

LUCKY BREAK PROJECT PLAN OF OPERATIONS

PREPARED FOR
SCONI MINING OPERATIONS PTY LTD

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BRISBANE OFFICE
Suite 5, 1 Swann Road
Taringa, QLD 4068
P +61 7 3217 8772

CAIRNS OFFICE
PO Box 4887
Cairns, QLD 4879
P +61 7 4057 9402

E info@aacrc.net.au
AARC.NET.AU
ACN. 620 818 920
ABN. 71 620 818 920

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Author: Hollie Dick
Project Manager: Julie Byrd
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Estimates and maps for areas of disturbance, or areas that will be disturbed on the Project site have been supplied by Sconi Mining Operations Pty Ltd.

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LIST OF ABBREVIATIONS

AARC	AARC Environmental Solutions Pty Ltd
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AUZ	Australian Mines Limited
DAF	Department of Agriculture and Fisheries
DES	Department of Environment and Science
DSA	Design Storage Allowance
EA	Environmental Authority
EC	Electrical Conductivity
EMS	Environmental Management Systems
EP Act	<i>Environmental Protection Act 1994</i>

FA	Financial Assurance
ha	hectares
ISQG	Interim Sediment Quality Guidelines
km	kilometres
KT	Kilo tonnes
ML	Mining Lease
MRL	Mandatory Reporting Level
NATA	National Association of Testing Authorities
NUMA	Non-use Management Area
OCP	Open Cut Pit
PMLUP	Post Mining Land Use Plan
PoO	Plan of Operations
QNPL	Queensland Nickel Pty Ltd
REMP	Receiving Environment Monitoring Program
ROM	Run of Mine
RPEQ	Registered Professional Engineer of Queensland
Sconi	Sconi Mining Operations Pty Ltd
SWMP	Site Water Management Plan
TDS	Total Dissolved Solids
The Project	Lucky Break Project
WRD	Waste Rock Dump

1.0 INTRODUCTION

AARC Environmental Solutions Pty Ltd (AARC) was commissioned by Australian Mines Ltd (AUZ) on behalf of Sconi Mining Operations Pty Ltd to develop a replacement Plan of Operations (PoO) for the Lucky Break Project (the Project). This PoO will replace the previous PoO, which was submitted to the Department of Environment and Science (DES) in December 2015.

1.1 BACKGROUND

The Lucky Break Project is located at the Spyglass Beef Research Station, approximately 100 kilometres (km) north of Charters Towers and 140 km west of Townsville in North Queensland. The Project incorporates two Mining Leases (ML) identified as ML 10324 and ML 10332, which combined encompass approximately 103 hectares (ha) of land.

Between March 2015 and July 2015 Queensland Nickel Pty Ltd (QNPL) mined approximately 114 kilotonnes (KT) (ore product tonnes) of nickel ore from the Dingo Dam deposit (ML 10324) under Environmental Authority (EA) EPML009007131 held by Nornico Pty Ltd. The mining campaign specifically targeted nickel ore within the deposit that was suitable for processing at the QNPL Refinery near Townsville. Nickel ore mined by QNPL was transported to Townsville in B-Double trucks via the approved B double route; Gregory Development Road, Harvey's Range Road, Black River Road, Bruce Hwy and Greenvale Street.

At the completion of mining activities at the site, QNPL commenced rehabilitation of the site including removal of infrastructure, re-profiling of the waste dump, reducing batter angles of the residual void, installing stormwater controls, ripping hardstand areas, spreading topsoil, seeding and installing fences.

To date, no mining activities or related disturbance has been undertaken within the Lucky Break ML (ML 10332).

1.2 TERM OF PLAN

This PoO details the activities to be undertaken at Lucky Break during the term of the PoO. The term of the PoO will cover a period of five (5) years, from 2nd November 2018 to 1st December 2023. During the term of this PoO the Lucky Break Project will remain in 'care and maintenance'. Limited activities will include those associated with rehabilitation and environmental monitoring.

This PoO replaces the PoO submitted in December 2015. An amended EA was issued on March 9, 2018 following a change to the EA holder, from Nornico Pty Ltd to Sconi Operations Pty Ltd. No other changes are proposed as part of this PoO.

1.3 ENVIRONMENTAL PROTECTION ACT 1994 REQUIREMENTS

The *Environmental Protection Act 1994* (EP Act) defines criteria that the PoO must address. Table 1 below demonstrates compliance with the EP Act.

Table 1 EP Act Requirements

EP Act Section	EP Act Requirement	PoO Section
s288(1)(a)(i)	Description of each relevant lease for the EA	2.3
s288(1)(a)(ii)	Description of the land to which each relevant lease applies	2.3
s288(1)(a)(iii)	Description of the land to which the Plan applies	2.3
s288(1)(b)	The period to which the Plan applies (the Plan period)	1.2
s288(1)(c)(i)	A Plan showing where all activities are to be carried out on the land	2.3
s288(1)(c)(ii)	An action program for complying with the conditions of the EA	4.0
s288(1)(c)(iii)	A rehabilitation program for land disturbed or proposed to be disturbed under each relevant lease	5.0
s288(1)(d)	The Plan must be accompanied by a compliance statement	6.0
s288(1)(e)	The Plan must be accompanied by the fee prescribed under a regulation	Attached

The format for this PoO reflects the DES guidelines *Preparing a plan of operations and audit statement for level 1 mining projects* (EPM1009, Version 5). The conditions referred to in the Plan's Action Program (Section 4.0) are those contained in the Lucky Break Project EA EMPL00900713 as amended in March 2018.

The financial assurance calculation for the Project has been updated in accordance with the DES Guideline: *Financial assurance under the Environmental Protection Act 1994* (ESR/2015/1758).

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Project is located on Spyglass Beef Research Station, approximately 100 km north of Charters Towers and 140 km west of Townsville in North Queensland, within the Charters Towers Regional Council. The regional location of the Project is shown in Figure 1.

