

# **ENDEAVOUR INVESTMENTS (NT) PTY LTD**

## **MINING MANAGEMENT PLAN**

**McKINLAY PROJECT  
NORTHERN TERRITORY**

### **2018 EXPLORATION ACTIVITIES**

**MLN's 808, 821 and 869**




**Authorisation Number.....**

**Distribution:**

1 copy	DPIR
1 copy	Operator
1 copy	MSA (author)
1 copy	Title Holders

**October 2018**

**Document Approval:**

	<b>Author</b>	<b>Reviewed</b>	<b>Approved</b>
<b>Date</b>	October 2018	October 2018	October 2018
<b>Name</b>	WA Jettner	WL Jettner	WA Jettner
<b>Signature</b>			

I, Andrew Jettner, declare that to the best of my knowledge the information contained in this mining management plan is true and correct and commit to undertake the works detailed in this plan in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.



Signature:

Date: 01/11/18

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# AMENDMENTS

(DPIR Ref:                    )

Section	Amendment

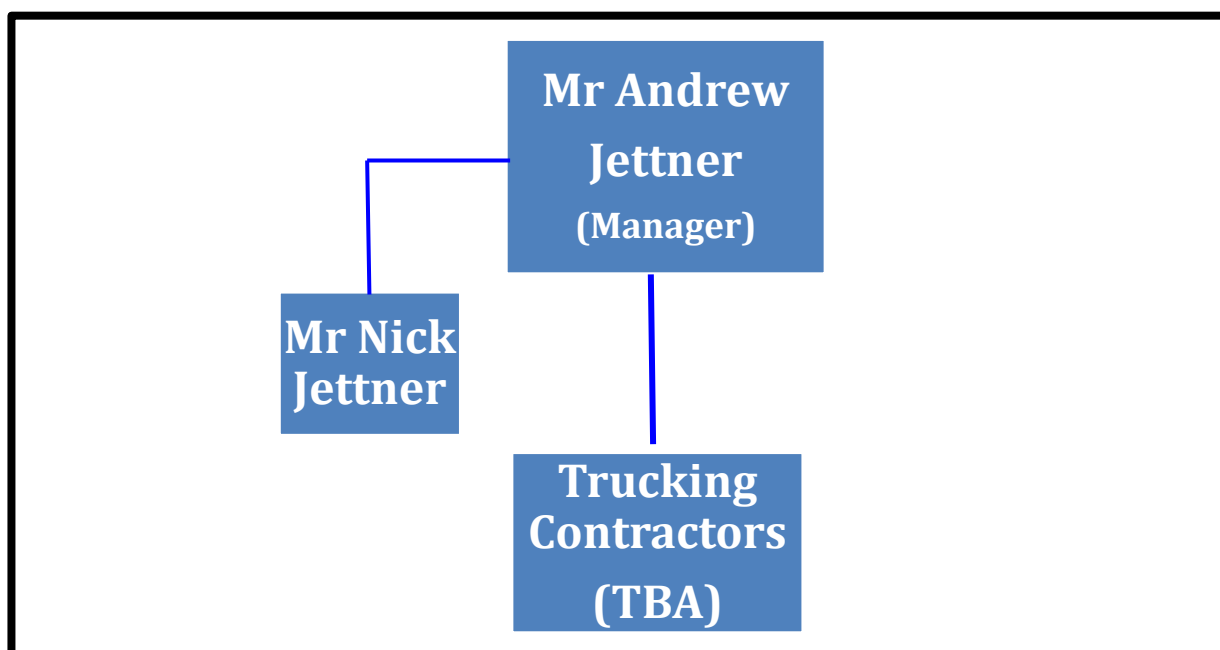
## 1.0 OPERATOR DETAILS

<b>Operator Names:</b>	Endeavour Investments (NT) Pty Ltd
<b>ACN :</b>	133 112 811
<b>Key Contact Person:</b>	Mr Andrew Jettner
<b>Postal Address:</b>	PO Box 96 Palmerston NT 0832
<b>Street Address:</b>	19 Flametree Cct Rosebery NT 0830
<b>Phone:</b>	0447 092 764
<b>Email:</b>	andrew@minesiteservices.com.au

The Application for an Authorisation is included as APPENDIX 1, the Nomination of Operator form is included as APPENDIX 2 and the Appointment of Agent is included as APPENDIX 3.

### 1.1 ORGANISATIONAL STRUCTURE / CHART

#### McKinlay Project Site Management Structure



### 1.2 WORKFORCE

The workforce will consist of manager Mr Andrew Jettner - who will also act as the environment manager for the project, and Mr Nick Jettner and a selected trucking contractor (TBA).

## 2.0 IDENTIFIED STAKEHOLDERS AND CONSULTATION

### IDENTIFIED STAKEHOLDERS

STAKEHOLDERS	NAME	CONSULTED
Lease Owners	TW, MJ, K and L Starr	YES
Land Owner	Inyathi Reserve Pty Ltd	YES
Land Manager	Ty Blokland	YES
Land Claimants (Native Title)	NIL	NO
Land Council Area	Northern Land Council	NO
Neighbours and Community	NIL	NO
Tenement Manager	Complete Tenement Management	YES
Government Departments	Dept. of Primary Industry and Resources	YES
	NT Environmental Protection Agency	NO
	Dept. of Environment and Natural Resources (DENR)	NO
	Dept. of Health (DH)	NO
	Dept. of Infrastructure, Planning and Logistics (DIPL)	NO
	Heritage Branch	YES
	AAPA	YES
	Bushfires NT NT Worksafe	NO NO
Shareholders	Endeavour Investments Pty Ltd Shareholders	YES

**For discussion and the status of consultations see below:****Lease Owner**

The mineral tenure is Mineral Lease's N808, N821 and N869 which are owned by TW, MJ, K and L Starr. The owners have been notified and agreed to this program as indicated by their completion of the nomination of operator form included as APPENDIX 2.

**Land Owner**

The affected real property is NT Por. 695 (PPL 1111), Ban Ban Springs Station, which is owned by Inyathi Reserve Pty Ltd ATF The SANT Unit Trust, whose address is PMB 296 Winnellie NT 0832.

APPENDIX 4 contains a copy of the land title search for the affected land parcel.

**Land/Pastoral Manager**

The land manager for Ban Ban Springs Station is Mr Ty Blokland.

Correspondence with the land manager on behalf of the land owner will be included in APPENDIX 4 in the resubmission of the MMP at the time of answering the request for further information.

**Land Claimants (Native Title)**

The proposed activities are on a number of granted mineral leases and no agreements are required. No meetings have been held with any native title claimants.

**Land Council representing traditional owners for the country**

As the land is not Aboriginal Freehold land, subject to a land claim, owned by a registered aboriginal land trust or subject to a site of significance listed with the AAPA the operators have not conducted negotiations with the Northern Land Council.

**Neighbours and Community**

There are no nearby neighbours or communities so no consultations have been undertaken.

**Tenement Manager**

The operator employs Complete Tenement Management as its tenement managers and this organisation is fully informed of the operators planned activities in the area. Complete Tenement Management has been appointed agent for the operator and this notice of appointment is included as APPENDIX 3.



