# Permit

Environmental Protection Act 1994

## Environmental authority EPML00851313

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

### Environmental authority number: EPML00851313

**Environmental authority takes effect on 24 December 2018**

### Environmental authority holder(s)

| Name(s) | Registered address |
|---|---|
| Mount Margaret Mining Pty Ltd | Level 44 I Macquarie Place SYDNEY NSW 2000 Australia |

### Environmentally relevant activity and location details

| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Resource Activity, Schedule 2A, 16: Mining gold ore | ML90199 |
| Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives | ML90229 |
| Resource Activity, Schedule 2A, 16: Mining gold ore | ML90228 |
| Resource Activity, Ancillary 08 - Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) | ML90228 |
| Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives | ML90198 |
| Resource Activity, Ancillary 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML90198 |
| Resource Activity, Ancillary 56 - Regulated Waste Storage, Receiving and storing regulated waste | ML90229 |



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| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Resource Activity, Schedule 2A, 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18 | ML90157 |
| Resource Activity, Schedule 2A, 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18 | ML90229 |
| Resource Activity, Schedule 2A, 17: Mining copper ore | ML7122 |
| Resource Activity, Schedule 2A, 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18 | ML90199 |
| Resource Activity, Schedule 2A, 17: Mining copper ore | ML90199 |
| Resource Activity, Ancillary 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML90157 |
| Resource Activity, Schedule 2A, 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18 | ML90198 |
| Resource Activity, Schedule 2A, 17: Mining copper ore | ML90198 |
| Resource Activity, Ancillary 08 - Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) | ML90198 |
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|---|---|
| Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives | ML7122 |
| Resource Activity, Ancillary 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML7122 |
| Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives | ML90228 |
| Resource Activity, Ancillary 56 - Regulated Waste Storage, Receiving and storing regulated waste | ML90228 |
| Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives | ML90157 |
| Resource Activity, Schedule 2A, 14: Mining iron ore | ML7122 |
| Resource Activity, Schedule 2A, 16: Mining gold ore | ML7122 |
| Resource Activity, Ancillary 60 - Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (a), (d) more than 200,000t | ML7122 |
| Resource Activity, Ancillary 56 - Regulated Waste Storage, Receiving and storing regulated waste | ML7122 |
| Resource Activity, Ancillary 60 - Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (a), (d) more than 200,000t | ML90199 |
| Resource Activity, Ancillary 56 - Regulated Waste Storage, Receiving and storing regulated waste | ML90199 |
| Resource Activity, Ancillary 60 - Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (a), (d) more than 200,000t | ML90228 |
| Resource Activity, Schedule 2A, 14: Mining iron ore | ML90228 |
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| Resource Activity, Schedule 2A, 17: Mining copper ore | ML90229 |
| Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML90228 |
| Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML90199 |
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| Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML90198 |
| Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no- | ML7122 |

| Environmentally relevant activity/activities | Location(s) |
|---|---|
| release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | |

**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, 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
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.



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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.

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

**Date issued: 24 December 2018**

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

**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)

**Schedule of Conditions**

This **environmental authority** incorporates the following schedules:

- Schedule A - General
- Schedule B - Air
- Schedule C - Land
- Schedule D - Regulated Dams
- Schedule E - Waste
- Schedule F - Noise and Vibration
- Schedule W - Water
- Schedule J - Sewage Treatment
- Schedule H - Definitions
- Schedule I - Maps/Plans

## SCHEDULE A - GENERAL

### Activity

(A1) This environmental authority authorises environmental harm caused by the carrying out of the mining activities in accordance with the conditions of this environmental authority. Where a condition in this environmental authority refers to environmental harm the condition is taken to authorise the environmental harm occurring in compliance with the condition. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising environmental harm.

(A2) In carrying out the mining activity the holder of the environmental authority must comply with Schedule I - Figure 2 (Site Map - Mount Margaret E1 Area) and Figure 3 (Site Map - Monakoff Area).

### Maintenance of Measures, Plant and Equipment

(A3) The holder of this environmental authority must:

(a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
(b) Maintain such measures, plant and equipment in a proper and efficient condition;
(c) Operate such measures, plant and equipment in a proper and efficient manner; and
(d) All instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority must be calibrated, and appropriately operated and maintained.

(A4) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm.

(A5) Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.

(A6) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.

(A7) All analyses, monitoring and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses, monitoring and tests, except as otherwise authorised by the administering authority.

(A8) The holder of this environmental authority must upon request from the administering authority, supply monitoring records, plans and reports in the form and by the means requested by the administering authority within fourteen days.

### Financial assurance

(A9) Prior to the commencement of mining activities under this environmental authority, the holder of this environmental authority must provide a financial assurance of an amount determined by the administering authority in accordance with the most recent edition of the administering authorities Guideline – *Financial assurance for mining activities*, and in a form acceptable to the administering authority.

(A10) The amount of financial assurance may be reviewed by the administering authority when a plan of operations is amended or replaced, the environmental authority is amended or new information is obtained from an audit or other sources.

(A11) The financial assurance must remain in force until the administering authority is satisfied no claim on the financial assurance will be required.

**Risk management**

(A12) The holder of this environmental authority must develop and implement an environmental risk management system for mining activities.

**Emergency Response / Contingency**

(A13) An emergency response/contingency plan must be developed, and implemented to respond to emergency events and incidents.

(A14) The emergency response/contingency plan required under condition (A13) must address the following matters as a minimum:

(a) Response procedures to be implemented to prevent or minimise the risk of environmental harm arising from incidents;
(b) Response procedures to minimise the extent and duration of environmental harm caused by an incident;
(c) The practices and procedures to be employed to restore the environment or mitigate any environmental harm caused by an incident;
(d) The resources to be used in response to an incident;
(e) Procedures to investigate the cause of any incidents, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events;
(f) The provision and availability of documented procedures to staff attending any incident to enable them to effectively respond;
(g) Training of staff that will be called upon to respond to incidents to enable them to effectively respond;
(h) Timely and accurate reporting of the circumstance and nature of incidents to the administering authority in accordance with conditions of this environmental authority;
(i) Procedures for accessing monitoring points during incidents; and
(j) Procedures to notify any potentially impacted stakeholder who may be affected by the event within 24 hours, with information to be provided at a minimum:
    i. the location of any release;
    ii. the date and time of any release;
    iii. the estimated quantity and type of any substances (if available concentrations) involved in any incident;
    iv. the potential impacts to environmental values caused by any release.

**Notification of Emergencies, Incidents and Exceptions**

(A15) The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

(A16) Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

(a) results and interpretation of any samples taken and analysed;
(b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and
(c) proposed actions to prevent a recurrence of the emergency or incident.

A longer timeframe for the further written advice may be granted with agreement from the administering authority.

**Complaints**

(A17) Records must be kept of all environmental complaints received about the mining activities including the following details:

(a) Name, address and contact number for complainant;
(b) Time and date of complaint;
(c) Reasons for the complaint;
(d) Investigations undertaken;
(e) Conclusions formed;
(f) Actions taken to resolve complaint;
(g) Any abatement measures implemented; and
(h) Person responsible for resolving the complaint.

This information must be made available for inspection by the administering authority on request.

(A18) When requested by the Administering Authority, the holder of this Environmental Authority must undertake relevant specified monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm which is non-vexatious and non-frivolous in the opinion of an authorised officer under the *Environmental Protection Act 1994*. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within fourteen days of completion of the investigation, and no later than fourteen days after the end of the timeframe nominated by the administering authority to undertake the investigation.

**Community**

(A19) The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners reasonably expected to be affected by the activities to ensure that social and cultural heritage impacts are identified and managed. This must include but not be limited to the following:

(a) Facilitating regular meetings open to all relevant stakeholders; or
(b) The establishment of a consultative committee with representation open to all relevant stakeholders that meets at regular intervals as determined by the committee.

**Third party auditing**

(A20) The holder of this environmental authority must:

(a) within 1 year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;
(b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and
(c) provide each report to the administering authority within 90 days of its completion.

**Light emission**

(A21) In the event of a complaint which, after investigation, is considered to be non-vexatious and non-frivolous in the opinion of an authorised officer under the *Environmental Protection Act 1994*, and concerns light from any mining activity that is causing a nuisance at a sensitive place, the administering authority may request the holder to take appropriate action to mitigate the nuisance. The holder of this environmental authority must take appropriate action (e.g. by screening or directing the light away from residences or public roads) within any reasonable time set by the administering authority.

**Exploration**

(A22) All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the most recent version of the Code of Environmental Compliance for exploration and mineral development projects.

**Transition to new Standards**

(A23) Where a condition requires compliance with a standard published externally to this environmental authority and the standard is amended or changed subsequent to the issues of this environmental authority, then the holder of this Environmental Authority must:

(a) Until compliance with the amended or changed standard can be achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change; and
(b) Comply with the amended or changed standard within 2 years, unless a different period is specified in the amended standard or relevant legislation.

**Definitions**

(A24) Words and phrases used throughout the environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in the environmental authority is sought and the term is not defined within the environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

END OF CONDITIONS FOR SCHEUDLE A

## SCHEDULE B - AIR

### General

(B1) The release of noxious or offensive odour or any other airborne contaminant resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.

(B2) The holder of this environmental authority must ensure that vehicles (including trains) used for transporting bulk materials from the mining tenement, leave the site with appropriate load preparation to prevent the spillage and / or loss of particulate matter and / or windblown dust during transport.

(B3) The holder of this environmental authority must implement and maintain dust control procedures that incorporate a program for continuous improvement for the management of dust resulting from the mining activities.

(B4) The holder of this environmental authority must, once every year from the commencement of this environmental authority, conduct a review of its dust control and monitoring procedures. Within 6 weeks of the completion of the review, a report detailing the review's outcomes must be given to the administering authority and implemented promptly if required.

### Dust and Particulate Monitoring

(B5) When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within fourteen days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place.

(B6) Dust and particulate matter must not exceed the following levels when measured at any sensitive or commercial place:

(a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the Australian Standard AS3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method*.

(b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM (sub) 10 high volume sampler with size-selective inlet – Gravimetric method* or any alternative method of sampling PM10 which maybe permitted by the "Air Quality Sampling Manual" as published from time to time by the administering authority.

(c) A concentration of particulate matter suspended in the atmosphere of 90, micrograms per cubic metre over respectively a one year, , when monitored in accordance with AS/NZS3580.9.3:2003 *Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method*.

(B7) If monitoring indicates the limits in condition (B6) have been exceeded, the holder of this environmental authority must promptly implement dust abatement measures so that emissions of dust generated by the mining activities cease to exceed the limits in condition (B6).

### Background Dust and Particulate Matter Monitoring

(B8) The holder of this environmental authority must develop and implement a background dust deposition monitoring program before commencement of mining operations. The program must be able to detect a

significant change to dust deposition to sensitive receptors due to activities that are part of this mining activity.

(B9) The program must include, but not be limited to, the details as specified in Schedule B - Table 1 (Background Dust and Particulate Matter Monitoring).

(B10) The holder of this environmental authority must report the results and analysis of dust and particulate matter monitoring to the administering authority on request.

