

**TERMS OF REFERENCE FOR THE PREPARATION  
OF AN ENVIRONMENTAL IMPACT STATEMENT**

**NOLANS RARE EARTH PROJECT  
ARAFURA RESOURCES LIMITED**

May 2015

<b>1</b>	<b>Introduction.....</b>	<b>4</b>
1.1	Project History.....	4
<b>2</b>	<b>Regulatory Context.....</b>	<b>6</b>
2.1	Approvals and Conditions.....	6
2.2	Environmental History .....	6
2.3	Ecologically Sustainable Development .....	7
<b>3</b>	<b>Project Description.....</b>	<b>7</b>
3.1	Project Details .....	7
3.2	Alternatives .....	13
3.3	Cumulative Impacts.....	14
<b>4</b>	<b>Existing Environment.....</b>	<b>14</b>
4.1	Climate.....	14
4.2	Topography and Geology .....	14
4.3	Water .....	15
4.4	Biodiversity.....	15
4.5	Indigenous and Cultural Heritage .....	16
<b>5</b>	<b>Risk Assessment.....</b>	<b>17</b>
5.1	Risk Assessment Approach.....	17
5.2	Information Requirements .....	17
5.3	Water .....	18
5.4	Biodiversity.....	21
5.5	Matters being assessed under the EPBC Act .....	22
5.6	Human Health and Safety .....	25
5.7	Radiation .....	26
5.8	Socio-economic.....	27
5.9	Transport.....	28
5.10	Historic and Cultural Heritage.....	29
5.11	Air .....	30
5.12	Rehabilitation, Decommissioning and Closure.....	31
5.13	Other potential impacts .....	33
<b>6</b>	<b>Environmental Management .....</b>	<b>34</b>
<b>7</b>	<b>General Advice on the Environmental Impact Statement .....</b>	<b>35</b>
7.1	General Content.....	35
7.2	Structure, Format and Style.....	36
7.3	Referencing and Information Sources .....	36
7.4	Administration .....	37
7.5	Public Exhibition.....	38
<b>Attachment 1 The Objects and Principles of the Environment Protection and Biodiversity Conservation Act 1999</b>		
<b>Sections 3 and 3A .....</b>		<b>39</b>
<b>Attachment 2 Matters that must be addressed in an EIS (Schedule 4 of the EPBC Regulations 2000) .....</b>		<b>40</b>

Acronym / Term Abbreviation	Description
AMD	Acidic and / or Metalliferous Drainage
AMD / NMD / SD	Acidic and / or Metalliferous Drainage, Neutral Mine Drainage, and / or Saline Drainage
BMP	Biodiversity Management Plan
CHMP	Cultural Heritage Management Plan
EAAP	Environmental Assessment Administrative Procedures
EA Act	<i>Environmental Assessment Act</i>
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
ESIA	Economic and Social Impact Assessment
ESIMP	Economic and Social Impact Management Plan
JORC	Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
MRCP	Mine Rehabilitation and Closure Plan
NORM	Naturally Occurring Radioactive Material
NT	Northern Territory
NT EPA	Northern Territory Environment Protection Authority
The Project	Nolans Rare Earth Project,
Proponent	Arafura Resources Limited
SD	Saline Drainage
Territory	Northern Territory
TPWC Act	<i>Territory Parks and Wildlife Conservation Act (NT)</i>
WMP	Water Management Plan

# 1 Introduction

Arafura Resources Limited (the Proponent) proposes to develop the Nolans Rare Earth Project (the Project), located approximately 135 km north west of Alice Springs, Northern Territory (NT). The Project would target the Nolans Bore mineral deposit for rare earth elements.

Project activities include construction, mining, processing, rehabilitation and decommissioning of an open-cut, rare earth mine, and associated infrastructure. Mining operations would be undertaken using conventional open pit methods (drill, blast, load and haul) to recover up to 800 000 t of ore per annum. Ore would be beneficiated onsite before a rare earths concentrate slurry would be pumped approximately 8 km south to an intermediate processing plant. Rare Earths concentrate would be transported by road then rail to East Arm Port for export. Further processing of the ore would occur at an offshore rare earths separation plant in an established chemical precinct. The Nolans Bore deposit contains thorium and uranium, which will be removed and stored in a waste disposal facility during processing.

The operational life of the Project is expected to be 23 to 40 years.

## 1.1 Project History

In March 2008, the Proponent submitted a Notice of Intent to the former NT Department of Natural Resources, Environment and the Arts for consideration under the *Environmental Assessment Act* (EA Act). The then Minister decided that the Project required 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 for the Project (EPBC 2008/4371) was submitted to the former Department of Environment Water Heritage and Arts for consideration under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act). The then Australian Government Minister determined the Project to be a controlled action and that assessment and approval was required. The Project was to be assessed under a Bilateral Agreement between the Australian and the NT Governments.

In December 2014, the Proponent lodged an alteration to the Project to the Northern Territory Environment Protection Authority (NT EPA). The alteration involves the following changes to the Project described in the 2008 Notice of Intent:

- increased size of the pit (approximately doubled)
- an increase to the life of the mine from 20 years to 23 years (with a potential for over 40 years pending further exploration and feasibility investigations)
- changes to the mining methods from continuous surface mining and campaign mining to selective mining
- ore would not be transported to Whyalla, South Australia, and would not require the return of process residue to the mine
- increased water, power and chemical storage demand
- the construction of a 400 person camp at the mine site for worker accommodation
- intermediate processing of the deposit at the proposed site instead of beneficiation on site and processing plant at Whyalla
- amendment to processing methods, chemicals and tailings storage and disposal
- water supply will no longer be sourced from the Ti Tree Basin groundwater resource and would to be from the Southern basins (Burt and eastern Whitcherry basins) and
- potential for future uranium and phosphate co-product development.

Pursuant to clause 14A of the Environmental Assessment Administrative Procedures (EAAP), the NT EPA considered the alteration and decided that the Project has been altered in such a manner that the potential environmental significance is changed. Although the alterations to the Project will avoid some of the risks identified in the 2008 Notice of Intent, the following environmental risks were identified relevant to the altered Project:

- potential for contamination (by seepage) of groundwater resources underlying the wastewater and waste rock disposal facilities, and the pits
- potential impacts on recharge to the Ti Tree groundwater basin and associated potable water supplies, including potential impacts due to contamination of surface water
- potential for leakage from long term waste disposal facilities
- potential impacts associated with increased traffic and the transportation of reagents on public roads
- potential for radiation hazards to workers, the public and the environment
- dispersal of naturally occurring radioactive material (NORM) in dust emissions which may impact the local environment or workers if inhaled
- potential draw-down of groundwater within the Burt and eastern Whitcherry basins due to extraction of water for mining and processing
- potential impacts to surface water flows
- potential impacts to local flora and fauna from the increased mine footprint
- uncertainties regarding the treatment, storage and eventual disposal of waste material
- risks associated with the increased footprint with respect to the adequacy of closure and rehabilitation of the site
- public concern over environmental, health and social impacts of the Project.

The changes to the scope and potential environmental impacts of the Project are such that replacement Terms of Reference is necessary.

On 11 February 2015, the Proponent withdrew the referral for the 2008 Project (EPBC 2008/4371) from assessment under the EPBC Act. On 18 February 2015, the Proponent submitted a revised referral (EPBC 2015/7436) describing the changes to the proposed action to the Minister for the Environment. On 16 March 2015, the delegate of the Minister determined the Project to be a controlled action and that assessment and approval is required. The Project has the potential to have a significant impact on the following matters of national environmental significance that are protected under Part 3 of the EPBC Act:

- Listed threatened species and communities (sections 18 & 18A) and
- Protection of the environment from nuclear actions (sections 21 and 22A).

The Project is being assessed under the bilateral agreement between the Australian and NT Governments made under section 45 of the EPBC Act.

These Terms of Reference have been developed to assist the Proponent in preparing an EIS for the Project, in accordance with Clause 8 of the EAAP, and to meet the requirements as provided for in Chapter 4, Part 8, Division 6 of the EPBC Act.

## 2 Regulatory Context

### 2.1 Approvals and Conditions

The EIS should provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply to the Project, including but not limited to:

- description of any approvals required by State, Territory or Commonwealth agencies or authorities, including any conditions that apply to the Project
- summary of current agreements between the Proponent and the NT Government, and / or the Australian Government, and / or other stakeholders, including Traditional Owners and / or land managers
- description of the regulatory monitoring, enforcement and review procedures that apply, or are proposed to apply, to the Project.

When identifying the individual approvals, certificates, permits etc. the Proponent should include details of the approvals, certificates, permits etc., including any conditions imposed. Consideration should be given, but not limited to, the following legislation:

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Heritage Act*
- *Mining Management Act & Regulations*
- *Mineral Titles Act and Regulations*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Public and Environmental Health Act & Regulations*
- *Radiation Protection Act*
- *Soil Conservation and Land Utilisation Act*
- *Territory Parks and Wildlife Conservation Act*
- *Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act*
- *Waste Management and Pollution Control Act*
- *Water Act*
- *Weeds Management Act*

Identify National, State and / or Territory standards, codes of practice and guidelines relevant to the Project.

### 2.2 Environmental History

The EIS should include details of the environmental record of the Proponent, including:

- details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Proponent, and details of the Proponent's environmental management systems and processes subsequently upgraded as a result of those proceedings
- obligations, non-compliances or incidents under the *Mining Management Act*, which includes the history in relation to environmental matters, compliance or non-compliance with the requirements of the Mining Management Plan and other relevant management plan
- any international or national accreditations (e.g. ISO 14001 etc.), environmental awards or other recognition for environmental performance.

## 2.3 Ecologically Sustainable Development

When considering the matters to be addressed in the EIS, the NT EPA is required under the *Northern Territory Environment Protection Authority Act* to:

- (a) promote ecologically sustainable development (ESD)
- (b) protect the environment, having regard to the need to enable ESD.

