

# APPENDICES

## APPENDIX A-2 TERMS OF REFERENCE

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

**JERVOIS BASE METAL PROJECT  
KGL RESOURCES**

August 2017

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# 1 Introduction

KGL Resources (the Proponent) is proposing the Jervois Base Metal Project (the Project), located approximately 270 km east-north-east of Alice Springs. The proposal involves mining copper and other base metals from at least five deposits.

Ore would be processed onsite using a crushing, grinding and flotation plant, producing copper and lead/zinc concentrate. The process requires approximately 1200 megalitres per year of water, to be supplied from an existing fresh water catchment dam and a borefield to be developed near the Project area. Waste material would be stored in a tailings dam with four cells and a capacity of 20 million tonnes (Mt) and five waste rock storage areas containing approximately 87 Mt.

The concentrate would be shipped from site by truck in containers via the Plenty and Stuart highways to a proposed rail siding in Alice Springs, then to Darwin or Adelaide, depending on product, processing requirements and market. It is proposed to construct a rail siding adjacent to the Adelaide to Darwin rail line north of Alice Springs. Concentrate would be loaded in enclosed containers onto the rail line for transport to the ports.

Project infrastructure would include a processing plant, workshops, laydown areas, an explosive magazine, offices, warehouses, a laboratory, haul roads, sewage treatment systems, 12 MW diesel and/or gas fired power station, powerlines, water storages, an airstrip and accommodation camp. It is estimated that the workforce would peak at approximately 110 staff during full production of underground and open cut operations, operating on a fly-in fly-out basis.

## 1.1 History

The Project tenements have been the subject of historic exploration and mining by various operators since 1929.

The Proponent submitted a Notice of Intent (NOI) for the project in November 2013. In February 2014 the NT EPA determined the project required formal assessment at the level of an Environmental Impact Statement (EIS) and issued Terms of Reference (ToR) in May 2014. The NT EPA decision that the project required formal assessment was based on the following potential environmental risks and impacts:

- potential impacts on biodiversity from land clearing and mining activities proposed for the Project. Risks and mitigation measures had yet to be adequately addressed, especially in relation to the identification and protection of threatened species yet to be surveyed by the Proponent, and in the control of declared weeds
- risk to the value, status and condition of the Jervois Range Site of Bioregional Significance from the proposed development
- risks to the quality of and accessibility/availability to shared regional surface water and groundwater resources from the development, operation and closure of the Project
- uncertainties with regards to the extraction and processing of the ore and associated management of water, tailings and waste streams, including potentially acid forming material. Any disturbance to or contribution of materials to the existing mine components has the potential to impact on the geotechnical and geochemical integrity of the existing mine features
- increased risk of soil erosion and dust generation from the Project. Soils of the Jervois Ranges are highly sensitive to disturbance and have poor recovery potential once disturbed

- increased demand and/or impact on existing services and infrastructure, including road, railway and air transport networks
- potential for disturbance to heritage places and objects
- potential social, cultural and economic impacts, including the risks of the Project not realising its projected economic and social benefits.

## **1.2 Notice of alteration**

Since submitting its NOI, investigation by the Proponent identified additional mineral resources. The Proponent wrote to the NT EPA on 25 January 2017 to provide a notice of an alteration to the Project under clause 14A of the Environment Assessment Administrative Procedures (EAAP). Changes from the 2013 NOI include:

- extending the mine life from seven to 12-15 years
- an estimated increase in the size of the mineral resource from 13.7 Mt to 30.5 Mt, including the identification of a new deposit
- an additional mining and processing stream to produce lead and zinc concentrate
- increasing the area of disturbance from 675 ha to 970 ha, including two new tailings cells and additional roads, pits and waste rock dumps
- an option for the lead and zinc products to be transported to Adelaide for refining and export.

On 1 March 2017 the NT EPA determined that the environmental significance of the project has not changed and the altered project will continue to be assessed at the level of an EIS. The ToR have been revised reflecting the changes to the Project and the expiration of the original timeframe to submit the draft EIS in May 2017.

These revised ToR have been developed to assist the Proponent in preparing an EIS for the Project, in accordance with clause 8 of the EAAP.

## **2 Description of the project**

### **2.1 General information**

The EIS should identify all the processes and activities intended for the Project and associated ancillary activities, during the life of the Project. The EIS should establish the context of the Project, including, but not limited to, the following information:

- the title of the Project
- the full name, contact details and postal address of the Proponent
- the location of the Project in the region and its proximity to:
  - landmark features
  - sites of cultural significance
  - sites of social significance
  - regional community centres
  - areas on the National Reserve System
  - sensitive environments, such as major waterways, significant groundwater resources, significant natural features and conservation reserves

- the location of Project infrastructure (both existing and proposed) in relation to existing nearby public and private infrastructure, such as roads, airstrips, bores, dams etc.
- the background to the development of the Project, including discussion of previous environmental impact assessment and overview of historic mining activities
- an explanation and outline of the objectives, benefits and justification for the Project
- identification of areas under exploration that may be mined in future, or any other potential future activities being planned
- how the Project relates to any other proposals or actions, of which the Proponent should reasonably be aware, that have been or are being undertaken, or that have been approved in the region
- details of the Proponent's environmental record, 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 systems and processes that have been subsequently upgraded
  - any international or national accreditations (e.g. ISO 14001), environmental awards or other recognition for environmental performance
  - details of the company's environmental policy and planning framework
- national, state and/or Territory standards, codes of practice and guidelines relevant to the Project
- the consequences, both positive and negative, of not proceeding with the Project.