**Schedule B - Table 1 (Background Dust and Particulate Matter Monitoring)**

| Air Quality Determination | Sample Point | Location (GDA94) | | Monitoring Point Description |
|---|---|---|---|---|
| | | Easting (m) | Northing (m) | |
| Dust Deposition [total solids ($g/m^2$/ month)] | CD01 | 464281 | 7753642 | North West Agricultural Precinct |
| | CD02 | 476341 | 7752826 | |
| | CD03 | 479925 | 7752079 | |
| | DU35 | 468964 | 7754373 | |
| | DU36 | 472321 | 7754373 | |
| | AD01 | 476093 | 7741204 | Mount Margaret Mining – E1 |
| | AD02 | 479249 | 7741390 | |
| | AD03 | 481167 | 7741173 | |
| | AD04 | 480301 | 7739286 | |
| | AD05 | 480774 | 7736028 | |
| | AD06 | 479615 | 7737173 | |
| | BD01 | 467150 | 7721533 | Mount Margaret Mining - Monakoff |
| | BD02 | 468998 | 7719858 | |
| | BD03 | 473573 | 7720117 | |
| | BD04 | 469389 | 7718468 | |

(B11) The holder of this environmental authority must before commencement of full mining operations establish and maintain a permanent meteorological station to continuously measure and record wind speed, wind direction, temperature, daily rainfall volume and rainfall intensity.

**Point source release of contaminants to the atmosphere**

(B12) Contaminants must not be released to the atmosphere from any diesel powered generator other than in accordance with the manufacturers specifications.

**North-West Agricultural Monitoring**

(B13) The holder of this environmental authority must also design and implement a dust monitoring program:

(a) for the deposition, due to activities resulting from this mining activity, of dust and metals that can have a significant impact on cattle;
(b) with any monitoring point(s) location for the monitoring program outside of the authorised mining tenements to be located on Lot 1 on Plan GR45;
(c) which must, prior to the commencement of pre stripping, define existing background conditions;
(d) which is able to detect an increase above those existing background conditions; and
(e) which is to be prepared by an independent and experienced suitably qualified person.

(B14) The holder of this environmental authority must report the results and analysis of monitoring required by condition (B13), to the administering authority on request or in a replacement or amendment to the Plan of Operations.

END OF CONDITIONS FOR SCHEDULE B

## SCHEDULE C - LAND & REHABILITATION

### General

(C1) Contaminants that will or may cause environmental harm must not be directly or indirectly released to land except as permitted under this environmental authority.

(C2) Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must be cleaned up using dry methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system, roadside gutter or waters.

### Rehabilitation Objectives

(C3) Land disturbed by mining must be rehabilitated in accordance with Schedule C - Table 1 (Rehabilitation Requirements).

### Schedule C - Table 1 (Rehabilitation Requirements)

| Mine Domain and tenure | Mine Feature Name | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|
| Mount Margaret Project Area | | Safe, non-polluting, stable and self sustaining | In accordance with condition (C6) and the post mine land use plan required under condition (C11) | Compliance with condition (C7) and the post mine land use plan required under condition (C11) | In accordance with condition (C8) and the post mine land use plan required under condition (C11) |
| ML 90157<br>ML 90199 | North PAF Waste Rock Dump | | | | |
| | East NAF Waste Rock Dump | | | | |
| | West NAF Waste Rock Dump | | | | |
| | E1 North Pit | | | | |
| | E1 East Pit | | | | |
| | E1 South Pit | | | | |
| | Pit Dewatering Evaporation Dam | | | | |
| | E1 Roads and Tracks | | | | |
| | E1 Topsoil Stockpiles | | | | |
| | Laydown Area | | | | |
| | E1 Explosives Magazine | | | | |
| | Ancillary infrastructure (E1) | | | | |
| | Admin. & Offices | | | | |
| | E1 ROM Pad | | | | |
| | General Waste Disposal Area | | | | |
| | Explosive Batch Plant | | | | |
| | Pipeline | | | | |
| | Borrow Pits and Stockpiles | | | | |
| | E1 Water Dam | | | | |
| | E1 ROM Pad Stormwater Control Pond | | | | |
| | North PAF Monitoring Basin | | | | |
| | Facilities Sediment Basin | | | | |
| | East NAF WRD Sediment Basin | | | | |
| | Western WRD Sediment Basin | | | | |
| | Diversion Drains | | | | |
| | Exploration pads and tracks | | | | |

| Mine Domain and tenure | Mine Feature Name | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|
| Monakoff Project Area | | | | | |
| ML 7122<br>ML 90198 | Monakoff Waste Rock Dump | Safe, non-polluting, stable and self sustaining | In accordance with condition (C6) and the post mine land use plan required under condition (C11) | Compliance with condition (C7) and the post mine land use plan required under condition (C11) | In accordance with condition (C8) and the post mine land use plan required under condition (C11) |
| | Monakoff Pit | | | | |
| | Topsoil Stockpile | | | | |
| | ROM Transfer Pad | | | | |
| | Workshop, Offices & Facilities | | | | |
| | Monakoff Roads and Tracks | | | | |
| | Monakoff East Pit | | | | |
| | Monakoff East West Pit | | | | |
| | Monakoff East Topsoil Stockpile | | | | |
| | Monakoff East Waste Rock Dump | | | | |
| | Monakoff East ROM Transfer Pad | | | | |
| | Borrow Pits and Stockpiles | | | | |
| | Site Water Dams | | | | |
| | Sediment Ponds | | | | |
| | Exploration pads and tracks | | | | |
| Corridors | | | | | |
| ML90228<br>ML90229 | Water Pipeline | | | | |
| | Mt. Margaret / Monakoff Haul Road (assume 40 m wide) | | | | |
| | Road Borrow Pits and Stockpiles | | | | |

(C4) Rehabilitation must progressively commence as areas become available and in accordance with the Plan of Operations.

(C5) Rehabilitated areas must be managed to minimise the proliferation of species not consistent with rehabilitation objectives.

(C6) All land subject to mining activities must be rehabilitated to:

(a) a stable landform and with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;
(b) a safe landform, which is non-polluting, geo-chemically and geo-technically stable.
(c) ensure that the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance by mining activities; and
(d) ensure that the water quality of any residual void or water bodies constructed by mining activities meets criteria for subsequent uses and does not have potential to cause environmental harm.

(C7) Maintenance of rehabilitated areas must take place to ensure and demonstrate:
(a) stability of landforms;
(b) erosion control measures remain effective;
(c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;
(d) plants show healthy growth and recruitment is occurring; and
(e) rehabilitated areas are free of any declared pest plants.

(C8) Rehabilitation can be considered successful when:
(a) the site can be managed for its designated land-use (e.g. similar to that of surrounding undisturbed areas);

(b) no greater management input than for other land in the area being used for a similar purpose is required and there is evidence that the rehabilitation has been successful for at least three (3) years;
(c) the rehabilitation is carried out in accordance with the goals, objectives indicators and completion criteria as specified in Schedule C - Table 1 and in the Post Mine Land Use Plan; and
(d) written agreement is obtained from the landowner/holder and administering authority.

**Topsoil**

(C9) Topsoil and subsoils must be stripped and stockpiled ahead of mining to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

(C10) Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release contaminants. Measures must include:

(a) Vegetating stockpiles;
(b) Minimising the height of stockpiles: and
(c) Re-using stockpiles as soon as possible.

**Post Mine Land Use Plan**

(C11) The holder of this environmental authority must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP) with the initial Plan of Operations and update and resubmitted the plan with each subsequent Plan of Operations. The PMLUP must describe how the rehabilitation objectives in Schedule C - Table 1 (Rehabilitation Requirements) will be achieved. The Post Mine Land Use Plan must include:

(a) Schematic representation of final land form inclusive of drainage features;
(b) Slope designs;
(c) Cover design;
(d) Drainage design;
(e) Erosion controls proposed on reformed land;
(f) Description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;
(g) Proposed revegetation methods inclusive of plant species selection, re-profiling, respreading soil, soil ameliorants/amendments, surface preparation and method of propagation;
(h) Materials balance including available top soil and low permeability capping material ;
(i) Geotechnical, geochemical and hydrological studies;
(j) Chemical, physical and biological properties of soil and water; and
(k) A rehabilitation monitoring program.

**Rehabilitation Monitoring Program**

(C12) A rehabilitation monitoring program must be developed and be implemented on commencement of rehabilitation identified in Schedule C - Table 1(Rehabilitation Requirements) by a person nominated by the holder of this environmental authority possessing appropriate qualifications and experience in the field of mine site rehabilitation.

(C13) The holder of this environmental authority must conduct rehabilitation monitoring in accordance with the program developed in condition (C12) on at least a yearly basis which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.

(C14) Verification of rehabilitation success is to be carried for each domain. Monitoring must be carried out at a minimum sampling intensity for sufficient replication to occur that enables statistical analysis of results at an acceptable power.

**Post Closure Management Plan**

(C15) A Post Closure Management Plan for the site must be prepared at least 18 months prior to final production onsite and implemented for a nominal period of:

(a) At least thirty (30) years following final production on site; or
(b) A shorter period if the site is proven to be geo-technically and geo-chemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm and be prepared at least 6 months prior to final production onsite.

(C16) The Post Closure Management Plan must include the following elements:

(a) Operation and maintenance of:
    (i) Wastewater collection and reticulation systems;
    (ii) Wastewater treatment systems;
    (iii) The groundwater monitoring network;
    (iv) Final cover systems; and
    (v) Vegetative cover.
(b) Monitoring of:
    (i) Surface water quality;
    (ii) Groundwater quality;
    (iii) Seepage rates;
    (iv) Erosion rates;
    (v) The integrity and effectiveness of final cover systems;
    (vi) The health and resilience of vegetative cover.

**Infrastructure**

(C17) All buildings, structures, mining equipment and plant erected and/or used for the mining activities must be removed from the site prior to surrender, except where agreed in writing by the administering authority and the landowner.

**Chemicals and Flammable or Combustible Liquids**

(C18) All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, *flammable or combustible* liquids and dangerous goods must be stored and handled in accordance with the, relevant Australian Standard where such is applicable.

(C19) Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

(C20) Where no relevant Australian Standard is available, the following must be applied:

(a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
(b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

(C21) All containment systems must be designed to minimise rainfall collection within the system.

**Pest Management**

(C22) In carrying out the mining activities the holder of this environmental authority must develop and implement an effective pest management program before commencement of full mining operations that includes but is not limited to the following:

(a) identification of pest species and infestation areas within the mining leases;
(b) prevents and/or minimises the introduction and/or spread of pests as a result of mining activities; and
(c) control and management of pest outbreaks as a result of mining activities including measures to ensure that all vehicle movements are controlled to prevent the spread of declared weeds; and
(d) strategies to prevent introduction of declared weeds to the mine site and surrounding areas.

(C23) A copy of the pest management program must be made available to the administering authority on request.

**Contaminated Land**

(C24) Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.

(C25) Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition (C3).

(C26) Minimise the potential for contamination of land by hazardous contaminants.

**Biodiversity**

(C27) The holder of this environmental authority must not carry out any disturbance on site, apart from exploration activities undertaken in accordance with condition (A32) of this environmental authority, unless the land subject to the proposed disturbance has undergone a wet season field assessment of flora and fauna and a report on the assessment has been accepted by the administering authority.

(C28) In the event of identification of rare or threatened species on site, a diagrammatic representation of the species occurrence relative to operations together with a management and monitoring strategy for species conservation must be prepared to the satisfaction of the administering authority and submitted with the Plan of Operations.

(C29) Mining activities must not impact on a State significant biodiversity value unless a Biodiversity Offset Strategy has been developed, submitted and approved by the administering authority, which includes, as a minimum:

(a) A detailed description of the values which will be impacted, and the extent of that impact;
(b) The extent to which the holder of this environmental authority has avoided or minimised impacts to State significant biodiversity values;
(c) Mapping that identifies the locations of any State significant biodiversity values on site;
(d) the proposed offset delivery mechanism;
(e) where an offset transfer is proposed, evidence that an offset can be located within the landscape; and

(f) an ecological equivalence assessment where required by the *Queensland Biodiversity Offset Policy, version 1, October 2011.*

(C30) Prior to undertaking mining activities that impact on State significant biodiversity values, the holder of this environmental authority must provide a legally secured direct land based offset, or enter into a Deed of Agreement with the administering authority for an offset transfer, or provide an offset payment, consistent with the *Queensland Biodiversity Offset Policy*, *version 1, October 2011.*

**Residual Void Outcome**

(C31) Residual voids must comply with the following outcome:

(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.