Accordingly, the assessment of the Project, its potential impacts (positive and negative) and the management measures used to enhance positive and reduce negative impacts will be taken in the context of ESD principles, consistent with the *National Strategy for Ecologically Sustainable Development*.<sup>1</sup> Therefore, the Proponent is required to demonstrate how it complies with and contributes to the principles and objectives of ESD in the relevant section(s) of the EIS.

## 3 Project Description

### 3.1 Project Details

#### 3.1.1 Proponent Details

Provide details of the Proponent, including:

- full name, contact details and postal address
- details of the Proponent's company portfolio (e.g. a single entity or in joint venture, ownership being domestic or international, major commodities, position in the market and countries where key business dealings are undertaken).

#### 3.1.2 Development Context

Provide details of the development context of the Project, including:

- title of the Project
- status of the Project
- background to the development of the Project, including discussion of previous environmental impact assessment and overview of associated / historic mining, exploration and rehabilitation activities
- exploration activities, areas that may be mined in future, or other potential future actions planned
- explanation of how the Project relates to any other proposals or actions, of which the Proponent should reasonably be aware, that have been or are being taken, or that have been approved in the region

#### 3.1.3 Location

Effective scoping of the Project will assist with the preparation of the EIS as well as clearly defining the footprint and operational details of the proposed action. The EIS should identify all the processes and activities intended for the Project and associated ancillary activities, for each Project stage.

Describe the location of the Project components in the region and their proximity to:

- major roads, railways, airstrips, rivers and landmark features

---

<sup>1</sup> Ecologically Sustainable Development Steering Committee, 1992. *National Strategy for Ecologically Sustainable Development*. Department of the Environment and Water Resources, Canberra, Australia. Available at: <http://www.environment.gov.au/resource/national-strategy-ecologically-sustainable-development>

- towns and regional community centres
- underlying and / surrounding tenure and land use (e.g. pastoral, town boundaries, etc.)
- sites of cultural significance
- sites of social significance
- significant natural or ecological features, such as areas on the National Reserve System, conservation reserves, major watercourses or significant groundwater resources.

#### 3.1.4 Infrastructure

Delineate the Project footprint and describe Project infrastructure requirements, using detailed maps and diagrams to show:

- Project disturbance footprint through Project stages
- location of the mineral resources to be mined / developed, ore reserves and areas to be explored
- locations of proposed mine components and infrastructure
- water resources / infrastructure
- layout of the accommodation village with respect to the work sites and mining and processing operations
- ancillary infrastructure requirements, such as for telecommunications, transport, accommodation, airstrip, waste management and water supplies.

For the linear infrastructure corridor(s), describe:

- corridor elements, such as haul road, pipeline(s)
- exact locations and designs of the slurry pipeline, site access roads, and other linear infrastructure
- periodic elements, such as pumping stations, lay-down / turning areas, and construction bores
- maximum width of corridors required for construction and operation.

#### 3.1.5 Construction and Operation

Describe proposed mine construction and operation, including, but not limited to:

- plant and machinery required for construction and operation
- timeframes for corridor / haul road construction and upgrade, if relevant
- vegetation clearing methods and disposal of plant matter following clearing
- methods for crossing corridor intersections with potentially significant / sensitive habitats, geology, watercourses, roads, linear infrastructure, places of cultural / heritage significance, etc.
- pipeline construction methods and timing, including of:
  - survey / design / selection of the pipeline route
  - provision of access tracks and temporary facilities
  - clear and grade of the right of way
  - pipe stringing and bending
  - pipe welding



- hydro-testing
- rehabilitation of right of way.
- type and sources of rock, gravel, fill and other construction materials
- legislation, standards and guidelines applicable to construction of corridor elements.

### **3.1.6 Mining**

Describe proposed component construction and operation, including, but not limited to:

- proposed design and methods of construction of the open pits, including:
  - sequencing
  - designs
  - construction and mining methods
  - types / categories, quantities and characterisation of materials to be mined annually (e.g. ore classes, top soil, waste rock classes, etc.).
- equipment requirements
- proposed staging of the Project
- how target resource grades will be produced
- product handling requirements
- run of mine stockpile
- waste rock dumps
- sources and volumes of materials required to support construction of mine infrastructure, such as fill, clays and consumables.

### **3.1.7 Processing**

Provide relevant information with respect to each processing circuit and stage to be utilised for the Project, including but not limited to:

- beneficiation and comminution methods (crushing, grinding)
- sulfuric acid production
- rare earth extraction / processing circuits
  - sulfuric acid pre-leach
  - sulfation and water leach
  - double sulfate precipitation and purification
  - rare earth chloride intermediate and cerium carbonate production
- presence, levels and management of NORM in the:
  - rare earth resource
  - processing streams / stages
  - waste streams, including gangue and overburden
  - disposal facilities, including for waste rock.
- projected quantities of rare earth concentrate to be produced
- other processing methods
- major components and equipment of each processing operation

- processing circuit inputs, outputs, volumes / feed grades of materials / consumables required, product recovery grades
- demonstration and comparison of performance with alternative processing methods, if available
- transport of materials to / from the processing circuits.

### 3.1.8 Energy

Provide relevant information with respect to energy, including but not limited to:

- information on the Project's energy requirements, including mining fleet fuels, and electricity demand for mine / processing operations and workers accommodation
- details of energy infrastructure requirements, for all components of the Project, including fuel storage
- describe any initiatives proposed to improve energy efficiency and/or reduce emissions to air.

### 3.1.9 Residue / Tailings Management

Provide details of residue / tailings production and management, within each Project stage, including but not limited to:

- methods for managing residue / tailings, process outputs and associated process water, including volumes
- proposed recycling and/or further processing of residue / tailings components, including process waters, gangue materials and gypsum
- anticipated types and quantities of residue / tailings that would be produced and managed by the Project
- geochemical characterisation of the residue / tailings, indicating the potential to generate seepage of a poor quality with respect to the *National Water Quality Management Strategy*<sup>2</sup>
- design details, specifications, capacity and integrity of the proposed residue / tailings storage / disposal facilities and evaporation ponds, including details of the location, layout, expected design life, material geotechnical specifications used in construction, permeability of walls / floors / underlying strata, compliance with acceptable international standards and guidelines for disposal facilities<sup>3</sup>, risk assessment and management plan.

### 3.1.10 Water Management

Provide information on proposed Project groundwater and/or surface water use such as extraction rates, quantities, qualities, sources, storage, treatments, disposal and infrastructure requirements. Details should include:

- all phases and areas of the Project
- processing circuit(s)

<sup>2</sup> Australian and New Zealand Environmental and Conservation Council and Agricultural and Resource Management Council of Australia and New Zealand (ANZECC), 2000. *National Water Quality Management Strategy: the Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Paper No. 4- Volume 1 Chapter 3 and 3.5-4, Department of the Environment and Heritage, Canberra.

<sup>3</sup> such as the Australian National Committee on Large Dams Incorporated 2012 (ANCOLD), and the International Atomic Energy Agency (IAEA) *Management of Radioactive Waste from the Mining and Milling of Ores Safety Guide* WS-G-1.2.

- process / tailings water
- slurry water for product transport
- dust suppression
- drinking water
- water treatments
- any other uses.

A water balance should be provided for the proposed Project, considering all Project areas and phases / options. Specific methods for dewatering should be provided where relevant. The water balance should predict Project-related changes to baseline surface and ground water conditions (volumes, flows and quality) for sensitive receptors locally and regionally, at Project component sites.

The reporting of the Project water balance in the EIS should be consistent with the *Water Accounting Framework for the Minerals Industry*<sup>4</sup>.

### 3.1.11 Air

Provide relevant information with respect to air quality, including but not limited to:

- inventory (name, composition and quantities) of Project generated air emissions, including from land disturbance, all processing circuits, disposal facilities, vehicles, plants and machinery
- proposed monitoring regime and equipment
- reporting requirements and compliance with relevant health and/or environmental standards
- air quality target thresholds with reference to regulatory industry-standard, health-related safe-limits, or aspirational parameter levels
- proposed emission control methods, including dust suppression strategies and monitoring of potential dust impacts.

### 3.1.12 Wastes and Hazardous Material

Provide relevant information with respect to other waste management, including but not limited to:

- descriptions of predicted waste streams, both industrial and domestic, including solid and liquid wastes at / from all Project components
- descriptions of proposed waste management strategies, including reduction, reuse, recycling, storage, transport and disposal of waste
- description of potentially hazardous materials to be used or produced and methods for storage, transport, handling, containment, disposal and emergency management of these materials
- description of the onsite and offsite transport or transfer of listed wastes<sup>5</sup> including source and destination
- description of waste water and sewage treatment, and disposal, including any projected need for discharge waste waters to the environment

<sup>4</sup> Mineral Council of Australia, 2014. *Water Accounting Framework for the Minerals Industry*. Available at: [http://www.minerals.org.au/focus/sustainable\\_development/water\\_accounting](http://www.minerals.org.au/focus/sustainable_development/water_accounting)

<sup>5</sup> Refer to Schedule 2 of the [Waste Management and Pollution Control \(Administration\) Regulations](#)

- details of any proposed reverse osmosis plant and associated (e.g. brine) waste streams
- description of garbage disposal and management
- the proposed size and construction details for landfill, and a list of wastes likely to be deposited in landfill
- legislation, guidelines, and standards applicable to any Project landfill, waste disposal facility, and how such requirements will be fulfilled
- proposed monitoring, management, (including contingency management) that identifies, addresses, and monitors any occurrence of environmental contamination during mine operations.

### 3.1.13 Workforce and Accommodation

Provide details of the predicted workforce requirements during all phases of the Project, including:

- the potential number of people to be employed, skills base required, and likely sources (local, regional, overseas)
- the number of people that may be employed to manage or undertake environmental duties on the site, including minimum qualifications and the level of experience with mining or other related activities
- arrangements for transport of workers to and from Project areas, including air services required.

For the mine camp that will be used to accommodate staff, provide brief information on aspects of the facility such as:

- accommodation arrangements proposed for workers
- proximity to the nearest town, work sites and mining operations
- whether the premises will be licensed to serve alcohol
- compliance with licensing requirements associated with food preparation and storage for catering premises proposed at Project sites
- compliance with *Environmental Health Fact Sheet No. 700. Requirements for Mining and Construction Projects*<sup>6</sup>.