## **2.2 Project components**

The EIS should identify all the processes and activities intended for the Project and associated ancillary activities, during the life of the Project. As background to discussion of specific components, the following should be included:

- the current status of the Project
- an overview of the life-of-mine schedule for the Project phases:
  - construction
  - operations
  - rehabilitation
  - decommissioning and closure
- an outline of the geology of the area, including:
  - major geological units and properties of the Project area
  - the extent and characterisation of:
    - the mineral resource
    - orebody
    - waste rock
- delineation of the Project footprint using detailed maps and diagrams, including:
  - locations of existing infrastructure and mine components

- locations of existing water extraction points and storage facilities
- location of the mineral resources to be explored, developed, mined and included in mine rehabilitation and closure activities
- all areas to be cleared or disturbed, both temporarily and for the life-of-mine
- the location of any works to be undertaken, structures to be built or elements of the Project, including but not limited to:
  - the open pit and underground mines
  - roads
  - airfield
  - accommodation village and construction camps
  - hard stands
  - stockpiles
  - pipeline corridors
  - rail siding
  - product export or transshipment facilities
  - tailings storage facilities
  - waste rock dumps
  - processing plant
  - water-related infrastructure, including:
    - water extraction points
    - storage facilities.

### **2.2.1 Mining operations**

Provide specific details of the following aspects of mine construction:

- methods for open pit and underground mine construction
- methods for portal and decline construction to access the proposed underground mining areas
- volumes of materials required to support the construction of the mine, including, but not limited to, consumables, such as bulk chemicals and fuel
- plant and machinery required
- design details, dimensions and design concepts for the:
  - open pits
  - underground mines
  - waste rock dumps
  - tailings storage facility
  - run of mine pad

- mine access and haul roads
- explosives and detonator magazines
- product and other stockpiles
- other significant mine infrastructure.

Provide specific details of the following aspects of mine operation:

- mining types and methods, including the major equipment to be used in the various components of the operation
- type (e.g. cut-off grades), storage and management of the stockpiled materials (e.g. top soil, waste rock etc.)
- quantity of material to be mined annually, including any proposed ramping up of production or staging of development
- clearing and preparation of the site, including handling/stockpiling/management/disposal of vegetation and topsoil

The specifications should include details of the location, layout (with and without capping), factor of safety rating, expected design life, permeability and liner and capping design, where relevant.

### **2.2.2 Ore processing**

Provide relevant information with respect to the processing circuit, including but not limited to:

- transport of materials to the processing circuit
- processing methods, including the major equipment to be used in the various components of the processing operation
- volumes of materials required, including, but not limited to, consumables such as bulk chemicals and fuel
- water requirements, treatment and sources
- alternative processing methods that have been investigated and justification for the proposed option.

### **2.2.3 Tailings**

Provide a Tailings Storage Facility (TSF) Design Report that includes information on following:

- the anticipated quantity of tailings that would be produced and managed from the Project
- tailings properties
- proposed construction of the TSF including permeability and any requirement for liners
- rehabilitation and closure objectives including how the tailings will be sealed in the long term
- alternative methods of tailings management, including returning tailings to the pit void and justification for the proposed option



- how the design will reference the ANCOLD *Guidelines on Tailings Dams - Planning, Design, Construction, Operation and Closure (May 2012)*.

#### **2.2.4 Waste rock characterisation**

In accordance with the NT EPA *Environmental Assessment Guideline on acid and metalliferous drainage*<sup>1</sup>, provide sufficient characterisation to enable assessment of whether the proposed mining operation has potential to produce acid or metalliferous drainage (AMD) or other contaminants or materials that present risks to the environment and/or public health.

Details of waste rock characterisation should include:

- identification of the total amount of waste rock to be produced over the life of mine
- identification of classes and amounts of waste rock, including potentially acid forming (PAF) or other problematic material
- description of proposed waste rock storage locations, dimensions, water catchments, surface treatment and final landforms and how problematic waste rock will be sealed or managed in the long term
- cross-sectional diagrams showing design concepts
- description of the extent and significance of effects on visual amenity from key vantage points day and night and during all stages of the Project, as it relates to the surrounding landscape
- conceptual rehabilitation and revegetation plans
- consideration of alternative locations, configurations, wall/pad designs and construction, including the option of returning waste rock to pit voids. Provide justification for the proposed option.

#### **2.2.5 Non-mineral waste characterisation**

- descriptions of predicted waste streams, both industrial and domestic, including solid and liquid wastes at the mine site, accommodation facilities and other relevant locations
- information on potentially hazardous materials to be used or produced and methods for storage, transport, handling, containment, disposal and emergency management of these materials (including fuel)
- the proposed size and construction details for landfill, and details of wastes likely to be deposited in landfill
- legislation, guidelines, and standards applicable to the Project's landfill, sewage treatment and waste disposal facility
- an inventory of any waste streams requiring management during the Project.

#### **2.2.6 Transport**

Provide relevant information with respect to the road network and any access track construction or upgrade, including:

- maximum width of road corridors required for construction and operation
- plant and machinery required

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<sup>1</sup> [http://www.ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0005/349934/guideline\\_assessment\\_acid\\_metalliferous\\_drainage.pdf](http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0005/349934/guideline_assessment_acid_metalliferous_drainage.pdf)

- vegetation clearing methods and disposal of plant matter following clearing
- timeframes for access track and haul road construction and upgrade
- methods for crossing sensitive areas, such as waterways and/or land units with poor soil recovery potential and if there will be any alteration to local water flow patterns
- methods for intersecting linear infrastructure and major roads
- source of construction inputs and materials for bulk earth works
- ongoing provisions for road and access track maintenance, including source and extraction of maintenance inputs and materials.

Details of road use associated with the Project should be provided, including:

- type, size and number of vehicles required during all phases of the Project
- quantities of materials to be transported to the mine (e.g. heavy machinery, equipment, diesel, hazardous materials)
- estimated frequency of Project-related vehicle use on public roads
- hours of operation, including peak user times.

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

- product handling requirements
- storage and laydown areas
- road, rail and port networks to be utilised by the Project
- a discussion of the facilities purposes and capability (e.g. East Arm Wharf, Alice Springs Rail Terminal, etc.) to meet the transporting and exporting requirements of the Project
- a discussion of export options (Darwin/Adelaide) and justification for the proposed option.

