Referral of proposed action

Project title: Nolans Project

1 Summary of proposed action

1.1 **Short description**

Arafura Resources Limited (Arafura) is proposing to develop Nolans Rare Earth Project (the Project), located approximately 135 km north west of Alice Springs, Northern Territory (NT). The Project is targeting a fluorapitite mineral deposit containing numerous rare earth elements at Nolans Bore.

Project activities include construction, mining, processing, rehabilitation and decommissioning of a rare earth mine, and associated infrastructure.

1.2 **Latitude and longitude**

Refer to Figure 1 for a display of three (separate) sites with reference to location points for delineating their respective boundaries. Descriptions of the sites are covered in section 1.3 below. Collectively the sites are referred to as Nolans Site.

Mine site:

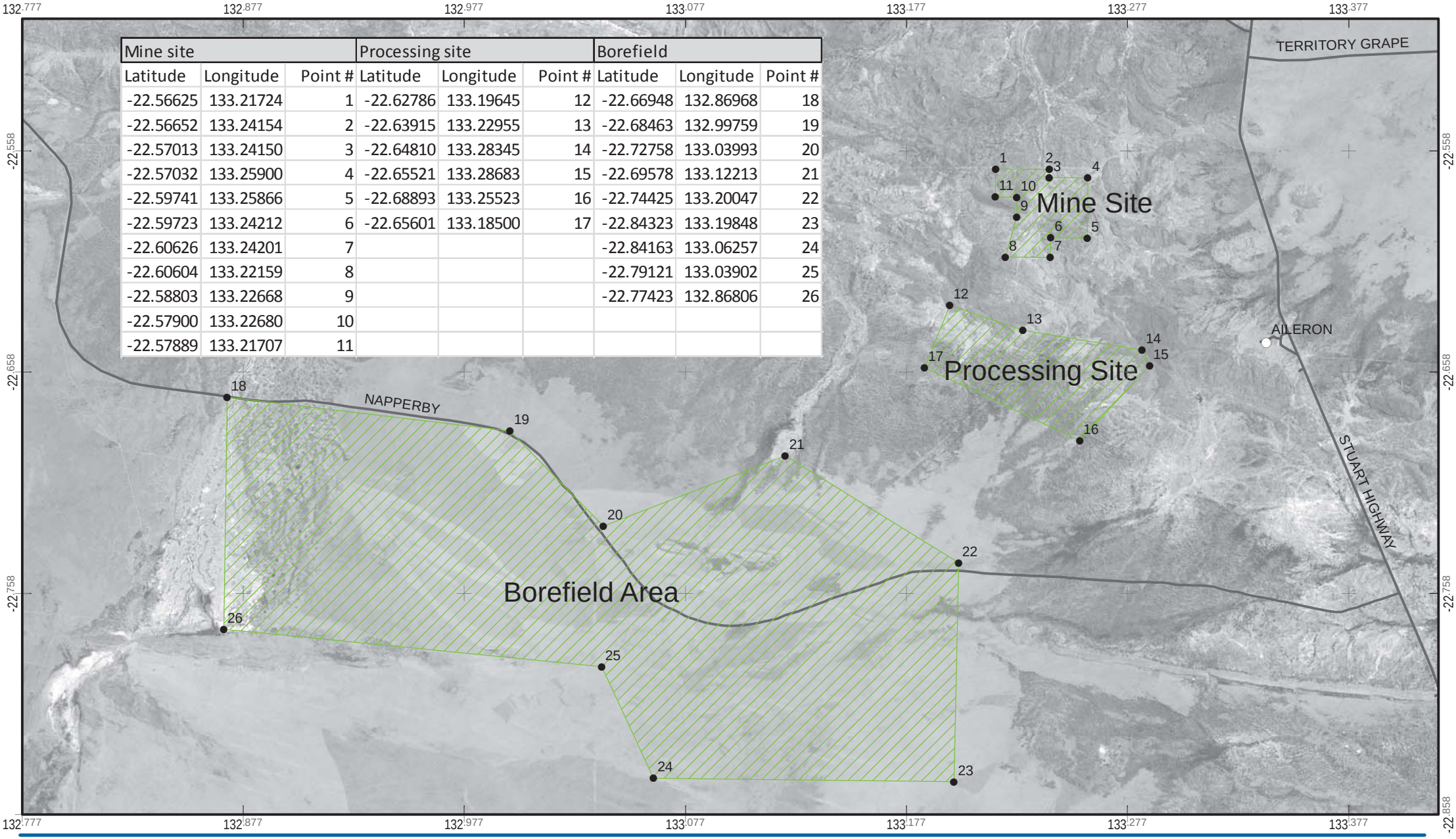
	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
1	133	13	2.047	-22	33	58.511
2	133	14	29.548	-22	33	59.475
3	133	14	29.383	-22	34	12.478
4	133	15	32.387	-22	34	13.164
5	133	15	31.161	-22	35	50.685
6	133	14	31.646	-22	35	50.036
7	133	14	31.233	-22	36	22.543
8	133	13	17.71	-22	36	21.733
9	133	13	36.049	-22	35	16.914
10	133	13	36.465	-22	34	44.407
11	133	13	1.461	-22	34	44.02

Processing site:

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
12	133	11	47.229	-22	37	40.286
13	133	13	46.367	-22	38	20.956
14	133	17	0.432	-22	38	53.152
15	133	17	12.581	-22	39	18.739
16	133	15	18.84	-22	41	20.166
17	133	11	6.011	-22	39	21.645

Borefield area:

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
18	132	52	10.851	-22	40	10.142
19	132	59	51.33	-22	41	4.679
20	133	2	23.74	-22	43	39.292
21	133	7	19.661	-22	41	44.826
22	133	12	1.703	-22	44	39.316
23	133	11	54.527	-22	50	35.615
24	133	3	45.25	-22	50	29.869
25	133	2	20.469	-22	47	28.339
26	132	52	5.009	-22	46	27.222



Mine site			Processing site			Borefield		
Latitude	Longitude	Point #	Latitude	Longitude	Point #	Latitude	Longitude	Point #
-22.56625	133.21724	1	-22.62786	133.19645	12	-22.66948	132.86968	18
-22.56652	133.24154	2	-22.63915	133.22955	13	-22.68463	132.99759	19
-22.57013	133.24150	3	-22.64810	133.28345	14	-22.72758	133.03993	20
-22.57032	133.25900	4	-22.65521	133.28683	15	-22.69578	133.12213	21
-22.59741	133.25866	5	-22.68893	133.25523	16	-22.74425	133.20047	22
-22.59723	133.24212	6	-22.65601	133.18500	17	-22.84323	133.19848	23
-22.60626	133.24201	7				-22.84163	133.06257	24
-22.60604	133.22159	8				-22.79121	133.03902	25
-22.58803	133.22668	9				-22.77423	132.86806	26
-22.57900	133.22680	10						
-22.57889	133.21707	11						

Paper Size A4

0 2 4 6 8 10

Kilometres

Horizontal Datum: GDA 1994
Grid: GCS GDA 1994

N

Legend

- Site Bounding Points
- Site Boundaries

Arafura Resources Limited
Nolans Rare Earth Project - EPBC Referal

Job Number 43 - 22262
Revision A
Date 06 Feb 2015

Site Boundary Locations

Figure 1

N:\AU\Darwin\Projects\43\22262\GIS\Maps\Deliverables\43_22262_005_EPBC_Ref_SiteLocation.mxd

Level 5, 66 Smith Street Darwin NT 0800 Australia T 61 8 8982 0100 F 61 8 8981 1075 E drwmail@ghd.com W www.ghd.com

© 2015. Whilst every care has been taken to prepare this map, GHD (and Arafura Resources Limited) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: Landsat 8 Imagery, NASA; 250000 Topographic Maping, Geoscience Australia; Site Layouts, Arafura Resources Limited. Created by:cwilson

1.3 Locality and property description

The Project is located approximately 135 kilometres north west of Alice Springs and 55 kilometres south of Ti Tree, Northern Territory (NT). It is comprised of three key sites based on activity type (Figure 1 and Figure 2):

1. Mine Site – mining and a concentrator plant for comminution and beneficiation circuits;
2. Processing Site - RE intermediate extraction, evaporation ponds and other infrastructure to support the operation including a workers village; and
3. Borefield area to the south west, in the Southern basins area (water supply).