### 3.1.14 Transport

Provide details of road, rail, air and sea transport requirements during all phases of the Project, including:

- methods to convey all site traffic (including materials, workers and product) to and from the Project
- road, rail and port networks to be utilised by the Project
- type, size and number of vehicles / vessels required, hours of operation and peak times

---

<sup>6</sup> Northern Territory Department of Health, 2014. *Environmental Health Fact Sheet 700 Requirements for Mining and Construction Projects*. Available at: [http://www.health.nt.gov.au/environmental\\_health/health\\_risk\\_assessment/index.aspx#EnvironmentalImpactAssessment](http://www.health.nt.gov.au/environmental_health/health_risk_assessment/index.aspx#EnvironmentalImpactAssessment)

- types and quantities of materials to be transported to / from the Project (e.g. heavy machinery, equipment, fuel, hazardous materials) including measures to handle hazardous or dangerous material
- estimated frequency of Project vehicles / aircraft use on public infrastructure.

Describe the proposed methods, routes and locations for transporting and exporting product, including:

- road, rail, air and port networks to be utilised by the Project
- product handling requirements
- storage / laydown areas and loading facilities
- methods of truck / train / vessel loading, load constraint and product containment
- safety management
- additional transport infrastructure works required, including site access and signage
- discussion of the Project transport facilities purposes and capability (e.g. East Arm Wharf, Alice Springs to Darwin Railway Terminal, etc.) to meet the transporting and exporting requirements of the Project.

### **3.2 Alternatives**

Alternative proposals, which allow the objectives of the Project to be met, should be discussed, detailing reasons for the selection and rejection of particular options. The selection criteria should be discussed, and the advantages and disadvantages of preferred options and alternatives detailed. The short, medium and long-term potential beneficial and adverse impacts of each of the options should be considered and associated risks should be detailed and analysed. Considerations need to be described objectively and in some detail.

Alternatives to be discussed should include:

- not proceeding with the Project
- alternative locations of infrastructure
- alternative sources of raw materials for the Project, including water supply
- water reuse / recycling / disposal options
- alternative transport corridors and options for transport of ore to the processing plant
- alternative extraction and processing technologies
- alternative environmental management technologies considered, such as treatment and disposal of by-products and waste products
- alternative decommissioning options – analysis should include reference to industry ‘best practice’ guidelines, including exploration of the option of backfilling the pit with waste rock
- alternative configurations to reduce the Project’s carbon footprint
- alternative workforce accommodation
- alternatives to the proposed creek diversion(s) - Kerosene Camp Creek and Nolans Creek
- potential recovery of uranium / thorium / phosphate resources from currently proposed residue streams, storages and/or disposal facilities, if economics supporting of such actions were to improve. Assess risks and potential impacts associated with accessing these resources.

- progressive migration of the residual wastes to permanent waste disposal options (i.e. removing option of future recovery of uranium, thorium or phosphate resources from waste streams).

### 3.3 Cumulative Impacts

Cumulative impacts can arise from compounding activities of a single operation or multiple mining and processing operations, as well as the aggregation and interaction of mining impacts with other past, current and future activities that may not be related to mining.

An assessment of cumulative environmental impacts should be undertaken that considers the potential impact of the Project in the context of previous, existing and reasonably foreseeable future developments, to ensure that any potential environmental impacts are not considered in isolation. The extent of cumulative impacts to be considered depends on the nature of the environmental issue. The risk assessment should consider and discuss cumulative assessment, where relevant, and account for impacts on an appropriate scale.

Impacts on the general environment, ecosystems and matters of national environmental significance could be permanent. If the impacts are not permanent, describe how long recovery from any impacts is anticipated to take, and identify how soon restoration of habitat could be achieved to reinstate ecosystem function.

## 4 Existing Environment

The EIS should outline the environmental context of the Project area.

The EIS is required to describe baseline (i.e. current) environmental conditions, at least to the spatial extent of the potential environmental impact footprint from the Project in a worst case scenario. Detailed investigation of baseline conditions allows for better understanding of potential impacts from mining in the future.

This section should identify and reference any relevant studies undertaken in the area that will assist in better describing the existing environment.

### 4.1 Climate

The EIS should describe climate and atmospheric characteristics relevant to the Project, e.g. seasonal temperatures, humidity, wind speed and direction, evaporation, rainfall and extreme events (e.g. tropical cyclones, floods, drought and fire).

### 4.2 Topography and Geology

The EIS should describe and map geology, topography, soils and significant landscape features of the Project area and surrounding areas; including:

- major geological units, including geological faults
- major soil units and characteristics
- mineral deposit type and style of mineralisation
- the target commodity
- the extent and characterisation of:
  - the mineral resource
  - ore-body
- sedimentary overburden and/or waste rock, including the ore : waste ratio.

The reporting of exploration results, ore reserve and mineral resource estimates in the EIS should be consistent with the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*.<sup>7</sup>

Radiological conditions in the area need to be established in order to determine the magnitude of exposure to radiation above natural background levels, to sensitive receptors, for the life of the Project and after rehabilitation. Such a baseline assessment needs to summarise all potential exposure pathways, which include the terrestrial gamma, the inhalation and the ingestion pathways and include but not be limited to: gamma survey, long lived alpha activity, radon and its decay products.

### 4.3 Water

The EIS should describe water resource conditions and monitoring should be provided, including discussion and data relating to:

- site and regional surface water catchments, waterways, springs and regional groundwater resources,
- local and regional aquifer properties
- connectivity between groundwater and surface water
- results from baseline water quality and hydrology monitoring programs, where available and relevant
- details of any infrastructure for the monitoring of water resources
- an estimate of annual recharge to regional aquifer systems
- the environmental values of the surface waterways and groundwater aquifers potentially affected
- water quality, flows and existing water users potentially impacted by the Project
- site and, if relevant, regional hydrogeology to enable the prediction of potential impacts of the Project on water resources and their features adjacent to mining areas, including drawdown cones and pollution pathways.

Consideration should be made of areas / waters within and around all Project elements, upstream and downstream, within identified hydrolithological units, and in waterways (ephemeral and permanent) to be crossed by any infrastructure utilised for the Project (i.e. haul roads, pipeline, rail loading facility, etc.). Detailed characterisation should occur of waterway(s) proposed to be diverted by the Project, including contained aquatic / riparian ecosystems and waterway functions.

### 4.4 Biodiversity

Describe fauna, flora and vegetation communities of the Project area and local region. Surveys should be in accordance with the NT EPA *Guidelines for Assessment of Impacts on Terrestrial Biodiversity* and/or Australian Government Guidelines for the surveying of threatened species<sup>8</sup>. Describe survey / program timing, locations and methodology, to demonstrate appropriate and statistically sufficient survey designs.

Where indicated, describe and map:

- any areas that have already been subject to clearing activities or disturbance previously

<sup>7</sup> Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC), 2012. *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*. Available at: <http://www.jorc.org>

<sup>8</sup> <http://www.environment.gov.au/epbc/policy-statements>



- any significant or sensitive vegetation types
- habitat within and adjacent to the Project area suitable for species of conservation significance potentially present, including consideration of habitat suitable for breeding, foraging, aggregation or roosting
- *the presence or likely presence of species listed under the Territory Parks and Wildlife Conservation Act (TPWC Act) and/or the EPBC Act, and other species of conservation significance*
- any riparian or aquatic ecosystems or groundwater dependent ecosystems
- the presence, or likely occurrence, of introduced and invasive species (both flora and fauna) within the Project area, and regionally, including weed species declared under the NT *Weeds Management Act*.

## 4.5 Indigenous and Cultural Heritage

The EIS should outline the cultural and heritage significance of any sites or objects located on the Project areas or that could be impacted by Project components. The EIS should include the results of searches on the NT Government database and identify any sites or places protected or nominated for protection under the following legislations:

- *Aboriginal and Torres Strait Island Heritage Protection Act 1984*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Heritage Act*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Aboriginal Land Rights (Northern Territory) Act 1976.*

Baseline information should be provided regarding historic or cultural heritage in the region, including:

- a description and location of Indigenous and non-Indigenous sites, places or objects of historic or cultural heritage significance (e.g. traditional land-use)
- survey(s) used to identify sites, places or objects of historic or cultural heritage significance (e.g. archaeology)
- Areas nominated for listing or listed on Commonwealth and Northern Territory registers of Indigenous cultural heritage and
- Provision of evidence of an Aboriginal Areas Protection Authority (AAPA) Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act*.

The EIS should provide a summary outlining the survey effort and level of confidence that all items of heritage or cultural significance at risk have been identified. The EIS should provide information on the current status of any approvals, permits or clearances in relation to the protection of heritage items or places.

The EIS should outline consultations with Indigenous stakeholders and Traditional Owners for all areas potentially affected by the Project. Determination and details should be provided of any current Traditional Owner utilisation of Project areas, and spiritual / cultural significance of potentially affected areas.



## 5 Risk Assessment

### 5.1 Risk Assessment Approach

The EIS should be undertaken with specific emphasis on the identification, analysis and mitigation of potential impacts through a whole-of-Project risk assessment. Through this process, the EIS will:

- identify and discuss the full range of risks presented by the Project
- identify relevant potential direct and indirect impacts
- quantify and rank risks so that the reasons for proposed management responses are clear
- identify levels of any uncertainty about estimates of risk and the effectiveness of risk controls in mitigating risk
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues
- demonstrate that the Project represents best practicable technology.

The NT EPA has identified risks of potentially significant impacts through a preliminary assessment of the Project. Each of the identified potential impacts should be addressed by the Proponent in the risk assessment and management process. It is expected that further potential impacts will be identified through the comprehensive risk assessment process required for the EIS. These should be addressed and appropriate management controls identified to demonstrate that:

- the Proponent is fully aware of risks of potential impacts associated with all predictable aspects of the Project
- the prevention and mitigation of risks of potential impacts are properly addressed in the design specifications
- the risks can and will be managed effectively during the construction, operation, decommissioning, closure and post-closure phases of the Project.

