

# Permit

Environmental Protection Act 1994

## Environmental authority EPML00928813

*This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.*

**Environmental authority number: EPML00928813**

**Environmental authority takes effect on 21 September 2018**

### Environmental authority holder(s)

Name(s)	Registered address
DGR GLOBAL LIMITED	Level 27 111 Eagle Street BRISBANE CITY QLD 4000

### Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 16: Mining gold ore	ML6622
Resource Activity, Schedule 2A, 16: Mining gold ore	ML3752
Resource Activity, Schedule 2A, 16: Mining gold ore	ML50099
Resource Activity, Schedule 2A, 16: Mining gold ore	ML3753
Resource Activity, Schedule 2A, 16: Mining gold ore	ML3741
Resource Activity, Schedule 2A, 16: Mining gold ore	ML3678
Resource Activity, Schedule 2A, 16: Mining gold ore	ML50291
Resource Activity, Schedule 2A, 16: Mining gold ore	ML50148
Resource Activity, Schedule 2A, 16: Mining gold ore	ML3749
Resource Activity, Schedule 2A, 16: Mining gold ore	ML50059
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Resource Activity, Schedule 2A, 16: Mining gold ore	ML50059

### Additional information for applicants

#### Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the Environmental Protection Act 1994 (EP Act).

#### Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website [www.qld.gov.au](http://www.qld.gov.au), using the search term 'duty to notify'.

#### Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or

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- b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
- c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the Sustainable Planning Act 2009 or an SDA Approval under the State Development and Public Works Organisation Act 1971), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Department of Environment and Science  
Delegate of the administering authority  
Environmental Protection Act 1994

**Enquiries:**  
Minerals Business Centre  
Department of Environment and Science  
Phone: 07 4222 5352  
Email: ESCairns@des.qld.gov.au

**Date issued: 21 September 2018**

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### Obligations under the Environmental Protection Act 1994

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)



**Conditions of environmental authority**

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

<b>Agency interest: General</b>	
<b>Condition number</b>	<b>Condition</b>
A1-1	This Environmental Authority permits activities associated with the care and maintenance of existing processing facilities, tailings and regulated waste storage facilities, ongoing maintenance of rehabilitation areas and further <b>rehabilitation</b> of previously mined areas, and low-risk exploration activities, but does not authorise the recommencement of any mineral processing activities (with the exception of small-scale (up to 1t per year) trials of tailings reprocessing). The extent of activities authorised by this <b>authority</b> is in accordance with the information contained within the Environmental Management Overview Strategy (EMOS) prepared for the mining leases dated February 2005.
A1-2	The conditions of this environmental authority are in force until a surrender of the authority is accepted, or an amendment is approved by the Department of Environment and Heritage Protection, pursuant to the <i>Environmental Protection Act 1994</i> .
<b>Financial assurance</b>	
A2-1	Provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority.
A2-2	The financial assurance is to remain in force until the administering authority is satisfied that no claim on the assurance is likely.  Note: Where <b>progressive rehabilitation</b> is completed and acceptable to the administering authority, progressive reductions to the amount of financial assurance will be applicable where <b>rehabilitation</b> has been completed in accordance with the <b>acceptance criteria</b> defined within this environmental authority.
<b>Maintenance of measures, plant and equipment</b>	
A3-1	The holder of this environmental authority must: <ul style="list-style-type: none"> <li>a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and</li> <li>b) maintain such measures, plant and equipment in a proper condition; and</li> <li>c) operate such measures, plant and equipment in a proper manner</li> </ul>
<b>Monitoring</b>	
A4-1	Record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.

A4-2	Where monitoring is a requirement of this environmental authority, ensure that an appropriately qualified person conducts all monitoring.
<b>Storage and handling of flammable and combustible liquids</b>	
A5-1	Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm (other than <b>trivial harm</b> ) and maintained in accordance with section 5.9 of AS 1940 – Storage and Handling of Flammable and Combustible Liquids of 1993.
<b>Rehabilitation</b>	
A6-1	All land significantly disturbed by mining activities conducted on mining tenement ML3748 remains the responsibility of the holder of this environmental authority and must be rehabilitated in accordance with the conditions of the environmental authority.
<b>Agency interest: Air</b>	
<b>Condition number</b>	<b>Condition</b>
<b>Dust nuisance</b>	
B1-1	Subject to conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any <b>sensitive place</b> .
B1-2	When requested by the Administering Authority, dust and particulate monitoring must be undertaken within reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any <b>sensitive place</b> , and the results must be notified within 14 days to the administering authority following completion of monitoring.
B1-3	<p>If the <b>environmental authority holder</b> can provide evidence through monitoring that the following limits are not being exceeded the holder is not in breach of (B1-1):</p> <ol style="list-style-type: none"> <li>a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of <b>ambient</b> air – Determination of particulates – Deposited matter – Gravimetric method of 1991; and</li> <li>b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (<math>\mu\text{m}</math>) (<math>\text{PM}_{10}</math>) suspended in the atmosphere of 150 micrograms per cubic metre over a 24-hour averaging time, at a <b>sensitive place</b> downwind of the operational <b>land</b>, when monitored in accordance with: <ul style="list-style-type: none"> <li>- <i>Particulate matter – Determination of suspended particulates PM10 high-volume sampler with size-selective inlet – Gravimetric method, when monitored in accordance with AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM(sub) 10 high volume sampler with size-selective inlet – Gravimetric method of 1990; or</i></li> </ul> </li> </ol> <p>Any alternative method of monitoring PM10 which may be permitted by the ‘Air Quality Sampling Manual’ as published from time to time by the administering authority.</p>