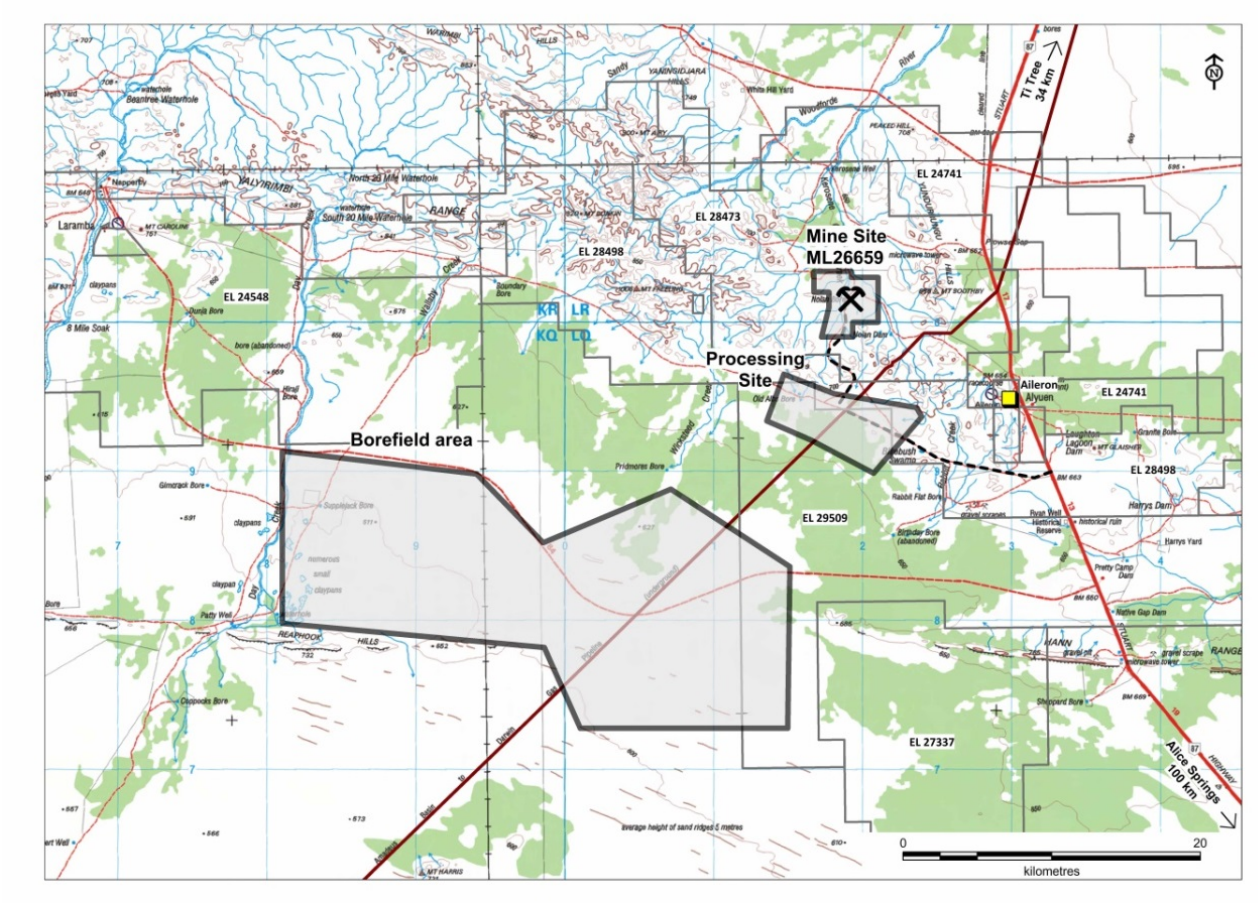


Figure 2 Nolans Locality 2014 (Source: Arafura 2014)

The mine site and processing site are located approximately ten kilometres west of Aileron Roadhouse on the Stuart Highway. The Aileron Roadhouse is the nearest human sensitive receptor.

The mine site and processing site are located on the northern and southern sides respectively, of a convergence of Reynolds Range and Yalyirimbi Range. The borefield area is located 20 kilometres south west of the Processing site along the Napperby Station access road. Lake Lewis is located approximately 35 kilometres to the west south west of the Borefield western boundary.

1.4 **Size of the development footprint or work area (hectares)**

The footprint of the Nolans sites comprises:

- Mine site 1,404 hectares
- Processing site 30,630 hectares
- Borefield area 41,570

The development footprint will cover most of the mine site area over the life of mine (23-40+ years), but only 30% of the processing site area is likely to be utilised for processing infrastructure. A breakdown of the area of tailings storage facility, residue storage facility and evaporation ponds, is provided below.

Type	Storage Capacity (Mt)	Area (ha)	Number of Cells
Flotation Tails (mine site)	9.0	20	2
Water Leach Residue (intermediate plant)	7.2	25	2
Neutralisation Residue (intermediate plant)	11.9	33	2
Phosphate Residue (intermediate plant)	2.9	12	2
Evaporation Ponds (intermediate plant)	-	60	6

The footprint of the Borefield area within the entire 41,570 ha is yet to be determined, however the Borefield footprint will be limited to the water bore and pump infrastructure and pipelines between bores. Additionally there will be narrow access tracks between bores for ongoing maintenance and monitoring (to be determined). The footprint will be a small percentage of the overall Borefield area.

Access tracks to site components and within the components will upgraded and/or developed. The concept site layout, infrastructure concept design and development footprint will be determined as part of the Definitive Feasibility Studies. It is intended that bores will be spatially distributed within the aquifer system to ensure the sustainability of the groundwater system.

At the processing plant site there will be a logistics centre to manage the inbound and outbound freight requirements of the project. This will be a hardstand area capable of handling the daily- weekly requirements of the site. The plant site will be serviced via road transport using the Stuart Highway and at this time this will be done using the existing freight yard capabilities of the Alice Springs rail freight centre, operated by Genesee Wyoming.

1.5 **Street address of the site**

Mine site and processing site: 6300 Stuart Hwy, Anmatjere NT.

Borefield Area - 6300 Stuart Hwy, Anmatjere NT and 17160 Tanami Rd, Anmatjere NT.

1.6 **Lot description**

The mine site and process site are located on Northern Territory Portion 703, Stuart Highway, Anmatjere, Aileron, known as Aileron Station.

The Borefield area is on Northern Territory Portion 703, Stuart Highway, Anmatjere, Aileron, known as Aileron Station. The western portion of the borefield is on NT Portion 747, Tanamai Road, Napperby (Napperby Station).

1.7 **Local Government Area and Council contact (if known)**

The project is located in the Central Desert Shire. The Council Chief Executive Officer is Cathryn Hutton. The President (Elected Members) is Adrian Dixon. The contact person is Cathryn Hutton.

1.8 **Time frame**

Arafura Resources is aiming to start to construction by the middle of 2016 and has scheduled first product by mid 2019.

Pit optimisation studies have generated schedules showing a mine life of 23 years based on measured and indicated resources. There is a large additional inferred resource therefore Life of mine is potentially greater than 40 years.

The rehabilitation and closure timeframe will be estimated during development of a concept closure plan.

1.9	**Alternatives to proposed action**		No
		X	Yes, you must also complete section 2.2
1.10	**Alternative time frames etc**	X	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment**		No
		X	Yes, you must also complete Section 2.5
1.12	**Component of larger action**	X	No. An offshore RE Separation plant is not a component of the proposed referred action.
			Yes, you must also complete Section 2.7
1.13	**Related actions/proposals**	X	No
			Yes, provide details:
1.14	**Australian Government funding**		No
		X	Yes, provide details: Arafura received an Aus Industries grant funding in 2006 to assist hydrometallurgy process development and rare earth element (REE) separation.
1.15	**Great Barrier Reef Marine Park**	X	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

Introduction

The Nolans site comprises three key activities with separate sites (as described previously) (Figure 3):

1. Mine Site – mining and a concentrator plant for comminution (to break into smaller parts) and beneficiation (to improve physical or chemical properties of ore) circuits;
2. Processing Site - RE intermediate extraction (extraction processing units, a sulphuric acid plant, process residue storage facilities (RSFs), evaporation ponds and other infrastructure to support the operation including a workers village); and
3. Borefield area to the south west, in the Southern basins area (water supply).

A RE Separation Plant will be constructed and located within an established chemical precinct at an offshore location (at this stage assumed to be USA Gulf Coast although other locations with similar advantages are also under consideration) to produce rare earths oxides from the concentrate. The offshore RE Separation Plant will be subject to a separate approvals process and is excluded from the scope of this Referral.