Describe the intended use and capacity of the airfield to service the Project. Detail any upgrades, area of disturbance and commitments to meet aviation legislative obligations (e.g. Civil Aviation Safety Authority).

### **2.2.7 Water**

Describe water use, including:

- Project water balance and account. Predictions should include rainfall over wet, dry and average years.
- water demand requirements for each aspect of the Project (including dust suppression, drinking water, ablutions and sewage treatment, mine water, processing circuit and any other uses)
- water supply source(s)
- diversion of surface waters
- pit dewatering requirements
- water efficiency and recycling.

Please refer to the Northern Territory Department of Primary Industry and Resources *Template for the Preparation of a Mining Management Plan* (Section 6 – Water Management)<sup>2</sup>.

### **2.2.8 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 the mine, processing operations and workers accommodation
- details of energy infrastructure requirements, for all components of the Project, including fuel storage
- consideration of alternative (renewable) sources of energy and justification of selected option
- any initiatives to improve energy efficiency and/or reduce emissions to air.

### **2.2.9 Air and noise emissions**

Provide relevant information with respect to air quality and noise emissions associated with the Project, including but not limited to:

- an inventory of any emissions to air resulting from the Project (e.g. dust, machinery, vehicles, gases/vapours, odours, etc.)
- expected noise levels associated with the Project construction and operation, including timing and duration
- location of nearest sensitive receptors
- reporting requirements and compliance with relevant health and/or environmental standards
- target thresholds with reference to regulatory industry-standard, health-related safe-limits, or aspirational parameter levels.

### **2.2.10 Workforce and accommodation**

Provide relevant information with respect to the workforce and accommodation, including but not limited to:

- details of the estimated number of people to be employed, skills base required, and likely sources (local, regional, overseas) for the workforce during construction, operation and decommissioning and closure phases
- an outline of a strategy for engaging with local Aboriginal communities to facilitate employment on the Project. This should include the delivery of training, the identification of suitable roles, and a discussion of how cultural values will be accommodated
- the number of people that may be employed to manage or undertake environmental duties on the site, including the specific qualifications and the level of experience with mining or other related activities

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<sup>2</sup> [https://minerals.nt.gov.au/\\_data/assets/word\\_doc/0019/256060/AA7-030-Template-for-the-Preparation-of-a-Mining-Management-Plan.docx](https://minerals.nt.gov.au/_data/assets/word_doc/0019/256060/AA7-030-Template-for-the-Preparation-of-a-Mining-Management-Plan.docx)

- discuss arrangements for transport of workers to and from Project areas, including air services required
- layout of the construction camp and accommodation village with respect to the work sites and mining and processing operations
- requirements for licensing, food preparation and storage.

Information on the workforce and accommodation in the EIS should be consistent with and make appropriate reference to *Health requirements for mining and construction camps*.<sup>3</sup>

### 2.2.11 Ancillary infrastructure

Provide construction and operational information regarding ancillary infrastructure, including, but not limited to:

- telecommunications
- airstrip
- any existing ancillary infrastructure that could be utilised by the Project.

## 2.3 Closure and rehabilitation

The EIS should outline concepts for mine closure that take 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. The EIS should:

- describe proposed rehabilitation, decommissioning, closure and relinquishment for all aspects of the Project on completion of mining / operations on individual sites, including any progressive rehabilitation
- 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 and how this will be monitored in the long term,

The EIS should discuss alternate options for rehabilitation and closure and justify the proposed option.

The EIS should include a conceptual Mine Rehabilitation and Closure Plan (MRCP), specific to the Project. The conceptual MRCP should include description of:

- draft closure criteria and future land tenure and land-use arrangements
- draft protocols for securing a safe and stable mine-site
- proposed staging and timing of rehabilitation and closure
- removal of plant, equipment, infrastructure, water storages, and methods proposed for stabilisation of affected areas
- proposed methods for topsoil management, and soil profile reconstruction, with demonstration of their effectiveness for rehabilitating disturbed areas
- revegetation strategies for disturbed sites

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<sup>3</sup> <https://nt.gov.au/property/building-and-development/health-requirements-mining-construction-projects>

- measures to ensure 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.
- proposed funding and management arrangements, including responsibilities for post-closure.

The conceptual MRCP should 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 conceptual MRCP should include conceptual Care and Maintenance commitments that include measures outlining how the Proponent will maintain its environmental obligations should the Project be temporarily or unexpectedly closed or suspended at any stage during the life of the Project.

## **2.4 Approvals and conditions**

The EIS must 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:

- a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority
- a summary of current agreements between the Proponent and the Northern Territory Government, and/or the Australian Government, and/or other stakeholders, including Traditional Owners and/or land managers
- a statement identifying additional approvals that are required
- a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the Project.

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

- *Aboriginal Land Rights Act 1976*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Environmental Assessment Act* and Environmental Assessment Administrative Procedures
- *Heritage Act*
- *Mining Management Act*

- *Northern Territory Aboriginal Sacred Sites Act*
- *Public and Environmental Health Act* and Regulations
- *Territory Parks and Wildlife Conservation Act*
- *Waste Management and Pollution Control Act*
- *Water Act*, and
- *Work Health and Safety (National Uniform Legislation) Act*.

### 3 Existing environment

Studies used to describe the existing environment of the Project and its surrounds should be of a scope and standard sufficient to serve as a benchmark (or baseline) against which the impacts of the Project over time may be assessed. The level of detail in the EIS should reflect the scale and nature of the studies required to clearly define the potential for impacts from the Project.

