

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

Project Name Provide new or existing project name	Sandy Flat TSF Project
Authorisation Number Insert existing authorisation number, where applicable	TBA
Operator Name Use ASIC-ABR registered name (if a company), or name of the applicant	Redbank Operations Pty Ltd (Redbank)
Location and Access Details Include brief description of the location, access details, and distance to nearest town or community	The project area is located adjacent to the Queensland border; approximately 250 km south east of Borroloola, via the Savannah Way and station tracks. The area of proposed work occurs wholly within the Wologorang Station Pastoral Lease.
Target Commodity Details Include target commodities (i.e. gold, copper etc)	Copper
Mining Activities Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation	Redbank propose to complete up to 300 Sonic drill holes on Sandy Flat Tailings Dam (TSF) at 10m spacings. Short vertical holes will be drilled to recover a 4-inch diameter “sausage core”. This core will be sampled at 1m intervals to understand the distribution of copper within the TSF. Nil additional tracks or clearing will be required.

Proposed Schedule Include start and finish dates of ground disturbing work	September 2020 to October 2020
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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
ELR94	Redbank Operations Pty Ltd	09/08/2024	Wollogorang Station & Privately Owned NT Portion 4399.
EL31316	Redbank Operations Pty Ltd	05/02/2023	Wollogorang Station
MLN634	Redbank Operations Pty Ltd	31/12/2028	Wollogorang Station
MLN635	Redbank Operations Pty Ltd	31/12/2028	Wollogorang Station

Organisational Structure

Position Title	Name
Executive Chairman- Redbank Copper Limited	Michael Hannington
Director- Redbank Operations Pty Ltd	Michael Hannington
Director	Daryl Henthorn
Director	Keith Middleton
Senior Geologist	Mike Cowin

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)
Step 1: Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?	Yes	An EIS was prepared by EcOz in 2009. A copy is in Appendix 2. A Flora and Fauna Summary is also located in Appendix 9.	
Step 2: Are there any known declared weeds within the proposed work area?	No	A search of NR Maps shows that there are nil recorded weed occurrences within the project area. Appendix 8. A pest species summary is also located in Appendix 9. Weed summary and management priority is located in the EcOz EIS, 2009. A copy is located in Appendix 2.	
Step 3: Will you be using water from bores or other sources for the operation?	No	Sonic drilling does not require water to operate. Redbank are aware that a water extraction licence must be applied for and granted before water extraction can occur for exploration use.	

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p>Step 4: Is your project likely to have a significant impact on the environment?</p>	No	<p>A Sonic drilling system is proposed, which uses high frequency resonant energy to advance the core barrel and collect undisturbed core from the existing TSF. Only shallow holes will be drilled, which are proposed to be up to 10m deep. The TSF is up to 8m high and drilling expects to terminate crossing the interface with the natural surface.</p> <p>Nil clearing of vegetation is required for this program.</p>
<p>Step 5: Are there Aboriginal sacred sites in the Project area?</p>	No	<p>Restricted works areas within ELR94, however there are nil AAPA sacred sites or restricted works areas within EL31316.</p>
<p>Step 6: Are there archaeological and heritage sites in the Project area?</p>	No	<p>There are no declared heritage places located within EL31316. Please see Appendix 3.</p>

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- Statement removed.
	Organisational structure- Updated.
	<p>The track mounted drill rig will access the TSF via the ramp shown in the recently taken photography shown below. The rig operator will operate the track mounted rig as per the standard operating procedures for the vehicle. The maximum speed will be approximately two to three kilometres per hour.</p> <p>Surface loads and track surface areas are shown in the specification sheets for each of the track mounted rigs.</p> <p>Diagrams and information on the two rigs that Redbank propose to use: the Geoprobe8140 and the CRS17C are provided in Appendix 10. The lighter CRS17C is the preferred rig to use.</p> 

Section	Amendment
Section 1	<p>Redbank does not believe that the integrity of the TSF will be compromised by the proposed activity.</p> <p>Redbank will provide evidence to DITT on the hole closure for each hole drilled and the tracks left from depressing surface TSF material as the track mounted rig traverses to top of the TSF.</p> <p>If DITT wish to provide a quantitative definition of what “compromising the TSF” means, then Redbank will undertake to keep activity below the threshold that the DITT considers compromises the TSF.</p> <p>Redbank intend using a ‘whipper snipper’ (also known as a brush cutter) which has rotating nylon cable to reduce the amount of grass and weeds at the Redbank Exploration Camp. This reduces the risk of snakes and also provides for easier access to existing accommodation facilities at the Redbank Exploration Camp.</p> <p>The topography of the area to be whipper snipped is relatively flat, therefore erosion is expected to be negligible. The area that has been whipper snipped, will be monitored for erosion once a month. If erosion has or is likely to take place, sediment traps will be installed.</p>

Section	Amendment
<p>Section 7</p>	<p>The physical properties of the material forming the TSF mean that once a vertical hole has been drilled and a “core sausage” of semi-consolidated sediment is removed, then the cylinder void remaining (the drill hole) is expected to close in within hours of being drilled. There is some plasticity to the semi-consolidated material forming the TSF. However, there is little in the way of empirical geo-technical studies that provide evidence for the ‘expansion capacity’ of TSF material.</p> <p>A hole needs to be drilled into the TSF to determine exactly how the material will act. In the event that the holes do not close within hours of being drilled, Redbank will follow DITT’s Construction and Rehabilitation of Exploration Drill Sites Guideline by grouting, backfilling and capping the holes.</p> <p>Redbank will take a photo of each of the boreholes following completion of each drillhole. The photos can be provided in subsequent MMPs.</p>
<p>Appendix 9- Environmental Summary & MMP Details 2020</p>	<p>Redbank are drilling on an exploration licence. No geo-scientist is able to know the geo-statistically appropriate drill hole spacing until after variography is completed comparing spatial correlation of TSF layering/from discharge points forming ‘beaches’ with copper grade continuity.</p> <p>Regarding the structural integrity of the TSF, Redbank considers 4 inch diameter drillholes spaced at 10 metre intervals do not have the ability to affect the Bulk Modulus or Young’s Modulus of the TSF ‘in toto’ (that is as a whole). Drillholes are also expected to close within hours of drilling completion. If they do not close, they will immediately be grouted, backfilled and capped, as per DITT’s Construction and Rehabilitation of Exploration Drill Sites Guideline.</p> <p>Redbank confirm the information provided in the MMP is for 2 purposes:</p> <ul style="list-style-type: none"> (i) assess the economic potential of the tailings; and (ii) inform the rehabilitation strategy for the tailings. <p>Samples collected will be geologically logged. Assaying and metallurgical studies will comprise 4 acid digest using ICP-MS and sequential copper leach studies. The preferred assay method is ME-MS61. This assay method may change to a lesser assay suite dependent on initial results.</p>

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Section	Amendment
	<p>Sonic drill rigs do not use drilling fluids. This is the reason that the sonic rig is considered the most appropriate method of sampling the TSF. Therefore, a water extraction licence is not required for this project.</p> <p>No discharges and therefore no treatment or containment of water will be required.</p>
Section 8	Security calculation provided in Appendix 6.
Appendix 10	Addition of Appendix to provide details on the track mounted sonic drill rig.

Section 4 – Activities Proposed

Mining Interests (i.e. titles)	EL31316
Number and type of proposed drill holes	300
Maximum depth of proposed holes (m)	10 metres
Number and size of drill pads to be cleared (Length: m x Width: m)	Nil
Total area of drill pads to be cleared (ha)	Nil
Is drilling likely to encounter groundwater? (Y, N, unsure)	No
Number of costeans (Length: m x Width: m x Depth: m)	Nil
Number of bulk sample pits	Nil
Total bulk sample (tonnes) (Length: m x Width: m x Depth: m)	Nil
Bulk sample pits approved under <i>Mineral Titles Act</i> ? (Y or N)	N/A
Length of line/track clearing (km: x Width: m)	Nil
Camp area to be cleared (ha)	Nil
Camp Infrastructure (i.e. demountable, tents)	Nil
Previous disturbance yet to be remediated on title (ha) if known	Unknown
Other	Nil
Total area disturbed proposed (ha)	Nil

Section 5 – Previous Disturbance (for existing Authorisations only)

Mining Interests (i.e. titles)	EL	EL	EL	EL
Number/type of holes drilled				
Maximum depth of holes drilled (m)				
Number of holes remediated (i.e. plugged/capped)				
Number and size of drill pads cleared (Length: m x Width: m)				
Total area of drill pads cleared (ha)				
Total area of drill pads remediated (ha)				
Was groundwater encountered? (Y or N)				
Length of line/track cleared (Length: km x Width: m)				
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)				
Camp area/s remediated (ha)				
Total area disturbed (ha)				
Total area remediated (ha)				

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	N/A	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	N/A	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	N/A	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	N/A	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	N/A	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	✓	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	N/A	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	✓	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	N/A	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	✓	Drill holes will be securely capped immediately after drilling
6.11	✓	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	✓	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	✓	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	✓	Hydrocarbons will be stored in lined and bunded areas
6.15	✓	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals
6.16	✓	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	✓	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:

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	✓	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	✓	Drill samples/spoil returned down drill holes, buried in sumps, or removed from site
7.3	✓	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site
7.4	N/A	Re-contouring of cut and fill drill pads will be consistent with the surrounding terrain
7.5	N/A	Ripping/scarifying of drill pads, and compacted areas along the contour (on sloping ground) and cross-ripping (zig-zag) along tracks
7.6	N/A	Tracks will be remediated, including pushing in all windrows
7.7	✓	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur
7.8	N/A	All tracks will be remediated unless otherwise agreed in writing by the land holder or appropriate third party
7.9	✓	Access through watercourses will be removed and banks restored
7.10	✓	No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11	N/A	All excavations backfilled within 6 months of completion of drilling
7.12	N/A	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	✓	All rubbish and infrastructure will be removed from site
7.14	N/A	Replacement of topsoil and vegetation
7.15	✓	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be remediated or removed from site
7.16	✓	Monitoring will be undertaken following the wet season or a significant rainfall event




Justification and alternative management measures:

Section 8 – Required Attachments

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

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	19/09/2020	19/09/2020	19/09/2020
Name	Holly Edgar	Michael Hannington	Michael Hannington
Signature			

I, Michael Hannington, 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: 19 September 2020