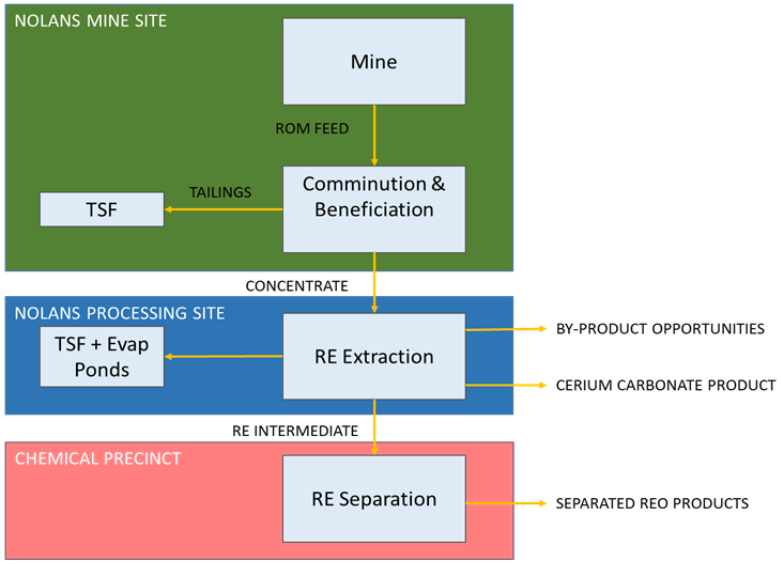


Figure 3 2014 Nolans project configuration (Source: Arafura 2014)

Arafura propose to develop the following key project infrastructure at the Nolans site (Figure 4):

- Site access roads, comprising:
  - Access road from the Stuart Highway (intersection with Stuart Highway approximately 5 km south of the Aileron Roadhouse access road)
  - Access road and service corridor between the Processing Site and the Mine Site
  - Access road and service corridor to the accommodation village and
  - Access track and service corridor to the borefield area.
- Site buildings, comprising:
  - Administration building
  - Concentrator control rooms and operations centre
  - Concentrator maintenance workshop and warehouse
  - Concentrator reagents store
  - Dangerous goods storage

  - RE Intermediate Plant control room and operations centre
  - RE Intermediate Plant maintenance workshop and warehouse
  - RE Intermediate Plant reagents and product warehouse
  - Sulphuric Acid Plant
  - Laboratory
  - Security building
  - Medical and emergency services centre and
  - Heavy and light vehicle wash station and weighbridge.
- Borefield and raw water supply pipeline to the Processing Site and Mine Site
- Potable water supply and sewage treatment
- Offtake gas pipeline
- Accommodation village (based on a 400 person requirement); sewage treatment plant
- Concentrate slurry pipeline, filtrate return and water pipelines and pumps between Concentrator and RE Intermediate Plant
- Power supply from gas and steam turbine-generators
- Power distribution including overhead lines, High Voltage (HV) switch-gear and transformers from the RE Intermediate Plant to the Concentrator, accommodation village and borefield
- Tailings Storage Facilities (TSFs) and
- Residue Storage Facilities (RSFs).

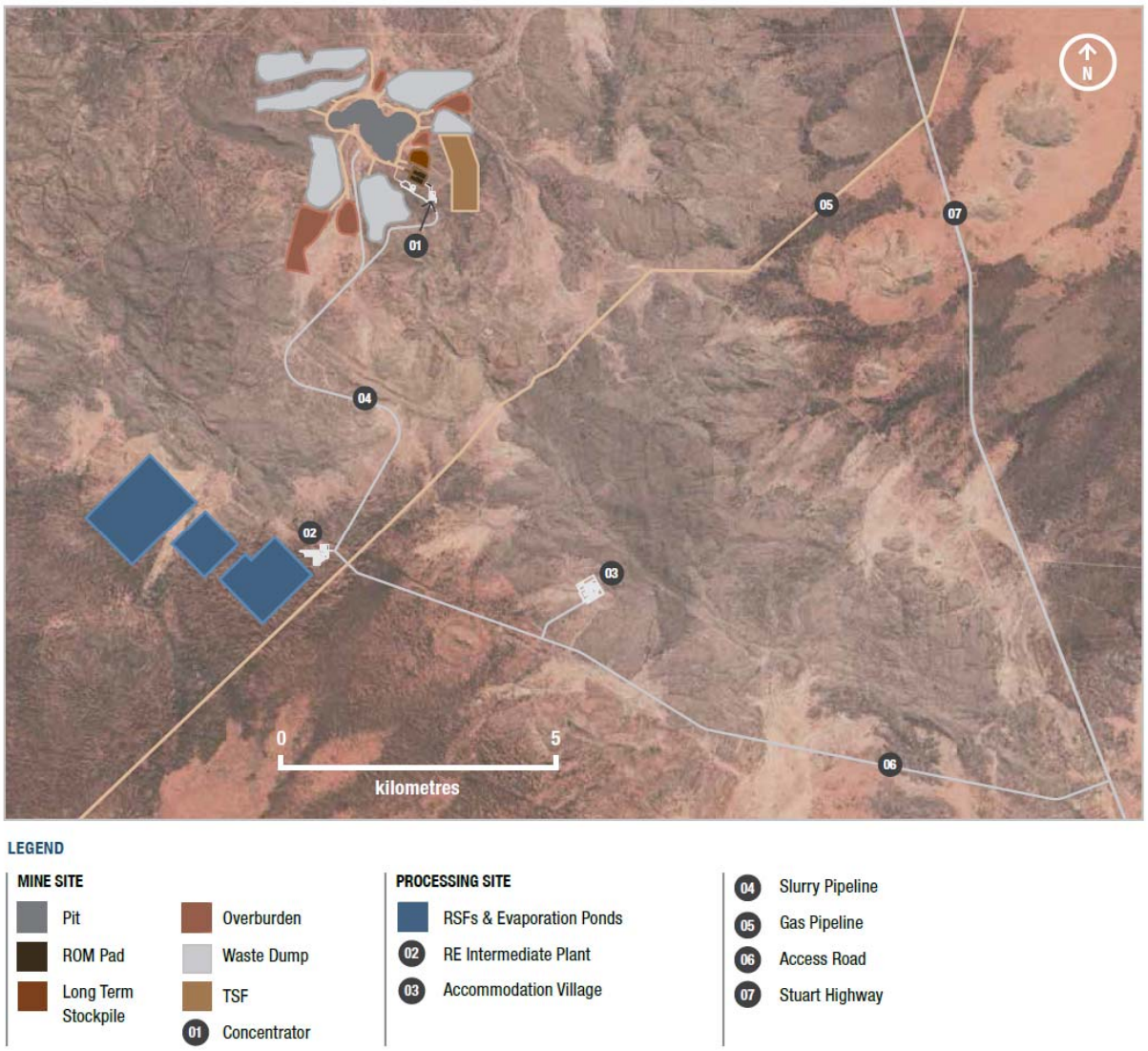


Figure 4 Concept Site Layout (2014) (Source: Arafura 2014)

The project footprint and siting infrastructure will be finalised during the Definitive Feasibility Study and EIS phase.

A summary of key project information is provided in **Attachment A – Additional Information (February 2015)**.

Detailed information is provided in **Attachment B - Nolans Development Report (Arafura Resources Ltd 2014).**

2.2 Alternatives to taking the proposed action

2008 Proposed Action

Alternatives to the proposed action include the proposed project that was previously referred to the Department in 2008. The 2008 project comprised a single site including the following three key components:

1. Development of a new mining operation and onsite beneficiation;
2. Transportation of beneficiated ore to the railhead on the Adelaide - Darwin rail line; and
3. A processing plant proposed at Whyalla in South Australia.
4. Processing residues transfer to, and storage at, the mine site.

Options were discussed regarding alternative supporting infrastructure, alternative processing, creek diversion alternatives and transport options.

Planning of the project continued throughout 2010 and 2012, and modifications to the proposed action were made. Changes resulted to additional information being known about the ore reserve, new processing technologies being available, a potentially viable groundwater resource being discovered and mine planning considerations as a result of those amendments.

Key changes since the 2008 action include:

- no longer transporting radioactive ore or residues,
- no beneficiation plant in Whyalla,
- groundwater supply is no longer sourced from the Ti Tree Basin (potable water source for nearby communities).

A comparison of the 2008 project and 2014 project is discussed in more detail in Attachment A.

Not Taking the Action

Not taking the action will result in positive and negative outcomes not being realised e.g. mining of the resource would not occur and therefore associated economic benefits would not be realised, construction and operations expenditure would not occur, the existing radiation levels at Nolans Bore would remain, the land use would remain pastoral, there would be no requirement for an additional water supply beyond the current grazing requirements.