#### 3.1 Physical environment

The description of the physical environment must include:

- weather and climate (e.g. rainfall patterns [magnitude and seasonality], temperature, humidity, wind, climate extremes, and any seasonal conditions [e.g. floods or dust storms], which may influence the operation and/or rehabilitation, etc.)
- regional and significant topography and geomorphology
- regional geology (e.g. major units, geotechnical surveys, seismic stability, significant geological properties that may influence stability, occupational health and safety, etc.)
- soil types and land unit(s), including details of any limiting properties of soil and substrate types (e.g. susceptibility to erosion, waterlogging) in the Project footprint
- surface water, including:
  - major and minor drainage lines (permanent and ephemeral)
  - catchment boundaries
  - surface water flow directions and rates
  - water reservoirs (natural and artificial)
  - wetlands
  - areas of periodic inundation
  - beneficial uses
  - surface water quality, including temporal variations
- groundwater aquifers and hydrogeological properties, including:
  - surface connections via springs or recharge zones
  - local and regional aquifers
  - depth to water tables, including temporal variation.

### 3.2 Biological environment

The EIS should describe and rate biological values including fauna, flora and vegetation communities of the Project area and local region. The EIS should include details of the scope, survey/program timing (survey season/s), locations and methods, to demonstrate appropriate and sufficient survey effort. At a minimum, surveys should be in accordance with the Northern Territory<sup>4</sup> and Australian Government<sup>5</sup> guidelines. Include details of:

- how surveys are consistent with (or a justification for divergence from) published Northern Territory and Australian Government guidelines and policy statements.

The EIS should describe, quantify and map, where relevant:

- details of vegetation community types occurring on and adjacent to the Project location
- significant or sensitive vegetation types and/or ecosystems within the Project area, including areas already cleared or disturbed (if any)
- the presence or likely presence of species listed under the EPBC Act and/or the *Territory Parks and Wildlife Conservation Act* within the Project area and in any areas that may be impacted by the Project
- details of the significance, presence and extent of *Eremophila cordatisepela*
- location and description of suitable habitat for listed species, including the locations of historic records and consideration of habitat suitable for breeding, foraging, aggregation or roosting
- location and description of aquatic ecosystems or groundwater dependent ecosystems, including details of the likelihood of the presence and significance of subterranean fauna, likely to be affected by the Project
- the presence, or likely occurrence, of introduced and invasive species (both flora and fauna) within and adjacent to the Project area, and regionally, including weed species declared under the *Weed Management Act*.

The EIS should include the results of a comprehensive baseline fauna and flora survey of areas identified for disturbance, including vegetation adjacent to the project disturbance footprint that may be at risk of indirect impacts. The surveys should be undertaken by a suitably qualified and experienced person that has demonstrated experience in the surveying for and the identification of species in the Northern Territory.

### 3.3 Cultural and historic environment

The EIS should outline the cultural and heritage significance of sites located during archaeological investigations on or near the Project area or that could be impacted by the Project activities. Baseline information should be provided regarding historic or cultural heritage values in the region, including:

- a description and location of Aboriginal and non-Aboriginal sites, places or objects of historic or cultural heritage significance

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<sup>4</sup> Northern Territory Environment Protection Authority, 2013. Guidelines for Assessment of Impacts on Terrestrial Biodiversity, available 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).

<sup>5</sup> Department of the Environment, 2011. Survey Guidelines for Nationally Threatened Species, available at: <http://www.environment.gov.au/epbc/policy-statements>.

- areas listed on Commonwealth and Northern Territory registers of historic and/or cultural heritage
- provision of evidence of an Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act* or an application under the Act.

Archaeological assessment and surveys for sites of historic or cultural heritage value must be undertaken by a suitably qualified person with demonstrated experience in archaeological assessment. No information of a confidential nature, particularly related to anthropological matters relevant to Aboriginal people or groups is to be disclosed in the EIS.

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

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.

### **3.4 Socio-economic environment**

The EIS should include a brief description of the current population, demography and socio-economic aspects of the region. The following are suggestions that may assist with highlighting the social and economic value of the Project and are not intended to result in the inappropriate disclosure of confidential or sensitive information:

- key stakeholders
- a summary of the Project's economic feasibility
- estimated capital and annual operational expenditure
- details of the financial capacity to implement the Project, potential risks to project implementation and associated proposed mitigation measures, including the capacity to cost for operation and maintenance activities
- estimated total project revenue for the duration of the Project (to provide the economic scale of the Project)
- estimated overall tax
- total contribution to Gross State Product and Gross Domestic Product over the economic life of the Project
- opportunities available to regional centres based on the activity generated by the Project (construction, operation and rehabilitation)
- estimated workforce and contractor numbers by occupational classification
- overall employment training proposed during construction, operation and rehabilitation
- planned Aboriginal employment, training, participation and other potential benefits
- availability of goods and services
- community and economic value of any residual infrastructure, such as roads, following the life of the Project, and
- other contributions to local communities.



The EIS should include a balanced summary of the social and economic value (positive and negative) of the Project on a regional, state and national scale.

## **4 Impact assessment**

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

- transparently identify any inherent environmental impacts associated with the Project including potential direct, indirect and cumulative environmental impacts
- evaluate the significance of the potential impacts and risks in a local and regional context
- identify management measures to avoid and mitigate environmental impacts and risks, and monitoring measures to demonstrate effectiveness in achieving predicted outcomes
- identify levels of uncertainty about the assessment and the effectiveness of controls in minimising/mitigating potential impacts
- explicitly identify those members of the community expected to accept residual significant impacts and their consequences
- demonstrate that the Project represents best practicable technology
- demonstrate that the Project is consistent with ecologically sustainable development principles and the National Strategy for Ecologically Sustainable Development.

A number of environmental factors that could potentially be impacted have been identified through a preliminary assessment of the Project. It is expected that further potential environmental impacts and risks will be identified through the EIS process. These potential impacts and risks should be outlined and appropriate management initiatives developed to demonstrate that:

- the Proponent is fully aware of the potential environmental impacts and risks associated with all predictable aspects of the Project
- the prevention and mitigation of potential impacts and risks is properly addressed in the design specifications
- the potential impacts and 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 potential severity of each potential environmental impact and risk presented by the Project, as well as any uncertainty about the effectiveness of proposed controls. Levels of uncertainty that preclude robust quantification of impact should be clearly acknowledged. Where adaptive management is proposed the EIS should define clear, appropriate and measurable management objectives and outcomes, identify potential areas of uncertainty and impacts, describe appropriate monitoring programs, specify quantitative triggers for intervention and describe proposed management actions in response to those triggers. Ongoing monitoring and feedback loops should also be described.