Information provided should permit the general reader to understand the likelihood and consequence (i.e. risk) of each potential impact from the Project, and risks of potential impacts after implementation of proposed mitigation measures / controls. Confidence rating around risks and controls should be defined. Low confidence ratings that preclude robust quantification of risk should be clearly acknowledged.

Risk rankings assigned should be fully justified. Where a risk score associated with the likelihood or consequence of an impact is reduced as a result of proposed mitigation measures, clear justification should be provided for the reduction in score. The adequacy and feasibility of mitigation measures must be demonstrable.

Sufficient quantitative analysis should be provided to indicate whether risks are acceptable. A comparison can be made with similar ventures in Australia and internationally, where relevant. Assumptions used in the analyses should be explained.

### 5.2 Information Requirements

The NT EPA has prepared a series of Environmental Assessment Guidelines to assist in the preparation of EIS documents. Environmental Assessment Guidelines are developed and updated periodically, and should be referenced and referred to when addressing the information requirements detailed in this Terms of Reference document. Environmental Assessment Guidelines, current at the time of publication of these Terms of Reference, include:

- *Environmental Assessment Guidelines on Acid and Metalliferous Drainage*
- *Guidelines on Conceptual Site Models*
- *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*
- *Guidelines for the Preparation of an Economic and Social Impact Assessment*
- *Guidelines for Consultants Reporting on Environmental Issues*
- *Guidelines on Environmental Offsets and Associated Approval Conditions*

## 5.3 Water

### 5.3.1 Environmental Objectives

Proposed extraction of water will be within the sustainable limit of the aquifer or water supply to fulfil the Project needs over the predicted life-of-mine, without causing adverse environmental or social impacts.

Water resources will be protected both now and in the future, such that ecological health and land uses, and the health, welfare and amenity of people are maintained.

Proposed creek diversion(s) will maintain equivalent ecological functionality of the waterways, and minimise impacts to linked riparian and aquatic ecosystems for the short and long term.

### 5.3.2 Assessment of Potential Impacts

The EIS should identify potential impacts to surface and/or groundwater resources presented by the Project, and assess risks of identified impacts, including consideration of:

- progressive water table drawdown from unsustainable groundwater extraction rates, particularly where aquifers are utilised by other users and/or groundwater dependent ecosystems. Where risks to sensitive receptors are identified, drawdown modelling should quantify potential impacts
- impacts to the regional public water supplies
- disturbance to, and increased sedimentation of water resources
- impacts associated with diversion of creeks or rivers, such as impacts to constructed channel stability, existing aquatic / riparian ecosystems and/or ecological functions of waterways
- major or extreme<sup>9</sup> weather events impacting on Project infrastructure and/or water management, including contingency management options
- impacts from controlled<sup>10</sup> discharge or seepage of contaminated waters into surface and/or groundwater resources
- uncontrolled discharge of contaminated waters from the Project into surface and/or groundwater resources, due to:
  - spills / passive-discharge / seepage of hydrocarbons, AMD / NMD / SD or other hazardous materials
  - loss of control / containment of poor quality mine waters associated with extreme weather events.

<sup>9</sup> where a major weather event has a 5 to 100 year average recurrence interval (ARI)], and an extreme weather events has a 100 year ARI, or greater.

<sup>10</sup> i.e identified, planned, assessed, monitored, regulated and reported by the Proponent

- impacts from uncontrolled release of contaminated waters from the Project into water resources.

The EIS should provide an estimate of quality and quantities of seepage discharging to aquifers and creeks from proposed mine components through all mine phases, including post closure (long term).

The influence of seasonality should be discussed where relevant.

The risk assessment should consider the short<sup>11</sup> (whilst operational), medium<sup>12</sup> (post closure and under institutional control) and long term<sup>13</sup> (post-institutional control) timeframes of the Project.

Provide a detailed conceptual site model describing potential sources, pathways, receptors, and fate of any potentially contaminated waters from the Project, and Project components. The model should be of sufficient detail for the general reader to understand the source(s) of potential contaminants, mechanism(s) of their release, pathway(s) for transport, and potential for human and ecological exposure to these potential contaminants.

The minimum data required to support the model should include, but not be limited to:

- laboratory and field testing data required to characterise potential physicochemical properties of mine products and infrastructure
- material volume and mass of potential contaminant sources
- hydrogeological characterisation (e.g. groundwater occurrence, direction and rate of flow, etc.)
- hydrologic characterisation (e.g. surface water flow, seasonality etc.)
- baseline water quality of receiving waters (from Section 4.3)
- biological receptors, vectors and their habitats
- other complementary technical studies, at appropriate temporal and spatial scales.

An appropriately qualified and experienced person should be involved with the supervision and interpretation of test results and the development of the conceptual site model. Appropriate statistical design details including the number of samples, sampling site selection procedures and quality assurance and quality control protocols to support the development of the model should be provided and justified.

### 5.3.3 Mitigation

The EIS should describe proposed management of water for the Project for all mine-life stages and seasons, according to its source, quality, volume, end use or other parameters, including:

- proposed management to contain contaminants onsite
- water quality thresholds triggering management actions
- description of site surplus water volumes, and proposed management

<sup>11</sup> The period of construction, operation and decommissioning; including potential care and maintenance situations

<sup>12</sup> The period post-decommissioning including rehabilitation and monitoring to demonstrate that the closure criteria have been achieved and the Proponent is able to demonstrate that it is possible to apply for a close-out certificate

<sup>13</sup> The period where monitoring has demonstrated that the closure criteria have been achieved, the Proponent has been issued a close-out certificate and released from their responsibility for the site

- management of stormwater, erosion and sediment loads during seasonal and extreme rainfall events.

The EIS should provide a draft Water Management Plan (WMP) that outlines clear and concise measures to mitigate identified risks of the Project to water resources. All mitigation measures in the WMP should be adequately detailed to demonstrate best practicable management and that environmental values of receiving waters will be maintained. The WMP should include but not be limited to measures that avoid or minimise:

- Project contamination of surface or groundwater resources
- impacts to water dependent ecosystems
- impacts to existing users of bores and/or surface waterways
- exposure of sensitive biological receptors to contaminants or water of a poor quality that may be harmful
- release of contaminated Project waters or hazardous materials to the environment, including post-closure

The WMP should include measures to:

- treat and manage domestic wastewater and sewage
- ensure treatment / neutralisation occurs of hazardous materials to identified safe levels, before any controlled environmental release is considered.

The WMP should be closely related to but separate from a whole-of-site Erosion and Sediment Control Plan (ESCP) for the Project. The ESCP should include details of permanent and temporary erosion and sediment control methods and treatments to be implemented during all mine phases, for all Project-related land disturbing activities. The ESCP should be undertaken by a suitably qualified and experienced professional in erosion and sediment control planning. The ESCP should be consistent with the International Erosion Control Association's Best Practice Publications<sup>14</sup>.

The WMP should undergo a process of peer review by an independent, appropriately qualified expert. Feedback should be included as an attachment to the WMP.

#### 5.3.4 Monitoring

The WMP and related management plans should outline details of monitoring programs to be implemented throughout the life of the Project to determine effectiveness of the mitigation measures (Section 5.3.3), and to monitor for impacts to water resources from the Project.

Proposed monitoring should be described for leaks, spills or seepage of materials from pipelines, storage / disposal facilities (including tailings disposal facilities) and transport operations to identify impacts, should they occur, to local soils, aquifers, environments, workers and/or the general public.

The monitoring programs should include relevant water quality target values based on appropriate guidelines and/or standards. The monitoring program should outline reporting procedures and contingencies that will be implemented in the event that monitoring activities identify that any performance indicators have been triggered, or other water related hazard or emergency.

The monitoring programs should include:

---

<sup>14</sup> Further information can be found at [www.austieca.com.au](http://www.austieca.com.au) , and <http://lrm.nt.gov.au/soil/management>.

- methods to monitor the impacts of the Project on surface and groundwater quality and quantity during mine operations and beyond mine closure
- provisions to notify and respond to environmental and human health risks associated with water quality, or other water related emergency
- contingency plans to be implemented should monitoring identify an unacceptable impact.

## 5.4 Biodiversity

### 5.4.1 Environmental Objectives

The Project will maintain the conservation status, diversity, geographic distribution and productivity of flora and fauna, at the species and ecosystem levels, through the avoidance or management of adverse impacts.

### 5.4.2 Assessment of Potential Impacts

The EIS should assess risks of identified potential impacts to biodiversity values, particularly threatened species, as a result of the Project<sup>15</sup>. The EIS should include references to relevant research and statutory plans, such as action plans, recovery plans and threat abatement plans, when assessing the risks.

The EIS should analyse potential for the Project to impact on:

- ecosystems at a local and regional scale, including the potential for ongoing indirect impacts
- listed threatened species, at local, regional, state and national scales
- other flora / fauna species of conservation significance, with consideration of potential for direct, indirect and consequential impacts. Where a risk has been identified, the EIS should include discussion of the severity of those risks to individuals and regional populations
- vegetation at a local and regional scale, including the potential for ongoing indirect impacts as a result of edge effects, weed incursion or other processes exacerbated through construction or operation of the Project.

Where relevant assess potential for impacts from linear developments, road strikes, discharge or seepage of poor quality water, ground / surface water contamination, groundwater drawdown, radiation exposure, vegetation clearance, habitat fragmentation, edge effects, erosion and sedimentation, soil compaction, inappropriate / ineffective rehabilitation, waste material, transport / storage of hazardous chemicals, noise / vibration, dust / air quality impacts or other processes exacerbated through construction or operation of the Project.

Provide detailed assessment of the potential of the Project to introduce and/or increase the presence of introduced and invasive species (both flora and fauna) in the region, and the potential impacts of such species.