2.3 Alternative locations, time frames or activities that form part of the referred action

-

2.4 Context, planning framework and state/local government requirements

Primary project approvals required under Northern Territory legislation include approval under the *Environmental Assessment Act* and an authorisation under the *Mining Management Act*.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

The environmental assessment processes for a proposed action to develop the Nolans Rare Earth Deposit commenced in 2008.

In March 2008, Arafura submitted a Notice of Intent (NOI) (Arafura and GHD 2008) to the former NT Department of Natural Resources Environment and the Arts (NRETA) for consideration under the *Environmental Assessment Act 1982* (EA Act). NRETA referred the project for assessment under the EA Act at the level of an Environmental Impact Statement (EIS), and issued EIS guidelines for the Project.

In August 2008, a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted to the former Department of Environment Water Heritage and Arts. The Minister declared the project a “controlled action” under controlling provisions section 21 and 22A of the Act relating to a “nuclear action” (Reference Number 2008/4371).

Project planning and feasibility continued throughout 2010 and 2012, and extensions to the timeframe of the EIS guidelines were sought and granted by the relevant NT environmental department.

The project has now moved into the Definitive Feasibility Study (DFS) phase. In September 2014, *Nolans Development Report* (Arafura Resources Limited) was released, and now environmental assessment of the Project is planned to ramp up.

In accordance with the NT *Environmental Assessment and Administrative Procedures* under the EA Act (NT) Section 14A “Procedure where proposed action altered”, Arafura submitted a notice of change to the Northern Territory Environment Protection Authority (EPA) regarding changes to the project from that presented in the NOI (2008).

The NT EPA advised on 23 December 2014 that project changes are considered an alteration to an existing project in accordance with Clause 14A(3)(b) of *Environmental Assessment and Administrative Procedures.* The Project will be assessed under the EA Act at the level of an EIS. The NT EPA is in the process of revising draft Terms of Reference for the project.

A notice of change was also submitted to the Department of the Environment in December 2014 in accordance with Section 156 of the EPBC Act. In February the Department of the Environment advised that the proposed change of action triggered a requirement for a new referral under the EPBC Act. A request to withdraw EPBC 2008/3471 was then submitted by Arafura 10 February 2015.

Arafura maintain that the proposed action is an amendment to an existing project, and still requires assessment at the level of an EIS.

2.6 Public consultation (including with Indigenous stakeholders)

Arafura Resources' community consultation strategy is based on ensuring open and transparent sharing of information and community acceptance of its operations, or a 'social licence to operate'.

Arafura developed a stakeholder strategy early in the project (2008) and has consulted regularly with key stakeholders since that time including:

- Traditional Owners (TOs)
- Central Land Council (CLC)
- NT Government agencies e.g. Department of Mines and Energy and Aboriginal Areas Protection Authority (AAPA)
- Pastoralists
- Aileron Roadhouse
- Central Desert Shire;
- Community organisations e.g. Alice Springs Chamber of Commerce (ASCC), Arid Lands and
- Environment Centre (ALEC), Central Australian Tourism Industry Association (CATIA)
- Alice Springs Town Council (ASTC)
- Other mines in the Central Australian Region and the
- General Community.

Forms of consultation undertaken include meetings, information kits, site visits for traditional owners, local company announcements, emails to stakeholders, presentations at conferences such as the NT Major Projects Conference, Minerals Council NT meetings, web based announcements such as Stock Exchange announcements, and general opportunities for people to provide feedback.

The frequency and nature of the community consultation has reflected the stage of the project, any updates, and will be more focused as part of ramping up the project and development of the EIS.
Arafura is reviewing the community consultation strategy to increase engagement with various stakeholders for future stages of the project.

Key risk aspects raised so far relating to the current proposed action include:

- Management of radiation and storage of process residues and bi products
- Impacts of mining on ground and surface water
- Transport of reagents/chemicals
- Local employment and economic benefits
- Creek diversion
- Location of any sites of significance
- Impacts on endangered species
- Access for traditional owners to their land
- Compatibility with other land uses, such as cattle and Ti Tree's horticultural industry
- Economic and social impacts
- Benefits of the project and
- Location of a process plant.

During the EIS and permitting phase, community consultation will again be undertaken on regular basis. An independent consultant will engage with key stakeholders to:

- seek views on public perception,
- collate a list of key matters raised, and
- address relevant requirements of the NT EPA Terms of Reference for the project.

Key matters will be addressed in the EIS including community benefits, Indigenous employment, and community commitments.

2.7 A staged development or component of a larger project

A RE Separation Plant will be constructed and located within an established chemical precinct at an offshore location (at this stage assumed to be USA Gulf Coast although other locations with similar advantages are also under consideration) to produce rare earths oxides from the concentrate.

The offshore RE Separation Plant will be subject to a separate approvals process and is excluded from the scope of this Referral.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description
N/A

Nature and extent of likely impact

N/A

3.1 (b) National Heritage Places

Description
N/A

Nature and extent of likely impact

N/A

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description
N/A

Nature and extent of likely impact

N/A

3.1 (d) Listed threatened species and ecological communities

Description

Ecological Communities and threatened flora species

The study area is located within the Burt Plain Bioregion (BRT, 73 800 km2). Most (greater than 80%) of the Burt Plain Region is pastorally occupied (NRETA 2006).The BRT represents 5% of the Northern Territory (NRETA 2005). Only 0.3% of the bioregion is reserved in National Parks and other conservation reserves (NRETA 2006).

The Department of the Environment Protected Matters Search Tool (PMST) results (6 February 2015) indicate no threatened ecological communities occurred in the search area (project area plus 10km buffer) (Attachment C).

The NT Flora Atlas results (6 February 2015) indicate no threatened flora species have previously been identified in the project area.

A flora survey of the Mineral Lease (and previous haul road options that are now largely redundant) was conducted by GHD in December 2011. No nationally or regionally significant flora species were recorded during this study. No regionally or nationally significant vegetation communities were recorded during the study.

Additional, targeted flora survey of the processing site and Borefield area will be undertaken as part of the EIS technical studies.

Threatened Fauna Species

The Department of the Environment PMST Results (6 February 2015) indicate the potential for two endangered and five vulnerable threatened fauna species to occur in the search area (project are plus 10km buffer).

The NT Fauna Atlas results (6 February 2015) indicate the Great desert skink Egernia kintorei which is listed as vulnerable under the EPBC Act, has previously been sighted in the Borefield Area, Napperby Access Road

Fauna surveys of the mine site area have been conducted for Arafura by Low Ecological Services (2007) and GHD (August to September 2010 and December 2011). These studies identified two listed vulnerable fauna species, the Australian bustard (Ardeotis australis) and the Black-footed rock-wallaby Petrogale lateralis in the project area.

The Australian bustard (Ardeotis australis) was listed as 'vulnerable' under the TPWC Act at the time. However, this species has since been removed from the Territory Parks and Wildlife Conservation (TPWC) Act 2000 threatened species list.

A list of threatened species under the EPBC Act, their conservation status and likelihood of species or species habitat occurrence is provided in the Table 1.

Table 1 Threatened species listed under the EPBC Act

Species name	Conservation Status EPBC Act	Likelihood of species or species habitat occurrence	Comment
Birds			
Red goshawk *Erythrotriorchis radiatus*	Vulnerable	*Mine site*: **Possible** *Processing site:* **Possible** *Borefield area:* **Possible**	Not recorded from the Mineral Lease (mine site) during recent studies undertaken prior to 2008. Not recorded from the Mineral Lease during 2010 and 2011 surveys. Most records are from the northern tropical parts of the Northern Territory, with occasional observations of the species in central Australia (Woinarski *et al* 2007). It hunts primarily medium sized birds up to the size of kookaburras and black-cockatoos (Woinarski et al 2007). Appears to prefer tall open eucalypt forest and riparian areas in the north of the state.