END OF CONDITIONS FOR SCHEDULE C

## SCHEDULE D - REGULATED DAMS

### Assessment of consequence category

(D1) The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* at the following times:

(a) prior to the design and construction of the structure, if it is not an existing structure; or
(b) if it is an existing structure, prior to the adoption of this schedule; or
(c) prior to any change in its purpose or the nature of its stored contents.

(D2) A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

(D3) Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).*

### Design and construction of a regulated structure

(D4) Conditions (D5) to (D9) inclusive do not apply to existing structures.

(D5) All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635*).

(D6) Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.

(D7) Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*, and must be recorded in the Register of Regulated Dams.

(D8) Regulated structures must:

(a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635*);
(b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:

i) floodwaters from entering the regulated dam from any watercourse or drainage line; and
ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

(D9) Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

(a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;
(b) construction of the regulated structure is in accordance with the design plan.

**Operation of a regulated structure**

(D10) Operation of a regulated structure, except for an existing structure, is prohibited unless:

(a) the holder has submitted to the administering authority:

i) one electronic copy of the design plan and certification of the 'design plan' in accordance with condition (D9), and
ii) a set of 'as constructed' drawings and specifications, and
iii) certification of those 'as constructed drawings and specifications' in accordance with condition (D9), and
iv) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan.
v) the requirements of this authority relating to the construction of the regulated structure have been met;
vi) the holder has entered the details required under this authority, into a Register of Regulated Dams; and
vii) there is a current operational plan for the regulated structures.

(D11) For existing structures that are regulated structures:

(a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and
(b) There must be a current operational plan for the existing structures.

(D12) Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

**Mandatory reporting level**

(D13) Conditions (D14) to (D17) inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

(D14) The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

(D15) The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

(D16) The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

(D17) The holder must record any changes to the MRL in the Register of Regulated Structures.

**Design storage allowance**

(D18) The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

(D19) By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).

(D20) The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

(D21) The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

**Annual inspection report**

(D22) Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

(D23) At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.

(D24) The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).*

(D25) The holder must:

(a) Within 20 business days of receipt of the annual inspection report, provide to the administering authority:

i) The recommendations section of the annual inspection report; and
ii) If applicable, any actions being taken in response to those recommendations; and

(b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

**Transfer arrangements**

(D26) The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

**Decommissioning and rehabilitation**

(D27) Dams must not be abandoned but be either:

(a) decommissioned and rehabilitated or
(b) be left in-situ for a beneficial use(s) provided that:

i) it no longer contains contaminants that will migrate into the environment; and
ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and
iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

**Register of Regulated Dams**

(D28) A Register of Regulated Dams must be established and maintained by the holder for each regulated dam.

(D29) The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.

(D30) The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition (D10) and (D11) has been achieved.

(D31) The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.

(D32) All entries in the Register of Regulated Dams must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

(D33) The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority.

**Schedule D - Table 1 (Location of Regulated Dams)**

| Column 1 | Column 2 | Column 3 |
|---|---|---|
| Name of dam containing hazardous waste | Easting (GDA 94 - Zone 54) | Northing (GDA 94 - Zone 54) |
| Pit Dewatering Evaporation Pond | 477960<br>477770<br>478333<br>478522 | 7738317<br>7738020<br>7737658<br>7737963 |
| E1 Site Water Dam | 478965<br>479948<br>479923<br>479115<br>478546<br>478421 | 7740719<br>7740891<br>7740028<br>7739493<br>7739328<br>7740028 |
| Monakoff Site Water Dam | 467721<br>468447<br>467721<br>468447 | 7719631<br>7719631<br>7720026<br>7720026 |
| Monakoff East Site Water Dam | TBD | TBD |

**Schedule D - Table 2 (Basic Details of Regulated Dams)**

| **Column 1** | **Column 2** | **Column 3** | **Column 4** | **Column 5** | **Column 6** |
|---|---|---|---|---|---|
| **Name of Regulated Dam** | **Surface area of dam at spillway (ha)** | **Max. volume of dam at spillway (ML)** | **Max. depth of dam at spillway (m)** | **Spillway Level (mAHD)** | **Use of Dam** |
| Pit Dewatering Evaporation Pond | 6.55 | 107 | 1.7 | 149.5 | Dewatering and evaporation of mine pits |
| E1 Site Water Dam | 85 | 820 | 3.5 | 144.5 | Storage of Storage of contaminated site water |
| Monakoff Site Water Dam | 18 | 456 | 5.9 | 182.2 | Storage of contaminated site water |
| Monakoff East Site Water Dam | 5 | 200 | 4 | TBD | Storage of contaminated site water |

**Schedule D - Table 3 (Hydraulic Performance of Regulated Dams)**

| Column 1 | Column 2 | Column 3 | Column 4 |
|---|---|---|---|
| **Name of Regulated Dam** | **Spillway Capacity AEP** | **Design Storage Allowance AEP** | **Mandatory Reporting Level AEP** |
| Pit Dewatering Evaporation Pond | 1 in 1000 AEP | 1 in 20 AEP, 2 month wet season plus other inputs for the 2 month wet season | 1 in 20 AEP, 72 hour storm or the 1 in 20 AEP wave allowance, whichever is lower |
| E1 Site Water Dam | 1 in 1000 AEP | 1 in 20 AEP, 2 month wet season plus other inputs for the 2 month wet season | 1 in 20 AEP, 72 hour storm or the 1 in 20 AEP wave allowance, whichever is lower |
| Monakoff Site Water Dam | 1 in 1000 AEP | 1 in 20 AEP, 2 month wet season plus other inputs for the 2 month wet season | 1 in 20 AEP, 72 hour storm or the 1 in 20 AEP wave allowance, whichever is lower |
| Monakoff East Site Water Dam | 1 in 1000 AEP | 1 in 20 AEP, 2 month wet season plus other inputs for the 2 month wet season | 1 in 20 AEP, 72 hour storm or the 1 in 20 AEP wave allowance, whichever is lower |

END of CONDITIONS FOR SCHEUDLE D

## SCHEDULE E - WASTE

### Waste Management Program

(E1) A waste management program in accordance with Part 5 of the *Environmental Management (Waste Management) Policy 2000* must be developed, implemented and maintained for the site before commencement of full mining operation. The waste management program must include:

(a) A description of the mining activities that may generate waste;
(b) The types and amounts of wastes generated by the mining activities;
(c) A program for reusing, recycling or disposing of all wastes;
(d) How the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (*i.e.* avoidance, reuse, recycling, energy recovery, disposal);
(e) Procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;
(f) Procedures for dealing with accidents, spills and other incidents;
(g) Details of any accredited management system employed, or planned to be employed, to deal with waste;
(h) How often the performance of the waste management program will be assessed;
(i) The indicators or other criteria on which the performance of the waste management program will be assessed; and
(j) Staff training and induction to the waste management program.

### Waste Disposal

(E2) All general and regulated waste (other than authorised under condition (E3) must be removed from the site to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

(E3) The only waste that can be disposed of on site is waste generated on site and is limited to:

- Waste rock;
- Rejects;
- Concrete;
- General waste including construction and demolition waste, green waste and putrescible and domestic wastes; and
- Tyres.

(E4) General waste must only be disposed of into the waste disposal trench facility on the mining lease.

(E5) General waste deposited in the active waste disposal trench must be compacted and covered with a layer of inert material following placement of the waste into the trench.

(E6) Litter control methods must be effectively implemented at the active waste disposal trench.

(E7) The active waste disposal trench must be constructed and operated to minimise the generation of leachate including a system of diversion drains or embankments to divert surface waters away from any area where contact with wastes or sources of contamination may occur.

(E8) Completed waste disposal trenches must be capped with a low permeability material and compacted and contoured to effectively minimise water infiltration.

(E9) A record of the location of trenches used for waste disposal must be maintained. Notwithstanding any other condition of this authority, such records must be maintained until the administering authority approves the surrender of this authority.

(E10) Unless otherwise permitted by the conditions of this environmental authority, waste must not be burnt or taken off site and burnt.

**Regulated waste**

(E11) Regulated waste, other than that authorised to be disposed of on-site under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

(E12) Regulated waste generated in the mining activity can be temporarily stored on site awaiting removal provided it is stored to ensure there is minimal risk of causing fire or contamination to land or waters.

(E13) Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents.

**Tyre storage and disposal**

(E14) Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options – must be stockpiled in volumes less than 3m in height and 200m$^2$ and at least 10m from any other tyre storage area.

(E15) Fire Prevention measures must be implemented including the removal of all combustible materials, including grass and vegetation, within a 10m radius of any tyre storage area.

(E16) Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be implemented, waste tyres generated from mining activities may be disposed of on site in waste rock dumps, in open pit backfilled with waste rock or underground stopes.

(E17) Waste tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

**Waste rock disposal**

(E18) The holder of this environmental authority must develop, implement and submit to the administering authority a waste rock and spoil management plan with the initial Plan of Operations and update and resubmit the plan with each subsequent Plan of Operations, with consideration given to any comments provided by the administrating authority.

(E19) Waste rock and spoil disposal must not occur on the site unless the holder of this environmental authority has submitted to the administering authority a waste rock and spoil management plan, together with the certification by an appropriately qualified person that the plan and waste rock dump management strategy meets the requirements of this environmental authority, and is designed to minimise the risk of contaminants being released to the receiving environment.

(E20) The waste rock and spoil management plan must at a minimum include:

(a) Characterisation of the waste rock and spoil to predict the quality of runoff and seepage generated, including salinity, acidity, alkalinity, dissolved metals, metalloids and non-metallic inorganic substances;

(b) A program of progressive sampling to validate pre-mine waste rock and spoil characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations including aluminium, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thorium, uranium and zinc;
(c) Where the acid rock drainage potential / neutral mine drainage potential of waste rock material has not been conclusively determined, geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies;
(d) Records must be maintained of all waste rock characterisation and disposal including contingency planning for the management of acid rock / neutral mine drainage;
(e) A materials balance and disposal plan demonstrating how waste rock will be selectively placed and/or encapsulated to minimise the generation of contaminants (including salts, acidic solutions, alkaline solutions, and metalliferous solutions);
(f) A sampling program at an appropriate statistical frequency to verify encapsulation and/or placement of potentially acid forming / acid forming waste rock / waste rock that has a potential to generate contaminated drainage;
(g) How often the performance of the plan will be assessed;
(h) A Rehabilitation strategy which meets the rehabilitation objectives specified in Schedule C; and
(i) Monitoring or rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of contaminated drainage, erosion minimisation and establishment of vegetation cover.

(E21) The holder of this environmental authority must construct and manage any waste rock dump on site:

(a) Under the supervision of appropriately qualified person(s) in regards to:
  (i) Engineering and Geotechnical Stability; and
  (ii) Geology and Geochemistry.
(b) In accordance with this environmental authority and the approved waste rock and spoil management plan; and
(c) to prevent any water other than incidental rainfall from entering the waste rock dump; and
(d) In a manner that minimises the risk of contaminants being generated and/or release from the waste rock dump to the receiving environment.

(E22) Only waste rock that is characterised as un–reactive and/or benign material (i.e. material that does not cause acid, neutral or saline mine drainage) may be used for the construction of temporary or permanent structures within the operation areas.

END OF CONDITIONS FOR SCHEDULE E

## SCHEDULE F - NOISE AND VIBRATION

(F1) Noise from any mining activity must not cause environmental harm at any sensitive place or commercial place.