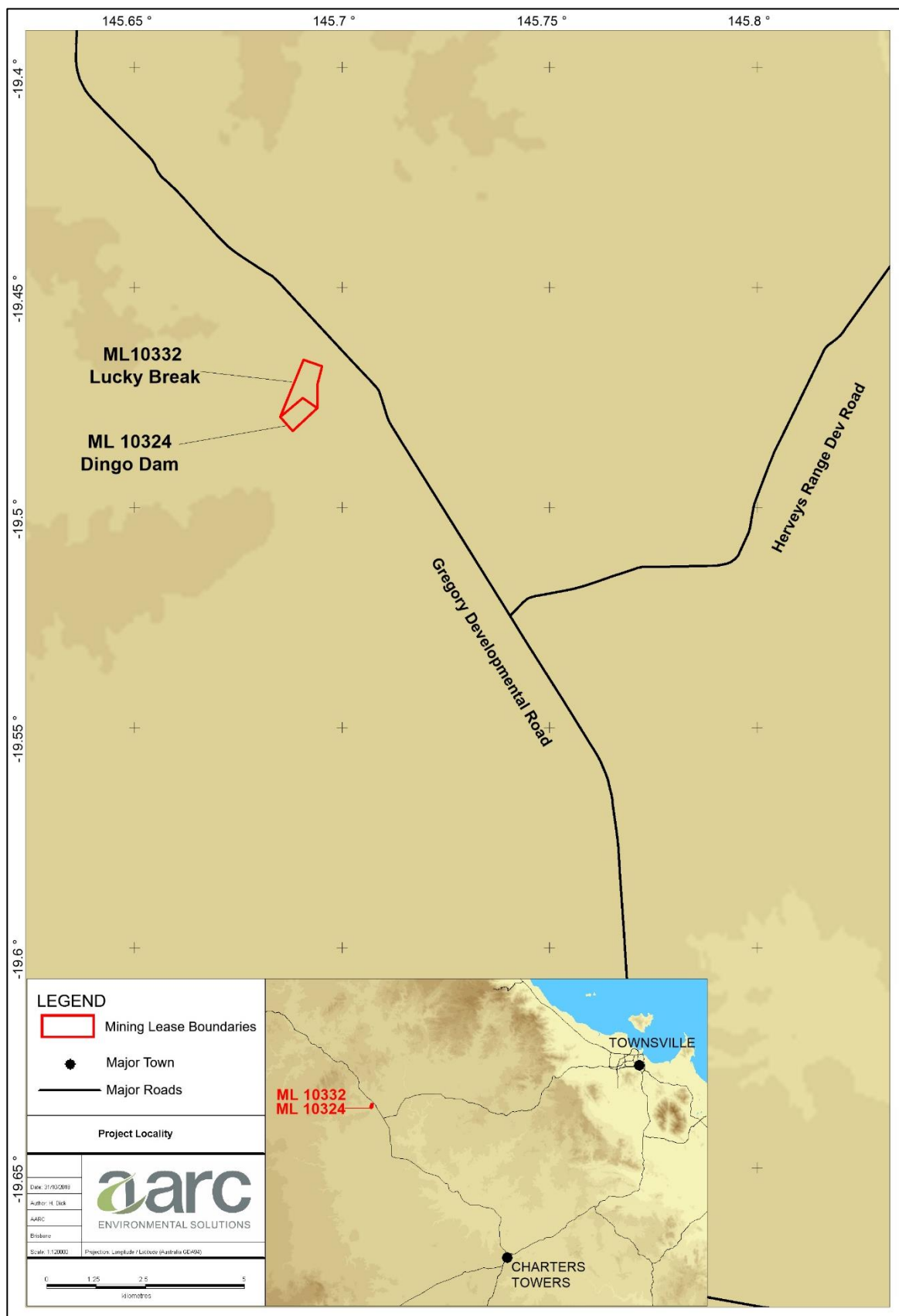


Figure 1 Regional Location of the Project

2.2 ENVIRONMENTAL AUTHORITY HOLDER

The details of the Project's current EA are summarised below. A copy of the EA is provided in Appendix A.

Environmental Authority (EA): EPML00900713

Environmental Authority Holder: Sconi Mining Operations Pty Ltd

Relevant Mining Leases: ML 10324 and ML 10332

2.3 PROJECT TENEMENTS

All tenements associated with the Lucky Break Project are detailed in Table 2 and illustrated in Figure 2. Real property descriptions of lot/plans underlying Project tenements are also provided in Table 2. The entire Project site falls within the Spyglass Station research facility (Lot 1 OC57), which is owned and operated by the Queensland Department of Agriculture and Fisheries (DAF).

Table 2 Lucky Break Tenements

Permit Number	Permit Name	Permit Status	Grant Date	Expiry Date	Surface Area (hectares (ha))	Real Property Description
ML10324	Dingo Dam	Granted	16/02/2005	28/02/2026	36.2	Lot 1 OC57
ML10332	Lucky Break	Granted	22/11/2007	30/11/2027	66.5	Lot 1 OC57

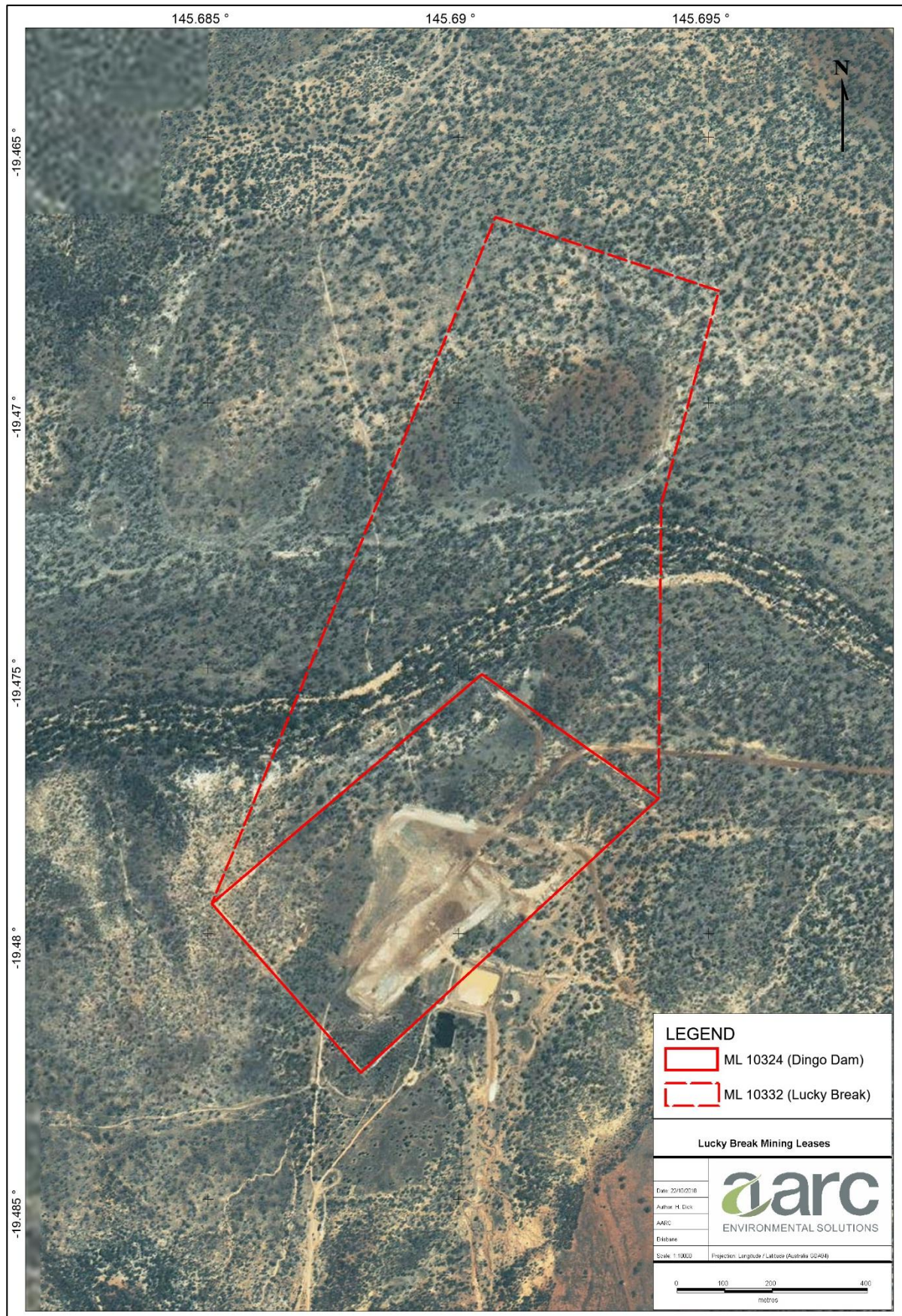


Figure 2 Lucky Break Project Tenements

2.4 ENVIRONMENTALLY RELEVANT ACTIVITIES

The Project's EA permits several Environmentally Relevant Activities (ERAs) under the *Environmental Protection Regulation 2008*. These activities are listed in Table 3 below. The Lucky Break Project will remain in 'care and maintenance' for the period of the Plan term. No ERAs will be undertaken during the term of the PoO.

Table 3 Environmentally Relevant Activities Authorised under the Project's EA

Environmentally Relevant Activity	Location(s)
Resource Activity, Schedule 2A, 15: Mining nickel ore	ML 10324 and ML 10332
Resource Activity, Ancillary 33: Crushing, milling, grinding or screening, crushing, grinding, milling or screening more than 5000t of material in a year	ML 10324 and ML 10332

2.5 NOTIFIABLE ACTIVITIES

No notifiable activities as identified in Schedule 3 of the *Environmental Protection Act 1994* (EP Act), will be undertaken during the term of this Plan.

3.0 NATURE AND EXTENT OF PROJECT ACTIVITIES

To date, mining activity has occurred entirely within the Dingo Dam deposit (ML10324). No mining activities are currently occurring on either of the Lucky Break leases (ML10324 and ML10332). The Lucky Break Project will remain in 'care and maintenance' with no further mining activities planned for either ML10324 or ML10332 during the term of this PoO.