**Government Departments**

- This MMP may be considered to be notification to the Dept. of Primary Industry and Resources and communications relating to it are the consultation process, these remain ongoing throughout the life of the MMP. The application for an Authorisation is included as APPENDIX 1.
- The Environmental Protection Agency has not been consulted.
- The Dept. of Environment and Natural Resources has not been consulted, although information has been sought from it utilising its INFONET portal and the results of this have been included as APPENDIX 6 of this MMP.
- The Department of Health has not been consulted.
- The Department of Infrastructure, Planning and Logistics has not been consulted.
- The Aboriginal Areas Protection Authority has been consulted by requesting information from records covering the area pertaining to this MMP with reference to any registered sites of significance within the area of MLN's 808, 821 and 869, and the results of this request are included as APPENDIX 7 of this MMP.
- The Heritage Branch of the Department of Tourism and Culture has been consulted with reference to any archaeological and/or heritage sites and results of this request are included as APPENDIX 8 of this MMP.
- The operators have not consulted Bushfires NT but will maintain contact with Bushfires NT through its web portal to establish the daily fire regime within the broader area to ascertain the level of fire danger pertinent to the area of operations.
- The operators have ascertained their level of obligation to NT Worksafe through its adherence to National Health & Safety (National Uniform Legislation) Act and will continue to meet their obligations under this act.

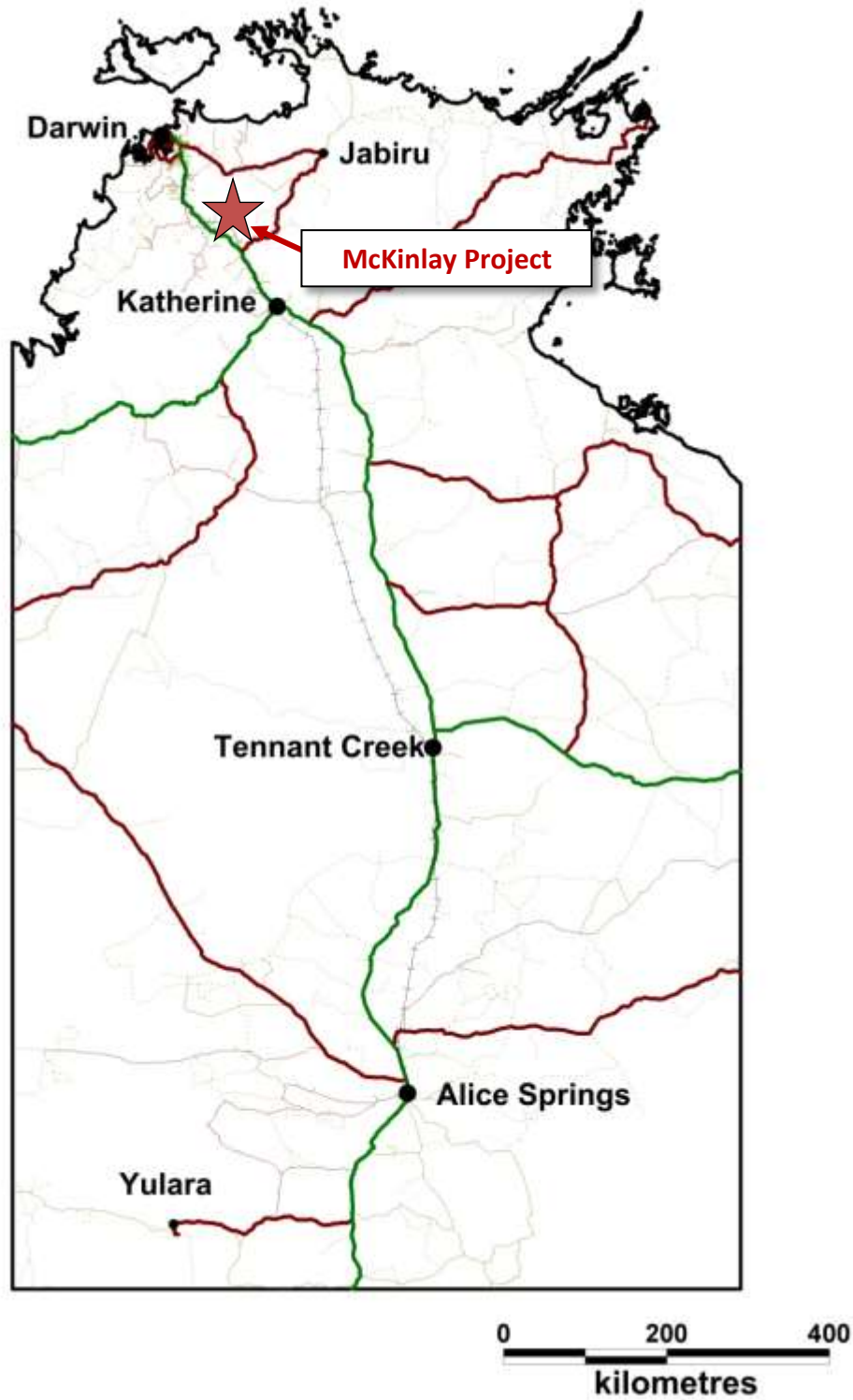
**Shareholders**

The shareholders of Endeavour Investments (NT) Pty Ltd have been informed of the planned activities.