Sufficient quantitative analysis should be provided to indicate whether impacts are likely to be acceptable or tolerable. A comparison can be made with similar ventures in Australia and internationally. Assumptions used in the analyses should be explained.

The EIS should include appropriate consideration of the impacts on the general environment, ecosystems and matters of national environmental significance and discuss whether those impacts could be permanent. If the impacts are not permanent, include an indication of the potential timeframe expected to achieve recovery from any impacts and identify how soon restoration of habitat could be achieved to reinstate ecosystem function.

#### Cumulative impacts

An assessment of cumulative environmental impacts should be undertaken that considers the potential impact of the Project in the context of existing developments, and reasonably foreseeable future developments. The impact and risk assessment should consider and discuss cumulative impacts, where relevant, and account for impacts on an appropriate scale, recognising that:

- landscape change originates not only from single projects and management actions, but also from complex and dynamic interactions of multiple past, present and future management actions
- biophysical, social and economic change accumulates through additive or interactive (or synergistic) processes. The aggregate impact of multiple actions on the environment can be complex and may result in impacts that are more significant because of interactive processes
- any given action does not operate in isolation. The most significant changes are often not the result of the direct effects of an individual action, but from the combination of multiple minor effects over time.

### **4.1 Identified preliminary environmental factors**

The NT EPA has identified the following preliminary environmental factors that may be impacted by the Project:

1. terrestrial flora and vegetation
2. terrestrial environmental quality
3. terrestrial fauna
4. hydrological processes
5. inland water environmental quality
6. air quality and greenhouse gases
7. social, economic and cultural surrounds, and
8. human health.

The EIS is to provide sufficient information regarding the potential impacts and risks arising from the Project and the proposed management and mitigation measures to be implemented to meet the NT EPA's environmental objectives relating to each of the factors as detailed below.

#### **4.1.1 Terrestrial flora and vegetation**

The NT EPA's objective related to terrestrial flora and vegetation is to:

- maintain the conservation status, diversity, ecological integrity, geographic distribution and productivity of terrestrial flora and vegetation at species and ecosystem levels through avoidance or management of adverse impacts.

#### 4.1.1.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to flora and vegetation values including activities with direct impacts such as land clearing, the use or generation of toxic substances, and activities that have indirect impacts such as water extraction.

#### 4.1.1.2 Potential impacts and risks

The EIS should describe potential impacts and risks to flora and vegetation values, including (but not limited to) loss of habitat through clearing, erosion and sedimentation, pollution, changes to hydrology and the introduction of exotic species.

The EIS should provide information to assess potential impacts and risks to flora and vegetation values including (but not limited to):

- details of the area and location of any land to be cleared and/or disturbed as a result of the project and a description of the vegetation communities and any associated flora species of conservation significance
- details of vegetation and flora that have the potential to be impacted by ground water drawdown
- details of vegetation communities with the potential to be impacted by dust generated during the project
- fire history of the site.

#### 4.1.1.3 Mitigation and monitoring

The EIS should outline how the Proponent will minimise, monitor and manage potential impacts and risks on flora and vegetation, including:

- extent of clearing, particularly sensitive vegetation communities and species of conservation significance
- effects of erosion and sedimentation
- substances that have potential to be toxic to plants
- changes to hydrology
- the potential introduction and/or spread of plants declared under the *Weed Management Act*
- changes to fire regime
- any measure identified as appropriate to mitigate other potential impact or risk to flora and vegetation
- any additional monitoring to detect unanticipated impacts to flora and vegetation
- the expected flora and vegetation post mining (rehabilitation), including post-mining monitoring and reporting to be used to evaluate rehabilitation success and progress toward achieving closure objectives and contingency measures to be implemented in the event that monitoring demonstrates that rehabilitation closure objectives are not being met.

The EIS should contain a draft Biodiversity Management Plan (BMP) that outlines clear and concise methods to mitigate likely impacts on biodiversity. All mitigation and monitoring measures should be substantiated and in accordance with best practice advice from relevant Northern Territory and Australian Government advisory agencies.

#### 4.1.1.4 Relevant policy and guidelines

The NT EPA has *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*<sup>6</sup> available on the NT EPA website.

### 4.1.2 Terrestrial environmental quality

The NT EPA's objective related to terrestrial environmental quality is:

- to maintain the quality of land and soils so that environmental values as described in section 3.2 are protected.

#### 4.1.2.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to terrestrial environmental quality including activities that involve vegetation clearing and soil disturbance and changes to surface water hydrology.

#### 4.1.2.2 Potential impacts and risks

Describe potential impacts and risks to terrestrial environmental quality including those related to loss of soils from erosion and changes to surface water hydrology.

The EIS should outline proposed vegetation clearing and impacts to surface water hydrology.

#### 4.1.2.3 Mitigation and monitoring

The EIS should outline how the potential impacts on terrestrial environmental quality are to be avoided, minimised or mitigated, monitored and managed.

An draft Erosion and Sediment Control Plan (ESCP) should be prepared, which outlines prescriptive measures that will be implemented to avoid, minimise, mitigate and manage the movement and deposition of sediment. The ESCP should be prepared by a suitably qualified expert that has demonstrated experience in erosion and sediment control planning. The ESCP should outline the proposed control and maintenance measures for both construction and occupancy stages of the Project and include maps and diagrams that indicate where control measures are proposed to be installed.