B1-4	<p>If monitoring indicates that the relevant limits in Condition (B1-3) are exceeded, then the environmental authority holder must:</p> <ul style="list-style-type: none"> <li>(a) Address the complaint including the use of appropriate dispute resolution if required; or</li> <li>(b) Immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.</li> </ul>																		
<b>Agency interest: Water</b>																			
<b>Condition number</b>	<b>Condition</b>																		
<b>Release to waters</b>																			
C1-1	Contaminants must not be release from the site to any <b>waters</b> of the bed and banks of any <b>waters</b> .																		
<b>Stormwater management</b>																			
C2-1	The must be no release of stormwater runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.																		
<b>Water monitoring</b>																			
C3-1	Receiving waters potentially affected by mining activities, and waters used to establish background levels, must be monitored at the location and frequencies defined in Table 1 and Figure 1 Shamrock Mine Water sampling Points, for parameters listed in Table 2.																		
	<p><b>Table 1 – (Water monitoring locations and frequency)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 70%;">Monitoring point</th> <th style="width: 30%;">Monitoring frequency</th> </tr> </thead> <tbody> <tr style="background-color: #cccccc;"> <td colspan="2">Background</td> </tr> <tr> <td><b>S1</b> – Interception of Black Snake Creek and Webb Road</td> <td>6 monthly or in the event of flow</td> </tr> <tr style="background-color: #cccccc;"> <td colspan="2">Potentially Impacted</td> </tr> <tr> <td><b>S3</b> – Seepage Dam</td> <td>6 monthly</td> </tr> <tr> <td><b>GM1</b> – Seepage Dam Borehole</td> <td>6 monthly</td> </tr> <tr> <td><b>S4</b> -Black snake Creek below seepage dam (Western side of Webb road)</td> <td>6 monthly or in the event of flow</td> </tr> <tr> <td><b>GM2</b> – Black Snake Creek Borehole (borehole between Black Snake Creek Road and the Tablelands Haul Road)</td> <td>6 monthly</td> </tr> <tr> <td><b>S6</b> – Black Snake Creek Causeway (northern side of Black Snake Road)</td> <td>6 monthly or in the event of flow</td> </tr> </tbody> </table>	Monitoring point	Monitoring frequency	Background		<b>S1</b> – Interception of Black Snake Creek and Webb Road	6 monthly or in the event of flow	Potentially Impacted		<b>S3</b> – Seepage Dam	6 monthly	<b>GM1</b> – Seepage Dam Borehole	6 monthly	<b>S4</b> -Black snake Creek below seepage dam (Western side of Webb road)	6 monthly or in the event of flow	<b>GM2</b> – Black Snake Creek Borehole (borehole between Black Snake Creek Road and the Tablelands Haul Road)	6 monthly	<b>S6</b> – Black Snake Creek Causeway (northern side of Black Snake Road)	6 monthly or in the event of flow
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<b>GM4</b> - Black Snake Creek Causeway Borehole (Black Snake Creek Road)	6 monthly
<b>S14</b> – Freshwater Dam Spillway (dam side of spillway)	6 monthly
<b>GM3</b> – Freshwater Dam Borehole (left side of road between Shamrock Pit and Freshwater Dam)	6 monthly
<b>S15</b> -Shamrock Pit	6 monthly
<b>FC1</b> – Flue Dust Cell 1. The lower bore below the contaminated flue dust cell.	6 monthly
<b>FC2</b> – Flue Dust Cell 2. The upper bore above the contaminated flue dust cell.	6 monthly
<b>S16</b> – Shamrock Tailings Dam	As per Table 3
<b>S17</b> – Tablelands Pit	6 monthly
<b>Potable Dam</b> – Dam used for site potable water. Located upstream of the Tailings Dam and adjacent to the Flue Dust Cell.	6 monthly
<b>S18</b> – The largest water body of the Manumbar Pits, 26km south of the Shamrock site.	6 monthly
<b>S19</b> – 500m upstream of the Manumbar East Pit in MiMi Creek	6 monthly
<b>S20</b> – 500m downstream of the Manumbar East Pit in MiMi Creek	6 monthly
<b>Fat Hen Creek</b> – Junction of Fat Hen Creek and the Wide Bay Highway.	6 monthly
<b>Creek near Tip Road, Kilkivan</b>	6 monthly
<b>Wide Bay Creek</b> – Junction of Wide Bay Creek and the Wide Bay Highway	6 monthly

<b>Table 2 (Water monitoring parameters and locations)</b>		
<b>Parameter</b>	<b>Units</b>	<b>Monitoring Point</b>
pH	pH Units	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Fat Hen Creek, Creek near Tip Road, Wide Bay Creek, Potable Dam
electrical conductivity	µS/cm	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Fat Hen Creek, Creek near Tip Road, Wide Bay Creek, Potable Dam