### 3.0 PROJECT DETAILS

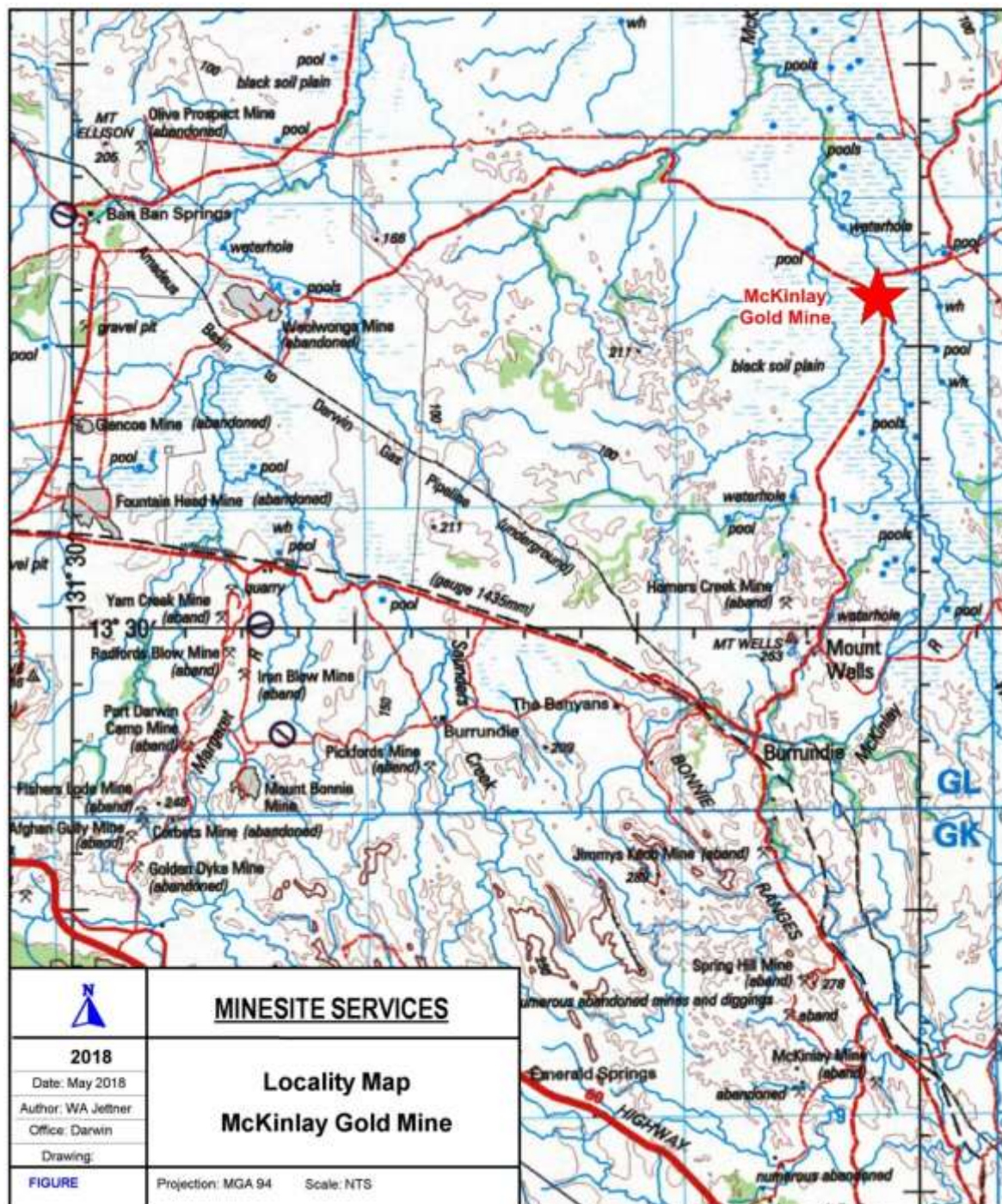
<b>Project Name:</b>	McKinlay Project
<b>Location:</b>	Mt Wells area, Northern Territory
<b>Site Access:</b>	Southwards via the Stuart Highway from Darwin, then eastwards via Fountain Head and Mt Wells Roads to Mt Wells, thence north via station gravel roads to MLN's 808, 821 and 869 on Ban Ban Springs Station.
<b>Mining Interests:</b>	MLN's 808, 821 and 869
<b>Title holders:</b>	TW, MJ, K and L Starr
<b>Operator:</b>	Endeavour Investments (NT) Pty Ltd

## PROJECT LOCATION



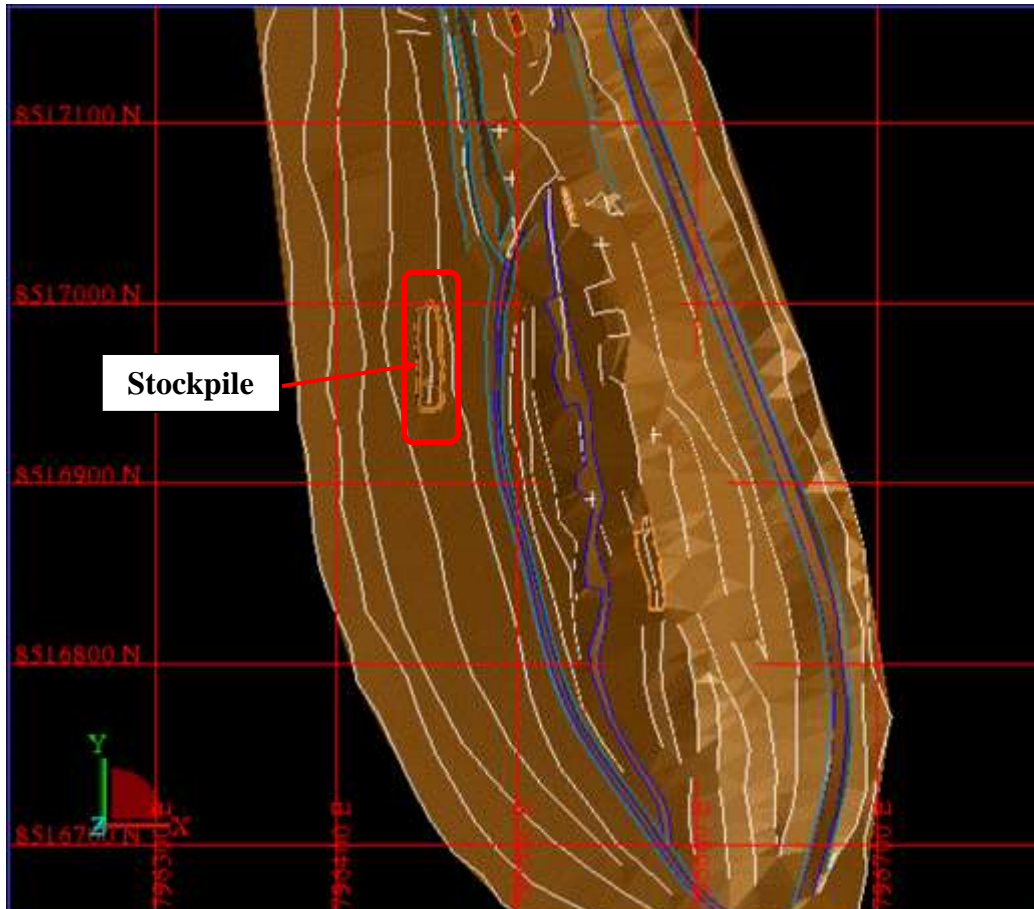
Northern Territory Map showing the location of the McKinlay Project (scale 1:3M)

**LOCALITY MAP**



**Regional Topographical Map showing the McKinlay Project in a regional context (scale 1:125K)**

### SITE LAYOUT



McKinlay Project showing the existing stockpile area.

### 3.1 PREVIOUS ACTIVITIES AND CURRENT STATUS

#### Historical Mining and Exploration Activities

- Historical mining activities have occurred sporadically since the 1930s with the latest occurring in the area in the early 1990s.
- Historical exploration activities have been exploration for gold with the exploration activities currently occurring in the immediate area by the tenement owners. These have included prospecting, costeaning and drilling activities.

#### Endeavour Investments Exploration

The principals of Endeavour Investments have done sporadic exploration on these tenements for the owners over the last 25 years based primarily on survey and outcrop sampling to delineate several areas that require further examination. Because of this exploration the company wishes to remove the existing ore stockpile for metallurgical evaluation at their New Era site.

### 3.2 PROPOSED ACTIVITIES

The purpose of this MMP is to seek approval for the removal of an existing stockpile that was generated by the owners in the early 1990s. Preliminary ground works have been undertaken to investigate existing access tracks, and conducting field investigations (non-substantial disturbance) within the exploration area.

Once access has been planned and site conditions examined and documented in the Rehabilitation Register, site preparation may commence. It is planned to construct no new access tracks, but to utilise existing ones.

