanite (<30% clay and <25% calcsilicates)</td><td>yes</td></tr>
<tr><td>2</td><td>Massive brown apatite with<2% allanite (<30% clay and <25% calcsilicates)</td><td>yes</td></tr>
<tr><td>3A</td><td>Fine grained cheralite, monazite and crandallite-rich mineralisation</td><td>possible</td></tr>
<tr><td>3B</td><td>>30% clay and kaolin with oxidised apatite, cheralite, monazite</td><td>yes</td></tr>
<tr><td>4A</td><td>Apatite with 2-10% allanite</td><td>yes</td></tr>
<tr><td>4B</td><td>Apatite with >10% allanite</td><td>no</td></tr>
<tr><td>5A1</td><td>Apatite with <10% allanite and >25% OH-free calcsilicates (predominantly clinopyroxene)</td><td>yes</td></tr>
<tr><td>5A2</td><td>Apatite with <10% allanite and >25% OH-bearing calcsilicates (predominantly epidote and amphibole)</td><td>no</td></tr>
<tr><td>5B2</td><td>Apatite with >10% allanite and >25% OH-bearing calcsilicates (predominantly epidote and amphibole)</td><td>no</td></tr>
<tr><td>6B</td><td>>30% clay, apatite with allanite and >25% calcsilicates</td><td>no</td></tr>
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Criteria	Commentary
Environmental factors or assumptions	Arafura received environmental approval for the project in December 2017 (NTEPA) and May 2018 (DOEE). No significant environmental risks or issues were identified which would be detrimental to the extraction of this mineral resource. Arafura has discovered and pump tested a substantial aquifer to the S and SW of Nolans Bore. Arafura's modelling indicates this ground water resource has the potential to supply to required water volumes for the life of the planned operation. Arafura has conducted environmental studies on the impact of abstracting water from this Cainozoic basin and has applied for a water abstraction licence (ASX: ARU 22/10/2014).
Bulk density	The density data in this model is the same as that used to inform the previous density estimate. A minimum of one or two representative drill core samples were typically selected from each core tray in mineralised zones while one sample per two core trays was selected for country rock intervals. A total of 7725 physical determinations were done on drill core using the Archimedes' principal, weighing in air and then in water. Friable and porous samples were weighed wet inside cling film with excess air removed to ensure the sample did not fall apart and to account for void space. Density was also determined using a calibrated downhole geophysical gamma-density probe. Downhole probe data was collected in 5cm increments and the average for each metre interval exported from the database and loaded into SURPAC for spatial analysis and estimation. Probe densities were acquired in representative holes selected by the Competent Person during 2007/08 and again in 2011. Density probe values are calibrated for measurement in water, and hence those values reported above the Standing Water Level were filtered out in Surpac and not used in the analysis and estimation process. The density value for the lowermost surveyed metre or so can also be erroneous due to calliper errors and the settlement of debris and fines. Hence the lowermost value was assessed for each downhole survey and omitted if it appeared inconsistent with the geology and the above values. In holes with repeat downhole density surveys, the 2011 values are typically given priority although some deeper 2007/08 surveys were used. A total of 16,613 x1metre-averaged density probe values are considered valid and available for use at Nolans Bore. The density values from 2007/08 downhole surveys were reprocessed by Borehole Wireline in 2015 using 2011 calibrations. This re-calculation was necessary as the original reported values were consistently too high in mineralisation and too low in non-mineralised rocks. Comparative analysis demonstrates that the re-calculated 2007/08 data closely match the 2011 density probe values in holes that were re-surveyed. Detailed analysis shows the density probe values closely matches the drill core determinations. Despite top and bottom of hole filtering, six 1m density probe values have averages less than one. Density values of less than 1t/m3 are considered unrealistic and have been removed. These unrealistically low values are surrounded by valid data and may reflect rare cavities encountered during drilling in this area. Furthermore, density values approaching an SG of 1 have been measured in drill core, and hence the lower density probe values that are just above an SG of 1 are accepted. Whether these lower density values are included or excluded from the informing dataset has no material impact on the estimated density. Analysis of the density database for Nolans Bore shows slightly different distributions for the two methods. This is because the drill core was focussed in areas with more mineralisation whereas the RC drilling included a greater component of unmineralised country rock. This result is not surprising and reflects real spatial and lithological differences at Nolans Bore. The quantum and distribution of density data is enough to provide a realistic estimation of density at Nolans Bore. The combined density data was cut with mineralised wireframes for ZONECODE and OXSTATE. About 28% of the informing density values are within MIN and the breakdown is show below.