### Noise Monitoring

(F2) In the event of a complaint made to the administering authority (which is neither frivolous or vexatious) about noise generated in carrying out the licensed activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this environmental authority must take action to ensure that it is no longer an unreasonable noise.

(F3) Ensure that noise generated by the mining activities does not cause the criteria in Schedule F - Table 1 (Noise Limits) to be exceeded.

**Schedule F - Table 1 (Noise Limits)**

| **Receiver Location** | **Proposed Noise Limit at Receiver (Leq,adj,T (T = 15 minutes to 1 hour) dB(A)** | | |
|---|---|---|---|
| | 9am-6pm | 6pm-10pm | 10pm-9am |
| Mining Camps | BG[1] + 5 (41dB) | BG[1] + 5 (43dB) | BG[1] + 3 (40dB) |
| Sensitive Receivers | BG[1] + 5 (40dB) | BG[1] + 5 (35dB) | BG[1] + 3 (33dB) |

[1] Background (BG) noise level minimum based on E3 guideline for night time and evening.

(F4) Noise monitoring and recording must include the following descriptor characteristics and matters:

(a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 percentiles and T = 15 mins);
(b) Background noise $L_{A90,T}$;
(c) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
(d) Atmospheric conditions including temperature, relative humidity and wind speed and directions;
(e) Effects due to any extraneous factors such as traffic noise;
(f) Location, date and time of monitoring;
(g) If the complaint concerns low frequency noise, Max $Lp_{LIN,T}$; and,
(h) If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

(F5) The holder of this environmental authority must develop and implement a noise monitoring program to demonstrate compliance with the noise limits identified in Schedule F - Table 1 (Noise Limits).

(F6) When requested by the administering authority, noise monitoring and recording must be undertaken within a timeframe nominated by the administering authority to investigate any complaint of environmental nuisance at any sensitive place or commercial place and the results must be provided to the administering authority within 14 days following completion of monitoring.

(F7) The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authorities Noise Measurement Manual or the most recent version of AS1055 *Acoustics – Description and measurement of environmental noise.*

**Air Blast and Ground Vibration**

(F8) The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Schedule F - Table 2 (Blasting Noise Limits) to be exceeded.

**Schedule F - Table 2 (Blasting Noise Limits)**

| **Blasting noise limits** | **Sensitive or commercial place limits** | |
|---|---|---|
| | **7am to 6pm** | **6pm to 7am** |
| Air blast overpressure | 115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 bB (Linear) Peak at any time | No Blasting |
| Ground vibration peak particle velocity | 5mm/second peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time | No Blasting |

(F9) Where blast monitoring detects non-compliance with Schedule F - Table 2 (Blasting Noise Limits):

(a) Take steps to ensure compliance is achieved by subsequent blasts; and
(b) Continue to monitor all consecutive blasts until at least three (3) successive blasts comply with Schedule F - Table 2 (Blasting Noise Limits).

(F10) The method of measurement and reporting of vibration levels must comply with the most recent edition of the administering authority's guideline *Noise and vibration from blasting.*

END OF CONDITIONS FOR SCHEDULE F

## SCHEDULE W – WATER

### General

(W1) Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

### Contaminant Release to Waters

(W2) The release of contaminants to waters must only occur from the release points specified in Schedule W - Table 1 (Contaminant Release Points) and depicted in Schedule I - Figure 4 Release points and monitoring location map.

### Schedule W - Table 1 (Contaminant Release Points)

| Release Point | Easting (GDA94 – Zone 54) | Northing (GDA94 – Zone 54) | Contaminant Source and Location, and Description of Release Point | Monitoring Point, including description and Longitude or easting (GDA94) | Receiving Waters Description |
|---|---|---|---|---|---|
| E1 Site Water Dam | 479331 | 7740762 | Overflow from the spillway of the E1 Site Water Dam | Spillway of the E1 Site Water Dam | Mt Margaret Creek |
| Pit Dewatering Evaporation Pond | 477972 | 7738287 | Overflow from the spillway of the Pit Dewatering Evaporation Pond | Spillway of the Pit Dewatering Evaporation Dam | Mt Margaret Creek |
| Monakoff Site Water Dam | 468665 | 7719947 | Overflow from the spillway of the Monakoff Site Water Dam | Spillway of the Monakoff Site Water Dam | Courtenay Creek |
| Monakoff East Site Water Dam | TBA by completion of the water dam | | Overflow from the spillway of the Monakoff East Site Water Dam | Water course immediately downstream | Courtenay Creek |

(W3) The release of contaminants to waters from the release points must be monitored at the locations specified in Schedule W - Table 1 (Contaminant Release Points) for each quality characteristic and at the frequency specified in Schedule W - Table 2 (Contaminant Release Limits and Trigger Levels).

**Schedule W - Table 2 (Contaminant Release Limits and Trigger Levels)**

| Quality Characteristic | Contaminant Release Limit (total metals) | Contaminant Trigger Level (dissolved metals) | Monitoring Frequency |
|---|---|---|---|
| Electrical conductivity (µs/cm) | 1000 or 95th percentile of reference[1], which ever is lower | 435 | Daily During Release (the first sample must be taken within 2 hours of commencement of release if safe to do so) |
| pH (pH Unit) | 5.0 (minimum) or 5th percentile of reference[1], which ever is highest.<br>9.0 (maximum) or 95th percentile of reference[1], which ever is lowest | 6.0 (minimum)<br>7.5 (maximum) | |
| Suspended Solids (mg/L) | Same as reference data or 50mg/L, whichever is the lowest. | N/A | |
| Hardness ($CaCO_3$) | Interpretational purposes only | | |
| Sulphate ($SO_4^{2-}$) | 1000 (mg/L) or 95th percentile of reference[1], whichever is lowest. | 80th percentile of the reference | |
| Aluminium | 5 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.055 (mg/L) | |
| Arsenic | 0.5 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.013 (mg/L) | |
| Cadmium | 0.01 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0002 (mg/L) | |
| Chromium | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.001 (mg/L) | |
| Cobalt | 1 (mg/L) or 95th percentile of reference, which ever is lowest. | 0.0028 (mg/L) | |
| Copper | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0014 (mg/L) | |
| Fluoride | 2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 80th percentile of the reference | |
| Lead | 0.1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0034 (mg/L) | |
| Mercury | 0.002 (mg/L) or 95% of reference[1], which ever is lowest. | 0.0006 (mg/L) | |
| Molybdenum | 0.15 (mg/L) or 95% of reference[1], which ever is lowest. | 80th percentile of the reference | |

| Quality Characteristic | Contaminant Release Limit (total metals) | Contaminant Trigger Level (dissolved metals) | Monitoring Frequency |
|---|---|---|---|
| Nickel | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) | |
| Selenium | 0.02 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) | |
| Uranium | 0.2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) | |
| Zinc | 20 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) | |

*Note : All metals and metalloids must be measured as total (unfiltered). And dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.*

*[1] where 95th percentile of the long-term reference data is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies as the contaminant release limit.*

(W4) Once site-specific background contaminant limits are determined based on background data, the Environmental Authority holder must apply to the administering authority to amend the Environmental Authority to contain site-specific trigger levels and contaminant limits by 31 October 2015.

(W5) The release of contaminants to waters must not exceed the contaminant release limits stated in Schedule W - Table 2 (Contaminant Release Limits and Trigger Levels) for each quality characteristic.

(W6) If quality characteristics of the release exceed any of the trigger levels specified in Schedule W - Table 2 (Contaminant Release Limits and Trigger Levels) during a release event, the holder of this environmental authority must compare the downstream results in the receiving waters during that release event to the trigger values specified in Schedule W - Table 2 (Contaminant Release Limits and Trigger Levels) and:

(a) If the level of contaminants at the downstream site is the same or a lower value than the reference value for the quality characteristic during the release event then no action is to be taken; or
(b) If the level of contaminants at the downstream site is greater than the reference monitoring site data complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
  (i) details of the investigations carried out; and
  (ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W6 (B) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

(W7) Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

**Stream Flow Monitoring**

(W8) The holder of this environmental authority must install, operate and maintain a stream flow gauging station to determine and record stream flows of each release point as specified in Schedule W - Table 3 (Contaminant Release During Flow Events) for any receiving water into which a release occurs.

(W9) Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in Schedule W - Table 3 (Contaminant Release During Flow Events) for the contaminant release point(s) specified in Schedule W - Table 1 (Contaminant Release Points).

**Schedule W - Table 3 (Stream Flow Gauging Stations)**

| Release point | Gauging station description | GDA94-Zone 54 | | Minimum Flow in Receiving Water Required for a Release Event | Flow recording Frequency |
|---|---|---|---|---|---|
| | | Easting (m) | Northing (m) | | |
| E1 Site Water Dam<br><br>Pit Dewatering Evaporation Pond | E1 Water Dam Silting Basin | 479932 | 7740631 | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 5% of the natural flow or any natural flow in the receiving environment.<br><br>The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure.<br><br>Example: ≥5m3/sec | Continuous (minimum daily) |
| Monakoff Site Water Dam | TBD by completion of the dam | | | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 5% of the natural flow or any natural flow in the receiving environment.<br><br>The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure.<br><br>Example: ≥5m3/sec | Continuous (minimum daily) |
| Monakoff East Site Water Dam | TBD by completion of the dam | | | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 5% of the natural flow or any natural flow in the receiving environment.<br><br>The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure.<br><br>Example: ≥5m3/sec | Continuous (minimum daily) |

(W10) At the time of release the upstream water flow volume in the respective receiving water must be at least twenty (20) times the volume at which respective treated waste waters are released.

(W11) The daily volume of water released from each release point must be measured and recorded at the monitoring points in Schedule W - Table 1 (Contaminant Release Points).

**Notification of Release Event**

(W12) The holder of this environmental authority must notify the administering authority as soon as practicable of a release event (no later than twenty four (24) hours of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:

(a) release commencement date/time;
(b) expected release cessation date/time;
(c) release point/s;
(d) release volume (estimated);
(e) receiving water/s including the natural flow rate (estimated); and
(f) any details (including available data) regarding likely impacts on the receiving water(s).

**Onsite Water Storages**

(W13) Water storages stated in Schedule W - Table 4 (Water Storage Monitoring) must be monitored for the water quality characteristics specified in Schedule W - Table 5 (Onsite Water Storage Contaminant Limits) at the monitoring locations and at the monitoring frequency specified in Schedule W - Table 4 (Water Storage Monitoring).

**Schedule W - Table 4 (Water Storage Monitoring)**

| Water Storage Description | Easting (GDA94 –Zone 54) | Northing (GDA94 – Zone 54) | Monitoring Location | Frequency of Monitoring |
|---|---|---|---|---|
| Pit Dewatering Evaporation Pond | 477960 | 7738282 | Adjacent to the spillway | Quarterly |
| E1 Site Water Dam | 479874 | 7740633 | Adjacent to eastern embankment | Quarterly |
| East WRD Sediment Basin | 479035 | 7739341 | Adjacent to basin outlet | Quarterly |
| West WRD Sediment Basin | TBD by commencement of the West NAF waste rock dump | | TBA | Quarterly |
| North PAF Monitoring Basin | 478694 | 7740476 | Adjacent to basin outlet | Quarterly |
| Monakoff Site Water Dam | 468376 | 7719944 | Northern embankment | Quarterly |
| Monakoff EastSite Water Dam | TBA | TBA | TBA | Quarterly |

(W14) In the event that waters storages defined in Schedule W - Table 4 (Water Storage Monitoring) exceed the contaminant limits defined in Schedule W - Table 5 (Onsite Water Storage Contaminant Limits), the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by livestock.