Species name	Conservation Status EPBC Act	Likelihood of species or species habitat occurrence	Comment
Princess parrot *Polytelis alexandrae*	Vulnerable	*Mine site:* **Unlikely** *Processing site:* **Possible** *Borefield area:* **Possible**	Not recorded from the Mineral Lease (mine site) during recent studies undertaken prior to 2008. Not recorded from the Mineral Lease during 2011 surveys. The princess parrot is considered generally unlikely to use habitats within the mine site due to the absence of dune and swale habitats, although it has been known from riverine, woodland and shrubland habitat on occasions (Woinarski *et al* 2007).
Australian painted snipe *Rostratula benghalensis (sensu lato)*	Endangered	*Mine site:* **Unlikely** *Processing site:* **Unlikely** *Borefield area:* **Unlikely**	Not recorded from the Mineral Lease (mine site) during recent studies undertaken prior to 2008. Not recorded from the Mineral Lease during 2011 surveys. The ephemeral waterways and associated floodplains within the mine site do not appear to provide habitat that would be preferred by the Australian painted snipe. The Nolan Bore pond appears to be too small, and regularly disturbed by cattle, to be of much value for this species. Water bodies within the project area and nearby are ephemeral.
Mammals			
Southern marsupial mole *Notorcytes typhlops*	Endangered	*Mine site:* **Unlikely** *Processing site:* **Unlikely** *Borefield area:* **Possible**	Not recorded from the Mineral Lease 2007 or 2011 survey. Habitat present at the mine site likely to be too wooded and/or rocky. Low likelihood of persisting in soft sandy areas in river flats. The Processing site is shallow basement rock and no dunes are present.
Greater bilby *Macrotis lagotis*	Vulnerable	*Mine site:* **Possible** *Processing site:* **Possible** *Borefield area:* **Possible**	Not recorded from the Mineral Lease 2007 or 2011 survey. None were recorded from the site during the 2011 survey or from previous surveys (Low Ecological Services 2007). However, they are known from the Burt Plain bioregion and populations can expand rapidly in abundance and area when conditions are favourable (Woinarski *et al* 2007).
Black-footed rock-wallaby *Petrogale lateralis*	Vulnerable	*Mine site:* **Present** *Processing site:* **Possible** *Borefield area:* **Unlikely**	Results from the scat analysis from samples collected (2011 survey) within the mine site indicate that this species and habitat is predominantly the rocky hills around the perimeter of the Mine Site. Two waste rock dumps at the west of the mine site will directly impact a small area of likely habitat. Most of the habitat in the area surrounding the Mineral Lease will not be directly impacted by the project.

Species name	Conservation Status EPBC Act	Likelihood of species or species habitat occurrence	Comment
Reptiles			
Great desert skink *Egernia kintorei*	Vulnerable	*Mine site:* **Unlikely** *Processing site:* **Possible** *Borefield area:* **Likely**	Not recorded from the Mineral Lease 2007 or 2011 survey. The NT Fauna Atlas results (6 February 2015) indicate one record (one occurrence) of the species in the Borefield Area. The great desert skink inhabits large complex burrows in a variety of desert habitats on sandy, clay and loamy soils (Cogger, 2000 cited in DoE 2015). They occur on sand plains and on the flats between low sand dunes, preferring areas vegetated with Spinifex clumps and scattered shrubs (Paltridge and McAlpin, 2002 cited in DoE 2015). This species has generally been recorded in the western deserts of the NT, from Uluru-Kata Tjuta NP north to Rabbit Flat and west to the WA border.

Nature and extent of likely impact

Black-footed rock wallaby habitat is predominantly the rocky hills around the northern, western and eastern perimeter of the Mine Site.

The vegetation around these rocky outcrops is primarily mulga (*Acacia aneura*) shrubland that does not support black-footed rock wallaby shelter or foraging habitat. It is possible that Black-footed rock wallabies could move through this habitat to other nearby rocky outcrops, however such dispersal behaviour is likely to be a rare event. The south-east and western perimeter of the mine site consists largely of alluvial and woodland habitats and contains no suitable Black-footed rock-wallaby habitat.

The project is not anticipated to lead to a short term impact on the lifecycle or a long term decrease in the size of the population or fragmentation of the population, or result in invasive species harmful to the species habitat being introduced into the area.

A targeted flora and fauna assessment of the processing site and Borefield area is proposed during the EIS. Potential impacts and mitigation measures in relation to any listed threatened species will be addressed in more detail in the EIS.

3.1 (e) Listed migratory species

The PMST Report (6 February 2015) indicated seven listed migratory species or species habitat potentially occur in the search area (project area plus 10km buffer) (refer Table 2).

The NT Fauna Atlas Results (6 February 2015) indicate one record of an additional EPBC listed migratory species, Glossy Ibis (Plegadis falcinellus) recorded on the mine site.

Description

Table 2 Migratory species listed under the EPBC Act

Listed migratory species	Likelihood of occurrence of species or species habitat	Comments
Migratory Marine Birds		
Fork-tailed Swift *Apus pacificus*	*Mine site:* L**ikely** *Processing site:* **Likely** *Borefield area:* **Possible**	May occur occasionally, does not conform to an important habitat or ecologically significant population (EPBC Act). Not recorded in 2007 or 2011 Mineral Lease surveys.
Migratory Terrestrial Species		
Rainbow Bee-eater *Merops ornatus*	*Mine site:* L**ikely** *Processing site:* **Likely** *Borefield area:* **Likely**	Common across the NT, does not conform to an important habitat and is not ecologically significant (EPBC Act). Recorded from the area in 2007 and 2011 surveys. The NT Fauna Atlas results (6 February 2015) indicate two records of the species (1 at the mine site, 1 in the Borefield area and 1 in the 10km buffer between the mine and processing site).
Migratory Wetland Species		
Great Egret, White Egret *Ardea alba*	*Mine site:* **Likely** *Processing site:* **Likely** *Borefield area:* **Possible**	Common in wetlands in the NT, does not conform to an important habitat or ecologically significant population (EPBC Act), past record and not recorded in 2007 surveys No wetlands are present in the mine site, processing site or Borefield area. Lake Lewis is located approximately 30km west of the Borefield area which may provide suitable habitat.
Cattle Egret *Ardea ibis*	*Mine site:* **Possible** *Processing site:* **Possible** *Borefield area:* **Possible**	Common in wetlands in the NT, does not conform to an important habitat or ecologically significant population (EPBC Act), no record and not recorded in 2007 surveys.
Oriental Plover, Oriental Dotterel *Charadrius veredus*	*Mine site:* **Possible** *Processing site:* **Possible** *Borefield area:* **Possible**	Possible occur occasionally, does not conform to an important habitat or ecologically significant population (EPBC Act), no record and not recorded in 2007 surveys.
Oriental Pratincole *Glareola maldivarum*	*Mine site:* Possible *Processing site:* **Possible** *Borefield area:* **Possible**	Possible occur occasionally, does not conform to an important habitat or an ecologically significant population, no record and not recorded in 2007 surveys.
Painted Snipe *Rostratula benghalensis (sensu lato)*	*Mine site:* **Possible** *Processing site:* **Possible** *Borefield area:* **Possible**	Not recorded from the mining lease during 2007 surveys.

Glossy Ibis *Plegadis falcinellus*	*Mine site:* **Likely** *Processing site:* **Possible** *Borefield area:* **Possible**	The Glossy Ibis is found singularly, in pairs or in small flocks. Large flocks are also occasionally large, for example the largest was about 60 000 birds in the Alligator Rivers region, Northern Territory (Morton et al. 1989). Within Australia, the species moves in response to good rainfalls, expanding its range, however the core breeding areas used are within the Murray-Darling Basin region of NSW and Victoria, the Macquarie Marshes in New South Wales, and in southern Queensland. The Glossy Ibis often moves north in autumn, then return south to the main breeding areas in spring and summer (Birds Australia 2010b). Regular migration to locations outside of Australia is also suspected but has not been confirmed (Marchant & Higgins 1990).

Nature and extent of likely impact

No species habitat (wetlands) is present in the mine site or processing site. Lake Lewis an ephemeral salt lake system is located approximately 35 km west south west of the Borefield area, outside the project area, which may provide suitable habitat. The project is not anticipated to impact on any listed migratory species.

3.1 (f) Commonwealth marine area

(If the action is <u>in</u> the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

None – not applicable

Nature and extent of likely impact

None – not applicable

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

None – not applicable

Description

None – not applicable

Nature and extent of likely impact

None – not applicable

3.1 (h) The Great Barrier Reef Marine Park

Description
None – not applicable

Nature and extent of likely impact

None – not applicable

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

Description
None – not applicable

Nature and extent of likely impact

None – not applicable

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	**Is the proposed action a nuclear action?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

The Project is not considered to be a nuclear action. The proposed action is rare earth mining, in which radioactive isotopes are a bi-product of the rare earth intermediate processing. The uranium and thorium present in the ore must be removed from the process stream in order to produce a saleable rare earths product. Nuclear actions exclude operations for recovering mineral sands or rare earths (Attachment D – Department of the Environment, accessed 13 February 2015).

The project no longer involves transport of radioactive isotopes from reprocessing or mining of uranium ore.