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Bulk density</td><td>
<table>
<tr><th>ZONECODE</th><th>OXSTATE</th><th>Number</th><th>Min</th><th>Max</th><th>Mean</th></tr>
<tr><td>11</td><td>Oxidised</td><td>482</td><td>1.20</td><td>3.21</td><td>2.35</td></tr>
<tr><td>11</td><td>Transitional/mixed</td><td>1781</td><td>1.68</td><td>3.29</td><td>2.59</td></tr>
<tr><td>12</td><td>Fresh</td><td>321</td><td>1.29</td><td>3.24</td><td>2.85</td></tr>
<tr><td>13</td><td>Oxidised</td><td>15</td><td>2.23</td><td>3.05</td><td>2.50</td></tr>
<tr><td>13</td><td>Transitional/mixed</td><td>149</td><td>1.31</td><td>3.11</td><td>2.59</td></tr>
<tr><td>13</td><td>Fresh</td><td>107</td><td>2.24</td><td>3.21</td><td>2.74</td></tr>
<tr><td>14</td><td>Oxidised</td><td>155</td><td>1.26</td><td>2.60</td><td>2.01</td></tr>
<tr><td>21</td><td>Oxidised</td><td>273</td><td>1.27</td><td>3.22</td><td>2.38</td></tr>
<tr><td>21</td><td>Transitional/mixed</td><td>753</td><td>1.51</td><td>3.43</td><td>2.88</td></tr>
<tr><td>22</td><td>Fresh</td><td>840</td><td>2.00</td><td>3.73</td><td>3.02</td></tr>
<tr><td>30</td><td>Oxidised</td><td>74</td><td>1.82</td><td>3.15</td><td>2.60</td></tr>
<tr><td>30</td><td>Transitional/mixed</td><td>810</td><td>1.76</td><td>3.25</td><td>2.72</td></tr>
<tr><td>30</td><td>Fresh</td><td>832</td><td>1.69</td><td>3.80</td><td>2.93</td></tr>
<tr><td>40</td><td>Oxidised</td><td>14</td><td>2.29</td><td>2.99</td><td>2.69</td></tr>
<tr><td>40</td><td>Transitional/mixed</td><td>108</td><td>1.79</td><td>3.13</td><td>2.68</td></tr>
<tr><td>40</td><td>Fresh</td><td>131</td><td>2.42</td><td>3.26</td><td>2.81</td></tr>
<tr><td>GNE</td><td>Oxidised</td><td>1789</td><td>1.20</td><td>3.95</td><td>2.32</td></tr>
<tr><td>GNE</td><td>Transitional/mixed</td><td>11106</td><td>1.05</td><td>3.58</td><td>2.55</td></tr>
<tr><td>GNE</td><td>Fresh</td><td>9017</td><td>1.25</td><td>4.10</td><td>2.67</td></tr>
<tr><td>PEG</td><td>Oxidised</td><td>292</td><td>1.27</td><td>2.83</td><td>2.32</td></tr>
<tr><td>PEG</td><td>Transitional/mixed</td><td>2895</td><td>1.49</td><td>3.53</td><td>2.51</td></tr>
<tr><td>PEG</td><td>Fresh</td><td>2302</td><td>1.25</td><td>4.10</td><td>2.56</td></tr>
<tr><td>SCH</td><td>Oxidised</td><td>69</td><td>2.03</td><td>2.90</td><td>2.41</td></tr>
<tr><td>SCH</td><td>Transitional/mixed</td><td>1215</td><td>1.68</td><td>3.29</td><td>2.60</td></tr>
<tr><td>SCH</td><td>Fresh</td><td>1136</td><td>1.34</td><td>3.25</td><td>2.66</td></tr>
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Criteria	Commentary
Classification	Classification for Nolans Bore is based on the continuity of geology, mineralisation and grade, using measures such as the quality of the geological model, drill spacing, number of informing samples, average assay sample spacing, density data and quality, variography, and estimation pass and statistics. The 3D search parameters used in this estimate have steep or inclined down-dip orientations for most of the mineralisation. Nolans Bore is systematically drilled on a nominal 40 m x 40 m drill hole spacing on the local grid with localised drilling at nominal 20 m x 20 m spacing in the central North Zone. In general, the estimates have been classified as Measured Resource in the central North Zone where closest spaced drilling occurs and the confidence in the estimate is high. The outer peripheries and deepest parts of the modelled deposit are generally classified as Inferred Resource where there is lower confidence in the estimate. This lower confidence corresponds to systematic 40 m x 40 m drill hole spacing at surface and at depth some parts are 40 m x 80 m. The addition of east-west drilling in the Central Zone and targeted geotechnical drill holes has provided extra information in different drilling directions which has allowed some parts to be classified as Indicated Resources corresponding to moderate levels of confidence in the estimate. The peripheral parts of the deposit are poorly supported by drilling and these areas have not been classified as Mineral Resource. Following the estimation process, the Mineral Resource was assessed using a number of iterative measures to develop an overall classification strategy. Following this, an initial classification wireframe was constructed for Measured and Indicated using a series of 20m-spaced vertical sections through the block model. Blocks inside the Measured wireframe were assigned to Measured. Blocks that were inside the Indicated wireframe, and not assigned to Measured, were assigned to Indicated. Mineralised blocks outside of the Indicated wireframe were then assigned to Inferred. Following this initial assignment of categories, blocks on the margins of each category were inspected and re-evaluated on a section by section basis and in 3D, and resource categories manually adjusted for each block where appropriate based on geological continuity and estimation data. Most blocks within the central part of the North Zone were filled during the first estimation pass with the maximum number of informing samples. This coincides to an area of more closely spaced drilling and is classified as Measured Resources. Parts of the Central and Southeast Zones were also filled during the first pass of the estimation process; however, these zones were not classified as Measured because they lacked the geological confidence and continuity observed in the North Zone. Most of the remainder of the North, Central and Southeast Zones were filled during the second estimation pass. Accordingly, a large portion of these blocks were classified as Indicated Resources. Parts of the Southeast and most of the Southwest did not fill during the second estimation pass and have been classified as Inferred. Even though parts of the Southwest Zone were filled during the second pass, all of the Southwest was classified as Inferred because the blocks filled in the second pass formed an isolated body. Furthermore, the estimation search criteria were borrowed from parameters developed using data in the Southeast Zone and may not be suited to higher confidence assignments in a different zone. The Competent Person believes that the classification appropriately reflects its confidence in and the quality of the grade estimates.
Audits and reviews	The Mineral Resource has not been audited.
Discussion of relative accuracy/confidence	The Mineral Resource classification applied to Nolans Bore implies a confidence level and level of accuracy in the estimates. These levels of confidence and accuracy relate to the global estimates of grades and tonnes for the deposit. No production data is available as mining has not commenced at the date of this report.