The ESCP should be developed in accordance with relevant guidelines and should address factors, including but not limited to:

- timing and duration of works
- vegetation clearance methods
- management of stormwater flows, including external catchment contributions
- measures to minimise disturbance of creek/river banks at any service and waterway crossings

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<sup>6</sup> [https://ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0004/287428/guideline\\_assessment\\_terrestrial\\_biodiversity.pdf](https://ntepa.nt.gov.au/_data/assets/pdf_file/0004/287428/guideline_assessment_terrestrial_biodiversity.pdf)

- measures to prevent exacerbating existing erosion gullies both on and adjacent to the site
- measures to rehabilitate existing erosion gullies both on and adjacent to the site
- vehicle access drainage and surface protection, stabilisation, earthworks and revegetation required for rehabilitation.

The draft ESCP should outline details of monitoring programs that would be implemented throughout the life of the Project to determine the effectiveness of the mitigation measures. The monitoring programs should identify clear thresholds and contingency measures, should activities affect water resources.

The EIS should describe how the quality of land and soils are maintained post mining including post-mining monitoring and reporting to be used to evaluate rehabilitation success and progress toward achieving closure objectives and contingency measures to be implemented in the event that monitoring demonstrates that rehabilitation closure objectives are not being met.

#### 4.1.2.4 Relevant policy and guideline

International erosion control association best practice erosion and sediment control guidelines<sup>7</sup> and Department of Environment and Natural Resources soil management, erosion and sediment control information<sup>8</sup>.

### 4.1.3 Terrestrial fauna

The NT EPA's objective related to terrestrial fauna is:

- to maintain the conservation status, diversity, ecological integrity and geographic distribution of terrestrial fauna values through the avoidance or management of adverse impacts.

#### 4.1.3.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to terrestrial fauna values including activities with direct impacts such as those that involve clearing and disturbance to habitat, traffic movements and hazardous material; and activities with indirect impacts such as those that involve changes to habitat through alteration to hydrology or potential to introduce exotic species.

#### 4.1.3.2 Potential impacts and risks

Describe potential impacts and risks to terrestrial fauna values including the impact of loss of habitat through clearing, and risks from erosion and sedimentation, changes to hydrology and the introduction of exotic species.

The EIS should outline:

- the extent of clearing and disturbance/change to fauna habitat (in the context of the extent of the habitat), with a particular focus on fauna species of conservation significance
- traffic movements

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<sup>7</sup> <https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document>

<sup>8</sup> <https://nt.gov.au/environment/soil-land-vegetation/soil-management-erosion-sediment-control>

- hazardous material that fauna could come in contact with
- air emissions that may impact fauna.

#### 4.1.3.3 Mitigation and monitoring

The EIS should outline how the Proponent will avoid, minimise or mitigate, monitor and manage potential impacts on terrestrial fauna, including impacts and risks from:

- vegetation clearing
- changes to hydrology
- erosion and sedimentation
- traffic
- hazardous materials
- plants declared under the *Weed Management Act*.

The EIS should contain a draft Biodiversity Management Plan (BMP) that outlines clear and concise methods to mitigate likely impacts to biodiversity. All mitigation and monitoring measures should be substantiated and in accordance with best practice advice from relevant Northern Territory and Australian Government advisory agencies.

#### 4.1.3.4 Relevant policy and guidelines

The NT EPA has *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*<sup>9</sup> available on the NT EPA website.

### 4.1.4 Hydrological processes

The NT EPA's objective related to hydrological processes is:

- to maintain the hydrological regimes of groundwater and surface water so that environmental values are protected both now and in the future.

#### 4.1.4.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to hydrological processes such as activities that result in changes to surface hydrology and water extraction.

#### 4.1.4.2 Potential impacts and risks

Describe potential impacts and risks from changes to hydrological processes including impacts on the environment and other water users.

The EIS should describe:

- water demand requirements of the Project (a water balance and account)
- water supply source(s), volumes and sustainability
- proposed changes to the movement of surface waters
- other water uses including groundwater dependent ecosystems and the environment.

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<sup>9</sup> [https://ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0004/287428/guideline\\_assessment\\_terrestrial\\_biodiversity.pdf](https://ntepa.nt.gov.au/_data/assets/pdf_file/0004/287428/guideline_assessment_terrestrial_biodiversity.pdf)

#### 4.1.4.3 Mitigation and monitoring

The EIS should describe proposed management of water for the Project for all mine-life stages and seasons including post mining, according to its source, quality, volume, end use or other parameters, including (but not limited to) measures to:

- safeguard surface and groundwater resources and their environmental values, including options for minimising water use
- ensure the protection and resilience of water dependent ecosystems.

#### 4.1.4.4 Relevant policy and guidelines

Australian and New Zealand Guidelines for Fresh and Marine Water Quality<sup>10</sup>.

### 4.1.5 Inland waters environmental quality

The NT EPA's objective related to inland waters environmental quality is:

- to maintain the quality of groundwater and surface water so that environmental values including ecological health and land uses, and the health, welfare and amenity of people are protected both now and in the future.

#### 4.1.5.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to inland waters environmental quality. This includes activities with the potential to contaminate water with chemicals, mine waste and sediment, and that result in changes to surface water hydrology.

#### 4.1.5.2 Potential impacts and risks

Describe potential impacts and risks to inland waters environmental quality and sensitive receptors.

The EIS should include a conceptual site model describing potential sources, pathways, receptors, and fate of any potentially contaminated waters from the Project. The model should be of sufficient detail for the general reader to understand the source(s) of potential contaminants, the mechanism(s) of their release, the pathway(s) for transport, and the potential for human and ecological exposure to these potential contaminants. The minimum data required to support the model should include, but should not be limited to:

- relevant laboratory and field testing to characterise the potential physicochemical properties of mine products and infrastructure (e.g. stockpiles, etc.)
- 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 (i.e., major cations and anions, metals, metalloids, acidity/alkalinity, etc.) of receiving waters
- biological receptors and their habitats

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<sup>10</sup> <https://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf>

- other complementary technical studies, at an appropriate temporal and spatial scale, used to develop the model, such as:
  - geology
  - hydrology
  - hydrogeology
  - geochemistry
  - biology
  - meteorology
  - engineering/geotechnical.

