

GOLDEN CROWN PROJECT

ENVIRONMENTAL MANAGEMENT PLAN

2017 EXPLORATION ACTIVITIES

ML 29678

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Revision	Prepared	Reviewed	Approved	Date	Description
1.0	WA Jettner			June 2017	For Review

1.0 GENERAL

This Environmental Management Plan has been designed for Endeavour Investments exploration operations to be undertaken in 2017 on the Golden Crown Project. It forms the basis for the identification, management and rectification of environmental issues should they arise during activities or as a result of the exploration activities.

2.0 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

- License conditions
- Authorisation conditions

3.0 NON-STATUTORY REQUIREMENTS

3.1 OBJECTIVES AND TARGETS

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

- Successfully testing the target area with the minimum amount of surface disturbance required to decide if additional work is warranted.
- 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 disturbances in accordance with DPIR guidelines.
- The restoration of the pit site to as close to natural profile.

The 2017 exploration activities will involve the removal of the remaining ore stockpile from the site and maintaining the post-closure monitoring of the site.

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.

4.0 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

Native Vegetation Disturbance

Impact

Potential for damage to native vegetation

Management

All surface disturbance activities requiring vegetation clearing has ceased, and whilst the removal of the remaining ore stockpile will involve the driving over of vegetation by the trucks there will be no additional clearing outside these track corridors, (which have not as yet been closed out).

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 program planned, the potential for soil erosion is considered to be minimal.

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 ML 29678. Endeavour Investments recognises and acknowledges 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 vegetation 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. There is no additional vegetation clearing planned as part of the 2017/18 activities.

Monitoring

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

Visual Impact**Impact**

Evidence of increased vehicle activity in the area.

Management

Due to the cessation of active excavation activities 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

Due to the completion of excavation activities and the back-filling of the pit void this years activities 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 potential for erosion.

Surface Water Management

Due to the completion of excavation activities there is currently no anticipated need for water discharge from the exploration site.

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 costeaning area and further afield (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 costean sites. 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 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 pit 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 project 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 project 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 Pty Ltd, there are currently pastoral activities being undertaken in the general station area. Active liaison with the station management will seek to avoid any potential misunderstandings or miscommunications about Endeavour Investments activities. The company is aware of its 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 not be stored onsite.

Monitoring

The potential sources of pollution will be visually monitored by daily workplace observations by the project 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 costean sites 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 project 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, ear muffs and dust masks. Neighbours are located +10km away and are unlikely to experience intrusive noise from exploration 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 2017 exploration program. The monitoring of the dust and noise generated will be by workplace monitoring by the project manager.

Erosion and Sediment Control

Impact

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

Management

The post closure monitoring has shown that there is no ESCP issues due to the back-filled bulk sample pit.

Monitoring

It is not proposed to have a water monitoring program within the nearby ephemeral streams, which will most likely not be flowing or holding water anyway.

5.0 INCIDENT REPORTING

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 NTDPIR Form CF7-001, which is included in APPENDIX 5, NTDPIR Advisory Note AT8-006 is also included in APPENDIX 5 to this Environmental Management Plan.

The following guide to Incident assessment and reporting has been sourced from the NTDPIR 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 5.

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.*

6.0 ENVIRONMENTAL AUDITS AND INSPECTIONS

Environmental inspections will be undertaken by the project manager during the program. At completion of the program all areas will be rehabilitated to meet DPIR standards, see guidelines included under the section 'DPIR rehabilitation guidelines' in the Environmental Management Plan as APPENDIX 7.

Interim environmental audits shall be recorded in the Rehabilitation Register (APPENDIX 6) with the Status "Interim".

7.0 ENVIRONMENTAL PERFORMANCE REPORTING

Performance targets relevant to this phase of exploration are the successful removal from site of the remaining ore and the continuation of the post-closure monitoring.