Section 1 Sampling Techniques and Data (for Metallurgical Testwork)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• All samples are from previously announced diamond drilling programs. • Information on sampling techniques for samples from the 2019 drilling program are as per announcement of drilling results (ASX: ARU 17/12/2019) • Information on sampling techniques from previous drilling programs are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• Drilling techniques for all samples tested were diamond core. • Drilling methodology for samples from the 2019 drilling program are as per announcement of drilling results (ASX: ARU 17/12/2019). • Drilling methodology for other samples are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Drill sample recovery for samples from the 2019 drilling program are as per announcement of drilling results (ASX: ARU 17/12/2019). • Drill sample recovery for other samples are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• Drill logging for samples from the 2019 drilling program are as per announcement of drilling results (ASX: ARU 17/12/2019). • Drill logging for other samples are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Core was sampled by cutting to geological or material type boundaries. • Half or quarter core samples were cut from 2019 drill core or collected from core trays stored in the company's core storage facility in Darwin. • Samples were bagged individually and labeled with drill hole and interval information by qualified and experienced Arafura geological personnel. • Upon receipt at the metallurgical test facility all samples were crushed 100% passing 3.35mm before splitting on a riffle splitter to create sub-samples. • Sub samples were stage ground with a closing screen size of 180 microns prior to splitting into individual flotation test charges.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• The assay methods are appropriate for this style of mineralization and consistent with those used for the current Mineral Resources estimate and previous metallurgical test work. • Assaying was carried out using standard industry methodology at Nagrom Pty Ltd.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• As per standard industry practice for metallurgical test work no validation of individual assays were carried out. • In instances where test results were considered unusual or unexpected a repeat test was carried out as required.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Samples for the metallurgical test work were taken from diamond drill holes that range spatially throughout the Mineral Resources (ASX: ARU 07/06/2017) and Ore Reserves (ASX: ARU 07/02/2019). • Samples were selected across a range of P_2O_5 grades from the selected geological material types as logged by the geologists at the time of drilling or subsequently as reported previously. • Sources of MT5A1 and 5A2 samples collected for the metallurgical test work program, whether included in the analysis referenced in the associated announcement or not, are included in the table below.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	- *Data spacing for reporting of Exploration Results.* - *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* - *Whether sample compositing has been applied.*	- Not Applicable
Orientation of data in relation to geological structure	- *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* - *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	- Not Applicable.
Sample security	- *The measures taken to ensure sample security.*	- Samples were bagged individually and labeled with drill hole and interval information by qualified and experienced Arafura geological personnel. - Samples were unbagged and labeled individually at the metallurgical test facility (Nagrom Pty Ltd) by qualified technicians.
Audits or reviews	- *The results of any audits or reviews of sampling techniques and data.*	- No external audits or reviews have been done on this data.

Section 2 Reporting of Exploration Results (for Metallurgical Testwork)

Criteria	JORC Code explanation	ommentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Nolans Bore deposit is located wholly within Exploration Licence (EL) 28473 which is 100% owned by Arafura Resources Limited. The deposit lies within Mineral Lease (ML) application 26659 which is 100% owned by Arafura Rare Earths Pty Ltd., a wholly owned subsidiary of Arafura Resources Limited. Mineral Lease applications 30702, 30703 and 30704 have been lodged over the proposed processing site and accommodation village. These are also 100% owned by Arafura Rare Earths Pty Ltd. Arafura Resources Limited also has 100% ownership of ELs which cover all proposed project infrastructure, including the bore field (ELs 28498, 29509, 31224, 31284 and 31957) • The deposit is situated on Pastoral Land with known mineralisation spanning the boundary between Aileron (PPL 1097) and Pine Hill (PPL 1030) Stations. All stated Mineral Resources and Ore Reserves lie on Aileron. • Arafura Resources has executed a Native Title Exploration Agreement with the Central Land Council (CLC) on behalf of the Native Title Holders for this tenement. The Nolans project is subject to Native Title claims. In February 2020 Arafura reached an in-principle agreement with the Native Title Holder groups for the Nolans Project (ASX: ARU 02/03/2020). • Arafura was issued Sacred Site Clearance Certificates which provides clearance for the exploration and drilling activities conducted at Nolans Bore. A comprehensive clearance has recently been issued for the project area. • Arafura Rare Earths Pty Ltd has also applied for a water abstraction licence to support the development of this project. • At the time of reporting, there are no known impediments to obtaining a license to operate in the area and the tenement is in good standing.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• PNC Exploration (Australia) Pty Ltd explored the project area in 1994-1996. They discovered the Nolans Bore prospect by following up a substantial airborne radiometric anomaly. PNC completed ground radiometric surveys and they sampled and assayed the surface outcrops. No other exploration work has been done at Nolans Bore by other parties.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Nolans Bore REE-P-U deposit is a complex, 3D stockwork vein-style deposit which occurs in the Aileron Province of the Arunta Region in the

Criteria	JORC Code explanation	ommentary
		Northern Territory, Australia. Small isolated parts of the deposit crop out, but most of it is concealed beneath a thin layer of alluvial and colluvial transported cover. • The deposit is characterised by massive fluorapatite mineralisation which ranges from discrete narrow fine-grained veins to wide intervals of massive coarse-grained zones and breccias. The massive fluorapatite-rich rocks contain up to about 95% fluorapatite and typically contain abundant fine-grained REE-bearing mineral inclusions, such as monazite group minerals, allanite, thorite and numerous other REE phosphates, silicates and carbonates. The fluorapatite itself contains variable amounts of REE but a higher proportion of REE is hosted in the fine-grained mineral inclusions. The associated calcsilicate style of mineralisation can contain fluorapatite and other REE-bearing minerals and is typically dominated by pyroxene, amphibole, epidote-allanite, carbonate, quartz, plagioclase, zeolites, garnet, scapolite and titanite. The calcsilicate rocks are strongly associated with the massive fluorapatite mineralisation but tend to be lower grade where mineralised. • The Nolans Bore deposit is hosted by metamorphosed Palaeoproterozoic igneous and sedimentary rocks of the Aileron Province. Some of these host rocks also contain low grade REE mineralisation (e.g. the coarse-grained to pegmatitic granitoids and granitic gneisses in the area commonly contain up to 0.3% REE and can locally exceed 1% REE, present as metamorphic monazite) but these rock types and REE grades and mix markedly contrast with the typical Nolans Bore mineralisation and have not been included in the resource estimate. • The metamorphosed Palaeoproterozoic sedimentary and igneous rock units that host the deposit have undergone high-grade metamorphism during the 1600-1525Ma Chewings Orogeny and are interpreted to be parts of the Aileron Metamorphics, Lander Rock beds and the Boothby Orthogneiss as mapped in nearby outcrops. Large intrusive bodies of coarse-grained to pegmatitic granitoid form a major component of the host country rocks at Nolans Bore. These units can be traced as coherent bodies (dykes and sills) and can be differentiated from the other host rocks and mineralisation. As such, these rocks form important marker units. The interpreted geological distribution suggests these granitoid bodies are mutually exclusive of mineralisation. However, drill core relationships clearly indicate the