	<table border="1"> <tbody> <tr> <td>sulphate</td> <td>mg/L</td> <td>S4, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam</td> </tr> <tr> <td>arsenic</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam</td> </tr> <tr> <td>copper</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam</td> </tr> <tr> <td>molybdenum</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam</td> </tr> <tr> <td>selenium</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam</td> </tr> <tr> <td>cyanide (weak acid dissociable)</td> <td>mg/L</td> <td>S4, FC1, FC2, GM1</td> </tr> <tr> <td>cyanide (total)</td> <td>mg/L</td> <td>S4, S15, FC1, FC2, GM1</td> </tr> <tr> <td>total dissolved solids</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam</td> </tr> <tr> <td>zinc</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam</td> </tr> <tr> <td>cadmium</td> <td>mg/L</td> <td>S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam</td> </tr> </tbody> </table>	sulphate	mg/L	S4, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam	arsenic	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam	copper	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam	molybdenum	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam	selenium	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM2, GM3, GM4, Potable Dam	cyanide (weak acid dissociable)	mg/L	S4, FC1, FC2, GM1	cyanide (total)	mg/L	S4, S15, FC1, FC2, GM1	total dissolved solids	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam	zinc	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam	cadmium	mg/L	S1, S3, S4, S6, S14, S15, S17, S18, S19, S20, FC1, FC2, GM1, GM3, GM4, Potable Dam
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C3-3	<p>The holder of this environmental authority must arrange for a suitably qualified and experienced person to assess the suitability and adequacy of the water quality monitoring program required by C3-1 and provide a report detailing the findings of this assessment to the administering authority by 1 June 2006. The assessment must address, but not be limited to:</p> <ul style="list-style-type: none"> <li>(a) The suitability and adequacy of background monitoring points for surface and groundwater;</li> <li>(b) Proposed additional background monitoring points if considered necessary;</li> <li>(c) The relevance and suitability of all water quality locations listed in the "D'Aguilar Gold Water Management Programme – September 2000" (to be carried out in consultation with relevant community groups); and</li> <li>(d) The identification of additional monitoring points to those required by C3-1 to identify potential impacts on waters downstream of the mining activities that are the subject of this environmental authority.</li> </ul>																														
C3-4	<p>If the results of the assessment carried out for Condition (C3-3) indicate that additional monitoring points are required to adequately assess potential impacts of activities or water quality, these locations must be added to the list of monitoring points in Table 1 and monitored 6-monthly for relevant contaminants.</p>																														

<b>Tailings Dam Water Quality</b>																																																																																	
C4-1	<p>As a minimum, tailings dam waters must be monitored for the parameters and at the frequencies listed in Table 3. In the event that tailings dam water quality does not comply with the limits defined in this table, measures must be implemented to prevent access by all livestock and minimise access by native fauna.</p> <p style="text-align: center;"><b>Table 3 (Tailings dam water quality limits)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Quality characteristic</th> <th style="text-align: left;">Units</th> <th style="text-align: left;">Contaminant limit</th> <th style="text-align: left;">Monitoring frequency</th> </tr> </thead> <tbody> <tr><td>Aluminium</td><td>mg/L</td><td>5</td><td>6 monthly</td></tr> <tr><td>Arsenic</td><td>mg/L</td><td>0.5</td><td>6 monthly</td></tr> <tr><td>Calcium</td><td>mg/L</td><td>1000</td><td>6 monthly</td></tr> <tr><td>Cadmium</td><td>mg/L</td><td>0.01</td><td>6 monthly</td></tr> <tr><td>Copper</td><td>mg/L</td><td>0.5</td><td>6 monthly</td></tr> <tr><td>Fluoride</td><td>mg/L</td><td>2</td><td>6 monthly</td></tr> <tr><td>Mercury</td><td>mg/L</td><td>0.002</td><td>6 monthly</td></tr> <tr><td>Magnesium</td><td>mg/L</td><td>1000</td><td>6 monthly</td></tr> <tr><td>Lead</td><td>mg/L</td><td>0.02</td><td>6 monthly</td></tr> <tr><td>Molybdenum</td><td>mg/L</td><td>0.15</td><td>6 monthly</td></tr> <tr><td>Sulphate (SO42-) (mg/L)</td><td>mg/L</td><td>1000</td><td>6 monthly</td></tr> <tr><td>Selenium</td><td>mg/L</td><td>0.02</td><td>6 monthly</td></tr> <tr><td>Zinc</td><td>mg/L</td><td>20</td><td>6 monthly</td></tr> <tr><td>Nitrate</td><td>mg/L</td><td>400</td><td>6 monthly</td></tr> <tr><td>Nitrite</td><td>mg/L</td><td>30</td><td>6 monthly</td></tr> <tr><td>Total Dissolved Solids</td><td>mg/L</td><td>4000</td><td>6 monthly</td></tr> <tr><td>Electrical Conductivity</td><td>µS/cm</td><td>5970</td><td>Monthly (field)</td></tr> <tr><td>pH</td><td>unit</td><td>6.0 – 8.5 (range)</td><td>Monthly (field)</td></tr> <tr><td>Cyanide (weak acid dissociable)</td><td>mg/L</td><td>50</td><td>6 monthly</td></tr> </tbody> </table>	Quality characteristic	Units	Contaminant limit	Monitoring frequency	Aluminium	mg/L	5	6 monthly	Arsenic	mg/L	0.5	6 monthly	Calcium	mg/L	1000	6 monthly	Cadmium	mg/L	0.01	6 monthly	Copper	mg/L	0.5	6 monthly	Fluoride	mg/L	2	6 monthly	Mercury	mg/L	0.002	6 monthly	Magnesium	mg/L	1000	6 monthly	Lead	mg/L	0.02	6 monthly	Molybdenum	mg/L	0.15	6 monthly	Sulphate (SO42-) (mg/L)	mg/L	1000	6 monthly	Selenium	mg/L	0.02	6 monthly	Zinc	mg/L	20	6 monthly	Nitrate	mg/L	400	6 monthly	Nitrite	mg/L	30	6 monthly	Total Dissolved Solids	mg/L	4000	6 monthly	Electrical Conductivity	µS/cm	5970	Monthly (field)	pH	unit	6.0 – 8.5 (range)	Monthly (field)	Cyanide (weak acid dissociable)	mg/L	50	6 monthly
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Zinc	mg/L	20	6 monthly																																																																														
Nitrate	mg/L	400	6 monthly																																																																														
Nitrite	mg/L	30	6 monthly																																																																														
Total Dissolved Solids	mg/L	4000	6 monthly																																																																														
Electrical Conductivity	µS/cm	5970	Monthly (field)																																																																														
pH	unit	6.0 – 8.5 (range)	Monthly (field)																																																																														
Cyanide (weak acid dissociable)	mg/L	50	6 monthly																																																																														
<b>General</b>																																																																																	
C5-1	All determinations of the quality of contaminants in <b>waters</b> must be made in accordance with methods prescribed in the latest edition of the Department of Environment and Heritage Protection Monitoring and Sampling Manual, and carried out on samples that are <b>representative</b> .																																																																																
C5-2	A record of the results of the water monitoring, including background water quality monitoring, must be kept and forwarded to the administering authority on request, and in the format requested.																																																																																