**Schedule W - Table 5 (Onsite Water Storage Contaminant Limits)**

| Quality Characteristic | Test Value | Contaminant Limit[3] |
|---|---|---|
| pH (pH unit) | Range | Less than 4, greater than 9[2] |
| EC (µS/cm) | Maximum | 5970[1] |
| Sulphate (mg/L) | Maximum | 1000[1] |
| Fluoride (mg/L) | Maximum | 2[1] |
| Aluminium (mg/L) | Maximum | 5[1] |
| Arsenic (mg/L) | Maximum | 0.5[1] |
| Cadmium (mg/L) | Maximum | 0.01[1] |
| Cobalt (mg/L) | Maximum | 1[1] |
| Copper (mg/L) | Maximum | 1[1] |
| Lead (mg/L) | Maximum | 0.1[1] |
| Nickel (mg/L | Maximum | 1[1] |
| Uranium (mg/L) | Maximum | 0.2 |
| Zinc (mg/L) | Maximum | 20[1] |

*Notes:*
*[1]Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.*
*[2]Page 4.2-15 of ANZECC & ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4-9".*
*[3]Total measurements (unfiltered) must be taken and analysed.*

**Receiving Environment Monitoring and Contaminant Trigger Levels**

(W15) The quality of the receiving waters must be monitored at the locations specified in Schedule W - Table 7 (Receiving Water Reference Sites and Down Stream Monitoring Points) for each quality characteristic and at the frequency stated in Schedule W - Table 6 (Receiving Waters Contaminant Trigger Levels)

**Schedule W - Table 6 (Receiving Waters Contaminant Limits & Trigger Levels)**

<table>
<tr><th>Quality Characteristic</th><th>Contaminant Limit (Total Metals)</th><th>Contaminant Trigger Level (Dissolved Metals)</th><th>Monitoring Frequency</th></tr>
<tr><td>Electrical conductivity (µs/cm)</td><td>1000 or 95th percentile of reference[1], which ever is lower.</td><td>435</td><td rowspan="4">Daily when a release is occurring.</td></tr>
<tr><td>pH (pH Unit)</td><td>5.0 (minimum) or 5th percentile of reference[1], which ever is highest.<br><br>9.0 (maximum) or 95th percentile of reference[1], which ever is lowest</td><td>6.0 (minimum)<br><br>7.5 (maximum)</td></tr>
<tr><td>Suspended Solids (mg/L)</td><td>Same as reference data or 50mg/l whichever is the lowest.</td><td>N/A</td></tr>
<tr><td>Hardness ($CaCO_3$)</td><td colspan="2">Interpretational purposes only</td></tr>
</table>

| Quality Characteristic | Contaminant Limit (Total Metals) | Contaminant Trigger Level (Dissolved Metals) | Monitoring Frequency |
|---|---|---|---|
| Sulphate ($SO_4^{2-}$) | 1000 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 80th percentile of the reference | |
| Aluminium | 5 (mg/L) or 95th percentile of reference[1], which ever is lowest | 0.055 (mg/L) | |
| Arsenic | 0.5 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.013 (mg/L) | |
| Cadmium | 0.01 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0002 (mg/L) | |
| Chromium | 0.5 (mg/L) or 95% of reference[1], which ever is lowest. | 0.001 (mg/L) | |
| Cobalt | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0028 (mg/L) | |
| Copper | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0014 (mg/L) | |
| Fluoride | 2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 80th percentile of the reference | |
| Lead | 0.1 (mg/L) or 95% of reference[1], which ever is lowest. | 0.0034 (mg/L) | |
| Manganese | 95th percentile of reference[1]. | 1.9 (mg/L) or 80th percentile of reference [1] whichever is higher | |
| Mercury | 0.002 (mg/L) or 95% of reference[1], which ever is lowest. | 0.0006 (mg/L) | |
| Molybdenum | 0.15 (mg/L) or 95% of reference[1], which ever is lowest. | 80th percentile of the reference | |
| Nickel | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) | |
| Selenium | 0.02 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) | |
| Uranium | 0.2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) | |
| Zinc | 20 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) | |

*Note :All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.*

*[1] where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies as the receiving water contaminant limit.*

**Schedule W - Table 7 (Receiving Water Reference Sites and Down Stream Monitoring Points)**

| Monitoring Points | Receiving Waters Location Description | Easting (GDA94 – Zone 54) | Northing (GDA94 – Zone 54) |
|---|---|---|---|
| **Reference[1] / upstream Monitoring Points** | | | |
| Alternative Reference Location 1 | TBD | TBD | TBD |
| SW17 | Mount Margaret Creek catchment, on a tributary to the north of MMM E1 mining area. | 480232 | 774232 |
| Monitoring Location 4 | Reference site upstream of any disturbances. Outside of either project area boundary. | 471622 | 7735273 |
| Monitoring Location 10 | Reference site Upstream of the Monakoff project area. Outside of either Project area boundary. | 471256 | 7718853 |
| SW32 | Reference site Courtenay Creek, upstream of proposed haul road. | 473630 | 7728190 |
| **Downstream Monitoring Points** | | | |
| Monitoring Location 1 | Downstream of confluence of the two drainage lines within Mount Margaret project area. Site is located outside of Project area boundary. | 479959 | 7740615 |
| SW36 | Downstream of the haul road disturbance area. Outside of either project area boundary. | 480848 | 7734995 |
| SW35 | Downstream of the haul road disturbance area. Outside of either project area boundary. | 474385 | 7728025 |
| Alternative Downstream Monitoring Point | TBD | TBD | TBD |
| Monitoring Location 8 | Downstream of the haul road disturbance area. Outside of either project area boundary. | 475478 | 7723872 |
| Monitoring Location 9 | Downstream of the haul road disturbance area. Outside of either project area boundary. | 470768 | 7720046 |
| Monitoring Location 11 | Downstream of the infrastructure on the north-western boundary of the Monakoff project area. | 466988 | 7720328 |
| Monitoring Location 12 | Downstream of the infrastructure on the north-western boundary of the Monakoff project area. | 473066 | 7722722 |
| Monitoring Location 14 | Downstream of the dam on the north-western boundary of the Monakoff project area. | 469018 | 7721086 |
| Monitoring Location 15 | Downstream of the Sediment basin of Monakoff. | 468009 | 7720341 |

*Notes:*
*a) The upstream monitoring points should be within 8 km the release point.*
*b) The downstream point should not be greater than 3000 m from the release point.*
*c) The data from upstream reference monitoring points must not be used where they are affected by releases from other mines.*

*Reference sites must:*
*(a) be from the same bio-geographic and climatic region;*
*(b) have similar geology, soil types and topography;*
*(c) contain a range of habitats similar to those at the test sites;*
*(d) have a similar flow regime; and*
*(e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.*

(W16) If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Schedule W - Table 6 (Receiving Waters Contaminant Limits and Trigger Levels) the holder of this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

(a) where the downstream result in the same or a lower value than the reference site value for the quality characteristic during the same sampling event then no action is to be taken; or

(b) where the downstream results exceed the reference site complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:

(i) details of the investigations carried out; and
(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition (W16) (b), no further reporting is required for subsequent trigger events for that quality characteristic.*

(W17) The release of contaminants to waters must not exceed the contaminant release limits stated in Schedule W - Table 6 (Receiving Waters Contaminant Limits & Trigger Levels) for each quality characteristic.

**Stream Sediment**

(W18) Sediment quality of receiving waters and reference waters must be monitored twice a year (just before the wet season and after the wet season) at the monitoring locations defined in Schedule W - Table 7 (Receiving Water Reference Sites and Down Stream Monitoring Points) and identified on Schedule I - Figure 4 and for the parameters defined in Schedule W - Table 8 (Stream Sediment Trigger and Contaminant Levels).

(W19) If quality characteristics of the release exceed any of the trigger levels specified in Schedule W - Table 8 (Stream Sediment Trigger and Contaminant Levels), the holder of this environmental authority must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or
(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:
(i) details of the investigations carried out; and
(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition (W19)( b), no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

(W20) Releases of contaminants must not result in an exceedence of sediment contaminant limits stated in Schedule W - Table 8 (Stream Sediment Trigger and Contaminant Levels).

(W21) All stream sediment sampling must be undertaken in accordance with the most recent version of *Australian Standard AS 5667.12 Guidance on Sampling of Bottom Sediments of 1998*.

**Schedule W - Table 8 (Stream Sediment Trigger and Contaminant Levels)**

| Parameter | Unit | Contaminant Limit | Trigger Level |
|---|---|---|---|
| Arsenic | mg/kg | 70[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 20[2], whichever is higher. |
| Barium | mg/kg | TBD by 31 October 2015 | |
| Bismuth | mg/kg | 3 times the reference value[1] | Reference value[1] |
| Boron | mg/kg | 3 times the reference value[1] | Reference[1] |
| Cadmium | mg/kg | 10[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 1.5[2], whichever is higher. |
| Chromium | mg/kg | 370[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 80[2], whichever is higher. |
| Cobalt | mg/kg | 3 times the reference value[1] | Reference[1] |
| Copper | mg/kg | 270[3] or 3 times the reference value[1], whichever is higher | Reference[1]or 65[2], whichever is higher. |
| Lead | mg/kg | 220[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 50[2] whichever is higher. |
| Manganese | mg/kg | 3 times the reference value[1] | Reference[1] |
| Mercury | mg/kg | 1[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 0.15[2] whichever is higher. |
| Nickel | mg/kg | 52[3] or 3 times the reference value[1], whichever is higher. | Reference value[1]or 21[2], whichever is higher. |
| Selenium | mg/kg | 3 times the reference value[1] | Reference value[1] |
| Thorium | mg/kg | TBD by 31 October 2015 | |
| Uranium | mg/kg | 3 times the reference value[1] | Reference value[1] |
| Vanadium | mg/kg | TBD by 31 October 2015 | |
| Zinc | mg/kg | 410[3] or 3 times the reference value[1], whichever is higher | Reference value[1] or 200[2] or, whichever is higher. |
| Particle size distribution for interpretation purposes | | | |

1 Reference sites are defined in Table 1.

2 ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments

3 ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments

**Receiving Environment Monitoring Program (REMP)**

(W22) The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site.

For the purposes of the REMP, the receiving environment is the waters of the Eliza Creek and Courtenay Creek and connected or surrounding waterways within 10 km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of

the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.

(W23) A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.

(W24) A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

**Water General**

(W25) The release of contaminants directly or indirectly to waters must not:

(a) Produce any visible discolouration of receiving waters; or
(b) Produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

**Water Management Plan**

(W26) A Water Management Plan must be developed by an appropriately qualified person and implemented.

(W27) A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

**Saline, acid and metalliferous drainage**

(W28) The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid and/or metalliferous mine drainage.

**Stormwater and Water Sediment Controls**

(W29) An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

(W30) Stormwater, other than mine affected water, is permitted to be released to waters from:

(a) Erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition (W29);

(b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition (W26), for the purpose of ensuring water does not become mine affected water.

**Groundwater**

(W31) Groundwater quality and level must be monitored at the locations and frequencies defined in Schedule W - Table 9 (Groundwater Monitoring Locations and Frequency) & Schedule I - Figures 5 and 6 for quality characteristics identified in Schedule W - Table 10 (Groundwater Contaminant and Trigger Limits).

(W32) If quality characteristics of groundwater from compliance bores identified in Schedule W - Table 9 (Groundwater Monitoring Locations and Frequency) exceed any of the trigger levels stated in Schedule W - Table 10 (Groundwater Contaminant and Trigger Limits), the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and:

(a) if the level of contaminants at the compliance monitoring bore does not exceed the reference bore results, then no action is to be taken; and
(b) if the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC & ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
  (i) details of the investigations carried out; and
  (ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition (W32) (b), no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

(W33) Results of monitoring of groundwater from compliance bores identified in Schedule W - Table 9 (Groundwater Monitoring Locations and Frequency), must not exceed any of the contaminant limits defined in Schedule W - Table 10 (Groundwater Contaminant and Trigger Limits).

