

# Mining Management Plan Exploration Activities

## Northern Territory of Australia – Mining Management Act

It is recommended that the Mining Management Plan is completed in conjunction with the user guide, available on the [Northern Territory Government website](#).

### Section 1 – Project Details

<b>Project Name</b> Provide new or existing project name	Mount Peake Project
<b>Authorisation Number</b> Insert existing authorisation number, where applicable	0908-01
<b>Operator Name</b> Use ASIC-ABR registered name (if a company), or name of the applicant	Enigma Mining Limited (a wholly owned subsidiary of TNG Ltd)
<b>Location and Access Details</b> Include brief description of the location, access details, and distance to nearest town or community	Centred approximately 220 kilometres north northwest of Alice Springs via the Stuart Highway, and 63 kilometres west of Barrow Creek. Turn off is approximately 3 kilometres north of the turn off into Stirling Station on the Stuart Highway and then along well maintained station tracks into the project area.
<b>Target Commodity Details</b> Include target commodities (i.e. gold, copper etc)	Vanadium, titanium, iron
<b>Mining Activities</b> Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation	Drilling of 7 diamond holes up to 150m depth. Digging of 10 pits for geotechnical work – 2m (length) x 1m (width) x 2m (depth) – for geotech, soil analysis work.
<b>Proposed Schedule</b> Include start and finish dates of ground disturbing work	August – September 2019

## Mining Interest and Land Ownership

List the mining interests (titles), the title holder name/s, the title expiry date and the Property name/Land holder (e.g. pastoralist or Aboriginal land trust) for each title.

Title Number	Title Holder	Expiry Date	Property Name or Land Holder
EL27069	Enigma Mining Limited	12/08/19	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy. NT Portion 362, PPL1057 "Anningie Station" – Davmax Pty Ltd. Steven Fogarty.
EL27070	Enigma Mining Limited	12/08/19	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy.
EL27941	Enigma Mining Limited	19/10/20	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy. NT Portion 362, PPL1057 "Anningie Station" – Davmax Pty Ltd. Steven Fogarty.
EL29578	Enigma Mining Limited	7/08/20	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy. NT Portion 362, PPL1057 "Anningie Station" – Davmax Pty Ltd. Steven Fogarty.
EL31389	Enigma Mining Limited	20/05/23	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy.
EL31850	Enigma Mining Limited	16/10/24	NT Portion 655, PPL1103 "Stirling Station" – Stirling Station Pty Ltd. Matthew McCarthy.

Delete or add rows as required

## Organisational Structure

Position Title	Name
Managing Director	<b>Paul Burton</b>
Exploration Manager	<b>Kim Grey</b>
Administrative Geologist	<b>Cath Wetherley</b>

Delete or add rows for various position titles as required

## Section 2 – Operator Self-Assessment of the Environmental Risk

The purpose of this self-assessment is to ensure Operators complete a project risk assessment of potential environmental impacts and are aware of other legislative obligations from various Agencies. As a result of this self-assessment, further information may be required in the form of a management plan to enable full assessment of the MMP. If you have any queries please contact a Mining Officer prior to submitting the MMP. Useful resources to assist with this self-assessment are provided in the User Guide.

### Environmental considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DENR and/or management plan)
<b>Step 1:</b> Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?	Y	It is likely a threatened species will show up in most reports. Therefore, the Operator must undertake a likelihood analysis, which looks at the likelihood of the species or its habitat occurring at or near the site. If the analysis results in a high likelihood, then a “Significant Impact Assessment” should be undertaken, which may require consultation with the DENR – Flora and Fauna Division. The DENR may recommend a Biodiversity Management Plan – this must be developed and attached to the MMP.	All work is with existing disturbed area. Minimal additional disturbance required for program.
<b>Step 2:</b> Are there any known declared weeds within the proposed work area?	Y	Under the <i>Weeds Management Act</i> declared weeds are required to be eliminated or controlled by the owner and occupier of land. Seek advice from DENR – Weeds Management to ensure management measures are appropriate for the level of activity proposed and attach a Weed Management Plan (if required).	No significant weed problems.
<b>Step 3:</b> Will you be using water from bores or other sources for the operation?	Y	<i>Note the Government is proposing to amend the exemption of water licencing under the Water Act for mining activities, including exploration. This section will be updated in light of any changes in the future.</i>	Drillhole 09MPRC001 is used to obtain water.

## Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<b>Step 4:</b> Is your project likely to have a significant impact on the environment?	N	Refer to the NTEPA Environmental Factors and Objectives Guideline.
<b>Step 5:</b> Are there Aboriginal sacred sites in the Project area?	Y	Sacred Sites are protected under the NT <i>Aboriginal Sacred Sites Act</i> and administered by the Aboriginal Areas Protection Authority (AAPA). It is recommended that advice be sought from AAPA in relation to sacred site protection.  <i>Exploration agreement in place with the CLC. Sacred site clearance certificates cover the area. Work programmes submitted to the CLC.</i>
<b>Step 6:</b> Are there archaeological and heritage sites in the Project area?	N	Heritage and archaeology sites are protected in the NT. NT Heritage Branch of the Department of Natural Resources and Environment (DENR) administers the <i>Heritage Act</i> . Seek advice in relation to protection of heritage and archaeological sites.

## Section 3 – Amendments

As per Section 41(3) of the *Mining Management Act*, an MMP reviewed and amended under Section 41(1)(a) is to clearly identify amendments made.

Section	Amendment
Section 1 – Project Details	Updated for new format as required
Section 2 – Operator Self-Assessment of Environmental Risk	Updated for new format as required
Section 4 – Activities Proposed	Proposed activities added
Section 5 – Previous Disturbance	Updated for new format, 2019 sterilisation drilling added
Section 6 – Environmental Management	Updated for new format as required
Section 7 – Remediation and Closure	Updated for new format as required
Section 8 – Required Attachments	Attachments included
Section 9 - Declaration	Filled out as required

Delete or add rows as required

## Section 4 – Activities Proposed

Mining Interests (i.e. titles)	EL31850	EL29578	EL	EL
Number and type of proposed drill holes	7			
Maximum depth of proposed holes (m)	150			
Number and size of drill pads to be cleared (Length: 10 m x Width: 10 m)	7			
Total area of drill pads to be cleared (ha)	0.07 ha			
Is drilling likely to encounter groundwater? (Y, N, unsure)	Unsure			
Number of costeans (Length: m x Width: m x Depth: m)				
Number of bulk sample pits	10			
Total bulk sample (tonnes) (Length: 2m x Width: 1m x Depth: 2m)	40 m <sup>3</sup> (20m <sup>2</sup> on surface – 0.002ha)			
Bulk sample pits approved under <i>Mineral Titles Act</i> ? (Y or N)	N			
Length of line/track clearing (Length: 571m x Width: 4m)	2,284m <sup>2</sup> (0.23 ha)			
Camp area to be cleared (ha)	-	Use existing		
Camp Infrastructure (i.e. demountable, tents)	-	Caravan, tents		
Previous disturbance yet to be remediated on title (ha) if known	6.22	0.09		
Disturbance from proposed programme	0.302	0		
Total area disturbed including proposed (ha)	6.52	0.09		

## Section 5 – Previous Disturbance (for existing Authorisations only)

Mining Interests (i.e. titles)	EL29578	EL31850 (previously ELR29627)	EL27069	EL27070	EL27941	EL31389
Number/type of holes drilled	11	156	13	5	2	17
Maximum depth of holes drilled (m)	405m	150m	275m	314m	192m	84m
Number of holes remediated (i.e. plugged/capped)	11	135	13	5	2	
Number and size of drill pads cleared (Length: m x Width: m)	11	155	4	4	2	12
Total area of drill pads cleared (ha)	0.33	0.47	0.12	0.12	0.06	0.36
Total area of drill pads remediated (ha)	0.33	0.4	0.12	0.12	0.06	0
Was groundwater encountered? (Y or N)						
Length of line/track cleared (Length: km x Width: m)	8.3km	11.698km	1.5km	3.0km	7.3km	5.6km
Length of line/track remediated (Length: km x Width: m)						
Number of costeans excavated (L: m x W: m x D: m)	-					
Number of costeans remediated	-					
Total bulk sample pits excavated (Length: x Width: x Depth: m)	-					
Total bulk sample pits remediated	-					
Camp area/s cleared (ha)	0.18			0.09		0.18
Camp area/s remediated (ha)	0.09			0.09		0.18
Total area disturbed (ha)	4.73Ha	6.72Ha	0.4Ha	0.93Ha	1.9Ha	4.85Ha
Total area remediated (ha)	3.0Ha	0.4Ha	0.2Ha	0.5Ha	1Ha	2.55Ha

## Section 6 – Environmental Management

By checking these boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	X	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	X	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	X	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	X	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	X	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	X	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7	X	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	X	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	X	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	X	Drill holes will be securely capped immediately after drilling
6.11	X	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilising vehicles and equipment from one location to another
6.12	X	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	X	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	X	Hydrocarbons will be stored in lined and bunded areas
6.15	X	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals
6.16	X	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	X	All environmental incidents will be reported to the Department in accordance with Section 29 of the <i>Mining Management Act</i> .

Justification and alternative management measures:

6.9 Pits will be ramped at one edge to allow fauna egress. Sampling will be completed onsite (only small samples will be removed for geotechnical work and pits will likely be filled in immediately – or within a month at the latest).



## Section 7 – Remediation and Closure

By checking these boxes, you are agreeing to implement the following minimum remediation standards on the project area. Where boxes have been left unchecked, justification is required.

7.1	X	Drill holes plugged below ground level at a minimum depth of 0.4 metres and soil mounded to prevent subsidence, within 6 months of completion of drilling
7.2	X	Drill samples/spoil returned down drill holes, buried in sumps, or removed from site
7.3	X	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site
7.4	X	Re-contouring of cut and fill drill pads will be consistent with the surrounding terrain
7.5	X	Ripping/scarifying of drill pads, and compacted areas along the contour (on sloping ground) and cross-ripping (zig-zag) along tracks
7.6		Tracks will be remediated, including pushing in all windrows
7.7	X	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur
7.8		All tracks will be remediated unless otherwise agreed in writing by the land holder or appropriate third party
7.9	X	Access through watercourses will be removed and banks restored
7.10	X	No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11	X	All excavations backfilled within 6 months of completion of drilling
7.12	X	All water bores decommissioned unless otherwise agreed in writing by the land holder or appropriate third party. The bore must comply with the Minimum Construction Requirements for Water Bores in Australia and may require permits or licenses under the <i>Water Act</i>
7.13	X	All rubbish and infrastructure will be removed from site
7.14	X	Replacement of topsoil and vegetation
7.15	X	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be remediated or removed from site
7.16	X	Monitoring will be undertaken following the wet season or a significant rainfall event

Justification and alternative management measures:

<p>Section 7.6 and 7.8: Main tracks are made safe and will remain open and maintained for the foreseeable future. Minor tracks are left to rehabilitate naturally with the aim of the site returning to pre-disturbance condition.</p> <p>Final remediation of 2019 sites will be completed prior to the end of the 2019 field season.</p> <p>Monitoring of existing sites and tracks will also be completed during this time.</p>
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## Section 8 – Required Attachments

8.1	X	Security Calculation Spreadsheet
8.2	NA	Nomination of Operator Form
8.3	X	Spreadsheet with coordinates of proposed drill holes or polygons of target areas
8.4	X	Google Earth KML/shape files/track logs of proposed tracks and camp sites
8.5	X	A map of the work area(s) showing: <ul style="list-style-type: none"> <li>1. title boundaries and title numbers</li> <li>2. current and proposed drill holes, or polygons of target areas</li> <li>3. current and proposed tracks</li> <li>4. remediated areas</li> <li>5. camp sites</li> <li>6. sacred/heritage sites</li> <li>7. environmental constraints</li> </ul>
8.6	X	Remediation Register (for existing Authorisations)
8.7	NA	Photographs of remediation work
8.8	NA	Radiation Management Plan (if applicable)

### Comments:




8.6 Remediation for all 2019 exploration (sterilisation drilling, variability testwork drilling and geotech pits) will be carried out prior to the end of the 2019 field season.

Monitoring of tracks will also be completed at this time.

8.7 Photos of all remediation work will be taken during remediation work carried out prior to the end of the 2019 field season.

## Section 9 – Declaration

The Mining Management Plan must be endorsed by a senior representative of the company who has the appropriate level of authority to do so.

	Author	Reviewed by	Approved by
Date	11/07/19	11/07/19	12/07/19
Name	Cath Wetherley	Kim Grey	Paul Burton
Signature			

**I Paul Burton (Managing Director) declare that I have the authority to make the commitments contained in this mining management plan on behalf of the company. To the best of my knowledge the information contained in this plan is true and correct and commit to undertake the works in accordance with the agreed minimum standards and all relevant Northern Territory and Commonwealth Government legislation.**

**SIGNATURE:** 

**DATE: 12 July 2019**