<b>Erosion and Sediment Control</b>									
C6-1	Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.								
	Dams containing hazardous waste								
C7-1	<p>The design storage allowance on 1<sup>st</sup> November of each year for any dam containing <b>hazardous waste</b> constructed or operated within the operational <b>land</b> must comply with Table 4.</p> <p style="text-align: center;"><b>Table 4 ( Storage design* for dams containing hazardous waste)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Dam Name</th> <th style="width: 30%;">Design Storage Allowance** Critical Wet Period</th> <th style="width: 25%;">Spillway Critical Design Storm***</th> <th style="width: 20%;">Mandatory**** Reporting Level</th> </tr> </thead> <tbody> <tr> <td>Shamrock Tailings Dam</td> <td>502.7 mRL (2m freeboard)</td> <td>150mm in 1 hour</td> <td>503.4m RL (1.3m freeboard)</td> </tr> </tbody> </table> <p>Note: AEP means annual exceedance probability</p> <p>* Calculations are to be carried out in accordance with the “site Water Management” guideline in the Technical Guidelines for Environmental Management of Exploration and Mining in Queensland – DME 1995.</p> <p>** The design storage allowance on 1<sup>st</sup> November of each year for any dam containing hazardous waste constructed within the operational land must be equivalent to the run-off from the critical wet period plus process inputs for the period., Process inputs refers to hazardous mineral process waste and any water, which is being disposed of in the storage facility</p> <p>*** The critical storm has a duration that produces the peak discharge for the catchment.</p> <p>**** the level below spillway crest that can accommodate runoff from a 72 hour ARI storm, or the ARI wave allowance whichever level is lower.</p>	Dam Name	Design Storage Allowance** Critical Wet Period	Spillway Critical Design Storm***	Mandatory**** Reporting Level	Shamrock Tailings Dam	502.7 mRL (2m freeboard)	150mm in 1 hour	503.4m RL (1.3m freeboard)
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C1-5	The spillway for any dam containing hazardous waste, constructed or operated within the operational land must be designed and maintained to withstand the peak flow from the spillway critical design storm defined in Table 4.								
C1-6	The holder of the environmental authority must mark the <b>mandatory reporting level</b> defined in Table 4 on the spillway of all dams containing <b>hazardous waste</b> within the operational <b>land</b> .								
C1-7	The holder of the environmental authority must notify the administering authority when the pondage level of any dam containing <b>hazardous waste</b> , reaches the <b>mandatory reporting level</b> defined in Table 4.								

Agency interest: Noise and vibration																																																													
Condition number	Condition																																																												
<b>Noise Nuisance</b>																																																													
D1-1	Subject to Conditions (D1-2) and (D1-3) noise from the mining activity must not cause an environmental nuisance, at any <b>sensitive place</b> .																																																												
D1-2	When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive place, and the results must be notified within 14 days to the administering authority following completion of monitoring.																																																												
D1-3	<p>If the <b>environmental authority holder</b> can provide evidence through monitoring that the limits defined in the table in Table 5 are not being exceeded then the holder is not in breach of Condition (D1-1). Monitoring must include:</p> <ul style="list-style-type: none"> <li>(a) <math>L_A</math>, max adj, T</li> <li>(b) the level and frequency of occurrence of impulsive or tonal noise;</li> <li>(c) atmospheric conditions including wind speed and direction; and</li> <li>(d) location, date and time of recording.</li> </ul> <p style="text-align: center;"><b>Table 5: Noise limits</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Noise level dB(A) measured as</th> <th colspan="3">Monday to Saturday</th> <th colspan="3">Sundays and public holidays</th> </tr> <tr> <th>7am - 6pm</th> <th>6pm - 10pm</th> <th>10pm - 7am</th> <th>9am - 6pm</th> <th>6pm - 10pm</th> <th>10pm - 9am</th> </tr> </thead> <tbody> <tr> <td colspan="7"><b>Noise measured at a noise sensitive place</b></td> </tr> <tr> <td><math>L_{A10}</math>, adj, 10 mins</td> <td>b/g+5</td> <td>b/g+5</td> <td>b/g+0</td> <td>b/g+5</td> <td>b/g+5</td> <td>b/g+0</td> </tr> <tr> <td><math>L_{A1}</math>, adj, 10 mins</td> <td>b/g+10</td> <td>b/g+10</td> <td>b/g+5</td> <td>b/g+10</td> <td>b/g+10</td> <td>b/g+5</td> </tr> <tr> <td colspan="7"><b>Noise measured at a Commercial place</b></td> </tr> <tr> <td><math>L_{A10}</math>, adj, 10 mins</td> <td>b/g+10</td> <td>b/g+10</td> <td>b/g+5</td> <td>b/g+10</td> <td>b/g+10</td> <td>b/g+5</td> </tr> <tr> <td><math>L_{A1}</math>, adj, 10 mins</td> <td>b/g+15</td> <td>b/g+15</td> <td>b/g+10</td> <td>b/g+15</td> <td>b/g+15</td> <td>b/g+10</td> </tr> </tbody> </table> <p><i>NOTE: b/g means background noise level, and may be measured as <math>L_{A90,T}</math>.</i></p>						Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays			7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am	<b>Noise measured at a noise sensitive place</b>							$L_{A10}$ , adj, 10 mins	b/g+5	b/g+5	b/g+0	b/g+5	b/g+5	b/g+0	$L_{A1}$ , adj, 10 mins	b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5	<b>Noise measured at a Commercial place</b>							$L_{A10}$ , adj, 10 mins	b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5	$L_{A1}$ , adj, 10 mins	b/g+15	b/g+15	b/g+10	b/g+15	b/g+15	b/g+10
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D1-4	<p>If monitoring indicates exceedances of the limits in Table 5, then the environmental authority holder must:</p> <ul style="list-style-type: none"> <li>(a) address the complaint including the use of appropriate dispute resolution if required; or</li> <li>(b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.</li> </ul>																																																												
D1-5	The method of measurement and reporting of noise levels must comply with the latest edition of the Department of Environment and Heritage Protection Noise measurement Manual.																																																												