(W34) Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in the latest edition of the Agriculture and Resource Management Council of Australia and New Zealand manual titled *Minimum Construction Requirements for Water Bores in Australia.*

(W35) Annual groundwater monitoring reports analysing groundwater chemistry and hydro-geological status of all groundwater bores and groundwater conditions must be prepared and submitted to the administering authority with each annual return.

**Schedule W - Table 9 (Groundwater Monitoring Locations and Frequency)**

| Monitoring Point | Easting (GDA94 – Zone 54) | Northing (GDA94 – Zone 54) | Surface RL[1] (m) | Target Depth (m) | Monitoring Frequency |
|---|---|---|---|---|---|
| **Compliance Bores** | | | | | |
| EMMW001 | 477369 | 7740550 | 148.4 | 27 | Quarterly |
| EMMW002 | 478065 | 7740487 | 147.1 | 27 | Quarterly |
| EMMW003 | 477885 | 7740017 | 146.9 | 38 | Quarterly |
| EMMW004 | 478540 | 7740014 | 145.1 | 45 | Quarterly |
| EMMW005 | 477961 | 7739830 | 146.1 | 40 | Quarterly |
| EMKW001 | 467932 | 7719484 | 205.16 | 46 | Quarterly |
| EMKW002 | 467387 | 7719479 | 207.58 | 37 | Quarterly |
| EMKW003 | 467344 | 7719109 | 212.34 | 54 | Quarterly |
| EMEW001 | 470578 | 7719817 | 189.07 | 40 | Quarterly |
| EMEW002 | 470432 | 7719584 | 198.07 | 40 | Quarterly |
| EMEW003 | 470122 | 7719619 | 206.07 | 52 | Quarterly |
| RD1A/1B | 479335 | 7738483 | TBD by 5 September 2012 | 20/50 | Quarterly |
| RD2A/2B | 479404 | 7739248 | | 20/60 | Quarterly |
| RD3A/3B | 479029 | 7739965 | | 20/55 | Quarterly |
| RD4A/4B | 476538 | 7740199 | | 20/50 | Quarterly |
| RD5A/5B | 476578 | 7739468 | | 20/50 | Quarterly |
| RD6A/6B | 477162 | 7738884 | | 20/50 | Quarterly |
| TD1A/1B | 477459 | 7736807 | | 20/55 | Quarterly |
| TD2A/2B | 478099 | 7736970 | | 20/40 | Quarterly |
| TD3A/3B | 478480 | 7737591 | | 20/30 | Quarterly |

| Monitoring Point | Easting (GDA94 – Zone 54) | Northing (GDA94 – Zone 54) | Surface RL[1] (m) | Target Depth (m) | Monitoring Frequency |
|---|---|---|---|---|---|
| **Compliance Bores** | | | | | |
| TD4A/4B | 478336 | 7738219 | | 20/30 | Quarterly |
| TD5A/5B | 477741 | 7738132 | | 20/45 | Quarterly |
| TD6A/6B | 477278 | 7737410 | | 20/50 | Quarterly |
| WD1A/1B | 477836 | 7740229 | | 20/55 | Quarterly |
| WD2A/2B | 477952 | 7740222 | | 20/55 | Quarterly |
| WD3A/3B | 477902 | 7740374 | | 20/55 | Quarterly |
| **Reference Bores[2]** | | | | | |
| EMMW006A/006B | 476221 | 7736944 | TBD by 5 September 2012 | 50/120 | Quarterly |
| EMKW003 | 467344 | 7719109 | 212.34 | 54 | Quarterly |

[1] RL measurement to be taken from top of bore casing

[2] Reference sites must:
(a) be from the same bio-geographic and climatic region; and
(b) have similar geology, soil types and topography; and
(c) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.

**Schedule W - Table 10 (Groundwater Contaminant Limits and Trigger Levels)**

| Quality Characteristic | Contaminant Limit (Total Metals) | Contaminant Trigger Level (Dissolved Metals) |
|---|---|---|
| Electrical conductivity (µs/cm) | 1000 or 95th percentile of reference[1], which ever is lower. | 435 |
| pH (pH Unit) | 5.0 (minimum) or 5th percentile of reference[1], which ever is highest.<br>9.0 (maximum) or 95th percentile of reference[1], which ever is lowest | 6.0 (minimum)<br>7.5 (maximum) |
| Suspended Solids (mg/L) | Same as reference data or 50mg/l whichever is the lowest. | N/A |
| Hardness ($CaCO_3$) | **Interpretational purposes only** | |
| Sulphate ($SO_4^{2-}$) | 1000 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 80th percentile of the reference |
| Aluminium | 5 (mg/L) or 95th percentile of reference[1], which ever is lowest | 0.055 (mg/L) |
| Arsenic | 0.5 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.013 (mg/L) |
| Cadmium | 0.01 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0002 (mg/L) |
| Chromium | 1 (mg/L) or 95% of reference[1], which ever is lowest. | 0.001 (mg/L) |
| Cobalt | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0028 (mg/L) |
| Copper | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.0014 (mg/L) |
| Fluoride | 2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 80th percentile of the reference |
| Lead | 0.1 (mg/L) or 95% of reference[1], which ever is lowest. | 0.0034 (mg/L) |
| Manganese | 95th percentile of reference[1], which ever is lowest. | 1.9 (mg/L) or 80th percentile of reference [1] whichever is higher |
| Mercury | 0.002 (mg/L) or 95% of reference[1], which ever is lowest. | 0.0006 (mg/L) |
| Molybdenum | 0.15 (mg/L) or 95% of reference[1], which ever is lowest. | 80th percentile of the reference |

| Quality Characteristic | Contaminant Limit (Total Metals) | Contaminant Trigger Level (Dissolved Metals) |
|---|---|---|
| Nickel | 1 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) |
| Selenium | 0.02 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.011 (mg/L) |
| Uranium | 0.2 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) |
| Zinc | 20 (mg/L) or 95th percentile of reference[1], which ever is lowest. | 0.008 (mg/L) |

*All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.*

*[1] where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies as the contaminant limit.*

END OF CONDITIONS FOR SCHEDULE W

## SCHEDULE J - SEWAGE TREATMENT

### Sewage Treatment - for irrigation

(J1) Treated sewage effluent is authorised to be released to land within the nominated irrigation area identified in Schedule I - Figure 7 (Sewage treatment plant and effluent disposal) and in accordance with the contaminant release limits stated in Schedule J - Table 1 (Contaminant Release Limits to Land) and the conditions of this environmental authority.

(J2) All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Schedule J - Table 1 (Contaminant Release Limits to Land).

**Schedule J - Table 1 (Contaminant Release Limits to Land)**

| Contaminant | Unit | Release limit | Limit type | Frequency |
|---|---|---|---|---|
| 5 day Biochemical oxygen demand (BOD) | mg/L | 20 | Maximum | Monthly |
| Total Suspended Solids | mg/L | 30 | Maximum | Monthly |
| Nitrogen | mg/L | 30 | Maximum | Monthly |
| Phosphorus | mg/L | 15 | Maximum | Monthly |
| *E coli* | Organisms / 100ml | 1000 | Maximum | Monthly |
| pH | pH units | 6.0 - 9.0 | Range | Monthly |

(J3) A minimum area of (area will be determined prior to release) of land, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent.

(J4) The maximum application rate for treated sewage effluent is (application rate will be determined prior to release).

(J5) The application of treated effluent to land must be carried out in a manner such that:

(a) vegetation is not damaged;
(b) there is no surface ponding of effluent;
(c) there is no run-off of effluent.

(J6) If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

(J7) Sewage effluent released to land must not cause spray drift or over spray to any odour sensitive place.

(J8) When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store / lawfully dispose of effluent.

(J9) The weekly volume of effluent release to land must be measured and records kept of the volumes of effluent released.

END OF CONDITIONS FOR SCHEDULE J

## SCHEDULE H - DEFINITIONS

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

- 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 recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

**"acid rock drainage" or "acid mine drainage"** means any low pH waters, contaminated as a result of the mining activities.

**"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.

**"assessed"** and **"assessment"** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

(a) exactly what has been assessed and the precise nature of that determination;

(b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;

(c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

(d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

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

**"background"** means prevailing level in a specified environment measured in the absence of impacts being studied.

**"certification"**, in connection with dam management, means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy "Certification by RPEQs (ID: 1.4 (2A)).

**"certifying"**, **"certify"** or **"certified"** have a corresponding meaning as 'certification'

**"commercial place"** means a work place used as 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.

**"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.

**"construction" or "constructed"** in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.

**"dam"** means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void

and associated works. A dam does *not* mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

**"design plan"** in the context of a dam design is the documentation required under the *Manunal for Assessing Consequence Categories and Hydraulic Performance of Structures* 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.

**"Design Storage Allowance"** or **"DSA"** means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* published by the Department of Environment and Resource Management, that must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

**"emergency action plan"** means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact details that are part of the plan, and to comprehensively review the plan at least every five years.

**"EC"** means Electrical Conductivity.

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

**"Existing structure"** means a structure that prior to 20 June 2012 meets any or both of the following, a structure:

(a) with a design that is in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) and that is considerably in progress;

(b) that is under considerable construction or that is constructed.

**"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.

**"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.

**"consequence category"** means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*.

**"hydraulic performance"** means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*.

**"holder"** means any person who is the holder of, or is acting under, that environmental authority.
**"infrastructure"** means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include facilities required for the long term management of mining impacts or the protection of potential resources. Such facilities include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or 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.

**"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.

**"levee"** means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

**"Mandatory Reporting Level"** or **"MRL"** means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* published by the administering authority.

**"Licensed Place"** means all areas subject to the Mining Leases 90157, 90199, 7122, 90198, 90228 and 90229.

**"mandatory reporting level"** means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedance probability).

**"measures"** includes any measures to prevent or minimise environmental impacts of the activity such as bunds, silt fences, diversion drains, capping, and containment systems.

**"metaliferous mine drainage**" means any waters, contaminated with metals / metalloids or other contaminants as a result of the mining activities.

**"mineral"** means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

(a) clay if mined for use for its ceramic properties, kaolin and bentonite;
(b) foundry sand;
(c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;
(d) limestone if mined for use for its chemical properties;
(e) marble;
(f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
(g) peat;
(h) salt including brine;
(i) shale from which mineral oil may be extracted or produced;
(j) silica, including silica sand, if mined for use for its chemical properties;
(k) rock mined in block or slab form for building or monumental purposes;

but does not include—

(l) living matter;
(m) petroleum within the meaning of the *Petroleum Act 1923*;
(n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
(o) water.

**"natural flow"** means the flow of water through waters caused by nature.

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

**"operational plan"** for a dam means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

**"oxide ore"** means fully oxidised rock which has no acid forming potential.

**"ore or waste rock characterised as having acid forming potential"** means any rock with either a Net Acid Producing Potential of greater than 5 kg of $H_2SO_4$/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

**"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 ($mms^{-1}$).

**"protected area"** means - a protected area under the *Nature Conservation Act 1992*; or

- a marine park under the *Marine Parks Act 1992*; or
- a World Heritage Area.

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

**"reference site"** (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

**"regulated structures"** or **"regulated dams"** means any dams in the significant or high consequence category as assessed using the "Manual for Assessing Consequence Categories and Hydraulic Performance of Structures" published by the administering authority.