Additionally, The RE Intermediate Plant does not involve reprocessing of product. "Reprocessing" means a process or operation to extract radioactive isotopes from spent nuclear fuel for further use. This will not occur.

Up to 800,000 tonnes of ore per annum will be recovered. Stockpiled ore will be crushed, washed and upgraded onsite. The beneficiated ore that is fed into the RE Intermediate Plant is expected to have an activity of approximately 400 Becquerel's per gram (Bq/g).

The process waste that will contain the uranium and thorium will be stored and managed on the Nolans site. Thorium is the most common radioactive material that is present at Nolans Project. The Nolans deposit contains on about 200ppm U_3O_8 and 2700ppm thorium. We estimated that about 150 tonnes of uranium and 2,000 tonnes of thorium will be contained in residues produced at the RE process plant each year and these waste residues will be securely contained on site.

The expected activity of the waste residues is around 4,000 Bq/g. This equates to radiation levels similar to thorium residues from monazite processing from heavy mineral sands operations. It is intended that these radioactive bi-products will be stored in engineered

tailings dams. These structures will have monitoring systems integrated into the design to allow regular assessment of both the integrity of the structure and the containment. It is intended that these radioactive bi-products will be blended with other benign process residues to disseminate this material within a greater non-radioactive mass.

The Nolans Mine site will handle all radioactive material. Arafura will include a system of control and supervision in certain operational areas as part of a radiation management process. The existing radiation management plan (RMP) will be expanded to include the planned mining and processing operations and will be included in the EIS.

Arafura regards this process as an integral step towards mining, as all naturally occurring radioactive material (NORM) that exceeds 1 Bq/g must be identified and managed once it is mined.

It is intended that the waste rock generated from the mining process will be characterised and modelled to determine its physical, geochemical and the radioactivity level of the material. The model will be generally based on broad geological units because we understand the distribution of the elements in both the orebody and the surrounding waste rock. Three broad categories will be used to delineate and classify this material based on the level of radioactivity i.e.

- <1Bq/g
- >1-<5Bq/g and
- >5Bq/g.

It is proposed that the lowest classification material will be used as the outer layer in the construction of waste dumps. The second category will be dumped inside this material and the highest category will be encapsulated within the centre of the waste rock dump. To provide some regional context to this material, it should be noted that in and around the Nolans region, there are many natural occurrences where background radioactivity levels (NORM) in the rocks are in the >1-<5Bq/g range category.

Gamma Radiation from naturally occurring sources of Thorium in the Alice Springs-Ti Tree region is shown in Figure 5. (Detector mounted in aircraft flying at an average altitude of 60m above the ground).

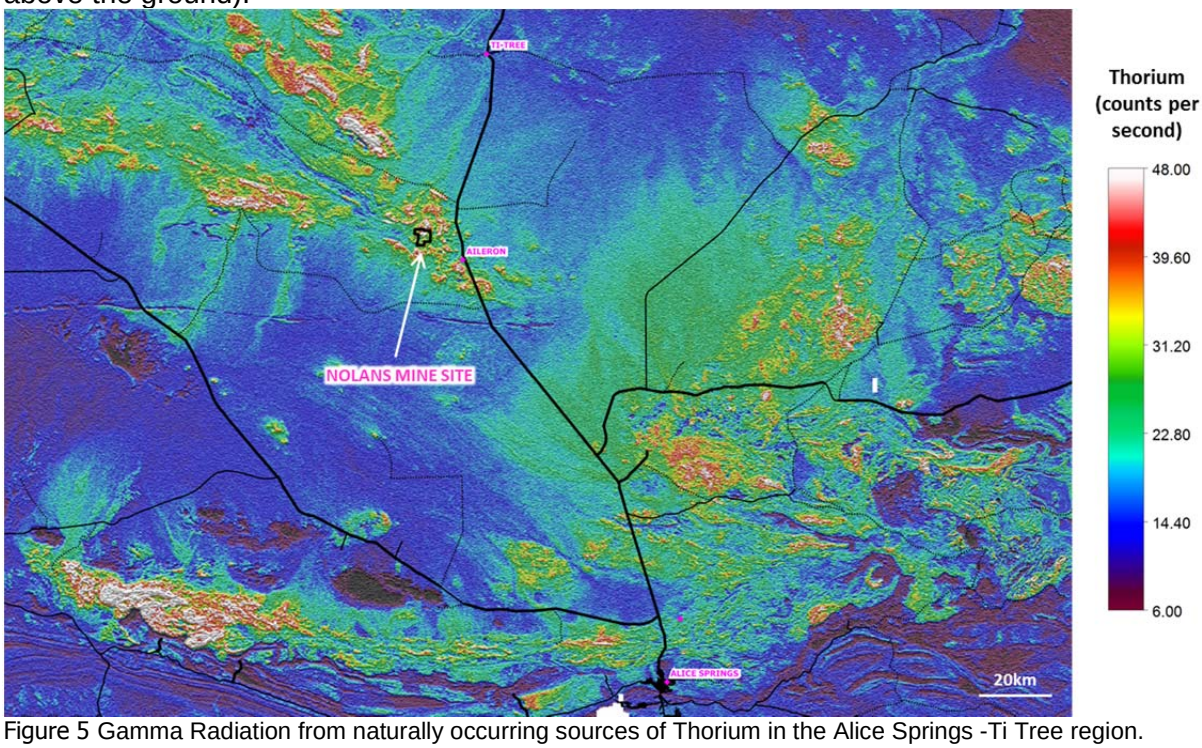


Figure 5 Gamma Radiation from naturally occurring sources of Thorium in the Alice Springs -Ti Tree region. Detector mounted in aircraft flying at an average altitude of 60m above the ground).

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	X	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	X	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	X	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))		

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	X	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Other important features of the environment

3.3 (a) Flora and fauna

As above in section 3.1

3.3 (b) Hydrology, including water flows

Mine site
The Mine Site lies in the headwaters of the Woodforde River drainage system that flows across the western extension of the Ti Tree Basin. An arm of Kerosene Camp Creek transects the north-western part of the Nolans open pit development. This Creek is fed by a number of tributaries covering a catchment area of approximately 20 km^2. The creek is ephemeral with sporadic flow events. The creek flows in a northeast direction into the Woodforde River, approximately 11 km to the North. The channel bed is mobile with deep sand deposition and banks showing signs of erosion. The channel is approximately 1.2 m deep with a base width of approximately 5 m (SKM, 2006). The mobile nature of the streambed would provide a difficult environment for vegetation growth. Vegetation is generally sparse.

This arm of Kerosene Creek is proposed to be diverted around the mine pit. The Mine Site will be designated a non-release site and Arafura will demonstrate that its activities will not impact the water quality of the natural surface water nor the Ti Tree basin groundwater system. Ongoing studies have been investigating the quality and quantity of water falling on and shedding off the Mine Site area to support the development of appropriate catchment strategies into the mine design.

Work is continuing to determine the best location for the creek diversion. To aid in its design and that of the Mine Site water management system, the Company is acquiring data from a series of seventeen monitoring stations and rising stage water samplers that it has installed in and around the Mine Site drainage system. Once constructed, the diversion is anticipated to impact a small downstream section of riparian vegetation. Data collection is ongoing well downstream of the Mine Site and within the Ti Tree Basin itself to ensure that the pre-development hydrological environment is recorded and understood.

The development of the Mine will require dewatering of the local aquifer. Studies completed on this aspect of the Project show that the Nolans ore body is highly porous and transmissive and that the Nolans aquifer is limited in its lateral extent and in effect: it is constrained to the ore body. Accordingly, dewatering of this groundwater system to enable the mining process will be relatively straightforward and can be achieved using production bores or a simple 'in pit' pumping system.

Processing site:
The preferred location of the Nolans Processing Site is in the Southern basins catchment in the north eastern headwaters of that drainage system. This location removes the risk of adverse impact on distant horticultural and pastoral activity in the Ti Tree Basin catchment and water control district.

The Processing Site is positioned on shallow basement rocks, and this location results in a much higher level of safeguard against potential leachate escape. Furthermore, drilling by the Company indicates that the likelihood of groundwater below the Processing Site is remote.

Water sampling stations have been established in a number of poorly developed drainages downstream of the Processing Site to provide pre-development surface water quality and flow data.

Borefield area

A hydrogeological investigation of the proposed Nolans Bore Mine site was completed in 2010-11 in order to estimate dewatering requirements during mine operations (Environmental Earth Sciences, 2011). The hydraulic properties of the aquifer at Nolans Bore were estimated and consequent dewatering predictions made, resulting in a simple dewatering design involving either abstraction from wells within the mineralised zone and/or in-pit sump pumps. Outcomes of the investigations are discussed in Attachment B.