An appropriately qualified and experienced person should be involved with the supervision and interpretation of test results and the development of the 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.

#### 4.1.5.3 Mitigation and monitoring

The EIS should provide a draft Water Management Plan (WMP) prepared by a suitably qualified expert. 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:

- proposed management to contain contaminants onsite and details of contingency measures that will be implemented in the event of a spill or leak of chemicals that could impact on downstream water quality
- management of various categories of water (e.g. 'clean', 'dirty' and 'contaminated' - definitions can be provided in the draft EIS) including water quality thresholds triggering management actions
- management of chemicals and hydrocarbons
- management of tailings and associated process water during operations and post closure
- management of problematic waste rock during operations and post-closure
- non-mineral waste management strategies, including reduction, re-use, recycling, storage, transport and disposal of waste
- management of domestic wastewater and sewage
- management of process waters
- management of high/extreme rainfall events including Probable Maximum Precipitation and provisions for extreme rainfall and flood events in the management of tailings and waste rock, including erosion protection, management of seepage including sub-drainage and collection sumps
- management of erosion and sedimentation
- construction quality control processes
- measures to avoid the exposure of sensitive biological receptors to contaminants or water of a poor quality which may be harmful



- measures to ensure treatment / neutralisation occurs of hazardous materials to identified safe levels, before any controlled environmental release is considered

The WMP should include monitoring programs that detail relevant water quality target values based on appropriate guidelines and/or standards and ideally be based on local ambient conditions. The monitoring programs should include:

- methods to monitor the impacts of the Project on surface and groundwater quality and quantity during mine operations and beyond mine closure
- monitoring for and management of potential AMD waste rock seepage
- provisions to notify and respond to environmental and human health risks associated with water quality
- contingency plans to be implemented should monitoring identify an unacceptable impact.

The draft WMP should be closely related to but separate from a draft ESCP for the Project.

The EIS should include how potential impacts and risks to downstream water quality will be managed post-mining, including post-mining monitoring and reporting to be used to evaluate rehabilitation success and progress toward achieving closure objectives and contingency measures to be implemented in the event that monitoring demonstrates that rehabilitation closure objectives are not being met.

#### 4.1.5.4 Relevant policy and guidelines

Australian and New Zealand Guidelines for Fresh and Marine Water Quality<sup>11</sup>.

#### 4.1.6 Air quality and greenhouse gases

The NT EPA's objective related to air quality is:

- to maintain air quality and minimise emissions and their impact so that environmental values are protected.

##### 4.1.6.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on air quality, including activities that disturb soil and rock producing dust and emissions, involve emissions from machinery and related to ore processing.

##### 4.1.6.2 Potential impacts and risks

Describe potential impacts and risks to air quality including impacts and risks to the environment and people.

The EIS should:

- provide an inventory of any emissions to air resulting from the Project (e.g. dust, machinery, vehicles, gases/vapours, odours, etc.)
- identify and provide the location of sensitive receptors

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<sup>11</sup> <https://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf>

- include reporting requirements and compliance with relevant health and/or environmental standards.

#### 4.1.6.3 Mitigation and monitoring

The EIS should describe management of air quality, including:

- management of dust, including target thresholds with reference to regulatory industry-standard, health-related safe-limits, or aspirational parameter levels
- management of any gas/vapours/odours
- strategies for minimising emissions from burning fossil fuels
- management of air quality post mining, including post-mining monitoring and reporting to be used to evaluate rehabilitation success and progress toward achieving closure objectives and contingency measures to be implemented in the event that monitoring demonstrates that rehabilitation closure objectives are not being met.

#### 4.1.7 Social, economic and cultural surrounds

The NT EPA's objectives related to social, economic and cultural surrounds are:

- to improve the social amenity of the Northern Territory
- to protect the natural and historical heritage of the Northern Territory
- to recognise, respect and maintain the cultural and heritage values of the Northern Territory
- to achieve ecologically sustainable development.

##### 4.1.7.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to the social, economic and cultural surrounds including those that result in an increase in population and economic activity, interaction with tourists and isolated communities and with potential to impact or disturb sacred sites or areas of traditional resource use.

##### 4.1.7.2 Potential impacts and risks

Describe potential impacts and risks to the local, regional and Territory social and economic surrounds in an Economic and Social Impact Assessment (ESIA). The ESIA should:

- document the economic and social impacts of the project
- describe increased traffic and use of existing road networks and interaction with other users of the road networks
- include a Traffic Impact Assessment in accordance with Austroads *Guide to Traffic Management Part 12: Traffic Impacts of Developments*
- assess the risks of the Project not realising its projected economic and social benefits.

#### 4.1.7.3 Mitigation and monitoring

A draft Social Impact Management Plan (SIMP) should be prepared that addresses any risks identified through the ESIA. At a minimum, the SIMP should:

- describe how the Proponent proposes to manage any identified economic, social, cultural risks arising 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 a mechanism for monitoring and reporting any identified potential socio-economic and cultural impacts
- include measures to mitigate negative economic and social impacts on the locality and region
- provide outcome and assessment criteria that will give early warning in the event that management and mitigation measures are not achieving the outcomes and benefits identified and expected 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
- provide details of the Project's requirements to apply to, or applications already made to, the NT Minister for Tourism and Culture to disturb or destroy a prescribed archaeological place and/or object under the *Heritage Act*
- outline procedures to avoid significant sites and protect key sites during construction, operation and decommissioning work
- describe procedures for the discovery of surface or sub-surface objects of interest/potential cultural significance during the course of the Project.

The EIS should outline plans for rehabilitation and closure that ensures risks to social parameters, including traditional owners, will be as low as is reasonably achievable. This should include post-mining monitoring and reporting to be used to evaluate rehabilitation success and progress toward achieving closure objectives and describe contingency measures to be implemented in the event that monitoring demonstrates that rehabilitation closure objectives are not being met.