<b>Agency interest: Waste</b>	
<b>Condition number</b>	<b>Condition</b>
<b>Storage of tyres</b>	
E1-1	Tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options, should be stockpiled in volumes less than 3m in height and 200 sq.m in area and at least 10m from any other tyre storage area.
E1-2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre storage area.
<b>Flue Dust Containment Cell</b>	
E2-1	The flue dust containment cell must be covered with a minimum of a 500 mm thick layer of grass-covered topsoil, or a low permeability layer such as bitumen or concrete. The layer must be constructed and maintained to ensure that there is a barrier between site users and flue dust and to minimise the potential for contaminants to enter the environment due to remobilisation by wind and surface water and leaching by infiltrating surface water.
E2-2	No excavation or penetration of the approved capping may be carried out without written authorisation from the administering authority.
E2-3	All persons who are proposing to undertake construction or excavation works within the Shamrock Leases must, prior to the commencement of such works, be provided with a plan indicating the location of the flue dust containment cell, and be made aware of conditions of this authority.
E2-4	Unexpected Contamination. If during any site earthworks or excavation, offensive or noxious odours and/or evidence of contamination not previously detected is observed, site works must cease in that area and action must be taken to immediately abate the environmental harm. The administering authority is to be notified in writing within 2 business days of detection and advised of appropriate remedial action.  Any remedial action is to be developed by an appropriately qualified and experienced person in accordance with Section 565 of the <i>Environmental Protection Act 1994</i> .
E2-5	A site inspection is to be undertaken by a suitably qualified and experienced person at biennial intervals to ensure that capping and protective barriers associated with the flue dust containment cell remain in sound condition at all times in accordance with Condition (E2-1).
E2-6	Records are to be kept of all inspections conducted to satisfy Conditions (E2-5) and forwarded to the administering authority on request.