Hydrological investigations to identify a sustainable water supply for the life of Project have focussed on potential groundwater supplies in the Cainozoic basins within about forty kilometres of Nolans Bore. Arafura's initial efforts commenced in 2010/11 and were concentrated in the well documented Ti Tree Basin aquifers to the northeast of the Nolans Mine Site. However for a number of reasons Arafura shifted its attention towards exploring the groundwater potential of the inferred aquifers in the concealed and poorly constrained northern Burt and eastern Whitcherry basins (referred to as the "Southern basins") to the southwest of the Mine Site.

Arafura completed an exploratory (Phase 1) water drilling program in the Southern basins in late 2012. This exploration program was successful in encountering groundwater in all exploration bores, including two bores in a high yielding thick sandstone aquifer. Generally, the water table is shallow, around 20 metres below surface and groundwater quality better than expected.

The borefield area overlies the Southern basins area, south-west of the Nolans Processing Site. This is a sizeable, high-yielding, slightly brackish groundwater system that has the capacity to service the life of the operation.

3.3 (c) Soil and Vegetation characteristics

The dominant soil types within the mine site area are Rudosols, defined as minimally developed soils, with a generally thin A1 horizon and the occasional minor B horizon in fissures within the underlying parent rock or saprolite.

The dominant soils to the east and northeast of the mine site (particularly those close to the Stuart Highway) are massive earth kandosols and tenosols. Kandosols lack a clear (or abrupt) textural B horizon, are not calcareous and have a slightly graduating increase in clay content with depth. Tenosols are the most widespread of Australian soils, and are defined as being slightly developed with weak pedological development (Environmental Earth Sciences 2007).

Flora surveys undertaken by GHD in 2010, in the mine site and access road areas identified ten vegetation communities.

1	Riparian woodland
2	Mulga shrubland on sandy red earths
3	Grassy woodland on alluvial plains
4	*Triodia* hummock grassland on sand plains
5	*Hakea*/*Senna* shrubland on calcareous alluvial plains and low rises
6	*Eucalyptus* (mallee)/*Acacia kempeana/Triodia* shrubland on rocky slopes
7	*Acacia*/*Triodia* shrubland on rocky outcrops
8	*Callitris*/*Ficus* woodland on steep rocky outcrops
9	*Triodia* hummock grassland/Mulga shrubland mosaic
10	Mulga shrubland/Riparian woodland complex

The predominant exotic species occurring at the mineral lease was *Cenchrus ciliaris* (buffel grass). Buffel grass is an invasive weed that is known to spread rapidly in arid and semi-arid regions of Australia.

3.3 (d) Outstanding natural features

There are no outstanding natural features in the project area that will be affected by the proposed mining activities. There are no national parks, conservation reserves or nationally significant wetlands on the site or in close proximity. The closest reserve is Anna's Reservoir approximately 25 west of the mine site. Lake Lewis is approximately 35 km south west from the west extent of the Borefield Area. The West MacDonnell Ranges is approximately 153 km to the south of the project area.

3.3 (e) Remnant native vegetation

None – not applicable

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

Mine site

The gradient at the mine site varies from 0-15 degrees with a mean of 1.0 degree and a standard deviation of 1.3. The site is surrounded by hills but is largely of moderate to low gradient.

Processing site

The gradient at the processing site varies from 0-19.5 degrees with a mean of 1.0 degree and a standard deviation of 1.7. The site has adjacent hills to its north but is largely of moderate to low gradient.

Borefield area

The Borefield area is essentially a flat drainage basin. Its gradient varies from 0-20 degrees with a mean of 0.2 degrees and a standard deviation of 0.5. The area is largely flat with areas of high gradient very limited.

3.3 (g) Current state of the environment

The project area has been grazing land for many years. Nine introduced plant species were recorded during the 2010/2011 field survey. Cenchrus echinatus is listed as a Schedule Class B/C weed under the NT's *Weed Management Act 2001*.

Evidence of clearing was observed on the aerial imagery. This is associated with livestock management and mineral exploration in the vicinity of Nolans Bore. The bore was the only stock watering point for around 15km and also had associated cattle yards for stock management. As a consequence vegetation in and around the bore has suffered significant degradation form stock. Vegetation clearing also has occurred for construction of the Darwin Railway, a gas pipeline, the Stuart Highway and unsealed tracks. An abrupt tree-line surrounding the paddock north-east of Nolans Bore suggests that area (c. 20 ha) has been cleared for grazing and livestock management. Mineral exploration activity has contributed to losses of native vegetation, predominantly within vegetation community 5 (Hakea/Senna shrubland). This has been associated with drilling, vehicle access etc. The precise area attributable directly to Arafura activates is difficult to measure because of the degradation that has occurred from pastoral activities however we calculate that our activities over the years has periodically used a total area of about 110 ha, much of which has been rehabilitated (GHD 2012b).

The native vegetation surveyed in 2010/2011 appeared to be in good condition. This conclusion is based on the high local-scale species richness (30 ± 2 species), the presence of multiple age classes of woody species, the low incidence of exotic species and the abundant flowering activity, e.g., Triodia and Senna populations.

This was presumably in response to the above average rainfall that had fallen throughout 2010 (D. Albrecht pers. comm.). Many of the vegetation communities were structurally diverse, containing multiple layers (e.g. canopy, shrub and ground).

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

N/A

3.3 (i) Indigenous heritage values

Mine site:

The Aboriginal Areas Protection Authority (AAPA) issued Authority Certificates to Arafura Resources for activities at the mine site, processing site and Borefield area. Restricted works areas have been identified and conditions of the certificate will be complied with.

A number of Aboriginal heritage sites were recorded during field surveys of the Mine Site area by Gunn (2006) and EarthSea (2010 and 2011).

Archaeological items located in the mine site area were identified as having low to high significance (against Heritage significance criteria).

Consultation with Traditional Owners in a 2011 report includes documentation that large quarries and rock art sites have high cultural significance, and the stone artefacts have low cultural significance.

A heritage impact assessment report will be prepared for the EIS. The processing site and Borefield area will be surveyed on a risk assessment approach.

The sites of greatest significance will be quarantined from Arafura's planned development activities but others, for example those within or immediately adjacent to the Nolans open pit, will be destroyed or relocated following due regulatory process and in collaboration with local traditional native title custodians.

Additional anthropological surveys in the mine site area have been carried out by the AAPA and the Central Land Council (CLC) have completed heritage surveys over the Mine Site area.

3.3 (j) Other important or unique values of the environment

None – not applicable

3.3 (k) Tenure of the action area (e.g. freehold, leasehold)

Mine site and processing site:
The Nolans Bore deposit is located on land held by Waite River Holdings Pty Ltd under the "Aileron" Perpetual Pastoral Lease. Arafura holds secure title over the deposit under exploration lease, EL 28473.
Arafura executed an exploration agreement over a predecessor tenement to EL 28473 in 2003 with the Central CLC acting on behalf of the traditional native title custodians of the immediate region. EL 28473 has now been incorporated into this agreement by a deed of variation made between Arafura and the CLC in 2013.

Since 2008, the mineral resource has approximately doubled and project requirements have altered, resulting in an expanded footprint to include the borefield and processing at the RE Intermediate Plant. As a result, additional ML applications on EL 28473, EL 28498 and EL 29509 have been lodged to accommodate an expanded footprint.

Borefield area:
The borefield and access corridor is enabled under the *Mining Management Act* by virtue of an Access Authority, although at this time Arafura has prepared an application under the *Water Act* to secure access to the newly discovered groundwater resource. Arafura is working with the relevant authorities to finalise the application process. There may be a requirement for a separate Indigenous Land Use Agreement (ILUA) covering access to the borefield area.

3.3 (l) Existing land/marine uses of area

The project site has been used for grazing and mineral exploration. The area outside the lease application remains pastoral land for grazing but is within Arafura's Exploration Licence 23671.

3.3 (m) Any proposed land/marine uses of area

Proposed land uses are the mining activities, and associated activities such as access roads, described in Section 2 of this referral.

4 Measures to avoid or reduce impacts

Mitigation measures are documented in the project environmental risk register included in Attachment A. Additional studies are discussed in Attachment B. Additional mitigation measures will be developed during Project EIS development. It is intended that an Integrated Management System will be developed to manage the Nolans development. This management system will encompass OH&S, environment, community and quality. At the time of development the planned system will be compliant with Australian and International standards however may not initially be certified as Arafura wants to ensure that the system becomes part of the intended culture for the proposed operations before taking this step.