### 5.4.3 Mitigation

The EIS should contain a detailed Biodiversity Management Plan (BMP) that outlines clear and concise methods to mitigate likely impacts to biodiversity. All mitigation

---

<sup>15</sup> In accordance with: Northern Territory Environment Protection Authority - Guidelines for Assessment of Impacts on Terrestrial Biodiversity at:  
[http://www.ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0003/349941/guideline\\_assessment\\_terrestrial\\_biodiversity.pdf](http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0003/349941/guideline_assessment_terrestrial_biodiversity.pdf)

measures should be in accordance with best practice advice from relevant Northern Territory and Australian Government advisory agencies.

The BMP should detail preventative management and treatment measures in relation to:

- procedures to be adopted during vegetation clearing, including wildlife rescue procedures
- weed and feral animal management
- rare, threatened or significant species at risk of being adversely impacted
- potentially significant impacts to regional biodiversity
- weed control measures and hygiene protocols as required under the *Weeds Management Act*.

Management measures should be prepared by a suitably qualified expert that has demonstrated experience in the mitigation and monitoring of adverse impacts to biodiversity and threatened species.

Proposed mitigation measures must be incorporated in relevant sections of the Environmental Management Plan (EMP) (see Section 6).

#### 5.4.4 Monitoring

The BMP should include details of monitoring that is proposed to be undertaken to monitor the effectiveness of the mitigation measures proposed, including the methodology for monitoring the impacts to biodiversity. Where relevant, outline contingency measures to be implemented in the event that monitoring indicates that mitigation measures are ineffective. Provide explicit thresholds / trigger-points for intervention.

## 5.5 Matters being assessed under the EPBC Act

To assist in streamlining the environmental approval process the Project is being assessed under the Bilateral Agreement between the NT and Commonwealth Governments. This section (5.5) with Attachments 1 and 2, identify the matters that will need to be considered and assessed under the EPBC Act. As there is likely to be overlap between the requirements of the two jurisdictions these matters may be addressed together within the greater EIS document, i.e., without complete separation of EPBC requirements into a dedicated Chapter.

The objects and principles of the EPBC Act are at Attachment 1, a copy of Schedule 4 of the EPBC Regulations - matters that must be addressed in an EIS, is at Attachment 2. Both attachments should be considered in the preparation of this EIS.

### 5.5.1 Matters of National Environmental Significance

The delegate of the Commonwealth Minister determined that the proposed mine was a controlled action as the Project has the potential to have a significant impact on:

- listed threatened species and communities (section 18 & section 18A); and
- the environment - because the proposal is a nuclear action (section 21 & section 22A).

### 5.5.2 Assessment of potential impacts to listed threatened species and communities

#### 5.5.2.1 Description of the Environment

The EIS must provide a detailed assessment of the likely presence of listed threatened species and their habitat within the vicinity of the Project area. Species assessed must include, but not be limited to:



- Black-Footed Rock-Wallaby (*Petrogale lateralis*) - MacDonnell Ranges Population
- Great Desert Skink (*Liopholis kintorei*)
- Greater Bilby (*Macrotis lagotis*).

This assessment should be based on further target surveys for these species within the Project area and include discussions on the quality and quantity of available habitat. Where relevant, details on the scope, timing (survey season/s) and methodology of the studies or surveys undertaken should be provided.

#### 5.5.2.2 Relevant Potential Impacts

The EIS must include an assessment of the risk of impact, if any, to listed threatened species and their habitat from any potential source of impact arising from the construction, operational and decommissioning phases of the Project, including, but not limited to:

- Clearing of known and potential habitat for each of the listed threatened species identified above. The type, importance, quality and quantity of habitat to be cleared should be discussed for each species.
- Vehicle strike as a result of increased day and night time traffic, including during construction and throughout the operating life of the proposed Project. The number of vehicle movements during construction and normal operations should be estimated and proposed vehicle speed limits should be identified.
- Increase in feral fauna species, particularly cats and foxes, as a result of increased accessibility and use of linear infrastructure (e.g. impacts of increased predation and competition).
- Introduction and increase spread of weeds (e.g. impacts by modification of important habitat; altered fire regimes).
- Barrier effects caused by the mine pit and associated linear infrastructure and the impacts of habitat and population fragmentation.
- Transportation and/or disposal of hazardous material (including NORMs) or wastes.
- Altered hydrology and water quality impacts, including erosion / sedimentation and radiation contamination of water resources
- Water drawdown from groundwater extraction impacting on dependent ecological communities
- Radionuclide exposure from dust emissions, contaminated water resources or other sources of exposure.

#### 5.5.3 Assessment of potential impacts to the environment

Under the EPBC Act the environment is defined as including:

- a) ecosystems and their constituent parts, including people and communities; and
- b) natural and physical resources; and
- c) the qualities and characteristics of locations, places and areas; and
- d) heritage values of places; and
- e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b) (c) or (d).

These terms of reference require the preparation of an environmental baseline, an assessment of risk and proposed mitigation measures to address issues associated with; Water (Section 5.3), Biodiversity (Section 5.4), Human Health and Safety (Section 5.7), Radiation Protection (Section 5.7), Socio-economic (Section 5.8), Transport

(Section 5.9), Historic and Cultural Heritage (Section 5.10), Air (Section 5.11), Rehabilitation, Decommissioning and Closure (Section 5.12) and Other risks (Section 5.13). Provided these sections are adequately addressed, and suitable mitigation measures are proposed, the EIS will meet the requirements for the assessments of impacts to the environment under the EPBC Act.

#### 5.5.4 Mitigation

For all impacts listed above, and any additional impacts identified, the EIS must propose appropriate safeguards and mitigation measures to reduce the level of impact to listed threatened species and the environment from Project activities. The proposed safeguards and mitigation measures must be described in detail, be based on best available practices and must include an assessment of the expected or predicted efficacy of the mitigation measures.

In the event that significant residual impacts remain for any of the above listed species following application of the proposed mitigation measures, offsets should be proposed with reference to the EPBC Act Environmental Offsets Policy, October 2012. An explanation as to how the offsets meet the policy and the Offsets Assessment Guide should be provided.

#### 5.5.5 Monitoring

Detail reporting and monitoring programs of flora and fauna that will be used to evaluate and report on the effectiveness of the mitigation measures (Section 5.5.4). Where relevant, outline contingency measures to be implemented in the event that monitoring indicates that mitigation measures are ineffective in protecting listed threatened species or the environment. Provide explicit thresholds / trigger-points for intervention.

#### 5.5.6 Other Matters

The assessment of potential impacts to matters of National Environmental Significance must show regard to relevant Threat Abatement Plans<sup>16</sup>, Recovery Plans<sup>17</sup> and Survey Guidelines<sup>18</sup>, including but not limited to:

- Survey Guidelines for Australia's Threatened Mammals. EPBC Act Survey Guidelines 6.5
- Survey Guidelines for Australia's Threatened Reptiles: Guidelines for Detecting Reptiles Listed as Threatened Under the EPBC Act
- Threat Abatement Plan for Predation by Feral Cats
- Threat Abatement Plan for Predation by the European Red Fox
- Threat Abatement Plan for Competition and Land Degradation by Rabbits
- Threat Abatement Plan to reduce the Impacts on Northern Australia's Biodiversity by the Five Listed Grasses
- National Recovery Plan for the Greater Bilby (*Macrotis lagotis*)
- A Recovery Plan for the Great Desert Skink (*Egernia kintorei*) – Please note *Egernia kintorei* is a toxicological synonym for the modern scientific name *Liopholis kintorei*
- Recovery Plan for Five Species of Rock Wallabies: Black-Footed Rock Wallaby (*Petrogale lateralis*), Rothschild Rock Wallaby (*P. rothschildi*), Short-Eared Rock

<sup>16</sup> <http://www.environment.gov.au/biodiversity/threatened/tap-approved.html>

<sup>17</sup> <http://www.environment.gov.au/cgi-bin/sprat/public/publicshowallrps.pl>

<sup>18</sup> <http://www.environment.gov.au/epbc/publications>



Wallaby (*P. brachyotis*), Monjon (*P. burbridgei*) and Nabarlek (*P. concinna*) 2012-2022.

## 5.6 Human Health and Safety

### 5.6.1 Environmental Objectives

The EIS should demonstrate that for all stages of the Project:

- the Proponent is fully aware of potential impacts to human health and safety
- all identified potential impacts to human health and safety will be avoided, mitigated or minimised.

### 5.6.2 Assessment of Potential Impacts

The EIS should identify and assess potential hazards to human health and safety associated with all stages and components of the Project, including pathways for development of hazards and increasing of risks.

Sensitive receptors to hazards associated with the Project should be identified, including their locations and patterns of activity.

Identification of potential hazards and risk assessment should include consideration of:

- risks to health and safety of the workforce and the general public for the duration of the Project, including post-closure
- fire, including combustible materials and bushfires
- hazards associated with the transportation of personnel, rare earth concentrate, explosives (bulk emulsion), consumables and dangerous goods
- hazardous materials exposure, including hazardous process inputs / outputs
- hazards and increased risks associated with remote area construction, operations and transport, such as due to:
  - reduced access to communications and monitoring networks, and to emergency, health and vehicle breakdown services
  - extreme climates
  - fauna
  - long travel distances
- project related hazards to transport network users and any communities adjacent to haul routes
- capacity of proposed infrastructure and services to allow the Project to operate safely
- hazards and increased risks associated with climate change and extreme weather conditions, including rainfall, flooding and drought.

### 5.6.3 Mitigation and Monitoring

Detail preventative, management, treatment and monitoring strategies used to minimise the impacts of the Project on human health and safety. Outline environmental management strategies necessary for human health and safety, and describe how these strategies will be incorporated into the EMP (Section 6).

Describe the emergency plans and response procedures developed as a contingency in the event of an emergency or accident (e.g. chemical spillages, leaks, fire and explosions, traffic accident, etc.), including management of all emergencies that may

impact on the facility, its surrounds, personnel or the public. Responsibilities and liabilities in such an event should be included.