Agency interest: Land																
Condition number	Condition															
<b>Soil Excavation and Removal</b>																
F1-1	Any soil excavated from potentially contaminated areas on site must be analysed for contaminants of concern to determine if the material is contaminated. Excavated soil must be managed and disposed of/ reused in a manner determined appropriate based on the results of this analysis.															
F1-2	Sampling and analysis of soil from excavations in contaminated areas must be representative and managed by a suitably qualified and experienced person. Contaminated soil must not be removed off-site without a disposal permit in accordance with Section 424 of the Environmental Protection Act 1994.															
<b>Dams containing hazardous waste</b>																
F2-1	<p>The construction or operation of any dam containing hazardous waste within the operational land must comply with Table 6.</p> <p style="text-align: center;"><b>Table 6 (Size and purpose of dams containing hazardous waste)</b></p> <table border="1"> <thead> <tr> <th>Name of dam containing hazardous waste<sup>(1)</sup></th> <th>Maximum surface area of dam (ha)</th> <th>Maximum volume of dam (m<sup>3</sup>)</th> <th>Maximum depth of dam (cm)<sup>(2)</sup></th> <th>Purpose of dam<sup>(3)</sup></th> </tr> </thead> <tbody> <tr> <td>Shamrock Tailings Dam</td> <td>11.3</td> <td>450,000</td> <td>25</td> <td>Tailings Storage</td> </tr> </tbody> </table> <p>Note (1): The name of the dam containing hazardous waste should refer to the name of the dam e.g. process residue facility and decant dam.            Note (2): For dams, which do not require a dam wall, input the maximum void depth e.g. where dams are formed by excavating below the land surface or backfilling a residual void.            Note (3): Purpose of the dam should outline the designed function, e.g. "the permanent containment of tailings resulting from the extraction of nickel, cobalt and other metals at the XYZ Refinery".</p>	Name of dam containing hazardous waste <sup>(1)</sup>	Maximum surface area of dam (ha)	Maximum volume of dam (m <sup>3</sup> )	Maximum depth of dam (cm) <sup>(2)</sup>	Purpose of dam <sup>(3)</sup>	Shamrock Tailings Dam	11.3	450,000	25	Tailings Storage					
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Shamrock Tailings Dam	11.3	450,000	25	Tailings Storage												
F2-2	<p>Any dam containing hazardous waste constructed or operated within the operational land must be located within the control points defined in Table 7.</p> <p style="text-align: center;"><b>Table 7 (Location of dams containing hazardous waste)</b></p> <table border="1"> <thead> <tr> <th>Name of dam containing hazardous waste<sup>(1)</sup></th> <th>Latitude<sup>(4)</sup> (GDA 94)</th> <th>Longitude<sup>(4)</sup> (GDA 94)</th> </tr> </thead> <tbody> <tr> <td>Shamrock Tailings Dam</td> <td>427818 (Centre)</td> <td>7099865</td> </tr> <tr> <td>Shamrock Tailings Dam</td> <td>428008 (E Wall)</td> <td>7099800</td> </tr> <tr> <td>Shamrock Tailings Dam</td> <td>427625 (W Wall)</td> <td>7099880</td> </tr> <tr> <td>Seepage Dam</td> <td>427543 (Centre)</td> <td>7099943</td> </tr> </tbody> </table> <p><b>Note<sup>(4)</sup>:</b> A minimum of 3 control points is required to constrain the location of all activities associated with the dam containing hazardous waste. Additional infrastructure which</p>	Name of dam containing hazardous waste <sup>(1)</sup>	Latitude <sup>(4)</sup> (GDA 94)	Longitude <sup>(4)</sup> (GDA 94)	Shamrock Tailings Dam	427818 (Centre)	7099865	Shamrock Tailings Dam	428008 (E Wall)	7099800	Shamrock Tailings Dam	427625 (W Wall)	7099880	Seepage Dam	427543 (Centre)	7099943
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	forms part of any dam containing hazardous waste may include appurtenant works consisting of tailings discharge pipelines, seepage collection systems, runoff diversion bunds, containment systems, pressure release wells, decant and recycle water systems.
<b>Standards and Criteria</b>	
F2-3	The holder of the environmental authority must design, construct and operate all high-hazard dams containing hazardous waste in accordance with the Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste.
F2-3	The holder of the environmental authority must design, construct and operate all low-hazard dams containing hazardous waste and non-hazardous dams in accordance with the criteria outlined in Appendix B of the Code of Environmental Compliance for Mining Lease Projects.
<b>Inspection of Dams</b>	
F2-5	High hazard dams containing hazardous waste shall be inspected by a Registered Professional Engineer (RPEQ) on or about 1st October but definitely before 1 <sup>st</sup> November each year or at any time if alarming, unusual or otherwise unsatisfactory conditions are observed.
F2-6	For each inspection, the engineer shall assess the condition of the dam and its foundations determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.
F2-7	For each inspection, two copies of the engineer's report and any recommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the inspection.
<b>Decommissioning of Dam – Objective</b>	
F2-8	Dams containing hazardous waste must not be abandoned, must be decommissioned to a situation where water can no longer be stored in the dams and the dams and their contained waste(s) are stable, where after the dams are no longer dams and they become landforms on the operational land and must comply with the rehabilitation requirements of this Environmental Authority.
<b>Decommissioning of Dam – Documentation and Compliance</b>	
F2-9	Decommissioning activities for dams containing hazardous waste must be documented in detail in the plan of operations under which the activities are to occur. Where the detailed documentation is not already contained in the Design Plan for the dam, the detailed documentation is considered to be an amendment to the design plan and must be submitted as an amendment to the design plan required by the Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste.
<b>Exploration Activities</b>	
F3-1	Exploration activities carried out on the mining leases which are the subject of this environmental authority must, as a minimum, be carried out in accordance with the Code of Environmental Compliance for Exploration and Mineral Development Projects.



<b>Rehabilitation landform criteria</b>																															
F4-1	<p>The holder of this authority must develop and implement a Final Land Use and Rehabilitation Plan to ensure that all areas disturbed by mining activities will be suitably rehabilitated to achieve the final land use descriptions specified in Table 8. The Plan must include, but may not be limited to the following:</p> <ul style="list-style-type: none"> <li>(a) disturbance type;</li> <li>(b) disturbance area;</li> <li>(c) pre and post mine land descriptions;</li> <li>(d) pre mine and post mine land capability;</li> <li>(e) analogue site(s) identification;</li> <li>(f) a description of rehabilitation management techniques incorporating works and monitoring programs and timetables;</li> <li>(g) indicators for success; and</li> <li>(h) keeping of appropriate records of rehabilitation measures implemented including taking of photographs demonstrative of rehabilitation achieved and the preparation of annual rehabilitation progress reports. A summary of the annual rehabilitation progress report must be submitted to the administering authority with each annual return.</li> </ul> <p><i>NOTE: The Final Land Use and Rehabilitation Plan is to be managed through the Plan of Operations.</i></p>																														
F4-2	<p>The Final Land Use and Rehabilitation Plan required by Condition (F4-1) must ensure that rehabilitation will achieve the following objectives:</p> <ul style="list-style-type: none"> <li>(a) achieve a stable landform with a self-sustaining vegetation cover;</li> <li>(b) achieve final land contours that are consistent with surrounding land with respect to both slope (%) and vertical height; and</li> <li>(c) reinstate soil on rehabilitated areas to a depth that is consistent with surrounding land.</li> </ul>																														
F4-3	<p>On or before 31 December 2006, the holder of this authority must submit a copy of the Final Land Use and Rehabilitation Plan, as required by condition (F4-1), to the administering authority, and in finalising the plan must have due regard to comments made by the administering authority.</p>																														
F4-4	<p>Progressive rehabilitation must commence as soon as practicable when areas become available within the operational land.</p>																														
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			after being suitably capped to a depth of 2m (use fines from Shamrock waste rock dumps) **
	Shamrock Pit Void	3.4	Water storage with water quality to suitable for livestock use. *
	Waste Rock Dump	6.7	Option 1: Utilise as source of extractive rock (subject to obtaining required extractive industry approvals). Option 2: Native Ecosystem
	Topsoil Stockpiles	2.0	Grazing Pasture
	Freshwater Dam	5	Water quality suitable for livestock use.
	Laboratory Offices and Carpark	1	Grazing Pasture
	Roads	3	Roads – most roads will remain. Grazing pasture where roads are removed
	Drains	1.8	Grazing Pasture
	Sediment Traps	0.1	Water quality suitable for livestock use.
	Top Pad	2.25	Grazing Pasture
Tableland	Mine Excavation Void	2.0	Water storage with water quality to be suitable for livestock use
	Waste Rock Dump	2.4	Grazing Pasture
	Topsoil Stockpile	0.2	Grazing Pasture
	Clay Pit	0.7	Grazing Pasture
	Roads /Tracks	0.6	Roads/ Tracks
Manumbar	Mine Extraction area	2.5	Water storage with water quality to be suitable for livestock use. *
	Void Dump (ie. waste rock dumped in mined voids)	3.9	Open Woodland. Safe, stable and non-polluting
	Diversion Drains	0.3	Native Ecosystem
	Waste Rock Dumps	0.6	Open Woodland. Safe, stable and non-polluting
	Topsoil Stockpiles	0.2	Grazing Pasture
	Low Grade Stockpile	0.5	Grazing Pasture
	Roads /Tracks	4.4	Roads/ tracks Grazing pasture where roads are removed
	Silt Traps	1	Native Ecosystem
	Other Areas	1.7	Grazing Pasture
Golden Spur	All areas	2	Grazing Pasture