Criteria	JORC Code explanation	ommentary
		mineralisation postdates the granitoids. The currently favoured geological model suggests that mineralisation is preferentially formed in strain zones within the country rock gneisses and schists adjacent to the more competent, massive coherent coarse-grained to pegmatitic granitoid bodies. This structural relationship was first proposed in 2006 and is still supported. • Nolans Bore-type mineralisation and its associated alteration is geologically and geochemically distinct from the surrounding host rocks and clearly post-dates the high-grade metamorphism in the host rocks. Large parts of the deposit remain relatively undeformed however some (all) parts are overprinted by the Devonian-Carboniferous Alice Springs Orogeny. Cainozoic weathering and oxidation also occurs. Despite localized overprinting effects, the geochemistry of the mineralisation is similar throughout. Hence the mineralisation is defined by an enveloping surface which encompasses all Nolans Bore-type mineralisation at a cut-off of >0.5% TREO. • Systematic drilling indicates the widespread presence of mineralised veins up to tens of metres in thickness and hundreds of metres in length, extending below 250 m drilled depth across parts of the deposit. The extent of the deposit is yet to be fully outlined. • Nolans Bore-type mineralisation and associated alteration has been recognised in exploration drilling and surface exposures over an area of about 4 km x 3 km.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• Drill hole information for samples from the 2019 drill program are as per announcement of drilling results (ASX: ARU 17/12/2019). • Drill hole information for other samples are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).

Criteria	JORC Code explanation	ommentary
Data aggregation methods	- *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* - *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* - *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	- Not Applicable.
Relationship between mineralisation widths and intercept lengths	- *These relationships are particularly important in the reporting of Exploration Results.* - *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* - *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	- Not Applicable.
Diagrams	- *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	- Diagrams for samples from the 2019 drill program are as per announcement of drilling results (ASX: ARU 17/12/2019). - Diagrams for other samples are as per the information contained in the Mineral Resources (ASX: ARU 07/06/2017).
Balanced reporting	- *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	- Not Applicable.
Other substantive exploration data	- *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- Arafura has drilled 548 RC and diamond core holes into Nolans Bore between 2001 and 2013, for a total of 87,081 metres. These holes together with data from 9 costeans (1,112m) have been used to outline and define the identified Mineral Resources at Nolans Bore. In addition to these Arafura has drilled 48 wide-diameter (780mm) holes (1,658m) into the deposit and excavated a number of small pits for exploration and geotechnical purposes in and around Nolans Bore. Additional drilling has been done to the N, SE and SW of the deposit. - Arafura acquired a detailed low-level, 50m spaced N-S airborne magnetic

Criteria	JORC Code explanation	ommentary
		and radiometric survey over Nolans Bore and surrounds in 2008. Additional adjoining 100m spaced N-S regional airborne surveys were acquired across other parts of the Aileron-Reynolds project area in 2011 and 2013. • A detailed airborne hyperspectral survey was acquired over most of the Aileron-Reynolds project area in 2008. This survey covers the Nolans Bore and surrounds and was used to explore the regional for similar mineralogy. • Arafura acquired aerial photography over the deposit in 2008. This resulted in a detailed orthophoto coincident with a professionally surveyed detailed DEM over most of ML26659. This detailed DEM has been updated and revised several times based on new survey data. • Arafura acquired detailed World View 2 satellite imagery (0.5m pixel resolution) over Nolans Bore in 2012. Additional regional and less detailed SPOT5 satellite imagery (2.5m pixel resolution) was also purchased over the project area in 2012 for the project's Environmental Impact Statement (EIS) studies and regional exploration. Arafura also acquired additional World View imagery covering the proposed developments to the S and SE of Nolans Bore in 2013. • Arafura acquired detailed imagery via a drone survey with an associated DEM over the main project area in 2018. • Arafura has collected extensive geological, geotechnical and metallurgical data from the Nolans Bore deposit and surrounds in support of its exploration and resource definition programs. • Arafura has collected a substantial biogeochemical dataset over the Nolans Bore deposit and surrounds and has used this to assist in targeting exploration in areas of cover (*e.g*. Mulga prospect ASX: ARU 8/11/2013). • Arafura discovered substantial ground water resources to the S and SW of Nolans Bore and has applied for a water abstraction licence (ASX: ARU 22/10/2014). • Arafura's EIS for the Nolans project gained regulatory approval from the Northern Territory Environment Protection Authority (NTEPA) in December 2017 (ASX: ARU 05/01/2018) and from the Australian Government's Department of Environment and Energy in May 2018 (ASX: ARU 14/05/2018). Amendments to the project configuration were also approved by the NTEPA in September 2019. • Arafura has acquired onsite environmental data since 2008 (dust and