It is planned to remove the existing stockpile of ore excavated in the 1990s, totalling 2000t.

The removal of the ore stockpile is planned to occur in November 2018.

This exploration program is expected to be completed within 30 days of arrival on to the site.

Further maps and images of the proposed activities are included as APPENDIX 5.

Table showing Proposed Activities

Mining Interests (i.e. titles)	<b>MLN's 808, 821 and 869</b>
What time of the year will exploration occur?	Stockpile removal November 2018
How long is exploration expected to occur?	1 month
Type of drilling (i.e. RAB, RC, Diamond, aircore)	NA
Target commodity	Gold
Is drilling likely to encounter radioactive material?	NA
Number of proposed drill holes	0
Maximum depth of holes	NA
Number of drill pads (Length: m x Width: m)	0
Is drilling likely to encounter groundwater? (Y, N, unsure)	NA
Number of sumps (Length: x Width: x Depth:)	0
Length of line / track clearing (Kilometres: x Width: )	0
Number of costeans (Length: m x Width: m x Depth: m)	0
Total bulk sample (tonnes) (Length: m x Width: m x Depth: 0m)	0
Will topsoil be removed for rehabilitation purposes?	No
Previous disturbance yet to be rehabilitated on title (ha) – stockpile area (Length: 80 m x Width: 25m)	0.2ha
Camp Loc: Nil Camp	0
Total area disturbed (hectares)	0.2ha
Other:	0

## 4.0 CURRENT PROJECT SITE CONDITIONS

Site Conditions	Description
<b>Geology</b>	The McKinlay Project is located in Lower Proterozoic sediments comprising the Burrell Creek Formation. This formation consists of greywacke, shales and slates with rare sandstone units. The Zamu Dolerite is present in the immediate area and is thought to be related to the gold bearing anticlinal structure.
<b>Hydrology</b>	There have been a number of bores drilled in the area in the 1980s and 90s, these are: RN 22597 drilled 1983 – dry, RN 27139 – drilled 1990, water struck at 27m, 2l/s, RN 27150 – drilled 1990, water struck at 20m, 2l/s, RN 27151 – drilled 1990, water struck at 20m, 2l/s.
<b>Threatened Flora</b>	An interrogation of the INFONET database shows that there is 1 endangered flora species in grid cell 127. There are no threatened flora species listed as occurring within MLN's 808, 821 and 869. Further discussion of this is below. See APPENDIX 6
<b>Threatened Fauna</b>	An interrogation of the INFONET database shows that there are 2 vulnerable bird species, 6 species of mammal of which 3 are endangered, 2 species are critical and 1 species which is vulnerable. There are 4 species of reptile, all of which are vulnerable within grid cell 127. There are no threatened fauna species listed within MLN's 808,821 and 869. Further discussion of this is included below. See APPENDIX 6
<b>Historical, Aboriginal, Heritage Sites</b>	Requests were made of the AAPA and the Heritage Branch of the DLPE to identify known historical, aboriginal and heritage sites within MLN's 808, 821 and 869. The AAPA request returned the information that there are no known Aboriginal sites of significance within the leases. The Heritage search also showed no Heritage Sites listed as occurring within the leases. See APPENDICES 7 and 8.
<b>Sites of Conservation Significance</b>	The area of proposed works on MLN's 808,821 and 869 are <b>not</b> located within any Site of Conservation Significance.
<b>Weeds</b>	There are 4 species of weeds of NT Status B or above, none of which are of WONS national status. These are listed in the Guidelines for the Management of Weeds of the McKinlay Project. These weed species have been recorded in grid cell 127 which covers an area of 2500km <sup>2</sup> around the McKinlay Project See APPENDIX 6
<b>Native Species</b>	There are 465 native flora species consisting of 6 Fern species, 1 cycads, 1 conifer specie and 457 flowering plant species listed as occurring within the grid cell (cell 127) surrounding the project area. There were 227 native fauna species consisting of 13 frog species, 60 reptile species, 132 bird species and 22 mammal species listed as occurring within the grid cell (cell 127) surrounding the project area.
<b>Invasive Species</b>	There are 9 pest and potential pest species listed for the grid cell 127 in which MLN's 808, 821 and 869 occurs, of these 4 are native species and the remaining 5 are introduced species.
<b>Vegetation Community</b>	The McKinlay Project is located within the Pine Creek Bioregion and the vegetation community of the project area consists predominantly of woodland comprising E. tetradonta (Stringybark), E. miniata (Darwin Woolly Butt), E. bleesari (Smooth-stemmed Bloodwood) with a sorghum grassland understorey.
<b>Land Use</b>	The current land use of the McKinlay Project area is free range cattle grazing utilising Bos taurus cattle.



APPENDIX 6 - The DENR INFONET Database Extract covering endangered flora and fauna of the McKinlay Project Area.

APPENDIX 7 – The AAPA reply to a request for information from records.

APPENDIX 8 – The DTC Heritage Branch reply to a request for information from the NTG Heritage and Archaeological database.

**Threatened Species of Grid Cell 127**

There are no threatened species listed specifically for the planned exploration area, Grid Cell 127 covers an area extending 50km north-south and 50km to the east-west, covering a total area of 2,500km<sup>2</sup>.

The locations of recorded threatened species observations are indicated within the NRM NT Maps web application.

Scientific Name	Common Name	TPWC Status	EPBC Status	Preferred Habitats	Observations within 5km of the McKinlay Project	Likelihood of Occurrence in MLNs 808, 821 and 869
<b>Plants</b>						
<i>Cycas armstrongii</i>	Armstrong's Cycad	Vulnerable	-	Occurs mainly on open grassy woodland on yellow and red earths.	Nil	Unlikely – no previous observations and preferred habitat not present.

Scientific Name	Common Name	TPWC Status	EPBC Status	Preferred Habitats	Observations within 5km of the McKinlay Project	Likelihood of Occurrence in MLNs 808, 821 and 869
<b>Reptiles</b>						
<i>Veranis mertensi</i>	Merten's Water Monitor	Vulnerable	-	Semi-aquatic monitor, never seen far from water. Inhabits Inland waters across most of the Top End	Nil	Unlikely – no previous observations and preferred habitat not present.
<i>Veranis mithcelli</i>	Mitchell's Water Monitor	Vulnerable	-	Inhabits margins of watercourses, swamps and lagoons in Northern Australia	Nil	Unlikely – no previous observations and preferred habitat not present.
<i>Veranus panoptes</i>	Yellow-spotted Monitor	Vulnerable	-	Inhabits coastal beaches, grasslands and woodlands	Nil	Unlikely – no observations indicated by NRM website.
<i>Gekkonidae</i>	Yellow –snouted Geko	Vulnerable	Endangered	Occurs in areas of deep red soils, burning is thought to have caused their decline	Nil	Unlikely – no observations indicated by NRM website.