The activities scheduled during this PoO are limited to ongoing environmental monitoring and rehabilitation maintenance within the Dingo Dam ML (ML10324).

While all areas of existing mine disturbance on the Dingo Dam ML have undergone rehabilitation, rehabilitation success to date has been limited. All areas previously disturbed by mining activities will be subject to rehabilitation maintenance and monitoring activities during the term of this PoO. Some areas of existing disturbance may require remedial works such as erosion control, ripping and seeding to encourage the establishment of vegetation.

3.1 SUMMARY OF PROPOSED ACTIVITIES

A summary of activities to be undertaken on each mining tenure during the term of the Plan is provided below.

Dingo Dam (ML 10324)

- Conduct environmental monitoring, including sampling of pit water, groundwater, surface water and stream sediments in accordance with the EA;
- Undertake rehabilitation activities on the Dingo Dam ML; and
- Manage, monitor and maintain rehabilitated areas on Dingo Dam ML.

Lucky Break (ML 10332)

- The Lucky Break ML remains undisturbed and no exploration or mining activities are proposed on this ML during the term of the Plan.

4.0 ACTION PROGRAM

Table 4 details the control strategies and actions that are or will be implemented to maintain compliance with the Project's EA conditions during the term of the PoO.

Table 4 Action Program for Luck Break Project

EA Condition*	Control Strategy	Action Program
Activity (A1) This EA authorises environmental harm referred to in the conditions. Where there is no condition or this EA is silent on a matter, the lack of a condition or silence shall not be construed as authorising environmental harm. (A2) The activities approved under this EA must be undertaken in accordance with plans/maps included in Schedule I.	Mine personnel are aware of the scope of activities authorised by the EA and the conditions contained within the EA. Mine personnel are aware of the limits to the area of disturbance.	Ensure Mine Management and Supervisors are aware of the scope of activities approved under the EA and the conditions of the EA. For any proposed new activities that have the potential to cause harm, AUZ will obtain administering authority clarification regarding the approval process, prior to commencement of the activity. Significant disturbance and associated mining activities were undertaken in accordance with Schedule 1 of the EA previously held by NORNICO. No further disturbance or mining activities are proposed to be undertaken at the Project site during the period of this plan.
Maintenance of measures, plant and equipment (A3) The holder of this EA must: a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this EA; b) Maintain such measures, plant and equipment in a proper condition; and c) Operate such measures, plant and equipment in a proper manner.	All measures, plant and equipment on site will be fit for purpose, properly installed, operated and maintained.	Plant and equipment used during mining operations have been removed from the Project site. Any plant or equipment used on site for rehabilitation purposes will be properly maintained and operated to ensure compliance with the EA. Other measures, such as stormwater controls have been properly installed, and will continue to be properly operated and maintained.

EA Condition*	Control Strategy	Action Program
(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.	Implement management of change processes.	Plant and equipment required for mining activities have been removed from the Project site. Plant and equipment may be required on site temporarily to support rehabilitation activities and will be removed following the completion of activities. The environmental risk of introducing plant or equipment will be reviewed and controls will be implemented to prevent environmental harm.
Monitoring (A5) Except where specified otherwise in another condition of this EA, all monitoring records or reports required by this EA must be kept for a period of not less than 5 years. (A6) The holder of this EA must, when requested by the administering authority, supply monitoring records, plans and reports in the form and by the means requested by the administering authority within a timeframe nominated or agreed to by the administering authority.	Undertake environmental monitoring and maintain monitoring records in accordance with the AUZ Records Management Standard & Environmental Monitoring Standard. Seek administering authority authorisation for analyses and tests required under the EA. Develop and implement environmental monitoring programs as required and maintain monitoring records and reports in accordance with the AUZ Environmental Monitoring	All environmental monitoring records will be retained by AUZ for a minimum of 5 years. Environmental monitoring will be undertaken by trained and competent Environmental Staff. Monitoring methodologies to be developed and documented along with monitoring results. Monitoring records, plans and reports will be prepared and provided to the administering authority upon request.

EA Condition*	Control Strategy	Action Program
(A7) All monitoring referred to in this EA must be undertaken by an appropriately qualified person using monitoring equipment that is accurately calibrated and maintained in accordance with manufacturer's specifications. (A8) Except as otherwise authorised by the administering authority, all analysis and tests required to be conducted under this EA must be carried out by a laboratory that has NATA certification for such analysis and tests.	Standard and Records Management Standard. Undertake environmental monitoring and maintain monitoring records in accordance with the AUZ Records Management Standard & Environmental Monitoring Standard. All analysis to be undertaken by a National Association of Testing Authorities (NATA) certified laboratory.	All environmental monitoring equipment will be properly calibrated and maintained to manufacturer's specifications. Environmental monitoring will be undertaken by trained and competent Environmental Staff. All samples will be sent to a NATA certified laboratory and analysed accordingly.
Financial assurance (A9) The activity must not be carried out until the EA holder has given financial assurance to the administering authority as security for compliance with this EA and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.	Provide the required financial assurance as required by the administering authority.	The required financial assurance was lodged with administering authority prior to mining activities commencing at the site and remains in place. The amount of financial assurance has been reviewed as part of this replacement PoO (refer section 5.6)

EA Condition*	Control Strategy	Action Program
(A10) The amount of financial assurance must be reviewed by the holder of this EA when a PoO is amended or replaced or the authority is amended.	Provide the required financial assurance as required by the administering authority.	The amount of financial assurance has been reviewed as part of this replacement PoO (refer section 5.6)
Risk management (A11) The holder of this EA must develop and implement an environmental management system for mining activities which mirrors the content requirement of the Standard for Environmental Management Systems (ISO14001:2004) or the latest edition of an Australian standard for environmental management systems by 31 July 2015.	Project to be managed in accordance with an EMS that mirrors ISO14001.	AUZ to develop an EMS certified to ISO14001 or in accordance with an Australian standard for environmental management systems. The Lucky Break Project will be managed in accordance with the requirements of the AUZ EMS. Site specific environmental standards will be developed if required.
Notification of emergencies, incidents and releases (A12) The holder of this EA must notify the administering authority by written notification within 24 hours, after becoming aware of an 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 EA.	AUZ Management Team is aware of environmental incident reporting requirements under the EA.	Ensure the AUZ Management Team and Supervisors are aware of the environmental incident reporting requirements and applicable timelines under the EA. External notification of incidents to be undertaken in accordance with condition A12 .
(A13) Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further	AUZ Management Team is aware of environmental incident reporting	Ensure the AUZ Management Team and Supervisors are aware of the environmental incident reporting requirements and applicable timelines under the EA.

EA Condition*	Control Strategy	Action Program
written advice must be provided to the administering authority, including the following: d) results and interpretation of any samples taken and analysed; e) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; f) proposed actions to prevent a recurrence of the emergency or incident. (A14) The holder of this EA must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.	requirements under the EA. Implement environmental monitoring in accordance with Condition A14 if requested by the Administering Authority.	External notification of incidents to be undertaken in accordance with conditions A12 and A13. Environmental monitoring to be implemented as required by a request by the Administering Authority in accordance with condition A14 of the EA. Results of investigation to be provided to DES in accordance with the requirements of condition A14.
Complaints		

EA Condition*	Control Strategy	Action Program
(A15) The holder of this EA must record all environmental complaints received about the mining activities including: (a) name, address and contact number of the complainant; (b) time and date of complaint; (c) reasons for the complaint; (d) investigations undertaken; (e) conclusions formed; (f) actions taken to resolve the complaint; (g) any abatement measures implemented; and (h) person responsible for resolving the complaint.	Maintain records in accordance with AUZ Records Management Standard.	All complaint details will be recorded in accordance with condition A15. Investigation details and findings to be recorded in a database. To date, no environmental complaints have been received.
Third-party Auditing (A16) The holder of this EA must: (a) By 31 July 2016 obtain from an appropriately qualified person a report on compliance with the conditions of this EA; (b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and	AUZ Management Team is aware of third party compliance reporting requirements under the EA.	Engage a suitably qualified third party to complete a report on compliance with the EA by 31 July 2019.