Criteria	JORC Code explanation	ommentary
		weather information). Arafura has also routinely collected baseline groundwater information since 2010. Additional baseline environmental data (chemical and radiation) was collected from 25 sites during EIS studies. • Arafura investigated the sulfide content of the waste rocks during the EIS completed AMD studies. As expected, the results were very low however twelve representative samples have been subjected to barrel leach test work to satisfy the Northern Territory Department of Primary Industry and Resources (NTDPIR) and NTEPA. • Arafura obtained additional representative whole rock assays and updated the material types and Mineral Resources in 2016-18. • Arafura completed detailed metallurgical and mining studies resulting in a Definitive Feasibility Study (DFS) and updated Ore Reserves for the Nolans project in 2019 (ASX: ARU 07/02/19).
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Mine planning and the updating of Ore Reserves for the project are planned in 2020. • Arafura is intending to mine and process this world-class rare earth deposit with additional work likely as the project develops.

Material Type	P_2O_5 Head Grade %	Hole	m East	m North	From m	To m
MT5A1	12.1	NBDH1092	319103.43	7501670.52	135	136
MT5A1	16.4	NBDH1092	319103.43	7501670.52	138	140
MT5A1	17.0	NBDH1097	319246.63	7501883.29	104	106
MT5A1	18.6	NBDH1097	319246.63	7501883.29	144	145
MT5A1	TBA	NBDH1105	319293.413	7501886.790	99.22	100.95
MT5A1	14.4	NBDH388	318844.231	7502026.617	14	16
MT5A1	15.9	NBDH388	318844.231	7502026.617	47.5	49.2
MT5A1	6.9	NBDH834	318496.85	7502067.154	39.4	55
MT5A1	11.5	NBDH836	318833.701	7502199.376	30	40.4
MT5A1	12.7	NBDH836	318833.701	7502199.376	169	170.2
MT5A1	14.9	NBDH839	319039.125	7502175.159	65.4	67
MT5A1	27.1	NBDH876	319332.924	7501970.593	76	77
MT5A2	14.9	NBDH1068	318933.93	7501752.88	115.8	117.9
MT5A2	8.7	NBDH1092	319103.43	7501670.52	150	153
MT5A2	7.2	NBDH1093	318925.06	7501995.5	183	186
MT5A2	18.9	NBDH1095	318932.23	7501751.51	51	52
MT5A2	8.2	NBDH1095	318932.23	7501751.51	128	129
MT5A2	13.0	NBDH1095	318932.23	7501751.51	170	171
MT5A2	19.4	NBDH1097	319246.63	7501883.29	70	72
MT5A2	15.0	NBDH1097	319246.63	7501883.29	81	84
MT5A2	20.7	NBDH1097	319246.63	7501883.29	108	109
MT5A2	11.4	NBDH1097	319246.63	7501883.29	109	110
MT5A2	24.7	NBDH1097	319246.63	7501883.29	111	112
MT5A2	19.8	NBDH1097	319246.63	7501883.29	180	181
MT5A2	5.6	NBDH1098	318349.26	7502057.89	33	35
MT5A2	10.7	NBDH1098	318349.26	7502057.89	37	40
MT5A2	3.4	NBDH1103	319127.180	7501705.561	71.5	1.07
MT5A2	3.0	NBDH1104	319072.527	7501644.260	25.5	26.58
MT5A2	TBA	NBDH1105	319293.413	7501886.790	19.78	21.1
MT5A2	3.3	NBDH831	318322.882	7502116.224	71	75
MT5A2	7.7	NBDH834	318496.85	7502067.154	12	13.8
MT5A2	15.4	NBDH836	318833.701	7502199.376	85	87
MT5A2	13.5	NBDH836	318833.701	7502199.376	123	125
MT5A2	12.3	NBDH837	318934.149	7502138.16	37.6	39

1 Appendix A: JORC CODE, 2012 EDITION – TABLE 1

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Mineral Resource Estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* *Clear statements as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The Measured and Indicated component of the Mineral Resources estimated and reported to the ASX by Arafura Resources on 7 June 2017 following the guidelines of the JORC Code 2012 has been used as the basis for Ore Reserves. The Mineral Resources are reported inclusive of the Ore Reserves.
	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A site visit to the project site was undertaken during the period 24-27 July 2018 by David Billington, Principal Mining Consultant with Mining Plus (Competent Person). All relevant areas of the Project were visited including an inspection of relevant drill core from the Project stored off-site. Site visits have been conducted by all relevant technical professionals including geological, geotechnical, hydrological, mining, engineering, and environmental disciplines who are contributors to both the study and assessment of the Modifying Factors applicable to these Ore Reserves.
	If no site visits have been undertaken indicate why this is the case.	See above.
Study Status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*	The Ore Reserves (JORC 2012) were updated and announced 7 February 2019, as a result of the December 2018 Definitive Feasibility Study (DFS). There have been further material changes to Modifying Factors relating to the metallurgical recovery for some of the geological material types used for the 2018 Ore Reserves, making a comparison to these Ore Reserves not material for JORC reporting purposes.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		The Mining section of the DFS has been updated to reflect these modifying factors in February 2020.
	The code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resource to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material modifying factors have been considered.	All work has been completed to Feasibility Study (FS) level (±15%). The studies to date have considered material Modifying Factors and have determined the mine plan to be technically achievable and economically viable at the time of reporting. The mine plan involves the application of conventional open pit mining methods and mineral processing technologies that are utilised in Australia and overseas.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	Cut-off grade is calculated in consideration of the following parameters: - Rare earth prices - Mining factors including ore loss and dilution - Process recovery - Operating costs - General and administration costs - Royalties The cut off parameters were estimated from profit algorithms provided by Arafura which utilised the processing recoveries (based on metallurgical test work), costs (based on the DFS cost estimates) and revenues (based on independent marketing reports) for each ore type. Only material that generated a profit was considered as potential ore.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by*	The resource model which formed the basis for estimation of the Ore Reserves was used in an open pit optimisation process using Whittle 4X software to produce a range of pit shells using operating costs and other inputs derived from all the above-mentioned studies. Mining costs were generated from mining contractor pre-qualification tender submissions and recent study work. Pit slope design parameters were based on core logging and material property data collected from geotechnical drilling. The