#### 4.1.7.4 Relevant policy and guidelines

The NT EPA has *Guidelines for the Preparation of an Economic and Social Impact Assessment*<sup>12</sup>

### 4.1.8 Human health

The NT EPA's objective for human health is to ensure that the risks to human health are identified, understood and adequately avoided and/or mitigated.

#### 4.1.8.1 Relevant activities

The EIS should describe proposed activities that may have a significant impact on and/or pose a risk to human health during construction, operation and closure phases of the project.

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<sup>12</sup> [https://ntepa.nt.gov.au/data/assets/pdf\\_file/0006/287430/guideline\\_assessment\\_economic\\_social\\_impact.pdf](https://ntepa.nt.gov.au/data/assets/pdf_file/0006/287430/guideline_assessment_economic_social_impact.pdf)

#### 4.1.8.2 Potential impacts and risks

The EIS should include an assessment of the potential impacts and risks to people, associated with the construction, operation and closure phases of the Project, and the storage and transport of materials to and from the sites so as to demonstrate that:

- the Proponent is fully aware of the potential impacts and risks to human health associated with all aspects of the Project
- the prevention and mitigation of potential impacts and risks to human health are properly addressed in the design specifications
- the potential impacts and risks can and will be managed effectively during the construction, operation and closure phases of the Project, including safety risks associated with:
  - fire, including combustible materials and wildfire
  - emergency situations and exclusions/evacuation zones
  - hazardous materials exposure
  - hazards associated with the transportation of personnel, construction materials, consumables and dangerous goods.

#### 4.1.8.3 Mitigation and monitoring

Detail preventative, management, treatment and monitoring strategies used to minimise the impacts of the Project on human health. 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 Project area, its surrounds, personnel or the public. Responsibilities and liabilities in such an event should be specified.

## **5 Environmental management**

The specific safeguards and controls proposed to be employed to minimise or remedy environmental impacts identified in the impact assessment process are to be included in a draft Environmental Management Plan (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 impact assessment and determined by the significance of the potential environmental impacts and risks. 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. 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 (e.g. construction, operation and decommissioning/rehabilitation) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, necessary resourcing, responsibility and timing for each environmental issue.

Further information on the development of an EMP is available in the NT EPA's *Guidelines for the Preparation of an Environmental Management Plan*<sup>13</sup>.

## 6 General advice on the EIS

### 6.1 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 and the NT EPA to understand the environmental consequences of the Project. Information provided in the EIS should be objective, clear, succinct and easy to understand for the general reader. Spatially-referenced maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. 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 EIS should describe any feasible alternatives to carrying out the Project. The choice of the preferred option(s) should be clearly explained and justified, including how it complies with the principles and objectives of ecologically sustainable development. Sufficient details should be provided to justify the preferred Project scope and components.

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. 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. 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.

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.

### 6.2 Information requirements

The NT EPA has prepared Guidelines to assist in the preparation of EIS documents. The Guidelines are developed and updated periodically, and should be referenced and referred to when addressing the information requirements in an appropriate section of EIS. The Guidelines, current at the time of publication of these Terms of Reference include:

- *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*
- *Guidelines on Conceptual Site Models*
- *Guidelines on Acid and Metalliferous Drainage (AMD)*

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<sup>13</sup> [https://ntepa.nt.gov.au/data/assets/pdf\\_file/0006/284883/guideline\\_prep\\_emp.pdf](https://ntepa.nt.gov.au/data/assets/pdf_file/0006/284883/guideline_prep_emp.pdf)

- *Guidelines for the Preparation of an Economic and Social Impact Assessment*
- *Guidelines for Reporting on Environmental Monitoring*
- *Guidelines on Environmental Offsets and Associated Approval*
- *Guidelines for the Preparation of an Environmental Management Plan.*

The Guidelines are available on the following NT EPA webpages:

<https://ntepa.nt.gov.au/environmental-assessments/assessment-guidelines>

<https://ntepa.nt.gov.au/waste-pollution/guidelines/guidelines>

### 6.3 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 standalone 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 at a minimum:

- a table listing how these ToR 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.

### 6.4 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. The results of quality control and quality assurance (QA/QC) testing are to be provided where data are used to support statements or findings in the EIS. Sufficient discussion should accompany the data to demonstrate that the QA/QC and data are suitable and fit for purpose. 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 demonstrates 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 proposal as a result of consultation. Details of any ongoing liaison should also be discussed.

## 6.5 Administration

The Proponent should lodge bound hardcopies and an electronic (Adobe PDF format) copy of the 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. A Microsoft Word copy of the EIS should be provided to facilitate the production of the Assessment Report.

The Proponent should consider the file size, 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 document is constructed.

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

- the *NT News*, and
- the *Centralian Advocate*.

The NT EPA requires the complete 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.

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.

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.

The Proponent will be required to attend a meeting with staff of the Environment Division prior to lodgement of the draft EIS. The purpose of the meeting will be to provide an update on the administrative requirements for review of the draft EIS, including file sizes, transmission of electronic files, numbers of hard copies to be printed and to identify the start and end date of public exhibition.

## **6.6 Public exhibition**

The NT EPA will confirm the length of the public exhibition for the draft EIS period in writing after the pre-lodgement meeting. The public exhibition period will be determined in consideration of the complexity of the draft EIS and to allow adequate opportunity for the community and Government to access the draft EIS (for example, a longer exhibition period may be required if submission occurs in late December or January in any year).

The draft EIS should be provided to and be made available for public exhibition at:

- NT EPA, 1st Floor, Arnhemica House, 16 Parap Road, Parap
- Mining and Energy, Department of Primary Industries and Resources, 3<sup>rd</sup> Floor, Paspalis Centrepont, 48 Smith Street Mall, Darwin
- Northern Territory Library, Parliament House, Darwin
- Alice Springs Public Library, Gregory Terrace, Alice Springs
- Central Land Council, 27 Stuart Hwy, Alice Springs
- Arid Lands Environment Centre, 18 Warburton St, Alice Springs
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin.