

Mining Management Plan Exploration Activities

Section 1 – Project Details

Project Name	Ammaroo Phosphate Project
Authorisation Number	0609-4
Operator Name	Verdant Minerals Ltd
Location and Access Details	360 km north east of Alice Springs via the Sandover Highway and Murray Downs Rd. The camp and project is roughly 20km north west of the Ampilatwatja community.
Target Commodity Details	Rock Phosphate
Mining Activities	<p>Drill 28 new 6 or 8 inch core holes on previously cleared drill tracks next to and in-between previously drilled RC holes.</p> <p>Drill 50 new RC holes at 25m x 25m spacing next to and in-between existing drill lines and drill holes.</p>
Proposed Schedule	October-November 2020 depending on rig availability

Mining Interest and Land Ownership

Title Number	Title Holder	Expiry Date	Property Name or Land Holder
EL 31789	Territory Phosphate	14/08/2024	Ooratipra and Derry Downs
EL 31790	Territory Phosphate	14/08/2024	Elkedra Station
EL 24726	Territory Phosphate	31/03/2020	Ammaroo Station
EL 25184	Territory Phosphate	18/04/2021	Ammaroo Station

Organisational Structure

Position Title	Name
Managing Director	Chris Tziolis
Exploration Manager	Nigel Doyle
Chief Geologist	John Dunster
Environmental Manager	Nigel Doyle
Radiation Safety Officer	Nigel Doyle

Section 2 – Operator Self-Assessment of the Environmental Risk

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	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.	Refer to NT EPA Assessment Report 87 Refer to HSEC-POL-010 Flora & Fauna Policy.docx
Step 2: Are there any known declared weeds within the proposed work area?	YES	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).	Refer to NT EPA Assessment Report 87 Refer to Verdant Minerals Weed Management Policy
Step 3: Will you be using water from bores or other sources for the operation?	YES	<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>	We have registered bores and pre-existing bores on the project area Refer to NT EPA Assessment Report 87

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
Step 4: Is your project likely to have a significant impact on the environment?	YES	Refer to NT EPA Assessment Report 87 which includes 12 recommendations before mining can proceed
Step 5: Are there Aboriginal sacred sites in the Project area?	YES	We have an Exploration Agreement with the Central Land Council which details Sacred Site Management. Multiple Sacred Site Clearances and Community Consultation meetings have taken place since 2010. We have done AAPA register searches and are waiting for the CLC to provide AAPA with documentation to secure an Authority Certificate over the proposed mine area and associated mine infrastructure.
Step 6: Are there archaeological and heritage sites in the Project area?	NO	

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
	<p>On EL 25184:</p> <p>Drill 28 new 6C or 8C core holes (dependent on availability) on previously cleared drill lines. Core will be used for process route testing to produce a commercial quality phosphoric acid (two drill sections).</p> <p>Drill 50 new RC holes at 25m x 25m spacing along and within existing drill lines and drill holes (two grids of 25 holes each). This is to do some QA/QC and variography on closer spaced drill intervals to determine future mining reserve drilling or grade control drilling patterns.</p>
	In 2019 we had approval to drill 8C core hole but could only find a rig with capacity to drill 4C core holes. In 2020 we will drill 6C or 8C core depending on what gear is available at the time.
Water Resources	<p>Please note: We intend to drill 8 new water bores within the greater project area but outside our exploration licences. We have received written permission from the land owners and consulted with Water Resources regarding bore permits and bore completion reports. We are not seeking permission from DPIR as the bores are not on granted exploration licences and do not form part of this MMP. One bore will be pump tested for 7 days to gain aquifer properties and drawdown data for a revised project EIS. Five corridor bores are to prove water resources along our proposed rail and infrastructure corridor.</p>

Section 4 – Activities Proposed

Mining Interests (i.e. titles)	EL31790	EL31789	EL25184	EL24726
Number and type of proposed drill holes Conventional coring as opposed to diamond drilling No sumps or drill muds used			28 x 6C or 8C Core Holes 6C = 6 inch core 50 RC holes	
Maximum depth of proposed holes (m)			41	
Number and size of drill pads to be cleared (Length: m x Width: m)			0 Use existing access	
Total area of drill pads to be cleared (ha)				
Is drilling likely to encounter groundwater? (Y, N, unsure)			No	No
Number of costeans (Length: m x Width: m x Depth: m)				
Number of bulk sample pits				
Total bulk sample (tonnes) (Length: m x Width: m x Depth: m)				
Bulk sample pits approved under <i>Mineral Titles Act</i> ? (Y or N)				
Length of line/track clearing (km: 0.4 x Width: 5 m)			400m Most drill lines already exist The new 400m we will clear with our backhoe (blade up)	
Camp area to be cleared (ha)			0	
Camp Infrastructure (i.e. demountable, tents)			Existing camp	

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Mining Interests (i.e. titles)	EL31790	EL31789	EL25184	EL24726
Previous disturbance yet to be remediated on title (ha) if known				
Other				
Total area disturbed proposed (ha)			0.2ha	

Section 5 – Previous Disturbance (for existing Authorisations only)

Mining Interests (i.e. titles)	EL25184	EL24726	EL31789	EL31790
Number/type of holes drilled	92 DDH 2212 RC 35 AC 36 4C Core-2019	24 DDH 686 RC		62 RC - 2016 56 RC - 2019
Maximum depth of holes drilled (m)	130m	50m		57m
Number of holes remediated (i.e. plugged/capped)	All	All		All
Number and size of drill pads cleared (Length: m x Width: m)				0
Total area of drill pads cleared (ha)				n/a
Total area of drill pads remediated (ha)				n/a
Was groundwater encountered? (Y or N)	Yes in targeted water bores	No		No
Length of line/track cleared (Length: 19.6 km x Width: 6m)	19.6km	0.3km		0
Length of line/track remediated (Length: km x Width: m)				n/a

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Mining Interests (i.e. titles)	EL25184	EL24726	EL31789	EL31790
Number of costeans excavated (L: 4m x W: 0.6 m x D: 4 m)	13 Geotech	24 Geotech		
Number of costeans remediated	13	24		
Total bulk sample pits excavated (Length: x Width: x Depth: m)	6	2		
Total bulk sample pits remediated	4	2		
Camp area/s cleared (ha)	1ha	1ha		0
Camp area/s remediated (ha)		1 ha		
Total area disturbed (ha)	2 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	<input checked="" type="checkbox"/>	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	<input checked="" type="checkbox"/>	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	<input checked="" type="checkbox"/>	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	<input checked="" type="checkbox"/>	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	<input checked="" type="checkbox"/>	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	<input checked="" type="checkbox"/>	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	<input checked="" type="checkbox"/>	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	<input checked="" type="checkbox"/>	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses

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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:

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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	X	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	X	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

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7.10		No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11		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:

We have some erosion monitoring points which we are keeping an eye on and will bund as necessary.

We have rehabbed 6 of 8 bulk sample pits. The 2 remaining open pits are fenced and will remain open for investor viewing for an extended period of time.

Section 8 – Required Attachments

8.1	XX	Security Calculation Spreadsheet
8.2	X	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	<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

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8.6	X	Remediation Register (for existing Authorisations)
8.7	X	Photographs of remediation work
8.8	N/A	Radiation Management Plan (if applicable)