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	preliminary or detailed design).	overall pit slope angles in the final stage of pit design vary between 34° and 45°, including allowances for pit access ramps. The resultant optimal pit shells were then used as a basis for detailed pit and stage designs for the deposit. The Ore Reserves are the Measured and Indicated Resources within the final pit designs for the deposit.
	The choice, nature and appropriateness of the selected mining method (s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The mining method selected is open cut utilising conventional hydraulic excavator and haul truck fleets. Selective mining of the ore has been assumed for determining the selective mining unit (SMU) block size, ore loss and dilution assumptions, equipment selection, operational mining methods to be employed and mine schedule assumptions. The open pits will be developed using multiple stage pit designs, all of which have been completed to a FS standard. Ramps are designed at 1 in 10 gradient, 30m wide except for lower pit levels and small sub-pits where the ramps are designed at 21m wide.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling *The major assumptions made, and the Mineral Resource model used for pit and stope optimisation (if appropriate).*	Geotechnical studies have been completed to a FS level by AMC Consultants based on detailed analysis and test work of drill core from a dedicated geotechnical drilling campaign carried out in 2011. The resultant recommended pit design parameters have been used to determine the overall pit slope angle in the pit optimisations and the wall angles in the pit designs. Grade control will be based on additional RC drilling, pit mapping and production blasthole sampling. Grade control has been allowed for in the pit optimisation input costs and financial modelling.
	The mining dilution factors used *The mining recovery factors used* *Any mining widths used.*	Regularisation analyses of the geological block models used as a basis for Ore Reserves indicated a global ore loss of 5% and a dilution of 15%, which are representative of the expected mining methods and ore definition. A minimum mining width of 40m has been used for the bottom of pits and for minimum cutback width.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred Resources within the pit designs have not been considered in the Ore Reserves. However, the study identified 10.4Mt of Inferred Resources within the pit. These Inferred Resources have been assumed to be stockpiled in the calculation of the Ore Reserves.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	The infrastructure requirements of the selected mining methods.	The proposed mine plan will include waste rock dumps, ROM pads, surface haul roads to the processing plant, pumping infrastructure, work shop facilities, technical and administration facilities, explosives storage facilities and associated mine and processing infrastructure.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of the mineralisation.*	The metallurgical process consists of the following general stages: • Beneficiation by flotation to produce a high phosphate concentrate containing the majority of the rare earth elements (REE). • Pre-leaching of the high phosphate concentrate with phosphoric acid to produce an REE-rich pre-leach residue (PLR). • Regeneration of the spent phosphoric acid for use in the pre-leach and production of a phosphoric acid by-product. • Acid bake of the PLR with sulphuric acid followed by water leaching and precipitation of a rare earth sulphate. • Purification of the rare earths by dissolution of the rare earth sulphate and various stages of hydroxide precipitation and selective leaching with hydrochloric acid to produce a high purity rare earth chloride liquor and a cerium hydroxide product. • Processing of the rare earth chloride liquor using solvent extraction (SX) to produce separated SEG/HRE oxide and NdPr oxide. The process flowsheet is specifically designed to complement the ore characteristics and the style of mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	Aspects of the metallurgical process are “industry standard”, particularly the following: • Beneficiation. • Phosphoric acid pre-leach, regeneration and phosphoric acid production. • Water leach. • Separation of REEs by SX. Other aspects of the process are novel and have been specifically developed and extensively tested and demonstrated for the Project in the test work and piloting programs completed.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	A significant metallurgical test work program has been undertaken on all aspects of the flowsheet including batch, variability and pilot plant testing. All metallurgical test work has been undertaken at commercial laboratories under the management of Arafura and with independent assessment of the results and conclusions. A detailed beneficiation variability program has been undertaken based on the geological domaining developed as part of the geological resource modelling. Each geological material type, and resource classification, has been tested separately and as part of various blends, using samples from drill core and bulk sampling, across a range of grades, and other attributes to assess performance in the beneficiation process. Following the DFS it was identified that additional geological material types may be suitable for processing however there was not sufficient beneficiation variability test work to provide sufficient confidence in prediction of beneficiation performance. Based on this an additional program of beneficiation variability testing was undertaken on these geological material types across a range of grades and other attributes to provide additional performance data. The data from the previous and most recent beneficiation variability test work has been used to update recovery factors for valuable and deleterious elements to concentrate from that developed for the DFS. Recovery of valuable minerals to payable products has been modelled through the hydrometallurgical process on the basis of batch, variability and pilot test work and is applied subsequent to the beneficiation recovery.
	Any assumptions or allowances made for deleterious elements.	Variability testing has investigated key deleterious elements and their deportment through the process and rejection and blending criteria have been included into the geometallurgical model used for development of the mining schedule.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Feed samples for the bulk and pilot scale test work have been generated from a bulk sampling program carried out in 2010 using a Bauer wide diameter drill. Bulk samples were derived from Measured and Indicated Resources and coincide with the initial mining area. Representative bulk samples of the host rocks from this area were also included to simulate dilution. Two large bulk samples (~10t and ~14t) were produced by a commercial laboratory following detailed preparation and compositing