\* refer to condition (F7-1).

\*\* refer to condition (FB-1).

### Grazing pasture outcome

F5-1	<p>Areas which are rehabilitated to grazing pasture / open woodland must comply with the following outcomes;</p> <p>(a) generate a self-sustaining vegetation with projective cover, species composition and species distribution comparable to analogue sites;</p>
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	<p>(b) landforms are stable with rates of erosion comparable to analogue sites; and</p> <p>(c) measures of productivity (e.g. sustainable dry matter production, stock live weight gain) are comparable to analogue sites.</p>
<b>Native ecosystem outcome</b>	
F6-1	<p>Areas that are to be returned to a native ecosystem must comply with the following outcomes;</p> <p>(a) achievement of a self sustaining native ecosystem with a species composition and distribution determined appropriate by research of appropriate analogue sites. These vegetation species must be listed in the Final Land Use and Rehabilitation Plan; and</p> <p>(b) landforms are stable and have been reshaped as close as practicable to the aspect orientation of analogue sites.</p>
<b>Residual void outcome</b>	
F 7-1	<p>Residual voids must comply with the following outcomes;</p> <p>(a) residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this environmental authority;</p> <p>(b) sufficient measures must be taken to ensure that unhindered vehicular or public access is prevented (eg. installation of barriers set back from the edge of the pit); and</p> <p>(c) Residual voids must be safe and stable.</p>
<b>Tailings Deposition Areas</b>	
F8-1	<p>When the deposition of tailings to the tailings dam permanently ceases, the holder of this environmental authority must install a final cover system to the tailings dam which effectively minimises:</p> <p>(a) infiltration of water into the tailings deposition area; and</p> <p>(b) the likelihood of any erosion occurring to the final cover system.</p>
<b>Acid Rock Drainage Management</b>	
F9-1	<p>All reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to land or waters.</p>
<b>Acceptance Criteria</b>	
F10-1	<p>Prior to surrendering this authority; an investigation into rehabilitated areas and residual voids must be conducted and a report submitted to the administering authority proposing acceptance criteria to meet the outcomes specified in conditions (F5-1), (F6-1) and (F7-1), (F8-1) and (F9-1) and the relevant landform design criteria specified in Tables 8 and 9 and the Final Land Use Rehabilitation Plan.</p>

<b>Infrastructure</b>	
F11-1	All Infrastructure, constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining land owner holder.
<b>Agency interest: Community</b>	
Condition number	Condition
<b>Complaint Response</b>	
G1-1	All complaints received must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

### Definitions

Key terms and/or phrases used in this document are defined in this section and **bolded** throughout this document. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

**'acceptance criteria'** means the measures by which actions implemented are deemed to be complete. The acceptance criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the mining activities. Acceptance criteria may include information regarding:

- stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;
- control of geochemical and contaminant transport processes;
- quality of runoff waters and potential impact on receiving environment;
- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the recolonization of specific fauna groups such as collembolan, mites and termites which are involved in these processes;
- microbiological studies including recolonization by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

**'airblast overpressure'** means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

**'ambient (or total) noise'** at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

**'authority'** means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

**'blasting'** means the use of explosive materials to fracture:

- rock, coal and other minerals for later recovery, or
- structural components or other items to facilitate removal from a site or for reuse.

**'commercial place'** means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land.

**'competent person'** means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

**'dam'** means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

**'design plan'** in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste" to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms procedures, works and outcomes at the end of dam life. The documents can include design and investigation reports, drawings, specifications and certifications.

**'environmental authority holder'** means the holder of this environmental authority.

**'flowable substance'** means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

**'foreseeable future'** is the period used for assessing the total risk of an event occurring . Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable risk of failure before that time.

**'hazardous waste'** means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

**'infrastructure'** means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include other facilities required for the long term management of mining impacts or the protection of potential resources. Such other facilities include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings as well as other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

**' $L_{A, 10, adj, 10 min}$ '** means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

**' $L_{A1, adj, 10 min}$ '** means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response

**' $L_{A, max adj, T}$ '** means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

**'land'** in the "land schedule" of this document means land excluding waters and the atmosphere.

**'land capability'** as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**'land suitability'** as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**'land use'** term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

**'leachate'** means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

**'mandatory reporting level'** means the level below the spillway crest, equivalent to the lower of the 72 hour ARI storm or the ARI wave allowance whichever level is lower.