EA Condition*	Control Strategy	Action Program
(c) provide each report to the administering authority within 90 days of its completion.		
Exploration (A17) 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 (the code). Where a condition in this EA refers to a matter addressed in the code, the condition of this EA is taken to prevail.	All exploration activities to be conducted in line with the EA.	No exploration activities are planned within the term of this PoO.
Transition to Standards (A18) Where a condition of this EA requires compliance with a standard, policy or guideline published externally to this EA and the standard is amended or changed subsequent to the issue of this EA, the holder of this EA must: (a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to	Lucky Break Management Team to maintain awareness of changes to standards, policies and guidelines and standards of relevance to the EA.	Changes to standards, policies and guidelines and standards of relevance to the EA are to be managed in accordance with condition A18 .

EA Condition*	Control Strategy	Action Program
in Schedule D – Regulated Dams, the time specified in that condition (b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.		
Schedule: Air		
General (B1) Unless authorised by this EA, the release of noxious or offensive odour, dust or any other airborne contaminant resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.	Ensure mining activities do not result in environmental nuisance at sensitive / commercial places in relation to dust or particulate matter emissions	AUZ is to maintain a Complaints Handling Policy and a Complaints Register for the Project. Any complaints of nuisance at a sensitive / commercial place will be recorded and dealt with in accordance with the relevant policies and procedures.
(B2) The holder of this EA must ensure that motor vehicles (including trains) used for transporting bulk materials have appropriate load preparation to prevent the spillage and / or loss of material, particulate matter and / or windblown dust during transport.	Ensure motor vehicles (including trains) used for transporting bulk materials have appropriate load preparation to prevent the spillage and / or loss of material, particulate matter and / or windblown dust during transport.	Bulk materials may be transported to or within the Project area during rehabilitation activities. AUZ will ensure motor vehicles (including trains) used for transporting bulk materials have appropriate load preparation to prevent the spillage and / or loss of material, particulate matter and / or windblown dust during transport.

EA Condition*	Control Strategy	Action Program
Nuisance Limits for Dust and Particulates (B3) The holder of this EA must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of 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 most recent version of <i>Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method</i> and <i>Australian Standard AS/NZS3580.1.1:2007 Methods for sampling and analysis of ambient air, Part 1.1: Guide for siting air monitoring equipment</i> (or more recent versions as they become available). Note: Five (5) days of exceedances allowed each year including natural causes.	Take all reasonable avoidance and mitigation strategies to minimise the likelihood of exceedances of the specified limits at sensitive / commercial places. Conduct monitoring to provide evidence against or in support of claims or complaints of environmental nuisance.	Dust avoidance and mitigation measures to be implemented on an as required basis during the 'care and maintenance' and rehabilitation phase of operations. AUZ will undertake monitoring as outlined in condition B3 during the term of this PoO.

EA Condition*	Control Strategy	Action Program
Meteorological monitoring (B4) The holder of this EA must record, compile, evaluate and keep all monitoring records obtained from the permanent meteorological station.	Record, compile, evaluate and keep all monitoring records obtained from the permanent meteorological station.	AUZ will commit to installation of a meteorological station if on-site activities are amended from 'care and maintenance'. Until then, meteorological data will be obtained from the nearest established weather station. All data will be recorded, compiled, evaluated and kept.
Schedule: Land		
Rehabilitation Objectives (C1) Land disturbed by mining must be rehabilitated in accordance with Table C1 -Rehabilitation Requirements .	Rehabilitate all areas subject to significant disturbance to stable landforms with self-sustaining vegetation.	Rehabilitation activities were undertaken at the completion of mining at Dingo Dam. Rehabilitation activities to be undertaken during the term of this Plan may include remedial works in erosion prone areas, ripping, topsoiling and seeding as required. AUZ will develop rehabilitation objectives, indicators and completion criteria and document them in the Post Mining Land Use Plan (PMLUP) as required by condition C4 if on-site activities change from 'care and maintenance'.
(C2) Rehabilitation must commence progressively as areas become available and in accordance with the PoO.	Commence progressive rehabilitation within 12 months of an area becoming available.	Rehabilitation activities were undertaken at the completion of mining at Dingo Dam. A rehabilitation schedule for previously disturbed and rehabilitated areas has been prepared as part of this PoO, to ensure compliance with the conditions of the EA.
Topsoil (C3) Topsoil and subsoils must be stripped and stockpiled ahead of mining to a depth determined	Salvage topsoil material prior to mining activities for use in rehabilitation.	Rehabilitation activities were undertaken at the completion of mining at Dingo Dam. Rehabilitation management and enhancement

EA Condition*	Control Strategy	Action Program
from soil surveys to ensure that useable soil resources are preserved for rehabilitation.		activities may require topsoil to be re-stripped and temporarily stockpiled for later use in rehabilitation.
Post Mine Land Use Plan (C4) The holder must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP) by 30 November 2016 and update and resubmit the plan with each subsequent PoO. The PMLUP must describe how the rehabilitation objectives in Table C1 – Rehabilitation requirements will be achieved. On acceptance of the PMLUP by the administering authority, rehabilitation objectives, indicators and completion criteria must be specified in the environmental authority. The Post Mine Land Use Plan must include: (a) residual void investigation in accordance with Condition (C9); (b) schematic representation of final land form inclusive of drainage features; (c) slope design; (d) cover design; (e) drainage design;	A PMLUP that satisfies the requirements of condition C4 will be developed within the required timeframe.	AUZ to develop a PMLUP that satisfies the requirements of condition C4.

EA Condition*	Control Strategy	Action Program
(f) erosion controls proposed on reformed land; (g) description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design; (h) proposed revegetation methods inclusive of plant species selection, re-profiling, resspreading soil, soil ameliorants/amendments, surface preparation and method of propagation; (i) materials balance including available top soil and low permeability capping material; (j) geotechnical, geochemical and hydrological studies; (k) chemical, physical and biological properties of soil and water; (l) performance criteria for the cover system; and (m) a rehabilitation monitoring program.		
Post Closure Management Plan (C5) A Post Closure Management Plan for the site must be prepared at least thirty-six (36) months prior to final production onsite and implemented for a nominal period of:	Developed and implement a Post Closure Management Plan that satisfies conditions C5 and C6 within the required timeframe.	Develop and implement a Post Closure Management Plan.

EA Condition*	Control Strategy	Action Program
(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 18 months prior to final production onsite. (C6) 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;	Developed and implement a Post Closure Management Plan that satisfies conditions C5 and C6 within the required timeframe.	Developed and implement a Post Closure Management Plan in accordance with condition C6.

EA Condition*	Control Strategy	Action Program
iv) erosion rates; v) the integrity and effectiveness of final cover systems; and vi) the health and resilience of vegetative cover.		
Residual Void Outcome (C7) 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 EA. (C8) The holder of this EA must manage mining voids during the operation and decommissioning phases to maximise the potential post mine beneficial uses, by consideration of the following: (a) limiting sulphide exposures in void walls; and (b) capping of sulphide exposures in void base; and (c) limiting period of exposure of sulphides in void walls and base to oxidising conditions; and (d) managing catchment into the void; and	Any residual voids to be managed in accordance with the Landholder Compensation Agreement and EA conditions. Any residual voids to be managed in accordance with the Landholder Compensation Agreement and EA conditions.	The residual void had been re-contoured, decommissioned and fenced to exclude livestock. In accordance with the Landholder Compensation Agreement and the conditions of the EA the residual void will remain fenced until water quality complies with ANZECC Livestock drinking water limits. The Dingo Dam residual void was re-contoured and decommissioned at the completion of mining. The residual void will be managed in accordance with the Landholder Compensation Agreement and the conditions of the EA during the term of this Plan.