## 5.7 Radiation

### 5.7.1 Environmental Objectives

The EIS should demonstrate that for all stages of the Project:

- the Proponent is fully aware of potential for the Project to cause harmful radiation doses to people and/or the environment.
- proposed management will protect all people and the environment from harmful radiation doses resulting from the Project

### 5.7.2 Assessment of Potential Impacts

The EIS should identify and assess potential radiation hazards presented by the Project, including:

- details of radiation dose potential from Project elements to workers, fauna, the public and the environment, include consideration of:
  - radon and its decay products
  - radioactive particles in dust
  - alpha and gamma radiation
  - exposure pathways from ore and ore processing including tailings / process residue disposal, materials stockpiles and waste disposal facilities.
- assessment of potential radiation dose delivered via the consumption of local commonly-utilised bush foods and/or livestock where applicable
- potential for radioactive elements to concentrate and partition in the processing circuits, waste disposal facilities and waste disposal facility seepage / discharges
- potential for accidental radiation exposure through unintentional or emergency release of hazardous materials / gases

### 5.7.3 Mitigation

The EIS should demonstrate the following with respect to radiation aspects of the Project:

- The Proponent will implement a system to control the radiation exposure of people and the environment arising from its mining, processing, storage and disposal activities. The system and the dose limits applied must comply, at the minimum, with relevant Australian law taking into account the most recently published and relevant Australian standards, codes of practice, and guidelines. The Project must achieve the following outcomes:
  - radiation doses to company employees and contractors are kept as low as reasonably achievable and must always remain less than the dose limit for workers
  - radiation doses to people who are not company employees or contractors must be kept as low as reasonably achievable and must always remain within the dose limit for members of the public
  - the Project will not result in any significant deleterious radiation impacts on surrounding ecosystems

The EIS should provide a draft Radiation Management Plan (RMP) for the Project describing proposed measures to identify, avoid, mitigate and monitor for radiation impacts from the Project, including, but not limited to a:

- radiation-monitoring program that includes radiation monitoring for a critical group. The radiation dose to the critical group is often estimated from modelling that requires a discharge-source term. Therefore, the estimated dose to the critical group may set a discharge limit on radioactive material. A critical group is to be identified and defined, as per section 2.7 of the *Code of Practice (2005)* mentioned in this Section
- A detailed draft Radioactive Waste Management Plan, consistent with, but not limited in scope by section 2.8.2 of the Code of Practice (2005) mentioned in this Section
- monitoring and reporting program to determine the effectiveness of mitigation measures
- a systematic hazard and risk review process to assess the effectiveness of proposed measures in meeting objectives of the plan (and this Section).

Resources with respect to radiation hazard identification, management, monitoring and dose limitation, could include the:

- *Radiation Protection Act*
- *National Standard for Limiting Occupational Exposure to Ionizing Radiation (1995)*, interpreted in accordance with recommendations published by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) in 2002.
- *Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)*.

#### 5.7.4 Monitoring

The RMP should include a proposed monitoring and reporting program to determine the effectiveness of mitigation measures (Section 5.7.3). The monitoring and reporting program should identify when further action is required and outline contingency measures should the proposed mitigation measures not meet outcomes expected and identified by the Proponent.

## 5.8 Socio-economic

### 5.8.1 Environmental Objectives

To analyse, monitor and manage the intended and unintended social consequences, both positive and negative, of the Project and any social change processes.

### 5.8.2 Assessment of Potential Impacts

The Project has the potential to cause positive and/or negative impacts on the regional, Territory and national economies, and the social well-being of the population. Operations and activities associated with the life of the Project have the potential to change social demographic, cultural and economic elements. As a result potential economic and social benefits may not be optimised and costs may not be fully understood and taken into consideration.

An Economic and Social Impact Assessment (ESIA) should be conducted in accordance with the NT EPA *Guidelines for the Preparation of an Economic and Social Impact Assessment*<sup>19</sup> considering risks of social and economic impacts from the Project.

---

<sup>19</sup> Available at:  
[http://www.ntepa.nt.gov.au/data/assets/pdf\\_file/0007/349936/guideline\\_assessment\\_economic\\_social\\_impact.pdf](http://www.ntepa.nt.gov.au/data/assets/pdf_file/0007/349936/guideline_assessment_economic_social_impact.pdf)

The following may assist with highlighting the economic value of the Project and are not intended to result in the inappropriate disclosure of confidential information:

- summary of the Project's economic feasibility
- details of the financial capacity to implement the Project, the significance of potential risks to Project implementation and associated proposed mitigation measures, including the capacity to cost for mine closure and care and maintenance activities
- opportunities available to regional centres based on the activity generated by the Project (construction, rehabilitation and operation)
- current and projected availability of goods and services to existing users within the region, such as availability of: accommodation, emergency medical services, trades-people and transport services
- outline of the net economic benefits of the project.

The ESIA should include analysis of the current and projected financial capacity of the Proponent to allocate sufficient resources to:

- implement the Project, mitigation measures, and contingency management measures
- maintain its environmental obligations should the Project be temporarily closed or suspended
- meet all stabilisation, rehabilitation and closure requirements, once operations have ceased.

### **5.8.3 Mitigation and Monitoring**

An Economic and Social Impact Management Plan (ESIMP) should be prepared to address any risks of significant impacts identified in the ESIA. The ESIMP should:

- describe how the Proponent proposes to manage any identified risks of economic, social or cultural impacts (include consideration of tourism) from the Project, or its associated workforce
- describe how potential local and regional business and employment opportunities related to the Project will be identified and managed
- include measures to mitigate negative economic and social impacts on the locality and region
- provide outcome and assessment criteria that will give early warning that management and mitigation measures are not achieving the outcomes and benefits expected and identified by the Proponent
- provide a stakeholder communications strategy including identification of, and ongoing consultation and negotiations with, all relevant stakeholders, ensuring the full range of community viewpoints are sought and included in the EIS.
- include a mechanism for monitoring and reporting any identified potential socio-economic and cultural impacts.

## **5.9 Transport**

### **5.9.1 Environmental Objectives**

Potential transport impacts will be effectively identified and avoided / mitigated / minimised to the greatest practicable extent.

### 5.9.2 Assessment of potential impacts

The EIS should identify and analyse direct and indirect potential impacts, hazards, costs and benefits associated with transport components of the Project.

Sensitive receptors to potential impacts, hazards, costs and benefits should be identified, including their location and the potential for exposure.

Aspects to be discussed include:

- support services and infrastructure to be provided by the Proponent for transport components of the Project
- potential for impacts from the Project to regional community access to emergency and breakdown services, fuel supplies and accommodation from increased demands due to the Project
- potential for impacts from Project heavy vehicles to the condition and usability of public roads, including consideration of seasonal variability of road surface conditions
- potential for impacts from the Project to other users and available capacities of shared railway resources
- potential for impacts from the Project to marine waters and ecosystems associated with loading / unloading of vessels, and stockpiles of product and materials
- potential for impacts arising from other transport components of the Project, including personnel and air transport, rail and sea haulage.

### 5.9.3 Mitigation and Monitoring

Detail preventative, management, treatment and monitoring strategies used to minimise the impacts of transport components of the Project. Describe how these strategies will be incorporated into the EMP (Section 6). Strategies should address, as a minimum:

- measures to reduce any road traffic nuisance impacts (e.g. noise, dust, light)
- road maintenance and upgrades where relevant to human safety and continued access
- methods for complying with any relevant road vehicle axle limits
- methods for securing loads
- consultation with local communities affected by transport impacts
- spill prevention and management during ship loading / unloading operations, transport of product, and stockpiles of product and materials, to the extent under control of the Proponent
- management of driver fatigue.

## 5.10 Historic and Cultural Heritage

### 5.10.1 Environmental Objectives

Places and items with historic and/or cultural heritage values protected under the *Heritage Act*, the *Northern Territory Aboriginal Sacred Sites Act* or any other relevant Territory or Commonwealth legislation, will be identified and those values protected.

### 5.10.2 Assessment of Potential Impacts

The EIS should:

- identify and assess risks of the Project to impact on sites / objects of sacred, heritage or cultural significance

- detail any requirements to disturb or destroy a prescribed archaeological place and/or object under the *Heritage Act*
- identify and assess any risks of impacts to significant cultural sites from Project generated vibration and dust.

#### 5.10.3 Mitigation

The EIS should describe measures to prevent and/or mitigate risks of impacts to existing sites or items of historic and cultural heritage in a Cultural Heritage Management Plan (CHMP). The CHMP should include:

- procedures to avoid significant sites and areas
- protection of key sites during construction, operation and decommissioning work
- measures to enable the Proponent, or contractor to the Proponent, to meet its duty of care to protect the cultural and heritage values of any places or items of significance
- procedures for the discovery of surface or sub-surface items during the course of the Project.

#### 5.10.4 Monitoring

The CHMP should include details of a monitoring and reporting program to determine the effectiveness of mitigation measures (Section 5.6.3). The monitoring and reporting program should identify when further action is required and outline contingency measures should the proposed mitigation measures result in degradation to the values of sites or items with heritage or cultural significance.

### 5.11 Air

#### 5.11.1 Environmental Objectives

Sensitive receptors of Project generated emissions to air, including dust, radon gas and processing-plant emissions, will be identified and protected from significant impacts.

#### 5.11.2 Assessment of potential impacts

Identify and assess potential impacts to sensitive receptors from Project emissions. Include: emissions of chemicals, particulates, biological materials, radon gas and dust, from:

- drilling, blasting, excavation and materials handling (including transportation)
- each beneficiation / concentrator and processing stage
- sulfuric acid plant, power plants, vehicles, machinery
- tailings / residue / waste / overburden / materials / product streams, storages and disposal facilities
- general site movements over unsealed surfaces
- haulage and transport of material along the haul road between the pit, stockpiling site and export facilities
- wind erosion mobilising dust from exposed surfaces, such as from pits, waste dumps, laydown areas, stockpiles, roads and sites of vegetation clearing.

Identify existing variability in air quality target parameters, such as the impact of smoke haze, NORMs and any relevance to potential impacts to sensitive receptors from Project emissions.

Potential impacts, nuisances and human health issues associated with air quality, including dust, and mitigation measures should be discussed in Sections 5.4 and 5.6.