**"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.

**"receiving environment"** means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

**"receiving waters"** means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

**"Register of Regulated Dams"** includes:

(a) Date of entry in the register;
(b) Name of the dam, its purpose and intended/actual contents;
(c) The consequence category of the dam as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635);
(d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
(e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
(f) For the regulated dam, other than in relation to any levees –
    i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
    iii. Dam crest volume (megalitres);
    iv. Spillway crest level (metres AHD).
    v. Maximum operating level (metres AHD);
    vi. Storage rating table of stored volume versus level (metres AHD);
    vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
    viii. Mandatory reporting level (metres AHD);
(a) The design plan title and reference relevant to the dam;
(b) The date construction was certified as compliant with the design plan;
(c) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
(d) Details of the composition and construction of any liner;
(e) The system for the detection of any leakage through the floor and sides of the dam;
(f) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
(g) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

(h) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year

**"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.

**"saline mine drainage"** The movement of waters, contaminated with salt(s), as a result of the mining activity.

**"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.

**"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 1992* or a World Heritage Area; or
- a public park or gardens.

**"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.

**"spillway"** means passage or outlet from the dam through which surplus water flows.

**"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.

"**Stakeholder"** means a person who is readily identifiable and is affected by, or is directly concerned with the holder of this environmental authority's mining activities.

**"structure"** under the context of dam means dam or levee.

**"suitably qualified and experienced person"** means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988* or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:

(a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
(b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:
    - investigation, design or construction of dams;
    - operation and maintenance of dams;
    - geomechanics with particular emphasis stability, geology and geochemistry;
    - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
    - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
    - hydrogeology with particular reference to seepage, groundwater,
    - solute transport processes and monitoring thereof; or
    - dam safety.

**"system design plan**" means a plan that manages an integrated containment system that shares the required DSA volume across the integrated containment system.

**"TBD"** means to be determined

**"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.

**"watercourse"** has the same meaning given in the *Water Act 2000*.

**"waters"** includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater runoff, and groundwater.

"**water release event**" means release of any waters that are or maybe contaminated by the mining activity.