EA Condition*	Control Strategy	Action Program
(e) geo-technical stability of final void. (C9) Decommissioning strategies for the final voids must be provided in the Post Mine Land Use Plan including the following information: (a) final potential wall and base rock exposure quality in terms of acid producing potential and levels of environmentally relevant salts and metals; and (b) expected periods of exposure for wall and base rock with acid producing potential; and (c) management options for maximising final void water quality; and (d) assessment of potential final void water quality	Decommissioning strategies for final voids to be developed in accordance with the conditions of EA and included in the PMLUP	The Dingo Dam residual void was re-contoured and decommissioned at the completion of mining. Ongoing management of the residual void during the term of this Plan will be in accordance with the Landholder Compensation Agreement and the conditions of the EA. No new voids are proposed to be constructed or decommissioned during the term of this Plan.
Saline, Acid and Metalliferous Drainage (C10) The holder of this EA must ensure effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid and/or metalliferous mine drainage.	Manage waste rock in accordance with the waste rock management plan	Waste rock generated during past mining activities was suitably managed during decommissioning at the completion of mining. No new waste rock is to be generated during the term of this Plan.
(C11) Only waste rock that is characterised as unreactive/benign material that will not cause environmental harm (such as acid, neutral or saline mine drainage) may be used for the construction of	Manage waste rock in accordance with the waste rock management plan	Waste rock generated during past mining activities was suitably managed during decommissioning at the completion of mining. No new waste rock is to be generated during the term of this Plan.

EA Condition*	Control Strategy	Action Program
temporary or permanent structures within the operation areas.		
Infrastructure (C12) 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 landowner.	Remove any infrastructure except where agreed in writing with the landowner.	All infrastructure was removed from the Project site at the completion of mining. No new infrastructure will be introduced to the Project site during the term of this Plan.
Chemicals and flammable or combustible liquids (C13) 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 current, relevant Australian Standard where such is applicable.	Store fuels and chemicals in accordance with the relevant Australian Standard.	No fuels or chemicals are to be stored on site during the term of this Plan. Where chemicals are used in rehabilitation management activities, these will be stored and handled in accordance with the current, relevant Australian Standard where applicable.
Contaminated Land (C14) Any spillage of wastes, contaminants or other materials must be cleaned up promptly. 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.	Spills to be cleaned up in accordance with EMS Procedures.	No spillage of wastes, contaminants or other materials is likely to occur under 'care and maintenance' during the term of this PoO. Any spills to be cleaned up in accordance with EMS Procedures.

EA Condition*	Control Strategy	Action Program
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.	Complete an assessment of consequence category for the pit void prior to any change in its purpose or the nature of the stored contents.	Complete an assessment of consequence category and hydraulic performance for the pit void prior to any change in use or the nature of the stored contents. No activities involving a change to the pit void purposed or stored contents are proposed during the term of this Plan.
(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.	Prepare a consequence assessment report and certification for any structure assessed.	No activities involving a change to the pit void purpose or stored contents are proposed during the term of this Plan. Consequence assessment report and certification for the pit void not likely to be required during the term of this PoO.
(D3) Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>.	Consequence category certification for any structure is to be undertaken by the same suitably qualified and experienced person who	No activities involving a change to the pit void purpose or stored contents are proposed during the term of this Plan. Where a pit void assessment and certification are required, this will be undertaken by a suitably qualified and experienced person.

EA Condition*	Control Strategy	Action Program
	completed the assessment.	
Design and construction of a regulated structure (D4) 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 <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> . (D5) 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. (D6) 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 <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> and must be recorded in the Regulated Dams/Levees register.	Design and construct any regulated structures in accordance with the requirements of the EA. Design and construct any regulated structures in accordance with the requirements of the EA. Design and construct any regulated structures in accordance with the requirements of the EA.	Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures are proposed during the term of this Plan. Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures are proposed during the term of this Plan. Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures are proposed during the term of this Plan.

EA Condition*	Control Strategy	Action Program
(D7) 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. c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.	Design and construct any regulated structures in accordance with the requirements of the EA	Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures are proposed during the term of this Plan.

EA Condition*	Control Strategy	Action Program
(D8) 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.	Design and construct any regulated structures in accordance with the requirements of the EA	Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures are proposed during the term of this Plan.
Operation of a regulated structure (D9) Operation of a regulated structure, except for an existing structure, is prohibited unless: (a) the holder has submitted to the administering authority: i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition D5, and ii) a set of 'as constructed' drawings and specifications, and iii) certification of those 'as constructed' drawings and specifications in accordance with condition D8, and	Operate any regulated structures in accordance with the requirements of the EA.	Activities conducted during the term of this Plan will be limited to 'care and maintenance' and rehabilitation activities. No new regulated structures will be constructed or operated during the term of this Plan.

EA Condition*	Control Strategy	Action Program
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.		
Mandatory reporting level (D10) Conditions (D11) to (D14) inclusive only apply to Regulated Structures which have not been certified as low consequence category for ‘failure to contain – overtopping’. (D11) 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.	Manage MRL for regulated structures in accordance with the requirements of the EA. Manage MRL for regulated structures in accordance with the requirements of the EA.	The Project does not contain regulated structures. No new regulated structures are proposed to be constructed during the term of this Plan. The Project does not contain regulated structures. No new regulated structures are proposed to be constructed during the term of this Plan.

EA Condition*	Control Strategy	Action Program
(D12) 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.	Manage MRL for regulated structures in accordance with the requirements of the EA.	The Project does not contain regulated structures. No new regulated structures are proposed to be constructed during the term of this Plan.
(D13) 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	Manage MRL for regulated structures in accordance with the requirements of the EA.	The Project does not contain regulated structures. No new regulated structures are proposed to be constructed during the term of this Plan.
(D14) The holder must record any changes to the MRL in the Register of Regulated Structures.	Manage MRL for regulated structures in accordance with the requirements of the EA.	The Project does not contain regulated structures. No new regulated structures are proposed to be constructed during the term of this Plan.
Design storage allowance		
(D15) 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.	Manage the DSA for any regulated structures in accordance with the requirements of the EA.	The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked containment systems) are proposed to be constructed during the term of this Plan.
(D16) 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	Manage the DSA for any regulated structures in	The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked

EA Condition*	Control Strategy	Action Program
Allowance (DSA) volume for the dam (or network of linked containment systems). (D17) 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. (D18) 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.	accordance with the requirements of the EA. Manage the DSA for any regulated structures in accordance with the requirements of the EA. Manage the DSA for any regulated structures in accordance with the requirements of the EA.	containment systems) are proposed to be constructed during the term of this Plan. The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked containment systems) are proposed to be constructed during the term of this Plan. The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked containment systems) are proposed to be constructed during the term of this Plan.
Annual inspection report (D19) Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person. (D20) 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	Each regulated structure shall be inspected each calendar year by a suitably qualified and experienced person. Engage a suitably qualified person to inspect the condition and adequacy of regulated structures on an	The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked containment systems) are proposed to be constructed during the term of this Plan. The Project does not contain regulated structures or linked containment systems. No new regulated structures (or linked

EA Condition*	Control Strategy	Action Program
inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure. (D21) The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>. (D22) 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.	annual basis in terms of the elements described in condition D19. Ensure certification of the annual inspection report is provided by a suitably qualified person. Consider the report's recommendations and take action accordingly. Notify DES of the recommendations and actions to be taken within the nominated timeframe. Provide a copy of the annual inspection report to DES upon request (i.e. within 10 business days of receiving request).	containment systems) are proposed to be constructed during the term of this Plan. Prior to any changes in on site infrastructure and prior to any change from 'care and maintenance', an annual inspection report will be completed and certified by a Registered Professional Engineer of Queensland (RPEQ) in accordance with the current Manual. Recommendations will be implemented where necessary to ensure regulated structures maintain compliance. DES will be notified of actions taken / to be taken to address the recommendations. If requested by DES, a copy of the report will be provided as soon as possible.