Scientific Name	Common Name	TPWC Status	EPBC Status	Preferred Habitats	Observations within the McKinlay Project	Likelihood of Occurrence in MLNs 808, 821 and 869
<b>Birds</b>						
<i>Geophaps smithii</i>	Partridge Pigeon	Vulnerable	-	Occurs in lowland eucalypt open forests and woodlands, with grassy understories	Nil	Unlikely – no observations indicated by NRM website.
<i>Erythrura gouldiae</i>	Gouldian Finch	Vulnerable	Endangered	Occupy 2 different regions during the year, Dry season - occur in wooded hills composed on salmon or snappy gums, Wet season – move to forage in lowland drainages to feed upon seeds of perennial grasses	Nil	Unlikely – no observations indicated by NRM website.

Scientific Name	Common Name	TPWC Status	EPBC Status	Preferred Habitats	Observations within 5km of the McKinlay Project	Likelihood of Occurrence in MLNs 808, 821 and 869
<b>Mammals</b>						
<i>Dasyurus hallucatus</i>	Northern Quoll	Critically Endangered	Endangered	Preferred habitats are in rocky areas, usually in many eucalypt open forests.	Nil	Unlikely – no observations indicated by NRM website.
<i>Antechinus bellus</i>	Fawn Antechinus	Endangered	Vulnerable	Occurs in savannah woodland and tall open forest of the Top End.	Nil	Unlikely – no observations indicated by NRM website.
<i>Phasgogale pirata</i>	Northern Brush-tailed Phascogale	Endangered	Vulnerable	Occurs in tall open forests dominated by eucalypt species.	Nil	Unlikely – no observations indicated by NRM website.
<i>Macroderma gigas</i>	Ghost Bat	-	Vulnerable	The preferred habitat is old mine workings and caves.	Nil	Unlikely – no observations indicated by NRM website.
<i>Mesembriomys macrurus</i>	Golden-backed Tree-rat	Critically Endangered	Vulnerable	Occurs in riverine areas in the tops of Pandanus palms	Nil	Unlikely – no previous observations and preferred habitat not present.

<i>Rattus tunneyi</i>	Pale Field-rat	Vulnerable	-	Preferred habitat occurs in dense vegetation along creeks.	Nil	Unlikely – no previous observations and preferred habitat not present.
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**Sources:**

NT NRM Report on the McKinlay Project (APPENDIX 6)  
 NRM NT Maps Web application

## 5.0 ENVIRONMENTAL MANAGEMENT SYSTEM

The Operator currently does not have a formal environmental management system in place and this section will be used to report progress made against the outcomes listed in Section 5.6 of this MMP.

Endeavour Investments Environmental Management Plan for the McKinlay Project is located in APPENDIX 9 of this MMP.

### 5.1 ENVIRONMENTAL POLICY AND RESPONSIBILITIES

Endeavour Investments do not have a formal environmental policy in place at the present time and they aim to minimise the impact on the natural environment in which they operate by adopting suitable environmental practices. To achieve this we ensure strict compliance with statutory laws and regulations, promote awareness of environmental issues amongst our workforce to identify the potential impact of their activities and wherever possible to conserve natural resources.

The manager shall be responsible for day to day management and control of activities that may impact on the environment.

### 5.2 STATUTORY REQUIREMENTS and NON-STATUTORY REQUIREMENTS

All exploration activities will be conducted under the relevant acts and regulations which may include but are not restricted to the following:

- *Mining Management Act*
- *Mineral Titles Act*
- *Weeds Management Act*
- *Bushfires Act*
- *Heritage Conservation Act*
- *NT Aboriginal Sacred Sites Act*
- *Native Title Act*
- *Aboriginal Land Rights (Northern Territory) Act*
- *Environment Protection & Biodiversity Conservation Act*
- *Atomic Energy Act*
- *Work Health & Safety (National Uniform Legislation) Act*

Also

- Exploration Licence conditions
- Authorisation conditions

The only non-statutory agreement in place is the landholder access agreement in APPENDIX 4. (To be submitted to DPIR later).

### 5.3 INDUCTION AND TRAINING

Induction and training is to be conducted for all personnel prior to commencement of work.

**As a minimum the induction will cover the following:**

Introduction to the site – geography, contacts, landowners and emergency procedures, location of and use of fire extinguishers and other safety equipment;

Expected behaviour and personal conduct rules;

Access, including the use of roads and tracks and gates;

Control measures required with regard to the management of Aboriginal and historic heritage sites.

Control measures required with regard to the management of flora and fauna, including the procedures required where tracks, and camps are to be created. Indiscriminate clearing of vegetation is to be avoided at all times;

Handling, storage and disposal of waste;

Weed control

Sediment and erosion controls;

Control measures required with regard to surface and ground water management. Control measures required to be implemented with regard to the management and control of dust, noise, soil contamination and water pollution;

Rehabilitation of stockpile sites, access tracks and campsites;

Personnel vehicles (including hire vehicles) are to be adequately equipped, maintained and suited to task. Daily checks are a part of the daily routine and will be demonstrated as part of the induction;

Endeavour Investments has a policy of zero alcohol and drug tolerance for drivers and equipment operators when on the job;

Housekeeping, security, personal safety equipment, personal safety (including remote area awareness and procedures, first aid, fauna awareness, breakdown/ lost procedures;

Duty of care and individual responsibilities;

Operation of the Weed Identification Sheet

Operation of the Threatened Species Identification Handbook

Endeavour Investments Induction Manual for the McKinlay Project has been included within this MMP as APPENDIX 10.



## 5.4 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The Risk Rating is that of the initial risk, prior to the application of control measures

Aspect	Impact(s)	Risk Rating	Preventative Control Measures (prevention)	Mitigating Control Measures (remediation)
Native vegetation disturbance	Potential for damage to native vegetation	1	The McKinlay Project has an established network of access tracks. These will be used where possible. There may be a small amount of vegetation disturbance associated with the stockpile removal program but this will be insignificant even in a local context.	Vehicular traffic will be directed to remain on the established tracks to avoid any further disturbance
Soil disturbance	Potential for erosion of soil due to exploration activities	1	The stockpile site will be levelled before the onset of the wet season after ore removal has been completed.	All completed disturbed areas will be rehabilitated before the onset of the 2019/20 wet season.
Scientific & cultural sites	Disturbance of sites of cultural or scientific interest	1	The operators are unaware of any specific scientific or cultural sites within the confines of the proposed work program.	Disturbance of sites will be avoided through fact sheets provided to field staff with feed-back as determined by the AAPA and the DTC Heritage Branch.
Fauna disturbance	Disturbance of vulnerable or endangered fauna	1	The operators believe that the disturbance of fauna from this program is low due to the very small disturbance footprint.	Disturbance will be managed through fact sheets provided to field staff and avoided along with habitat and any trees or plants identified as nesting sites or food sources. Recognition of NTG INFONET listed species will be reported to DENR (Flora/Fauna Division)
Flora disturbance	Disturbance of vulnerable or endangered flora	1	The operators believe that the disturbance of significant flora from this program is low due to the small disturbance area 0.2ha.	Disturbance will be minimised by careful management of all earth-works activities. All Employees will be inducted to be able to recognise significant species. Recognition of NTG INFONET endangered species will be reported to DENR(Flora/Fauna Division)