Consideration should be given to the acute and chronic exposure and pathways, such as inhalation, ingestion and dermal contact. Potential sensitivity of receptors to air quality, including dust, and mitigation measures should be discussed in relevant sections of the EIS. Identified risks and contaminant pathways should also be included in the conceptual site model for the Project (section **Error! Reference source not found.**).

#### 5.11.3 Mitigation

The EIS should provide details of mitigation measures to avoid, mitigate and/or minimise identified risks of potential impacts, including but not limited to:

- risks associated with toxic or nuisance emissions from the Project to air
- contingency measures to be implemented in the event that monitoring demonstrates that management measures have not been effective.

#### 5.11.4 Monitoring

The EIS should provide details of a proposed monitoring program, including:

- technique, location, frequency and target parameters
- proposed monitoring and reporting to be used to evaluate and report on the effectiveness and performance of the mitigation measures
- outcome and assessment criteria that will give early warning that management and mitigation measures are not achieving the outcomes and benefits expected and identified by the Proponent.

## 5.12 Rehabilitation, Decommissioning and Closure

#### 5.12.1 Environmental Objectives

The EIS will demonstrate that:

- As far as practicable, rehabilitation will achieve a stable and functioning landform which is compatible with the surrounding landscape and other environmental values.
- Potential impacts to downstream water quality / potable-water supplies, ecosystems, beneficial uses, environmental / cultural values or human health, associated with closure and rehabilitation of the Project will be identified, and adequately avoided, mitigated and/or minimised.
- Rehabilitation of areas impacted by mining, will ensure:
  - Health risk to members of the public, including traditional owners, will be as low as is reasonably achievable.
  - Members of the public will not receive a radiation dose which exceeds applicable limits recommended by the most recently published, relevant Australian standards, codes of practice, and guidelines.

#### 5.12.2 Assessment of Potential Impacts

Closure planning should be risk-based taking into account results of materials characterisation, data on the local environmental and climatic conditions, and consideration of potential impacts through contaminant pathways and environmental receptors. Identify risks to the successful rehabilitation and closure of the Project, including risks to prescribed closure timeframes, including:

- closure timeframes and objectives and the Project not realising its projected outcomes (i.e. delays, unexpected or forced closure, etc.)
- risks that the Project may create an ongoing environmental, social and/or economic legacy if operations are required to cease ahead of schedule due to unforeseen circumstances, prior to the planned closure and rehabilitation of the site



- the post-closure risk assessment should include a discussion of the effects of:
  - changes in the assumptions used as a basis for the post-closure risk assessment
  - natural events, including earthquakes, rainfall events, fire and flood.

The EIS should identify and evaluate risks relating to the handling, storage and disposal of radioactive material, and demonstrate that isolation of radioactive tailings and materials will be secure virtually indefinitely.

### **5.12.3 Mitigation**

A draft Mine Rehabilitation and Closure Plan (MRCP), specific to the Project should be prepared, to:

- describe proposed rehabilitation, decommissioning and closure for all aspects of the Project on completion of mining / operations on individual sites
- address objectives identified in Section 5.12.1
- describe how risks identified in Section 5.12.2 will be mitigated
- demonstrate that ecologically sustainable mine closure can be achieved, consistent with agreed post-mining outcomes and land uses, and without unacceptable liability to the Territory.

The draft MRCP should include description of:

- removal of plant, equipment, infrastructure, water storages, and methods proposed for stabilisation of affected areas
- proposed staging and timing of rehabilitation and closure
- protocols for the securing a safe and stable mine -site
- proposed methodologies of topsoil management, and soil profile reconstruction, with demonstration of their effectiveness for rehabilitating disturbed areas
- closure criteria and future land tenure and land-use arrangements
- revegetation strategies for disturbed sites to utilise local native plant species similar in type, density and abundance to those existing in adjacent areas
- measures to ensure the soil stabilisation against erosion, to a level similar to comparable landforms in surrounding undisturbed areas
- contingencies to make landforms and mine components secure and non-polluting
- proposed final topographic and drainage morphology, including design concepts and methods to be used.

The MRCP should include a Care and Maintenance Plan based on the MRCP. The Care and Maintenance Plan should include measures outlining how the Proponent will maintain its environmental obligations and commitments should the Project be temporarily or unexpectedly closed or suspended at any stage in the Project life.

### **5.12.4 Monitoring**

The EIS should:

- describe proposed post-mining monitoring and reporting to be used to evaluate and report on the effectiveness and performance of the MRCP
- describe contingency measures to be implemented in the event that monitoring demonstrates that management measures described in the MRCP have not been effective



- provide monitoring criteria that will give early warning that management and mitigation measures are not achieving the outcomes and benefits expected and identified by the Proponent

## 5.13 Other potential impacts

Other potential impacts not assessed in the preceding sections (5.1 - 5.12) should be identified and management strategies proposed that detail avoidance, minimisation, mitigation and monitoring for the potential impacts. The following potential impacts and advice should also be addressed as a minimum:

### 5.13.1 Bushfires and Emergency

The Proponent should be aware of sections of the *Bushfires Act* and Regulations that apply to the Project and address risk and management of bushfires, in a Fire Management Plan for the Project. The Plan should be developed in consultation with traditional owners, pastoralists and their representative organisations, where appropriate, that have specialist knowledge in fire management. The Fire Management Plan should be incorporated into the EMP (Section 6) for the Project.

### 5.13.2 Noise and Vibration

The potential sensitivity of human and biological receptors to noise and vibration and mitigation measures should be discussed in a relevant section of the EIS. The Proponent should address the impact of noise and vibration resulting from the Project on residents and the community in a relevant section of the EIS. The EIS should outline methods for communicating with, and reducing the impact on, residents within the vicinity of Project components or transport corridors who may be adversely affected by the Project.

The EIS should outline proposed management to mitigate any identified risks from the Project with regard to noise and vibration emissions. If relevant, the EIS should describe proposed communication with any residents and communities predicted to be impacted by noise and vibration from the Project.

### 5.13.3 Visual Amenity

The extent and significance of the changed landscape on visual amenity during all stages of the Project should be discussed in a relevant section of the EIS. Aspects of the Project that would be visible from key vantage points, publicly accessible areas and areas of significance, should be discussed.

### 5.13.4 Mosquito Breeding

There is potential for mine sites to create mosquito breeding sites. The Proponent should be aware of sections of the *Public and Environmental Health Act* that apply to the Project and address risk and management of biting insects in a relevant section of the EIS. In particular, the EIS should provide:

- measures to ensure water pond (i.e. sediment pond) is designed with minimal mosquito breeding potential (i.e. steep sides, deep open water). The Project should conform to *Guidelines for Preventing Mosquito Breeding Associated with Mining Sites*<sup>20</sup>

<sup>20</sup> *Guidelines for Preventing Mosquito Breeding Sites Associated with Mining Sites.*  
[http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/32/40.pdf&siteID=1&str\\_title=Guidelines for preventing mosquito breeding sites associated with mining sites.pdf](http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/32/40.pdf&siteID=1&str_title=Guidelines+for+preventing+mosquito+breeding+sites+associated+with+mining+sites.pdf)

- Measures to prevent mosquito breeding should be outlined in a biting insect management section in the EMP. Information on personal protection can be found in *Personal protection from mosquitoes and biting midges in the Northern Territory*<sup>21</sup>

## 6 Environmental Management

The specific safeguards and controls proposed to be employed to minimise or remedy environmental impacts identified in the risk assessment process are to be included in an EMP. The EMP should be strategic, describing a framework for continuing management, mitigation and monitoring programs for the significant environmental impacts of the Project.

The scope, content and structure of the EMP will be a function of the outcomes of the environmental risk assessment and determined by the significance of the environmental impacts. The EMP should not be prepared in isolation but should be consistent and integrated with the principles of an environmental management system. The EMP should include specialised management plans where it is necessary to provide a high level of operational detail (e.g. Radiation Management Plan, Water Management Plan, Erosion and Sediment Control Plan, etc.). As much detail as is practicable should be provided to enable adequate assessment of the proposed environmental management practices and procedures

The EMP needs to address the Project phases (development, operation, decommissioning, closure and post-closure) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, necessary resourcing, responsibility and timing for each environmental issue.

The EMP should include:

- the proposed management structure of the Project and its relationship to the environmental management of the site, including personnel responsible for maintaining and approving the EMP
- description of the main elements of the environmental management system and reference to related documents determined by the Proponent to be necessary to ensure the effective planning, operation and control processes that relate to the environmental management system
- a register of ownership for the mining and infrastructure interests associated with the Project, including the title numbers, title holders and status
- the name of the agency responsible for endorsing, approving and/or overseeing each mitigation measure or monitoring program
- proposed reporting procedures consistent with Territory and Australian Government legislative requirements
- a summary table listing the commitments made in the EIS, including clear timelines for key commitments and performance indicators, with cross-references to the text of the EIS
- management targets and objectives for relevant environmental impacts and/or factors
- performance indicators by which all anticipated and potential impacts can be measured
- proposed monitoring programs to allow early detection of adverse impacts

<sup>21</sup> *Personal protection from mosquitoes and biting midges in the Northern Territory*  
[http://digitallibrary.health.nt.gov.au/prodjsui/bitstream/10137/264/3/Personal protection from mosquitoes and biting midges in the NT 25 OCT 2011\\_5\\_doc.pdf](http://digitallibrary.health.nt.gov.au/prodjsui/bitstream/10137/264/3/Personal%20protection%20from%20mosquitoes%20and%20biting%20midges%20in%20the%20NT%2025%20OCT%202011_5_doc.pdf)

- sampling procedures and frequency, where relevant:
  - how results will be recorded
  - laboratory techniques and methods of data analysis
  - equipment and instruments calibrated or verified at specified intervals
  - sample preservation techniques.
- contingencies for emergency events, such as hydrocarbon and other hazardous chemical spills or natural disasters
- procedures for dealing with failure to meet performance criteria and targets, non-compliance with environmental management controls, environmental incidents and emergencies
- Where interpretation of the monitoring data or other observations have detected the potential for or actual adverse trends in performance or impacts, detail what remedial / corrective strategies and actions will be implemented. Include scopes of work where appropriate together with a commitment to an implementation timetable and any modifications to the monitoring program required in order to assess the performance of the actions.
- an overview of the environmental awareness training and education process regarding responsibilities, including:
  - the induction program (e.g. general, site, department)
  - communication of the requirements of the EMP to all employees and contractors
  - environmental emergency response training
  - particular training requirements for targeted personnel
  - any other environmental training or education requirements
- provision for the periodic review of the EMP
- provision for independent environmental auditing of the Project.