EA Condition*	Control Strategy	Action Program
Transfer arrangements (D23) 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.	Provide copies of any reports, documentation, certifications required under the EA to a new EA holder in the event that the EA is transferred.	It is not anticipated that the EA will be transferred to a new EA holder during the term of this PoO.
Decommissioning and rehabilitation (D24) Dams must not be abandoned but be either: (a) decommissioned and rehabilitated to achieve compliance with condition (D25); 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 EA and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).	Decommission all regulated structures such that environmental harm is minimised and structures are compliant with condition D25 (i.e. safe, stable, non-polluting landforms consistent with the final land use in Table G4).	The pit void has previously been decommissioned, however remediation and rehabilitation management activities may be required during the term of this PoO. The existing aluminium concentration (8.04 mg/L) in the pit void remains above the ANZECC Livestock drinking water guideline level of 5 mg/L. This concentration has declined by 10mg/L since the last water quality testing event in 2016 indicating that water quality is returning to safe levels. Pit water quality monitoring will continue until such time that the water quality is deemed safe for stock consumption.

EA Condition*	Control Strategy	Action Program
(D25) After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria: (a) the landform is safe for humans and fauna; (b) the landform is stable with no subsidence or erosion gullies for at least three (3) years; (c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated; (d) not allowing for acid mine drainage; or (e) there is no ongoing contamination to waters (including groundwater); (f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the Instructions for the treatment and management of acid sulfate soils (2001); (g) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class; (h) for land that is not being cultivated by the landholder:	Ensure rehabilitation of the Project site achieves safe, stable, non-polluting landforms consistent with the relevant final land uses in Table C1, prior to surrender of the EA.	Following the completion of mining, decommissioning activities were undertaken including: • removal of infrastructure; • re-profiling of the waste dump; • reducing batter angles of the residual void; • installing stormwater controls; • ripping hardstand areas; • spreading topsoil; and • installing fences. Rehabilitation management and monitoring activities will be implemented during the term of this Plan to demonstrate compliance with condition D25.

EA Condition*	Control Strategy	Action Program
i) groundcover, that is not a declared pest species is established and self-sustaining ii) vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining, and iii) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies). (i) for land that is to be cultivated by the landholder, cover crop is revegetated, unless the landholder will be preparing the site for cropping within 3 months of petroleum activities being completed.		
Register of Regulated Dams (D26) A Register of Regulated Dams must be established and maintained by the holder for each regulated dam: (D27) 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.	Establish and keep up to date a Register of Regulated Structures. Provisionally enter information into the Register of Regulated Structures when the design plan is submitted to DES.	Where required, a Register of Regulated Structures will be established, adapted from the original DES template - <i>Regulated dam register ESR/2016/2506</i> (DES 2016c). This Register will be maintained by the Mine Manager or other designated site personnel. The Register will be updated in respect of any new regulated dam designs being submitted to DES.

EA Condition*	Control Strategy	Action Program
(D28) The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition (D9) has been achieved.	Update the Register of Regulated Structures with relevant information upon achieving compliance with condition D9 .	The Register will be updated as necessary following any new regulated structure reaching a point of complying with condition D9 .
(D29) The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.	Ensure all changes to dam information and new water quality data are updated in the Register of Regulated Structures as soon as possible.	The Register of Regulated Structures will be maintained by the Mine Manager or other designated site personnel and kept up to date at all times.
(D30) 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.	Assign a delegate of the CEO to approve all entries and changes to the Register of Regulated Structures.	Any entries or amendments to the Register of Regulated Structures will be approved by a delegate of the chief executive officer.
(D31) 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	Submit an electronic copy of the Register of Regulated Structures with the annual return.	Where relevant, an electronic copy of the Register of Regulated Structures will be provided to DES with the Project's annual return (due on 9 th March each year).

EA Condition*	Control Strategy	Action Program
Regulated Dams, in the electronic format required by the administering authority.		
Waste Disposal (E1) The only waste that can be disposed of on site is waste that is generated on site. Waste generated on site is limited to: - waste rock; and - general waste (including construction, demolition waste, green waste, putrescible and domestic wastes).	Manage site waste in accordance with conditions of the EA	All general and regulated waste was removed during decommissioning. Any general waste generated during 'care and maintenance' and rehabilitation activities will be removed from the mine site by a licensed contractor.
Regulated waste (E2) Regulated waste, other than that authorised to be disposed of on-site under this EA, must only be removed and transported from the site by a person who holds a current EA to transport such wastes to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994. (E3) 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.	Regulated waste to be removed from the site by a licensed contractor. Should waste be required to be stored on site it shall be stored in a manner that causes minimal risk of fire or contamination	All regulated waste was previously removed by a licensed contractor at the completion of mining. No regulated waste remains on site and none is to be generated at the site during the term of the PoO. All regulated waste was previously removed by a licensed contractor at the completion of mining. No regulated waste remains on site and none is to be generated at the site during the term of the PoO.

EA Condition*	Control Strategy	Action Program
(E4) Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents	Regulated waste to be removed from the site by a licensed contractor shall be clearly marked to identify its contents where needed.	All regulated waste was previously removed by a licensed contractor at the completion of mining. No regulated waste remains on site and none is to be generated at the site during the term of the PoO.
Tyre storage and disposal (E5) 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. (E6) 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. (E7) Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practicably implemented, waste tyres generated from mining activities may be disposed of on site in non-acid forming waste rock dumps or underground stopes.	Store scrap tyres in volumes less than 3m in height and 200m ² at least 10m from any other tyre storage areas. Implement fire prevention strategies. Implement onsite disposal only when all other options in the waste hierarchy have been investigated.	No tyres awaiting disposal or transport are currently stored on the Project site and none are intended to be stored on site during the term of the PoO. Any storage or disposal of tyres at the Lucky Break Project will follow the principles outlined in the <i>DES Operational Policy: Disposal and storage of scrap tyres at mine sites</i> , and the requirements of condition E5 . No tyres awaiting disposal or transport are currently stored on the Project site and none are intended to be stored on site during the term of the PoO. Any storage or disposal of tyres at the Lucky Break Project will follow the principles outlined in the <i>DES Operational Policy: Disposal and storage of scrap tyres at mine sites</i> , and the requirements of condition E6 . No tyres awaiting disposal or transport are currently stored on the Project site and none are intended to be stored or generated on site during the term of the PoO. The Project's Waste Management Plan is based on the principles of the waste hierarchy such that any waste tyres generated during the

EA Condition*	Control Strategy	Action Program
		term of the Plan will be disposed via a take-back, recycling or waste-to-energy procedure.
Waste rock disposal (E8) The holder of this EA must develop, implement and submit to the administering authority a waste rock management plan with the PoO and update and resubmit the plan with each PoO. (E9) Waste rock and spoil disposal must not occur on the site unless the holder has submitted to the administering authority a waste rock management plan. (E10) The waste rock management must 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 program to validate pre-mine waste rock characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations including (to be provided by proponent by 31 May 2012);	Implement the waste rock management plan in accordance with condition E10. Implement the waste rock management plan in accordance with condition E10. Abide by Conditions listed in condition E10 in the development of a waste rock management plan.	No waste rock is to be generated during the term of this Plan. No waste rock is to be generated during the term of this Plan. Given that no waste rock is to be generated during the term of this Plan, a waste rock management plan has not been developed. A waste rock management plan will be developed and submitted in accordance with condition E10, in the event that waste rock is to be generated.

EA Condition*	Control Strategy	Action Program
(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 potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the generation of acid mine drainage; (f) a materials balance and disposal plan demonstrating how waste rock that has a potential to generate neutral and/or saline mine drainage will be selectively placed and managed to minimise the generation of neutral and/or saline mine drainage; (g) a sampling program to verify encapsulation and/or placement of potentially acid forming / acid forming waste rock / waste rock that has a potential to generate neutral mine drainage;		

EA Condition*	Control Strategy	Action Program
(h) how often the performance of the plan will be assessed; (i) a Rehabilitation strategy which meets the rehabilitation objectives specified in Table C1 Rehabilitation Requirements; and (j) 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 acid mine drainage, erosion minimisation and establishment of vegetation cover. (E11) The waste rock dump must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.	The waste rock dump has been / will be constructed in such manner that no water other than the incidental rainfall shall enter the waste rock dump.	No waste rock dumps occur on the Project site. The waste rock dump previously generated by NORNICO has been rehabilitated and captures incidental rainfall only. No new waste rock dumps are proposed to be constructed during the term of this Plan.
Schedule: Acoustic		
Noise Monitoring (F1) Where requested by the administering authority, the holder of this EA must undertake noise monitoring in accordance with condition F2 and ensure that noise generated by the mining activities does not cause the criteria in Table F1 – Noise Limits to be	Where requested by the administering authority the holder of this EA will undertake noise monitoring in accordance with condition F2.	Where requested by the administering authority, the holder of this EA will have a suitably qualified and experienced person undertake noise monitoring in accordance with condition F2.