Visual impact	Evidence of increased vehicle activity in the area.	1	The small area of disturbance and the large area of previous disturbance in the area make the decrease in visual amenity insignificant.	It is expected that once the program is completed and rehabilitation has taken place, the evidence of the work program on the area will be restricted to the immediate area of the stockpile area. Over time natural regeneration will remediate the visual impacts of this program to their pre-disturbance state.
Fire	Ignition of a fire from hot exhausts/ equipment	1	The operators believe fire risk from this program is likely to be minimal.	All vehicles on site will carry fire extinguishers and shovels. Vehicles and equipment will only be parked on open ground.
Groundwater contamination	Cross contamination of fresh aquifers with saline aquifers	1	As the planned exploration activities are a stockpile removal program involving the collection of the ore stockpile on the surface and there will be no interaction with the groundwater regime.	No interception of any aquifers is anticipated.
Surface drainage interference	Disturbance of natural drainage systems and erosion	1	The proposed work area has only surface drainage with no significant or steeply banked drainage systems.	Any works will be removed/cleared at the completion of the program back to as close to its original state as possible.
Introduced weeds/Invasive species	Introduction of weeds from vehicles	1	The operators anticipate that the risk from introduced species is low for this work program. Induction processes will inform all employees of potential weed species and their management to prevent weed propagation	As a precautionary measure the company will ensure that all staff and contractors vehicles are cleaned before entering the site and when moving between sites, to reduce the risk of contamination. Weed monitoring will be periodically ongoing to ensure any areas do not become infested.
Rubbish and waste	Contamination of exploration sites and tracks with rubbish and waste	1	The operators will induct all staff and contractors on the appropriate actions when dealing with rubbish and waste.	All rubbish at the site will be collected and removed from site.
Landowner activities/interests	Disturbance of landowner	1	As the land is pastoral land the main activities are the production of beef cattle. The company will	The manager will be responsible for managing any unforeseen conflicts with the wishes of the

	activities/assets		liaise with the land manager to minimise any potential for land use conflict whilst they are conducting activities on site.	landowners.
Hydrocarbon and hazardous materials	Hydrocarbon leak / spill – contamination of soil, surface and ground water	1	Spill Kits and absorbent matting will be available at all areas where there is potential to spill hydrocarbons. It is not planned to have any hazardous materials on the site.	Any contaminated soil will be removed, bagged and disposed at an appropriately licensed facility with contaminated areas replaced with clean topsoil. All leaks of hydrocarbons over 20L will be recorded as an environmental incident and will thus be fully investigated and reported to the Department with the rehabilitation report.
Public or third party activities	Disturbance of public activities. Access by unauthorized parties to drill sites.	1	All activities will be undertaken away from areas generally accessed by the public. Signs will be placed at all entrances stating no unauthorised access.	Any unauthorized access to the site will be managed by the manager who will be on site at all times during the activities.
Noise and Air Quality	Detrimental effects to workers and nearby stock	1	Workers are protected by the use of correct PPE such as ear plugs or ear muffs and dust masks if required.	The company has identified no need for a noise or dust monitoring program for this exploration program.
Erosion and Sediment Control	Sediment and turbidity in nearby creeks can be influenced by inappropriately planned roads and exploration disturbance locations.	1	Turbidity in nearby streams is caused by sediment load being carried with the stream when it is flowing. This can be influenced by wind and water-borne soils eroded from the in-situ soil profile due to vehicle disturbance and clearing. The small scale of this program and the planned rehabilitation before the wet season mitigates any ESCP issues.	Primary considerations for minimising this, is the correct levelling of the stockpile site to minimise soil disturbance.

**Risk Rating Table**  
(after DPIR Risk Matrix)

		<b>Consequence (C)</b>		
		<b>Low</b> Little or no Impact	<b>Medium</b> Medium term –ve Impact	<b>High</b> Irreversible or long term –ve Impact
<b>Likelihood (L)</b>	<b>High</b> >75% Chance event will occur in the life Of the program	<b>4</b>	<b>7</b>	<b>9</b>
	<b>Medium</b> 25-75% Chance event will occur in the life Of the program	<b>2</b>	<b>5</b>	<b>8</b>
	<b>Low</b> <25% Chance event will occur in the life Of the program	<b>1</b>	<b>3</b>	<b>6</b>

<b>KEY</b>	
<b>Critical Risk</b>	
<b>High Risk</b>	
<b>Moderate Risk</b>	
<b>Low Risk</b>	

## **Discussion of Management Measures**

### **Native Vegetation Disturbance**

#### **Impact**

Potential for damage to native vegetation

#### **Management**

The McKinlay Project has an established network of existing access tracks. These will be used where possible. Stockpile removal will not require vegetation disturbance (80m long x 25m wide = 2000m<sup>2</sup>) as the area has already had all of the vegetation and soil cover removed by the tenement owners previously.

#### **Monitoring**

Any potential native vegetation disturbance will be monitored by the manager as part of his daily duties and will be captured in the site rehabilitation register.

### **Soil Disturbance**

#### **Impact**

Potential for erosion of soil due to exploration activities.

#### **Management**

With the use of existing tracks and the small scale exploration program planned, the potential for soil erosion is considered to be minimal. The bulk sample site will be rehabilitated before the onset of the wet season after ore removal has occurred.

#### **Monitoring**

Any potential soil disturbance will be monitored by the manager as part of his daily duties and will be captured in the site environmental inspections and audits.

### **Scientific and Cultural Sites**

#### **Impact**

Potential loss of cultural and heritage sites.

#### **Management**

At this stage the identification of cultural and heritage sites by applications to the AAPA and the DTC Heritage Branch has shown that there are no recorded sites within the exploration area. The operators recognise and acknowledge that not all cultural and heritage sites are reported to the government and they may exist unreported.

**Monitoring**

To date there have been no recorded cultural and heritage sites found in the exploration area. As part of the exploration activities personnel are encouraged to report any suspected indigenous, archaeological or heritage sites to the manager for preliminary evaluation. If the manager is satisfied he will place a moratorium on the immediate area and report it to the appropriate authorities.

**Flora and Fauna Disturbance****Impact**

Clearing of the bulk sample site for flora, and presence of workers and equipment for fauna.

**Management**

Flora and fauna loss or disturbance is primarily due to habitat loss, this is due to excessive or over-clearing in exploration activities. The strategy for flora management is to minimise vegetation clearing. As part of exploration activities any worker identifying a suspected endangered species should report it to the manager for further evaluation.

**Monitoring**

The monitoring of this is done directly within the reporting requirements of the annual MMP review process and as part of the Environmental Management System in the Rehabilitation Register.

**Visual Impact****Impact**

Evidence of increased vehicle activity in the area.

**Management**

Due to the concentrated nature of the exploration program it is anticipated that there will be no loss of visual amenity in this relatively isolated area.

**Monitoring**

Any perceived long term visual impact will be noted during the periodic audits and this data captured in the rehabilitation register.

**Fire****Impact**

Loss of habitat and death of small animals, also the possible loss of infrastructure and equipment and possessions onsite.

**Management**

The use of fire as a land management tool is the responsibility of the landowner and will not be undertaken in any circumstances by Endeavour Investments.

**Monitoring**

Fire management monitoring is done visually by all personnel on the site.

**Ground Water Contamination****Impact**

Cross - contamination of aquifers.