END OF CONDITIONS FOR SCHEDULE H

**SCHEDULE I - MAPS**

**Figure 1 Site map Showing Mining Tenements**

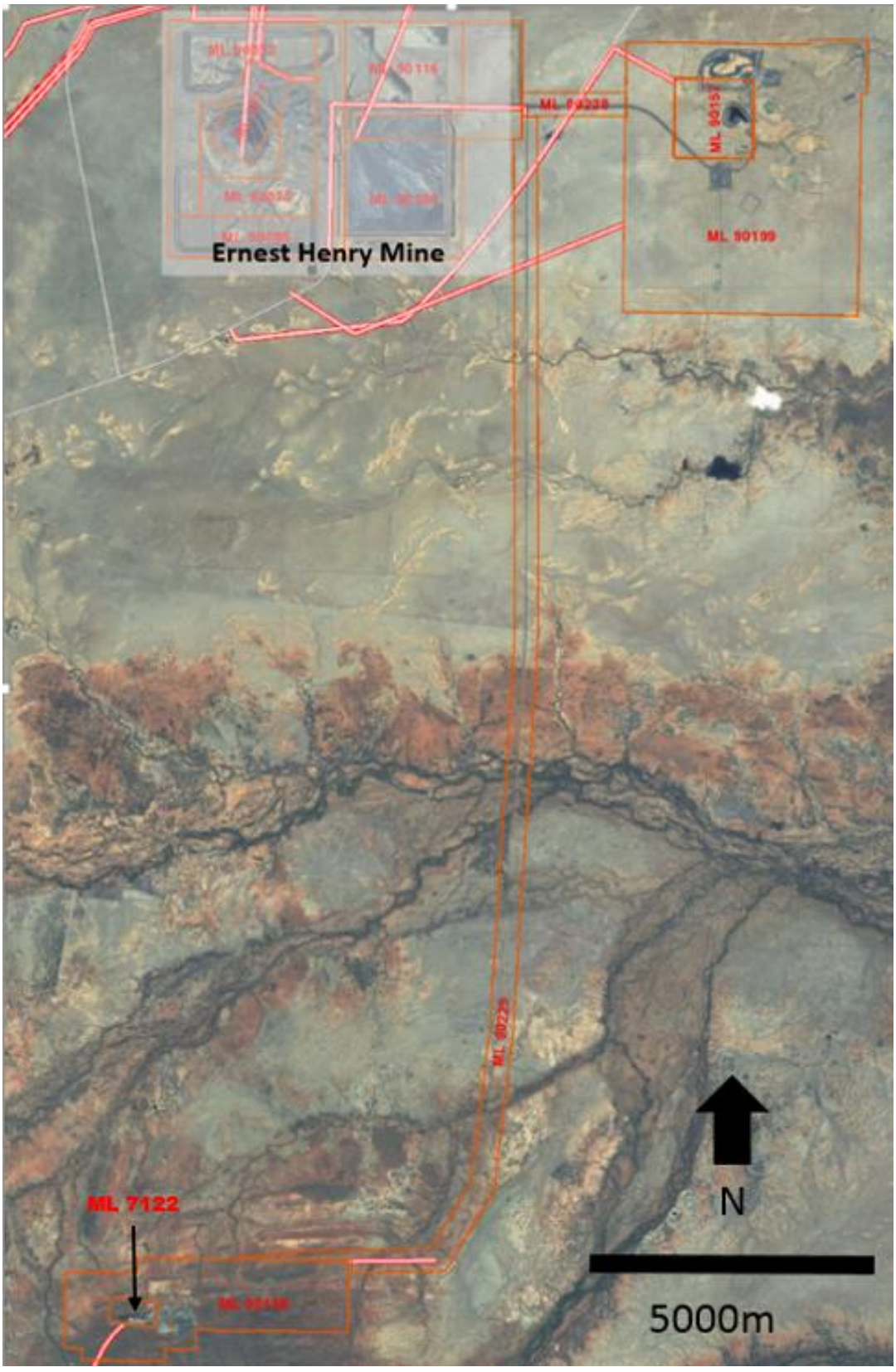

**Figure 2 Site map - Mt Margaret E1 Area**

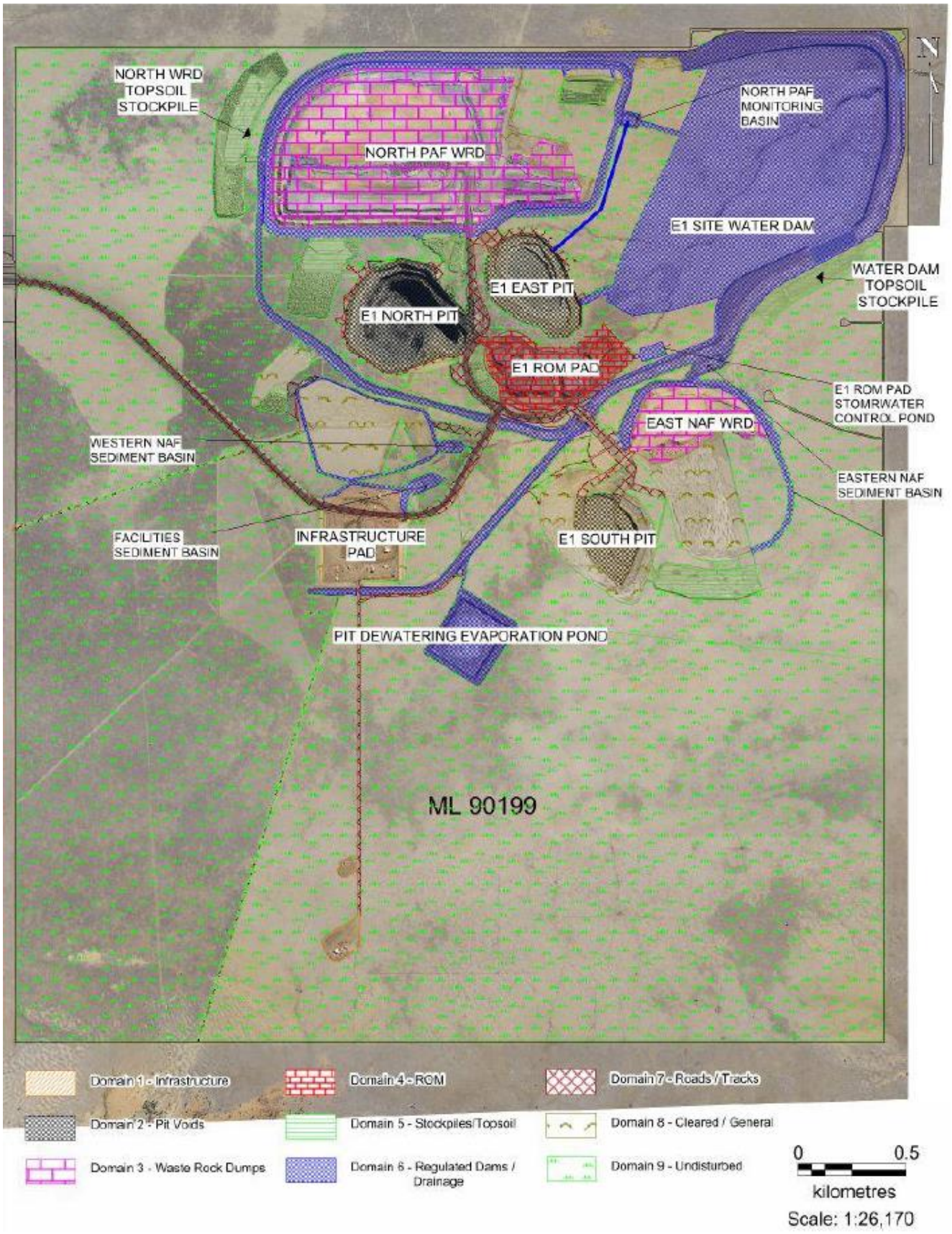

**Figure 3 Site map – Monakoff Project Area**

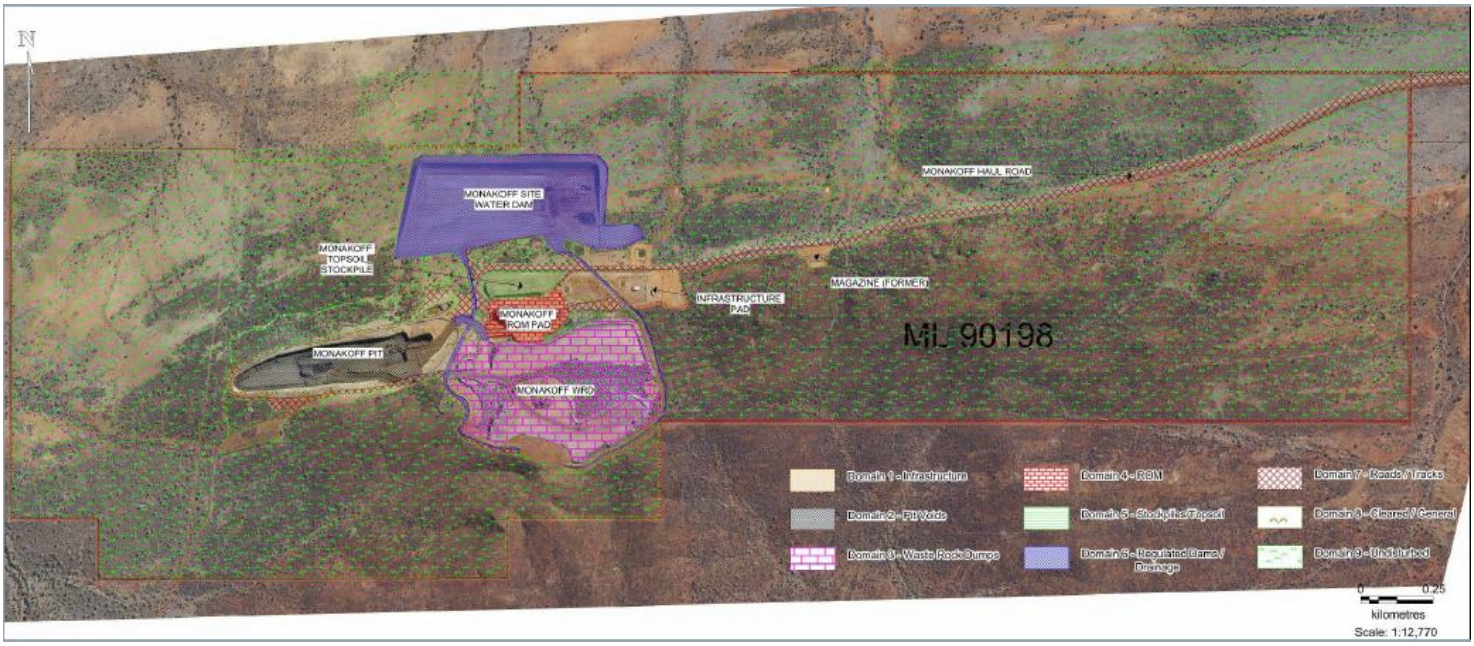

**Figure 4 Release points and monitoring locations map**

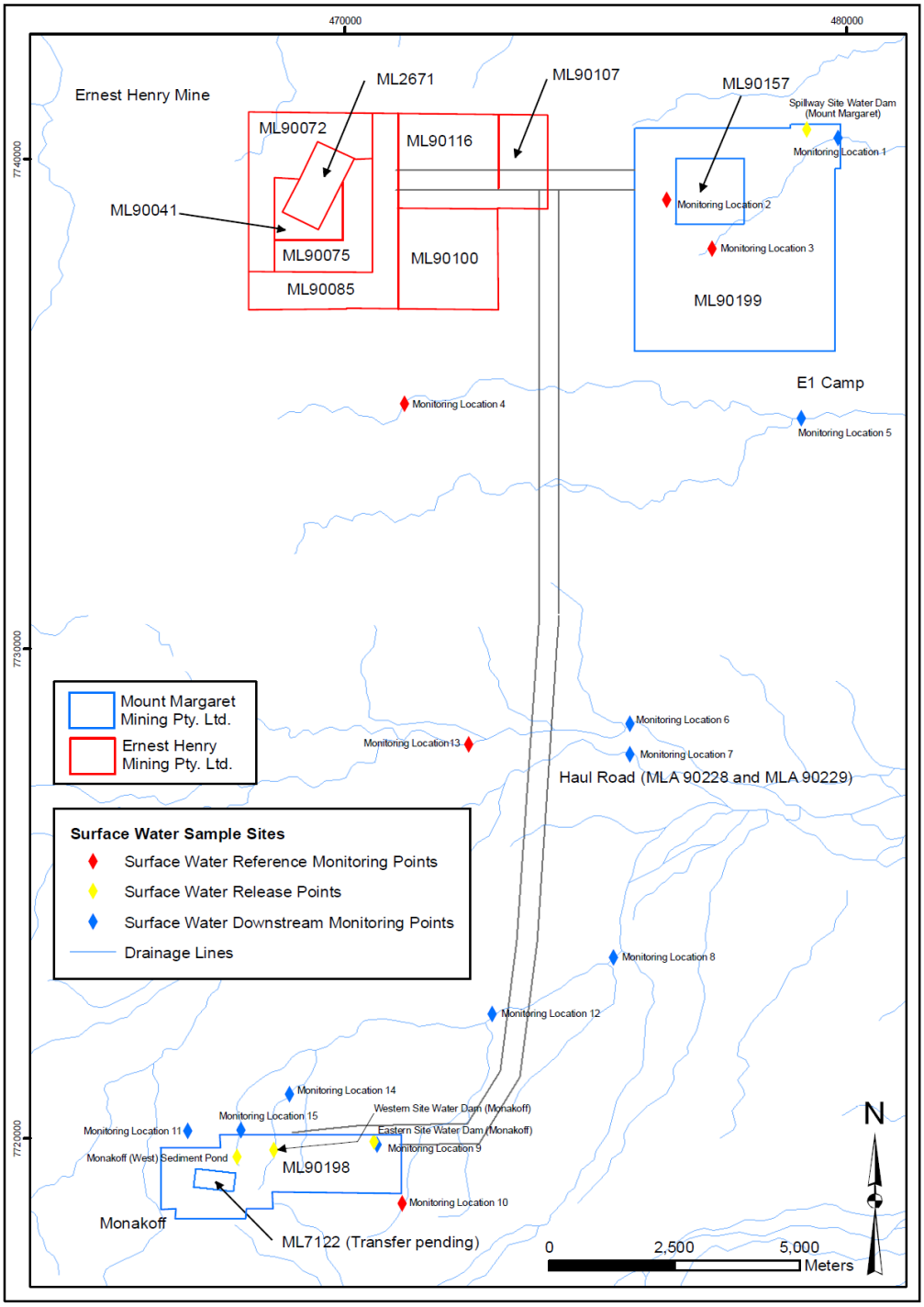

**Figure 5 Ground water monitoring locations map - Mt Margaret Project Area**

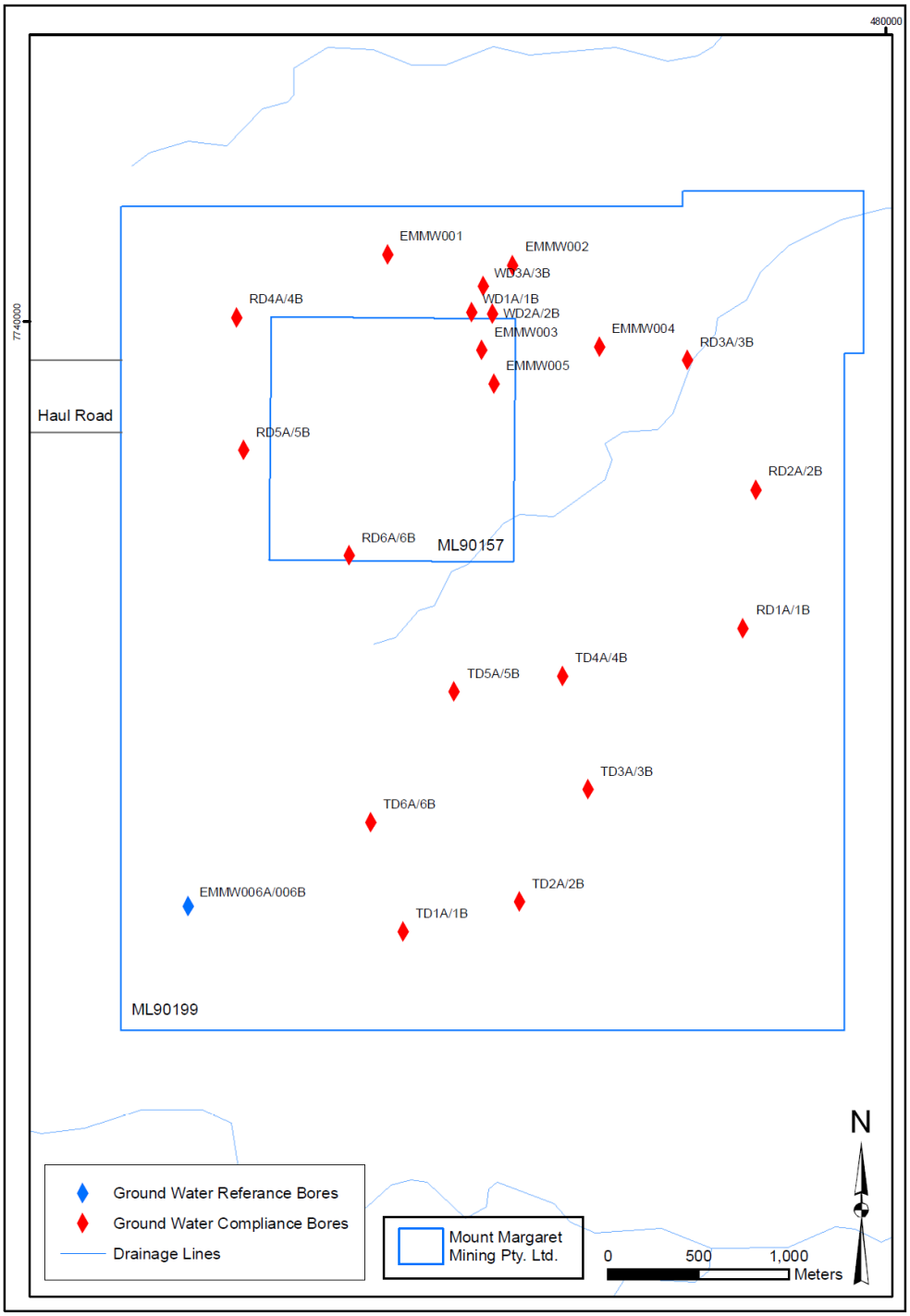

**Figure 6 Ground water monitoring locations map - Monakoff Project Area**

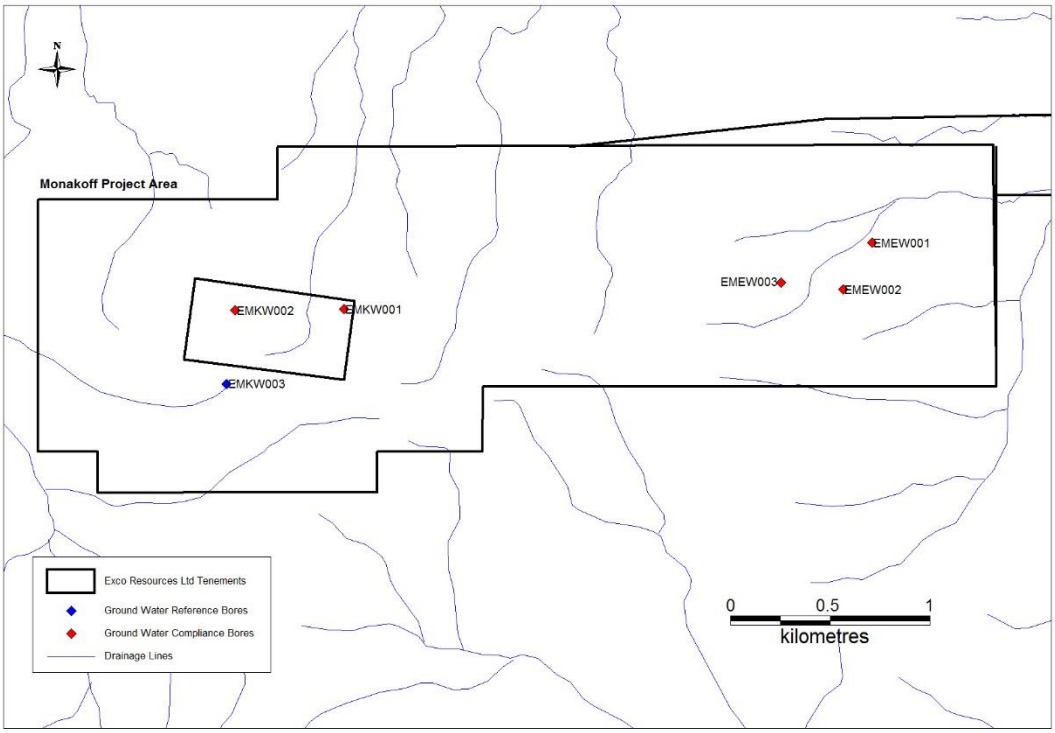

**Figure 7 Sewage treatment plant and effluent disposal**

[MAP TO BE PROVIDED PRIOR TO COMMISSIONING OF SEWAGE TREATMENT PLANT]

END OF CONDITIONS FOR SCHEDULE H

## END OF ENVIRONMENTAL AUTHORITY