EA Condition*	Control Strategy	Action Program
exceeded at any sensitive place or commercial place. (F2) Noise monitoring and recording must include the following descriptor characteristics and matters: i) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); ii) Background noise LA90; iii) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; iv) Atmospheric conditions including temperature, relative humidity and wind speed and directions; v) Effects due to any extraneous factors such as traffic noise; vi) Location, date and time of monitoring; vii) If the complaint concerns low frequency noise, Max LpLIN,T; and viii) If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.	Conduct noise monitoring in accordance with Condition F2.	Noise monitoring will include all parameters detailed in condition E4.

EA Condition*	Control Strategy	Action Program
Schedule: Water		
General (G1) 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 EA.	Do not release contaminants to the receiving environment, either directly or indirectly, except as permitted by the EA.	Surface water at the mine to be managed in accordance with the requirements of the EA
Contaminant Release to Waters (G2) The release of contaminants to waters must only occur from the release points specified in Table G1 - Contaminant release points . These points are depicted in the plans/maps in Schedule I . (G3) The release of contaminants to waters from the release points must be monitored at the locations specified in Table G1 - Contaminant release points for each quality characteristic and at the frequency specified in Table G2 - Contaminant release limits . (G4) The release of contaminants to waters must not exceed the contaminant release limits stated in Table G2 - Contaminant release limits for each quality characteristic.	Water management to be in accordance with the requirement of the EA. Develop and implement surface water monitoring programs in accordance with the requirements of the EA. Water management to be in accordance with the requirement of the EA.	Surface water at the mine to be managed in accordance with the requirements of condition G2. Develop and implement routine and event-based surface water monitoring programs in accordance with the requirements of condition G3. Since decommissioning of the residual void, the total aluminium level in the pit water has declined from 18 mg/L to 8.04 mg/L remaining slightly above the release contaminant limit of 5 mg/L. Pit water levels remain low (< 1 m in depth) and no releases of contaminants are planned during the term of the Plan.

EA Condition*	Control Strategy	Action Program
		Implement EMS procedures and water quality monitoring programs to ensure that release of water from the site is consistent with the requirements of condition G4 .
Stream Flow Monitoring (G5) The release to waters must only occur when there is continuous water flows in the receiving water. (G6) The daily volume of contaminants released from each release point must be measured and recorded at the monitoring points in Table G1 - Contaminant release points whilst a release is occurring. (G7) 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. (G8) The EA holder must take reasonable action to provide all weather access to the receiving environment and background monitoring locations defined in Table G5 – Receiving water reference sites and downstream monitoring points .	Water management to be in accordance with the requirement of the EA. Water management to be in accordance with the requirement of the EA. Water management to be in accordance with the requirement of the EA. Water management to be in accordance with the requirement of the EA.	No releases are planned for the period of the Plan. No releases are planned for the period of the Plan. Implement EMS procedures and water quality monitoring programs to ensure that release of water from the site is consistent with the requirement of the EA. No releases are planned for the period of the Plan. Implement EMS procedures and water quality monitoring programs to ensure that release of water from the site is consistent with the requirement of the EA. Implement EMS procedures and water quality monitoring programs to ensure that release of water from the site is consistent with the requirement of the EA.
Onsite Water Storages (G9) Water storages stated in Table G3 - Water Storage Monitoring must be monitored for the	Monitor water storages at the specified locations and frequencies	Develop and implement monitoring program to meet EA conditions.

EA Condition*	Control Strategy	Action Program
water quality characteristics specified in Table G4 - Onsite water storage contaminant limits at the monitoring locations and at the monitoring frequency specified in Table G3 - Water storage monitoring. (G10) In the event that water storages defined in Table G3 - Water storage monitoring exceed the contaminant limits defined in Table G4 - Onsite water storage contaminant limits, the holder of the EA must implement measures, where practicable, to prevent access to waters by livestock.	Exclude livestock from the active mining area of the Dingo Dam Mine Site (ML10234).	Fencing, gates and cattle grids have been installed to exclude cattle from the mining lease (ML10324). AUZ to maintain fences until such time as the pit water quality falls within contaminant limits.
Receiving environment monitoring and contaminant trigger levels (G11) The quality of the receiving waters must be monitored at the locations specified in Table G5 - Receiving water reference sites and downstream monitoring points for each quality characteristic and at the frequency stated in Table G6 - Receiving waters contaminant trigger and contaminant limit levels, and Table G7 - Stream sediment trigger and contaminant levels. (G12) If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table G6 - Receiving waters contaminant trigger and contaminant	Monitor receiving waters at the specified locations and frequencies. Compare impact site results with specified trigger values and undertake an investigation	Develop and implement receiving environment monitoring program that satisfies the requirements of condition G11. AUZ will evaluate monitoring results and investigate exceedances of trigger levels / contaminant limits and identify potential sources of contamination in accordance with Condition G12.

EA Condition*	Control Strategy	Action Program
limit levels, the holder of this EA must compare the downstream results to the reference site results in the receiving waters and: (a) where the downstream result is 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 /-- AMPERSAN -- / 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 this G12(b) condition, no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period.	where trigger values and reference site values are exceeded. Notify DES where required	
(G13) Results of monitoring of receiving waters from downstream monitoring points identified in Table G5 - Receiving water reference sites and downstream monitoring points, must not exceed	Take all practicable measures to ensure downstream measurements do not	Develop and implement a routine and event based receiving water monitoring plan and compare monitoring results against contaminant limits in accordance with condition G13.

EA Condition*	Control Strategy	Action Program
any of the contaminant limits in Table G6 - Receiving waters contaminant trigger and contaminant limit levels .	exceed contaminant limits as stated in Table G6. Should downstream monitoring results identified in EA exceed the contaminant limits stated in Table G6, DES shall be notified.	
Stream Sediment (G14) Sediment quality must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Table G5 - Receiving water reference sites and downstream monitoring points and for the parameters defined in Table G7 - Stream sediment trigger and contaminant levels. These points are depicted on plans/maps in Schedule I. (G15) If quality characteristics of the sediment at the downstream monitoring points exceed any of the trigger levels specified in Table G7 - Stream Sediment Trigger and Contaminant Levels, the holder of this EA must compare the results of the downstream sites to the data from reference monitoring sites and:	Monitor sediment quality of receiving waters in accordance with the requirement of the EA. Monitor sediment quality of receiving waters in accordance with the requirement of the EA.	Develop and implement a sediment quality monitoring program in accordance with condition G14. Develop and implement a sediment quality monitoring program in accordance with the requirement of the EA If trigger values are exceeded, undertake an investigation in accordance with condition G15 as required.

EA Condition*	Control Strategy	Action Program
(c) 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 (d) 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 /-- AMPERSAN --/ 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 condition G15 (b), no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period. (G16) Results of monitoring of sediments from downstream monitoring points identified in Table G5 - Receiving water reference sites and downstream monitoring points, must not exceed any of the sediment contaminant limits in Table G7 - Stream Sediment Trigger and Contaminant Levels.	Monitor sediment quality of receiving waters in accordance with the requirement of the EA.	Develop and implement a sediment quality monitoring program in accordance with the requirement of the EA.

EA Condition*	Control Strategy	Action Program
Receiving Environment Monitoring Program (REMP) (G17) The EA holder must develop and implement a Receiving Environment Monitoring Program (REMP) by 3 December 2015 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 downstream environment and connected or surrounding waterways within 2km 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.	Develop and implement a Receiving Environment Monitoring Program (REMP) in accordance with condition G17.	Develop and implement a Receiving Environment Monitoring Program (REMP) in accordance with condition G17.
(G18) A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.	Document a REMP Design Document as required by Condition G18.	Develop a REMP Design Document as required by Condition G18. Provide the REMP Design Document to DES upon request.
(G19) A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on	Prepare an annual REMP report in accordance with	Prepare an annual REMP report in accordance with the requirements of condition G19.