**Ground Water Management**

The ore stockpile is above the natural surface level and thus its removal will have no impact on the groundwater regime.

**Monitoring**

Ground water presence will be monitored by the manager as part of his daily duties.

**Surface Drainage Contamination****Impact**

Contamination of natural surface drainage systems and the potential for erosion.

**Surface Water Management**

Any requirements for discharging of water will be identified during exploration planning and the appropriate actions taken as outlined in the risk matrix above. There is currently no anticipated need for water discharge from the stockpile site. As exploration is being conducted in the dry season there is no need for a surface water management plan to be developed.

**Monitoring**

Surface water discharge will be workplace monitored by the manager as part of his daily duties.

## **Introduced Weeds/Invasive Species**

### **Impact**

Possible competition for native flora both within the planned bulk sample area and further a field (due to the presence of wild stock).

### **Management**

Weeds identification and management will occur in accordance with this MMP which is built around the DENR weeds data collection and eradication system. Weed eradication may involve spraying of small infestations around the planned exploration site. Large scale infestations are the responsibility of the landowner and not Endeavour Investments. Weed control and monitoring will be included as an ongoing regular duty of one designated staff member. Wash down units will be used for vehicles and any other equipment moving on or off the exploration site to prevent the spread of declared weeds.

The wash down unit will be located in a central cleared area near the camp which will enable all vehicles leaving the site to be examined and treated. Water for this unit will also be sourced from off site and stored at the unit in a 200Lt blue plastic drum. Vehicle monitoring will consist of examination of grass and seeds before leaving site if the activities are being conducted within an identified weed infestation. The wash-down area will be sprayed with weed poison on completion of the exploration program to minimise potential weeds spread from the site.

All materials sourced outside the project area must be weed-free prior to being taken onsite.

### **Monitoring**

Monitoring of weed infestations occurs by visual means with periodic inspections in accordance with this MMP.

As part of the exploration activities any worker identifying a suspected weed infestation should report it to the manager for further evaluation.

## **Rubbish and Waste**

### **Impact**

Untidy site with potential health hazards.

### **Management**

All wastes will be collected and transported off site to the nearest approved waste disposal facility.

All wastes will be collected, segregated and stored in properly constructed containers and removed to an approved land fill or other disposal site in accordance with local council requirements.



**Monitoring**

Monitoring of waste collection and disposal will be the responsibility of the manager and will be undertaken visually.

**Landowner Activities****Impact**

Interference with authorised landowner activities.

**Management**

As the land is leasehold land owned by Inyathi Reserve, there are currently only minor pastoral activities being undertaken in the general area of the exploration activities. Active liaison with the station management will seek to avoid any potential misunderstandings or miscommunications about Endeavour Investments activities. The operators are aware of their role and responsibilities not to interfere with active pastoral activities.

**Monitoring**

The manager will be responsible for identifying and managing any potential landowner conflicts.

**Hydrocarbons and Hazardous Materials****Impact**

Possible impact on flora, contamination of underlying soils and poisoning of stock if ingested.

**Management**

Fuels and Oils will be stored onsite in the appropriate storage facilities by the earthmoving contractor in accordance with the appropriate legislation, ie in self-bunded storage facilities or recognised fuel storage tanks for bulk products and in delivery containers for packaged products. Spill kits will be positioned at fuel storage facilities.

**Monitoring**

Because of the short duration of the program the potential sources of pollution will be visually monitored by daily workplace observations by the manager as part of his daily duties

## **Public Activities**

### **Impact**

Disturbance of public activities. Access by unauthorized parties to costean sites.

### **Management**

There is no anticipated interference with public activities although the possibility of public access to the site is recognised. These areas will be signposted to warn any members of the public in the near vicinity of operational exploration activities.

### **Monitoring**

Signage and potential presence of members of the public will be visually monitored by daily workplace observations by the manager as part of his daily duties

## **Noise and Air Quality**

### **Impact**

Noise and dust affects workers, neighbours and nearby stock.

### **Management**

Workers are protected by the use of correct PPE such as ear plugs and dust masks. Neighbours are located +10km away and are unlikely to experience intrusive noise from operations.

If any stock are in the immediate area they will remove themselves to a location where they are comfortable, the immediate area contains no fences to inhibit free movement.

### **Monitoring**

The company has identified no need for a noise or dust monitoring program for the exploration program. The monitoring of the dust and noise generated will be by workplace monitoring by the manager.

## **Erosion and Sediment Control**

### **Impact**

Sediment and turbidity in nearby ephemeral creeks can be influenced by inappropriately planned earthworks. This is a sign of soil erosion and potentially inappropriate rehabilitation techniques in areas upstream.

### **Management**

Turbidity in nearby streams is caused by sediment load being carried with the stream when it is flowing. This can be influenced by wind and water-borne soils eroded from the in-situ soil profile due to vehicle disturbance and vegetation clearing. Primary considerations for minimising this, are the correct siting of activities to minimise soil

disturbance. There are no activities adjacent to streams. The stockpile removal program is designed to be conducted in the 2018 dry season to minimise any erosion that may occur before site rehabilitation can occur.

### **Monitoring**

Because of the small program, it is not proposed to have a water monitoring program within the nearby ephemeral streams, which will most likely not be flowing.

## **5.5 ENVIRONMENTAL AUDITS AND INSPECTIONS**

Environmental inspections will be undertaken by the manager during the program. He will monitor the program whilst it is underway specifically focusing on the potential for erosion and vegetation disturbance. These will be accessed daily and if issues are beginning to arise they will be rectified by the manager immediately. These will be recorded and photographed.

At completion of the program the bulk sample site will be rehabilitated to meet the standards as set out in the DPIR guidelines included under the section 'DPIR Rehabilitation Guidelines' in the Environmental Management Plan which is located in APPENDIX 9 of this MMP.

## **5.6 ENVIRONMENTAL PERFORMANCE**

### **5.6.1 OBJECTIVES AND TARGETS**

The success of the exploration program will be measured in terms of:

- The completion of the program with no accidents or incidents involving employees, contractors or material damage to the environment.
- Completion of the program with the absolute minimum of surface disturbance.
- The removal of all items brought to the site including rubbish.
- The rehabilitation of disturbed areas in accordance with DPIR guidelines.
- Best practice environmental management.

It is anticipated that the stockpile removal operations will be completed by the end of November 2018 and the final rehabilitation completed within 1 month of completion of activities and before the onset of the wet season. At the completion of the rehabilitation a final site inspection will be undertaken by the manager who will ensure that the work has been done to the highest possible standards.

At closeout, a final rehabilitation report will be prepared detailing the work completed, and this will be submitted to the Department of Primary Industry and Resources.

## **5.6.2 ENVIRONMENTAL PERFORMANCE REPORTING**

Performance targets relevant to this phase of exploration are the rehabilitation of the disturbed areas (stockpile site) and the removal of waste from the site. The manager will be responsible to insure the site is fully rehabilitated in accordance with this section before the onset of the 2018/19 wet season.

Control and reporting on the rehabilitation work will be managed by establishing a Rehabilitation Register (see Section 5.0 below), in which the nature of the disturbance and the state of rehabilitation efforts will be recorded. The manager will verify the completeness of rehabilitation before signing off. A periodic review will ensure that steady progress on rehabilitation is maintained and no areas are overlooked.