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		instructions from Arafura. The two bulk samples differed in grade but they are considered representative of the typical material types that are proposed to be processed in the deposit.
	For minerals that are defined by the specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	The products from the proposed operation are separated or mixed rare earth oxides and a standard specification merchant grade phosphoric acid.
Environmental	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	The Project received Northern Territory EPA (NTEPA) approval in December 2017, followed by Federal Government environmental approval in May 2018. These approvals are the primary environmental approvals required for the Project to be developed. A Section 14A variation under the Northern Territory *Environmental Assessment Administrative Procedures* was prepared to reflect modifications to the project configuration that have resulted from DFS and metallurgical piloting. This variation was approved by the NTEPA in September 2019. No variation process is required for the Federal Government approval.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.*	The Project is located in Australia's Northern Territory. Applications have been lodged with the relevant Northern Territory Government authority for the Mineral Leases (MLs) over the mine site, process plant, residue storage and accommodation village areas, as well as for easements for infrastructure. Water supply for the Project will be from a local borefield which has been subject to extensive exploration and investigation drilling, pump testing and modelling to demonstrate the capacity of the aquifer to support the Project. A water abstraction permit has been lodged with the relevant Northern Territory Government authority. There are reasonable grounds to expect that all remaining government approvals will be received within the timeframes for project financing and construction. Power for the project will be generated on site with fuel from the adjacent Amadeus Gas Pipeline.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		Infrastructure to be constructed includes roads, accommodation camp, reverse osmosis and waste water treatment plants, workshops, technical and administration offices and power station. The workforce will be made up of bus-in, bus-out (BIBO) and fly-in, fly-out (FIFO) staff. All personnel will fly into or reside in Alice Springs and be transported by bus to and from site. It is expected that flights will be made up of a mix of commercial and charter flights. Road infrastructure (Stuart Highway) is 15km from the Project site. Rail infrastructure (for incoming and outgoing transport) is available at Alice Springs (135km from site) which connects to the ports at Darwin and Adelaide.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	The mining capital cost estimate for the DFS has been developed by Mining Plus through the collation of a number of mining contractor submissions and the estimation of mining equipment fleet sizes. Project capital costs have been estimated by Hatch, the lead engineer appointed to undertake the DFS with support from other specialist consultants. The cost estimate has been prepared in line with the requirements of a Level 3 cost estimate on the basis of the designs developed through the DFS. All capital costs have been estimated to a FS level of confidence +/-15%.
	The methodology used to estimate operating costs.	Mining operating costs were estimated from mining contractor submissions as a schedule of rates, including mobilisation, clearing, drill and blast, load and haul of ore and waste, rehandle of ore to the process plant, supporting ancillary activities, rehabilitation and demobilisation. Processing operating cost estimates were developed on a 'first principle basis'. The main cost drivers are the required reagent consumption rates and costs, reagent and product transportation to and from site, labour costs and energy costs. The following basis has been used for the operating costs: • Reagent consumption from metallurgical test work and costs from multiple quotes or independent forward forecasts.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		- Transport costs developed by independent study from logistics contractors. - Labour costs based on detailed organisation charts with rates from independent human resources study. - Energy consumption from detailed calculations and gas costs from an independent industry consultant. - General and administration and other minor costs from quotations, industry standard factors, standard consumption rates and pricing and minor allowances. All process and administration operating costs have been estimated to a FS level of confidence +/-15%.
	Allowances made for the content of deleterious elements.	No additional cost allowances have been made for deleterious elements as it is not applicable for the Project process flowsheet
	The source of exchange rates used in the study.	A USD:AUD exchange rate of 0.712 has been derived from corporate guidance and independent advice from reputable financial institutions. Financial modelling has been carried out using a forward forecast curve from an independent analyst.
	Derivation of transport charges.	Transportation costs have been estimated from an independent study undertaken by a logistics contractor. These costs incorporate all transport from either Darwin Port or Port Adelaide to site.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	The NdPr oxide product is a directly saleable product and attracts no treatment or refining charges. The cerium hydroxide product is an impure product and a 50% payable charge has been applied based on independent market research and advice. The mixed SEG/HRE oxide product is a mixed product which will require further separation and a 35% payable charge has been applied based on independent market research and advice. The phosphoric acid product is a directly saleable product and attracts no treatment or refining charges. Product transport from Darwin Port to the customer has been included in the determination of product pricing as part of the independent market assessments.