5 Conclusion on the likelihood of significant impacts

5.1 Do you THINK your proposed action is a controlled action?

X	No, complete section 5.2
	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

The proposed action is not likely to have a significant impact on protected matters under the EPBC Act because:

- The nearest World Heritage places are 450 and 1200 kilometres away;
- No adverse offsite impacts on water quality downstream are anticipated;
- There are no National Heritage places listed on or near the site;
- The nearest Ramsar Wetland is approximately 1200 kilometres to the northeast in Kakadu National Park;
- There is no threatened ecological community in the project area lease,
- The project is not anticipated to have a significant impact on the listed threatened fauna species due to the likely minimal area of habitat that would be impacted and the abundance of similar habitat being available in the region. In addition, the project will be managed to further reduce any off site impact to Listed threatened species and their habitat;
- There is no listed migratory species likely to have either an ecologically significant population in the project area;
- The referral does not include an activity defined as a nuclear action as operations for recovering rare earths are excluded ;
- The site is not in, or near a marine environment as it is in central Australia, 135 kilometres north of Alice Springs;
- The referral does not involve an action on Commonwealth site; and
- There is no Commonwealth action on this site.

5.3 Proposed action IS a controlled action

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

6 Environmental record of the responsible party

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** Arafura Resources has been actively exploring in the Northern Territory for over 15 years. Appropriate management practices through mining management plans are adhered to by the company in their mining practices. Arafura has a good track record with the Department of Mines and Energy and the NT EPA. Arafura has not received any infringement notices from the DME or NT EPA in relation to existing tenements.	X	
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		X
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?**	X	

If yes, provide details of environmental policy and planning framework

Arafura's objective is to operate in a responsible manner which minimises our impact on the environment. We believe that caring for the environment and protecting our heritage are an integral part of our business and we will ensure that we will manage our environmental performance with the same rigor as the financial and production aspects of our business.

We will as an organisation and individuals do the following:

- Integrate the principles of sustainable development into our business approach.
- Comply with all legislative requirements for the environment.
- Work closely with the community and governing bodies to ensure that the best approach is always taken to environmental care.
- Encourage our employees to value the heritage in the environment in which we work.
- Effectively manage the use of natural resources to maximise their conservation.
- Reduce waste, recycle and take stewardship of our by-products and consumables.
- Maintain an open consultation process with regulators, the community and shareholders.
- Manage and minimise workplace exposure to hazards, ecosystem disturbance or degradation.
- Ensure good closure and reclamation planning is done to re-establish disturbed areas as sustainable ecosystems and community assets.
- Facilitate the education of employees and contractors in relation to their roles and responsibilities to environmental management and ensure good environmental management systems are in place to support this.
- Ensure we use energy efficiently and look for opportunities to reduce greenhouse gas emissions

http://www.arultd.com/sustainability/environmental.html

6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)** Referrals previously submitted by Arafura include: 2008/4371 2011/5877 Both referrals have been formally withdrawn. A referral unrelated to the Nolans Project was submitted by Arafura in 2006: 2006/3047 — Arafura Resources NL/Mining/Mt Porter, Pine Creek/NT/Opencut Gold Mine	X	

7 Information sources and attachments

(For the information provided above)

7.1 References

Arafura (2014). *Nolans Development Report,* September 2014. http://www.arultd.com/images/media/files/Reports/ARAFURA_Nolans-Development-Report_2014_Sept.pdf

Arafura and GHD (2008). *Notice of Intent for Nolans Project – Mine*, March 2008. http://www.ntepa.nt.gov.au/environmental-assessments/assessment/register/nolans/intent

DLRM (2015). Fauna Atlas NT, extracted 6 February 2015, Department of Land Resource Management.

DLRM (2015). Flora Atlas NT, extracted 6 February 2015, Department of Land Resource Management

DoE (2015). *Liopholis kintorei* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed Thu, 12 Feb 2015 14:18:42 +1100.

Earthsea Pty Ltd (2011) *Archaeological survey of proposed additions to the Nolan's Bore Mineral Leases, 2011,* Prepared for Arafura Resources Ltd, December 2011.

Environmental Earth Sciences (2007). Preliminary Siting Study for disposal and Storage of Thorium-bearing and other Refinery residues from Nolans REE Project, Northern Territory. Report to Arafura Resources Ltd.

GHD (2012) *Nolans Mine Flora and Fauna Assessment Report DRAFT* (for internal purposes), prepared for Arafura Resources Ltd.

Gunn (2006) *Nolans Bore Prospect Aileron, Central Australia: Archaeological Survey*, Prepared for Arafura Resources Ltd, August 2006.

Low Ecological Services (2007) *Landscape Flora and Fauna Surveys of the Proposed Rare Earths Mine at Nolans Bore near Aileron, N.T.* Prepared for Arafura Resources NL By Tom Newsome, Tom Reilly, Dennis Matthews, and Dr Bill Low. Can be accessed at http://www.ntepa.nt.gov.au/__data/assets/pdf_file/0011/19658/appendixgarafuranoi.pdf

Marchant & Higgins 1990 Marchant, S. and Higgins, P. J. (eds.). *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2. Raptors to Lapwings.* Oxford University Press, Melbourne.

NRETAS 2006 Preliminary Report: Towards A Resource Assessment Of The Burt Plain Bioregion For Conservation Planning, Department of Natural Resources Environment and the Arts **http://lrm.nt.gov.au/plants-and-animals/herbarium/nature/bioregional/burtplain**

Sinclair Knight Merz (2006). *Nolan's Bore Rare Earth Project – Preliminary Surface Water and Groundwater Review*

Woinarski, J., Pavey, C., Kerrigan, R., Cowie, I., and S. Ward (2007). Lost from our landscape.

7.2 Reliability and date of information

Sinclair Knight Merz, 2006 - The assessments were conducted in 2005/06.

Woinarski et al., 2007 - Provided a review of the status and biology of threatened species in the Northern Territory. Information refers to species in the bioregion of the min as well as other areas of the NT. It is a collation of all data and specifically classifies data into pre and post 1970 categories.

Earthsea Pty Ltd (2011), Environmental Earth Sciences (2007), **GHD 2012 and Gunn (2006)** reports are for internal Arafura purposes at this stage. GHD reports are draft only. Some matters related to these reports will be updated in the EIS to reflect the current project and where relevant, more recent data.

All reports have been written by qualified specialists in their relevant field.

7.3 Attachments

- Attachment A – Additional Information and Environmental Risk Assessment
- Attachment B – Nolans Development Report (Arafura 2014)
- Attachment C – Protected Matters Search Tool Report
- Attachment D – DoE 2015 Nuclear Action Definition
- GIS data – shape file

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Attachment A
	GIS file delineating the boundary of the referral area (section 1)	✓	
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)		
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

Project title: Nolans Project

8.1 Person proposing to take action

1. Name and Title:	Brian Fowler General Manager Northern Territory and Sustainability
2. Organisation (if applicable):	Arafura Resources Limited
3. EPBC Referral Number (if known):	
4: ACN / ABN (if applicable):	22 080 933 455
5. Postal address	PO Box 37220, Winnellie, NT 0820
6. Telephone:	08 89475588
7. Email:	bfowler@arultd.com
8. Name of designated proponent (if not the same person at item 1 above and if applicable): 9. ACN/ABN of designated proponent (if not the same person named at item 1 above):	

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

□ **an individual; OR**

✓ **a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR**

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

Since the listing of the Company in 2003, Arafura (the Group) and all its subsidiaries have remained Small Business Entities.

Arafura would like to apply for an exemption from full fees because:

- Arafura is a Small Business Entity.
- Arafura's Nolans Rare Earths Project is subject to a large Research and Development incentive. The Project is deemed R&D due to the unique nature of Rare Earths and as a result of the lack of understanding in Australia as Chinese interests produce over 95% of the worlds Rare Earths production, keeping the technology and knowledge tightly held.

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth)).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations. Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:	□ The above is in accordance with the guidance received on page 6 of the document "Cost Recovery under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)" under heading "Are there any exemptions or waivers?not applicable.
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence. I agree to be the proponent for this action. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.
Signature	 Date 16/02/2015

8.2 Person preparing the referral information (if different from 8.1)

Name	Kylie Fitzpatrick
Title	Principal Environmental Scientist
Organisation	GHD Pty Ltd
ACN / ABN (if applicable)	39 008 488 373
Postal address	PO Box 351, Darwin NT 0801
Telephone	08 8982 0100
Email	Kylie.fitzpatrick@ghd.com
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.
Signature	 Date 13/2/2015