To provide a measurable basis for the rehabilitation works a photographic record will be started and maintained throughout the exploration program. Prior to any ground disturbing work occurring photographs of the area to be affected will be taken. The photographs will be used as base line data against which the effectiveness of the rehabilitation work will be assessed. Additional photographic evidence will be collected at the following points to monitor the progress of rehabilitation, these will also include photos at the time of excavation, after completion of rehabilitation and at monitoring intervals of post-wet season and 12 months after completion of rehabilitation.

## 5.7 EMERGENCY PROCEDURES AND INCIDENT REPORTING

### Emergency Procedures

In the event of an emergency, either safety or environmental, the following general procedures are to be followed:

1. Ensure the safety of workers and anyone else present.
2. Prevent, control and stop the incident and its impact from spreading
3. Advise the manager and seek his assistance
4. Advise the Chief Executive of the DPIR by telephone of the incident and the steps undertaken to mitigate the impact and control the source of the incident if the incident rating is Class 2 or above.
5. Record the incident
6. Submit a written report on Form CF7-001 to the Chief Executive as soon as practical after assessing the incident
7. Undertake all instructions as issued by the mining officers.

### Incident Reporting

All environmental incidents must be reported to the NT Department of Primary Industry and Resources in accordance with Section 29 of the Mining Management Act. The appropriate form to report an environmental incident is DPIR Form CF7-001, which is included in APPENDIX 9, DPIR Advisory Note AT8-006 is also included in APPENDIX 9 in the Environmental Management Plan.

The following guide to Incident assessment and reporting has been sourced from the DPIR advisory note AT8-006 "Environmental Incident Reporting".

#### Incident Assessment

When assessing an incident and making decisions about reporting on an environmental incident or serious environmental incident an operator should have regard to the definition of "environment" in the MMA.

"Environment" is defined under Section 4 of the MMA as follows:

*land, air, water, organisms and ecosystems on a mining site and includes:*

- (a) *the well-being of humans;*
- (b) *structures made or modified by humans;*
- (c) *the amenity values of the site; and*
- (d) *economic, cultural and social conditions.*

Operators should conduct an appropriate assessment of the incident in order to determine the severity of the incident and whether the operator will be required to report the incident to the Chief Executive Officer of DPIR. For the purpose of classifying the severity of an incident and determining whether a report is required an operator may be **guided** by the assessment matrix in APPENDIX 9.

Operators should also have regard to the obligations set out in section 16 of the MMA, the conditions of authorisation, the permitted activities and the relevant procedures contained in the operator's own management plan, including its associated systems.

It is not always necessary for there to have been an environmental impact for the requirement to report an incident to be triggered. The *potential* for any incident to have an impact on the environment should also be taken into account when considering whether to make a report to the Chief Executive Officer. The definition of "environment" is broad and careful consideration should be given to each aspect of the environment before a determination is made.

### **Incident Reporting**

Incidents likely to be the subject of a section 29 incident report may include, but are not limited to, the following:

- (a) Escape (by any means such as a spill or leak) of a fuel, chemical, product or residue in solid, liquid or gaseous form including fumes, smoke, vapours, contaminated water, or dust;
- (b) Emissions of noise (beyond reasonable permitted levels);
- (c) Uncontrolled or accidental fire on any land, structure or infrastructure;
- (d) Unauthorised, uncontrolled, or both, discharge of controlled waters to surface or ground waters;
- (e) Damage to a Sacred Site, Aboriginal Protected Area, other protected area, archaeological or heritage site;
- (f) Unauthorised mining, whether the activity is undertaken on or off an authorised mining site;
- (g) Unauthorised clearing of vegetation or disturbance of the ground on or off an authorised mining site; and,
- (h) Harm to human well-being.

In accordance with Section 29 of the MMA operators are required to report an environmental incident or serious environmental incident:

- (1) *As soon as practicable after the operator for a mining site becomes aware of the occurrence of an environmental incident or serious environmental incident on the site, the operator must notify the Chief Executive Officer of the occurrence.*

Section 29 also states:

- (2) *An operator who gives notice orally must, as soon as practicable after doing so, give a written notice to the Chief Executive Officer.*

Operators should also be aware of Section 33 of the MMA, which states:

*(1) A person commits an offence if:*

- (a) the person releases waste or a contaminant that is from a mining site; and*
- (b) the release is not authorised by the mining management plan for the site.*

General emergency procedures as well as NT Worksafe incident notification and DPIR Environmental Incident notification forms and procedures are also included as APPENDIX 11.

## 6.0 EXPLORATION REHABILITATION

All rehabilitation will be undertaken in accordance with the methods listed below and the relevant parts of the DPIR guidelines for rehabilitation of costeans (AA7-006).

<b>Disturbance</b>	<b>Rehabilitation Methods</b>	<b>Schedule (Timing)</b>	<b>Closure Objectives / Targets</b>	<b>Monitoring Techniques</b>
<b>Stockpile Area</b>	Smooth and scarify	Within 1 month of completion of program	All stockpile area to be as near to natural surface as possible	Follow-up observations/photographs at rehabilitation, pre wet season, post wet season, and 1 year.



### 6.1 EXPLORATION REHABILITATION REGISTER

The McKinlay Project Rehabilitation Register is included as APPENDIX 5 within the Environmental Management Plan, (APPENDIX 9). This register includes images and details of the individual sites.

Summary sheets are included here for information purposes.

Reporting period	Tenement	MMP Reference	Area (No.)	Area under Rehab (No.)	Comments



## **6.2 COSTING OF CLOSURE ACTIVITIES**

Being commercial in confidence the costing of closure activities is included as APPENDIX 12.

# **APPENDIX 1**

## **APPLICATION FOR AN AUTHORISATION**

### **Section 1.0**

## **APPENDIX 2**

### **NOMINATION OF OPERATOR** **Section 1.0**

## **APPENDIX 3**

### **APPOINTMENT OF AGENT** **Section 1.0**

## **APPENDIX 4**

### **LAND OWNER CORRESPONDENCE** **Section 2.0**

## **APPENDIX 5**

### **LOCATION OF PROPOSED ACTIVITIES** **Section 3.2**



**APPENDIX 6**

**DENR**

**ENDANGERED FLORA AND FAUNA**

**DATABASE EXTRACT**

**Section 4.0**

## **APPENDIX 7**

### **AAPA INFORMATION FROM RECORDS** **Section 4.0**

**APPENDIX 8**

**DTC**

**ARCHAEOLOGICAL AND HERITAGE**

**DATABASE EXTRACT**

**Section 4.0**

## **APPENDIX 9**

### **ENVIRONMENTAL MANAGEMENT PLAN** **Section 5.0**

## **APPENDIX 10**

### **SITE INDUCTION MANUAL** **Section 5.3**

**APPENDIX 11**

**EMERGENCY PROCEDURES**

**AND**

**INCIDENT REPORTING**

**Section 5.7**

**APPENDIX 12**

**SECURITY CALCULATION**

**SPREADSHEET**

**Section 6.2**