<table>
<tr><th>CRITERIA</th><th>JORC CODE EXPLANATION</th><th>COMMENTARY</th></tr>
<tr><td></td><td><i>The allowances made for royalties payable, both Government and private.</i></td><td>The Northern Territory <i>Mineral Royalty Act</i> imposes royalties on minerals extracted in the Northern Territory and has a hybrid mineral royalty system where the royalty payable is the greater of:
20% of the gross production revenue less direct operating costs; or
2.5% of the gross production revenue.
Gross production revenue is the point at which the mineral commodity is first capable of being sold into an available market. In the case of the Nolans Project the first saleable product includes cerium hydroxide, phosphoric acid and mixed rare earth chloride intermediate. Gross production revenue is reduced by notional marketing and transport costs. The royalty for the Project has been incorporated into the financial model based on this basis. No private royalties are payable for the Project.</td></tr>
<tr><td>Revenue Factors</td><td><i>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns etc.</i></td><td>Production and recovery for revenue calculations are based on detailed mine schedules, mining factors and project cost estimates developed for the DFS.
<table>
<tr><th>Sale Price - Rare Earths</th><th>US$/kg</th><th>% Payable</th></tr>
<tr><td>Light REOs</td><td></td><td></td></tr>
<tr><td>Cerium Oxide</td><td>2.10</td><td>60%</td></tr>
<tr><td>Neodymium Oxide</td><td>89.70</td><td>100%</td></tr>
<tr><td>Praseodymium Oxide</td><td>89.70</td><td>100%</td></tr>
<tr><td>Middle REOs</td><td></td><td></td></tr>
<tr><td>Samarium Oxide</td><td>12.36</td><td>35%</td></tr>
<tr><td>Europium Oxide</td><td>12.36</td><td>35%</td></tr>
<tr><td>Gadolinium Oxide</td><td>12.36</td><td>35%</td></tr>
<tr><td>Heavy REOs</td><td></td><td></td></tr>
<tr><td>Dysprosium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Terbium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Yttrium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Erbium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Holmium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Lutetium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Thulium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Ytterbium Oxide</td><td>68.04</td><td>35%</td></tr>
<tr><td>Cerium as Cerium Hydroxide</td><td>1.26</td><td>100%</td></tr>
<tr><td>Sale Price - Other</td><td>US$/tonne</td><td></td></tr>
<tr><td>Phosphate (P_2O_5) as 54% MGA</td><td>683.34</td><td>100%</td></tr>
</table></td></tr>
</table>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		The Project economics have been assessed using a financial model developed by independent consultants under the direction of Arafura incorporating all cost and revenue factors that influence the economic outcomes. The financial model has been used to evaluate the mine schedule used for these Ore Reserves.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Rare earth pricing was supplied by Arafura from a Roskill independent marketing report finalised in June 2019 and been used as the basis for the Ore Reserves. Revenue factors within the optimisation process were used to produce a range of nested optimisation pit shells to assist in the analysis and shell selection for pit design.
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	The primary product for the Project is NdPr oxide which is used in the production of rare earth (NdFeB) permanent magnets. Current drivers on the consumption of NdFeB magnets, and consequently the demand for NdPr oxide, include increasing demand for electric vehicle drive trains in the expanding new energy vehicles (NEV) market. This market is anticipated to grow to a market penetration of 88% in 2030 which will drive very large demand growth. In addition, a restriction in China on polluting rare earth producers and the high cost of entry into the market will constrict supply.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Around 85% of the worlds rare earth production is currently from China. The only sizeable non-Chinese producer of primary NdPr oxide is Lynas Corporation operating in Western Australia with downstream processing in Malaysia. Other projects currently under consideration include projects in Tanzania, Australia, Greenland and the USA. All of these projects are of comparable scale to the Nolans Project (approximately 5%-7% of current demand). Current forecasts have China moving from being a net exporter to a net importer of NdPr oxide sometime between 2020 and 2023.
	Price and volume forecasts and the basis for these forecasts.	The independent marketing report commissioned by Arafura for the DFS estimates global demand for rare earths to increase by a compound annual growth rate (CAGR) of 3.9% through to 2024 and then slow to 2.2% from 2025 to 2030. It is not believed that these assumptions have materially changed since the publication of the DFS.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not applicable.
Economic	*The inputs to the economic analysis to produce the net present value (NPV), the source and confidence of these economic inputs estimated inflation, discount rate, etc.*	These Ore Reserves are based on the DFS financial model with inputs for mining, processing, sustaining capital and contingencies scheduled and costed.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The Ore Reserves returns a positive NPV based on assumed commodity price and the Competent Person is satisfied that the Project economics that make up the Ore Reserves retains a suitable profit margin against reasonable future commodity price movements.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	Following extensive negotiation with the Central Land Council (CLC) and presentation of the draft agreement to native title holders in February 2020 Arafura has reached an in-principle Indigenous Land Use Agreement (ILUA) with the native title holders under relevant Australian and Northern Territory legislation. It is anticipated that this ILUA will be finalised and executed in April 2020 at the next full council meeting of the CLC. Execution of this agreement will allow the granting of the Project's primary ML.
Other	*To the extent relevant, the impacts of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.*	No naturally occurring material risks have been identified.
	The status of material legal agreements and marketing arrangements.	Arafura has currently executed two non-binding MOUs for NdPr oxide offtake, one non-binding MOU for cerium hydroxide offtake, and one non-binding MOUs for phosphoric acid offtake. There are reasonable grounds to anticipate that commercially competitive contract terms will be achieved. No other material legal agreements exist.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government regulations will be received within the timeframe anticipated in the Pre-feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	The exploration licenses pertaining to the Project are in good standing. The Project's MLs are under application and require an ILUA to be concluded with the native title holders prior to issue by the relevant Northern Territory Government authority. These are anticipated to be granted in mid-2020. Granting of an authorisation to mine is required prior to commencement of site works. The pre-requisite for this is the approval of the proponent's Mining Management Plan, which is currently under preparation by Arafura. It is anticipated that the authorisation to mine will be granted following grant of the MLs in 2020. All remaining primary and secondary approvals are anticipated to be granted in line with requirements of the development timeframe.
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.*	It is the opinion of the Competent Person for Ore Reserves that the results are an appropriate reflection of the deposit. Measured and Indicated Mineral Resources within the final pit design (which has been derived by applying appropriate Modifying Factors as described above) have been classified as Proved and Probable Ore Reserves, respectively.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	No audits or reviews of the Ore Reserves have been conducted to date.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Discussion of relative accuracy / confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using and approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*	The Ore Reserves are based on the following key elements: ● The Project's Mineral Resources with 100% of the plant feed inventory tonnage inside the final pit designs being Measured or Indicated. ● Geotechnical assessment is considered sufficient for a FS. ● The mine planning and scheduling assumptions are based on current industry practice, which are seen as globally correct at this level of study; with further work in the next level of study to understand any periodic cost fluctuations. ● The cost estimates and financial evaluation have been estimated by Arafura with specialist consultants, which are considered sufficient to support this level of study. The accuracy of the cost estimate is +/-15% and is in line with a Class 3 estimate under AACE International Cost Estimate Classification guidelines. It is not believed that these estimates have materially changed since the publication of the DFS. ● As part of the DFS, Arafura engaged with potential contractors to confirm construction, mining and logistics costs and it is not believed that these costs have materially changes since the publication of the DFS. ● There are no unforeseen Modifying Factors at the time of this statement that will have any material impact on the Ore Reserves.

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	