**'noxious'** means harmful or injurious to health or physical well being, other than trivial harm.

**'non-standard'** means a mining operation that if in the opinion of the administering authority does not have a low risk of serious environmental harm and the activities can not comply with the criteria for standard mining activities prescribed in schedule 1A of the *Environmental Protection Regulation 1998*. The standard mining activity trigger criteria are as follows;

- the mining activities do not or will not cause more than 10 ha of land to be significantly disturbed at any one time;
- the mining activities do not or will not cause more than 5 ha of land to be significantly disturbed at any one time;
  - (a) in a riverine area;
  - (b) because of mine workings;
- the mining activities are not or will not be carried out in, or within 2 km of a category A Environmentally Sensitive Area;
- the mining activities are not or will not be carried out in, or within 1 km of a category 8 environmentally sensitive area;
- the mining activities do not include a level 1 environmentally relevant activity
- no more than 20 persons are carrying out or will, at any one time, carry out the mining activities;

**'offensive'** means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

**'peak particle velocity (ppv)'** means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms<sup>-1</sup>).

**'protected area'** means - a protected area under the *Nature Conservation Act 1992*; or a marine park under the *Marine Parks Act 2004*; or a World Heritage Area.

**'progressive rehabilitation'** means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

**'rehabilitation'** the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

**'representative'** means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

**'residual void'** means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

**'self sustaining'** means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

**'significant disturbance'** -includes land

- (a) if it is contaminated land; or
- (b) it has been disturbed and human intervention is needed to rehabilitate it.
  - I. to a state required under the relevant environmental authority; or

- II. If the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases; areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

**‘sensitive place’** means

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel;
- or an educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
- a public park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes which is not part of the mining activity and does not include employees accommodation or public roads.

**‘stable’** means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

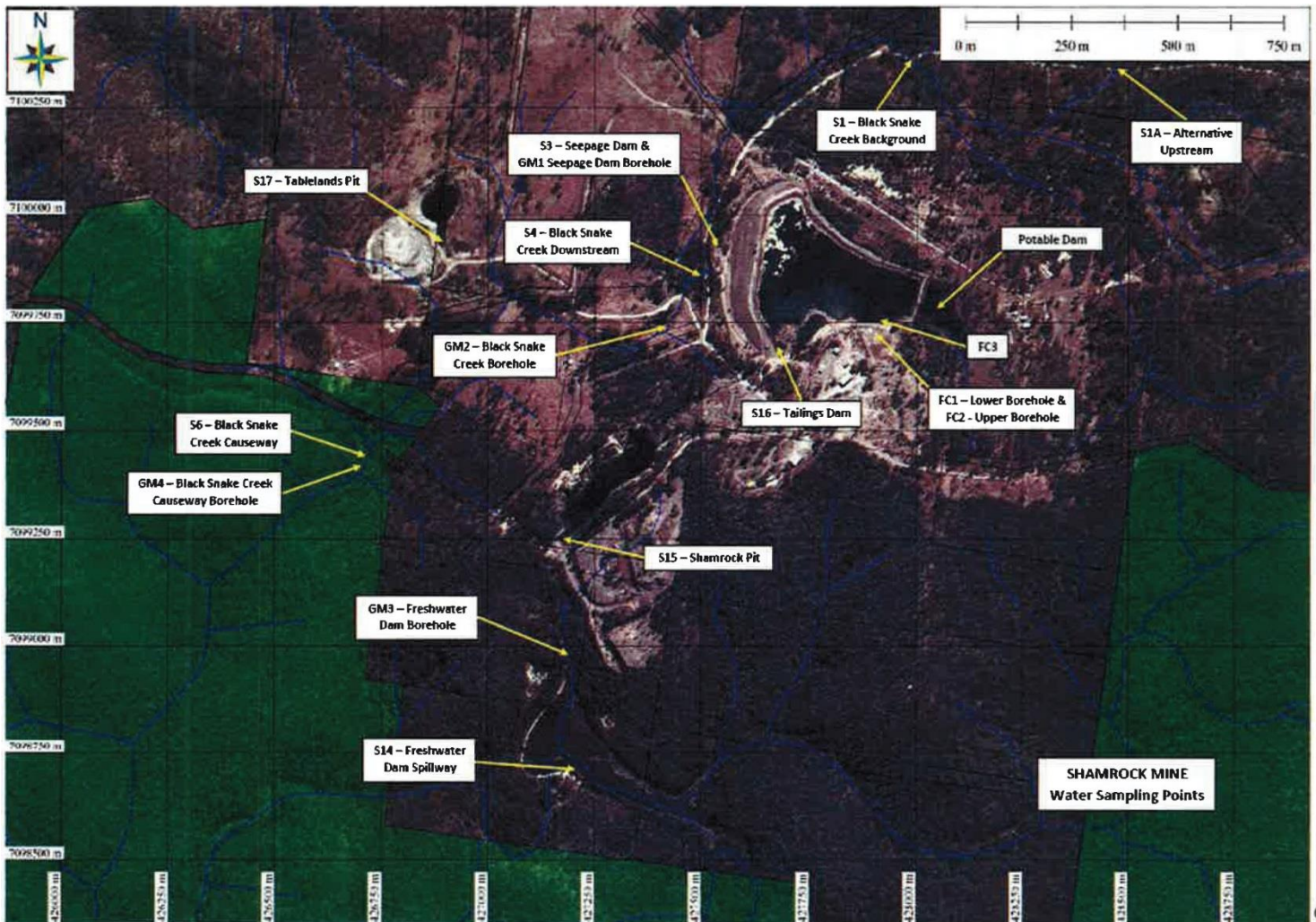


**‘tolerable limits’** means that a range of values could be accepted to achieve an overall environmental management objective (eg a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).

**‘trivial harm’** means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than \$5,000.

**‘waters’** - includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater or any part thereof

Figure 1 - Shamrock Mine Water Sampling Points



END OF PERMIT