The EMP would continue to be developed and refined following the conclusion of the assessment process, taking into consideration the proposed timing of development activities, comments on the EIS and incorporating the Assessment Report recommendations (if any) and conclusions.

## 7 General Advice on the Environmental Impact Statement

### 7.1 General Content

The EIS should be a stand-alone document. It should contain sufficient information to avoid the need to search out previous or additional, unattached reports.

The EIS should enable interested stakeholders, the Commonwealth Minister and the NT EPA to understand the environmental consequences of the Project. Information provided in the EIS should be objective, clear, succinct and easily understood by the general reader. Maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. Where possible, technical jargon should be avoided or accompanied by a clear explanation so that it is readily understandable. Cross-referencing should be used to avoid unnecessary duplication of text.

The level of analysis and detail in the EIS should reflect the level of significance of the potential impacts on the environment, as determined through adequate technical studies. Consideration of appropriate spatial, temporal and analytical scales should be used to clearly communicate the potential impacts to the environment. Where data is used to support statements, studies and claims in the EIS, reliability of the data and an

explanation of the sampling criteria and approach should be provided. All known and unknown variables, limitations or assumptions made in the EIS must be clearly stated and discussed.

Information materials summarising and highlighting risks of the Project should be provided in a culturally appropriate format and language, accompanied by graphics and illustrations that assist with interpretation, where relevant.

## 7.2 Structure, Format and Style

The EIS should comprise of three elements:

### 1. Executive summary

The executive summary must include a brief outline of the Project and each chapter of the EIS, allowing the reader to obtain a clear understanding of the proposed action, its environmental implications and management objectives. It must be written as a stand-alone document able to be reproduced on request by interested parties who may not wish to read the EIS as a whole.

### 2. Main text of the document

The main text of the EIS should include a list of abbreviations, a glossary to define technical terms, acronyms, abbreviations, and colloquialisms. The document should consist of a series of chapters detailing the level of significance and management of the expected and potential impacts on the environment from the proposed action.

### 3. Appendices

The appendices must include detailed technical information, studies or investigations necessary to support the main text. These will be made publicly available and should include:

- a table listing how these Terms of Reference have been addressed in the EIS, cross-referenced to chapters, page numbers and / or appendices
- the name of, work done by and the qualifications and experience of the persons involved in preparing the EIS
- a table listing commitments made by the Proponent
- detailed technical information, studies or investigations necessary to support the main text.

The EIS should be produced on A4 size paper capable of being photocopied, with any maps, diagrams or plans on A4 or A3 size paper, and in colour, if possible.

## 7.3 Referencing and Information Sources

All sources must be appropriately referenced using the Harvard Standard. The reference list should include the address of any internet pages used as data sources. All referenced supporting documentation and data, or documents cited in the EIS must be available upon request. For information given in the EIS, the EIS must state:

- the source of the information
- how recent the information is
- how the reliability of the information was tested
- what uncertainties (if any) are in the information.

All known and unknown variables or assumptions made in the EIS must be clearly stated and discussed. Confidence levels must be specific, as well as the sources from which they were obtained. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

Reliability of the data and an explanation of the sampling criteria and approach should be provided where data are used to support statements, studies and claims in the EIS. Sufficient discussion should accompany the data to demonstrate that the data and results of quality control and quality assurance testing are suitable and fit for purpose.

Spatial data should be provided to the NT EPA as importable Geographic Information System shape files, with relevant features and areas geospatially referenced and marked as polygons, lines and points. Topography / contours should be detailed at appropriate intervals with respect to Australian Height Datum (AHD).

The EIS must include information on any consultation about the Project, including:

- any consultation that has already taken place
- a list of persons and agencies consulted during the EIS
- if there has been consultation about the Project, any documented response to, or result of, the consultation
- proposed consultation about relevant impacts of the Project
- identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

The EIS has an important role in informing the public about this Project. It is essential that the Proponent demonstrate how any public concerns were identified and will influence the design and delivery of the Project. Public involvement and the role of government organisations should be clearly identified. The outcomes of any surveys, public meetings and liaison with interested groups should be discussed including any changes made to the Project because of consultation. Details of any ongoing liaison should also be discussed.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the NT EPA on the preferred presentation of that material, before submitting it to the NT EPA for consideration. Information of a confidential nature should not be disclosed in the draft EIS if disclosure of the information might:

- prejudice inter-governmental relations between an Australian body politic and a body politic overseas or between two (2) or more bodies politic in Australia or in the Territory
- be an interference with a person's privacy
- disclose information about an Aboriginal sacred site or Aboriginal tradition
- disclose information obtained by a public sector organisation from a business, commercial or financial undertaking that is:
  - a trade secret
  - other information of a business, commercial or financial nature and the disclosure is likely to expose the undertaking unreasonably to disadvantage.

It is an offence under the *Northern Territory Environment Protection Authority Act* to give information to the NT EPA that the person knows is misleading or contains misleading information.

## 7.4 Administration

The Proponent should lodge three bound hard copies and electronic versions (Adobe PDF and Microsoft Word format) of the draft EIS with the NT EPA. The electronic copies should be provided both as a single file of the entire document and separate files of the document components.

The Proponent should consider the file size, the number of files, format and style of the document appropriate for publication on the NT EPA website. The capacity of the website to store data and display the material may have some bearing on how the documents are constructed.

The Proponent is to advertise that the draft EIS is available for review and comment, in the:

- NT News
- Tennant and District Times
- Centralian Advocate.

The NT EPA requires the complete draft EIS document and a draft of the advertisement at least one week prior to advertising the draft EIS, to arrange web upload of the document and review and comment on advertising text.

## **7.5 Public Exhibition**

Sufficient copies of the draft EIS should be provided to and be made available for public exhibition at:

- NT EPA, Suite 201, The Avenue, 12 Salonika Street, Parap NT 0820
- Department of Lands, Planning and the Environment, Floor 1, Greenwell Building Plaza Building, Todd Street Mall, Alice Springs
- Department of Mines and Energy
  - Mines and Energy Information Centre, Paspalis Centrepont , 48-50 Smith St Darwin
  - Arid Zone Research Institute, South Stuart Highway, Alice Springs
- Alice Springs Public Library, Gregory Terrace, Alice Springs
- Northern Territory Library, Parliament House, Darwin
- Central Land Council, Main Office, 27 Stuart Highway, Alice Springs
- Arid Lands Environment Centre, Cnr Warburton St and Lindsay Ave, Alice Springs
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin

The public exhibition period for the draft EIS will be eight (8) weeks. The EIS exhibition period should not occur in late December or January in any year to ensure optimal opportunity for public and Government viewing of the EIS document. The NT EPA will direct the Proponent to extend the EIS exhibition period if the EIS exhibition overlaps any Christmas and January periods.

## Attachment 1

### **The Objects and Principles of the *Environment Protection and Biodiversity Conservation Act 1999* Sections 3 and 3A**

#### **3 Objects of the Act**

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- (c) to promote the conservation of biodiversity;
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

#### **3A Principles of Ecologically Sustainable Development**

The following principles are principles of ecologically sustainable development.

- (a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
- (b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- (c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- (d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- (e) Improved valuation, pricing and incentive mechanisms should be promoted.



## Attachment 2

### Matters that must be addressed in an EIS (Schedule 4 of the EPBC Regulations 2000)

#### 1 General information

1.01 The background of the action including:

- (a) the title of the action;
- (b) the full name and postal address of the designated Proponent;
- (c) a clear outline of the objective of the action;
- (d) the location of the action;
- (e) the background to the development of the action;
- (f) how the action relates to any other actions (of which the Proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;
- (g) the current status of the action; and
- (h) the consequences of not proceeding with the action.

#### 2 Description

2.01 A description of the action, including:

- (a) all the components of the action;
- (b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;
- (c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;
- (d) relevant impacts of the action;
- (e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;
- (f) any other requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the proposed action;
- (g) to the extent reasonably practicable, any feasible alternatives to the action, including:
  - i. if relevant, the alternative of taking no action;
  - ii. a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action; and
  - iii. sufficient detail to make clear why any alternative is preferred to another;



- (h) any consultation about the action, including:
  - i. any consultation that has already taken place;
  - ii. proposed consultation about relevant impacts of the action; and
  - iii. if there has been consultation about the proposed action — any documented response to, or result of, the consultation; and
- (i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

### **3 Relevant impacts**

3.01 Information given under paragraph 2.01(d) must include

- (a) a description of the relevant impacts of the action;
- (b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;
- (c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;
- (d) analysis of the significance of the relevant impacts; and
- (e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

### **4 Proposed safeguards and mitigation measures**

4.01 Information given under paragraph 2.01(e) must include:

- (a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;
- (b) any statutory or policy basis for the mitigation measures;
- (c) the cost of the mitigation measures;
- (d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;
- (e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program; and
- (f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the Proponent.

### **5 Other Approvals and Conditions**

5.01 Information given under paragraph 2.01(f) must include:

- (a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:
  - i. what environmental assessment of the proposed action has been, or is being carried out under the scheme, plan or policy; and
  - ii. how the scheme provides for the prevention, minimisation and management of any relevant impacts;
- (b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;
- (c) a statement identifying any additional approval that is required; and
- (d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

## **6 Environmental record of person proposing to take the action**

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- (a) the person proposing to take the action; and
- (b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

## **7 Information sources**

7.01 For information given the EIS must state:

- (a) the source of the information; and
- (b) how recent the information is; and
- (c) how the reliability of the information was tested; and
- (d) what uncertainties (if any) are in the information.