EA Condition*	Control Strategy	Action Program
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.	the requirements of condition G19.	
Water General (G20) 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.	Ensure that the release of water to receiving waters does not produce visible discolouration, or slick, or other evidence of oil, grease or Petrochemicals.	No releases to receiving waters are planned for the period of the Plan. Monitoring and visual inspection of receiving waters will be conducted to identify potential contaminants in the receiving environment. If evidence of contaminants is found, steps will be taken to improve the quality of water being released and remediate downstream contamination.
Water Management Plan (G21) A Water Management Plan must be developed by an appropriately qualified person and implemented by 31 July 2016. (G22) Each year the holder of the EA must undertake a review of the Water Management Plan prior to the wet season (i.e. by 1 November) and a further	Develop a SWMP. Review the SWMP annually and	The Project will remain in 'care and maintenance' for the period of the Plan. A Site Water Management Plan should be developed at the cessation of the 'care and maintenance' phase, to ensure that proper and effective measures, practices or procedures are in place to prevent any risk of environmental harm. The SWMP should be reviewed routinely in accordance with condition G22 .

EA Condition*	Control Strategy	Action Program
review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this EA and that environmental harm is prevented or minimised.	subsequently prepare a review report, addressing the requirements of condition G22	
Groundwater (G23) Groundwater quality and level must be monitored at the locations and frequencies defined in Table G8 - Groundwater Monitoring Locations and Frequency. These points are depicted on plans/maps in Schedule I for quality characteristics identified in Table G9 - Groundwater quality triggers and limits. (G24) If quality characteristics of groundwater from Compliance bores identified in Table G8 - Groundwater Monitoring Locations and Frequency exceed any of the trigger levels stated in Table G9 - Groundwater quality triggers and limits, the holder of this EA must compare the Compliance bore results to the reference bore results and: (a) if the level of contaminants at the compliance bore does not exceed the reference bore results, then no action is to be taken; and	Develop and implement a groundwater monitoring program in accordance with the conditions of the EA. If groundwater trigger values are exceeded, undertake an investigation in accordance with the conditions of the EA	If on-site activities are amended from 'care and maintenance' activities, implement a groundwater monitoring program in accordance with condition G23. If groundwater trigger values are exceeded, AUZ is to undertake an investigation in accordance with the conditions of the EA.

EA Condition*	Control Strategy	Action Program
(b) if the level of contaminants at the compliance bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC /-- AMPERSAN --/ 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 G24 no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period. (G25) Results of monitoring of groundwater from compliance bores identified in Table G8 - Groundwater monitoring locations and frequency, must not exceed any of the limits in Table G9 - Groundwater quality triggers and limits. (G26) The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the	Develop and implement a groundwater monitoring program in accordance with the conditions of the EA. Bore construction, maintenance and decommissioning to be	Develop and implement a groundwater monitoring program in accordance with the conditions of the EA, if on-site activities are amended from 'care and maintenance'. Engage a licensed and experienced driller for installation of any monitoring bores required by the EA

EA Condition*	Control Strategy	Action Program
environment and ensures the integrity of the bores to obtain accurate monitoring (G27) 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.	undertaken in accordance with the EA requirements. Prepare and submit groundwater monitoring reports as required by condition of the EA	Prepare and submit groundwater monitoring reports as required by condition of the EA

*Refer to the reference list at the end of this document for publication details of the documents mentioned in the EA conditions.

5.0 REHABILITATION AND FINANCIAL ASSURANCE

5.1 REHABILITATION GOALS

Whilst no new disturbance is proposed during the term of this Plan, the Dingo Dam ML contains areas of existing disturbance owing to the activities previously undertaken by QNPL. At the completion of mining, QNPL commenced rehabilitation of the site including removal of infrastructure, re-profiling of the waste dump, reducing batter angles of the residual void, installing stormwater controls, ripping hardstand areas, spreading topsoil, seeding and installing fences.

Rehabilitation activities on the Dingo Dam ML comprise five stages, as follows:

Area re-contoured (reshaped to final grade);

1. Area topsoiled;
2. Area seeded;
3. Area established (vegetation has established, minor reseeding/erosion repairs may be necessary); and
4. Area successfully rehabilitated (compliance with rehabilitation success criteria).

Stages 1, 2 and 3 of rehabilitation have been completed. The remaining stages will be undertaken during the term of this PoO.

5.2 POST MINE LAND USE

It is intended that previously disturbed mine domains will largely be returned to a grazing / native ecosystem land use with the exception of the Dingo Dam residual void. The residual void will have a final land use of Non-use Management Area (NUMA). At closure, the Dingo Dam residual void will meet the rehabilitation goals of being safe, non-polluting and stable. Objectives associated with rehabilitation completion include:

- The residual void area is safe for humans and animals – the final rehabilitation report will demonstrate that all safety precautions have been taken in accordance with the relevant legislation;
- The residual void is non-polluting – Pooled water in the residual void is not suitable for stock watering in its current state and will be fenced to exclude livestock; and
- The residual void is stable – the final rehabilitation report will provide geotechnical studies to demonstrate the final landform of a final void is stable. It will also demonstrate appropriate risk assessment and control measures have been undertaken.

Meeting these criteria will demonstrate the Dingo Dam residual void can be classed as a NUMA. The risk of environmental harm will be minimised to a constrained area (within the void itself) and it will be rehabilitated to a safe and structurally stable condition. Furthermore, it is uneconomically viable to backfill the void, as the Waste Rock Dump (WRD) rehabilitation efforts are well established, with no other source of backfill material available in the area.

The final land uses for the Project site are described in Table 5 below.

Table 5 Final Land Uses

Project Area	Pre-mining Land Use	Post-mined Land Use
Infrastructure Areas		
Office area	Grazing / Native Ecosystem	Grazing / Native Ecosystem
Diversion levees	Grazing / Native Ecosystem	Grazing / Native Ecosystem
Haul road	Grazing / Native Ecosystem	Access road
Waste		
WRD	Grazing / Native Ecosystem	Grazing / Native Ecosystem
Run of Mine (ROM)		
ROM Pad	Grazing / Native Ecosystem	Grazing / Native Ecosystem
Voids		
Dingo Dam Pit	Grazing / Native Ecosystem	Non-use Management Area
Water Management		
Sediment Dam	Water storage / Grazing / Native Ecosystem	Water storage / Grazing / Native Ecosystem

5.3 LAND DISTURBANCE AND REHABILITATION SCHEDULE

Table 6 below details the land disturbance and rehabilitation schedules planned for the Lucky Break Project during the term of this PoO.

Table 6 Schedule of Land Disturbance and Rehabilitation

Project Area	Total Area (ha)	Existing Disturbance Areas (ha)	Existing Rehabilitation (ha)	Rehabilitation Status	Max. New Disturbance Area During Plan (ha)	Rehabilitation Area During Plan (ha)
Lucky Break (ML10332)	66.56	0	0	N/A	0	0
Dingo Dam (ML10324)	36.14	10.8	9.9	Commenced	0	8.46
Infrastructure Areas						
Office area	-	0.46	0.46	Ripping and seeding required	0	0.46
Diversion levees	-	0.92	0.92	Earthworks required to repair diversion levee^	0	0.03
Haul road	-	0.90	0	Not required*	0	0
Waste						
WRD	-	3.08	3.08	Ripping, seeding and erosion repairs required	0	2.83

Project Area	Total Area (ha)	Existing Disturbance Areas (ha)	Existing Rehabilitation (ha)	Rehabilitation Status	Max. New Disturbance Area During Plan (ha)	Rehabilitation Area During Plan (ha)
Run of Mine (ROM)						
ROM Pad	-	0.66	0.66	Ripping and seeding required	0	0.66
Voids						
Dingo Dam Pit	-	4.48	4.48	Fencing required [#]	0	4.48
Water Management						
Sediment Dam	-	0.30	0.30	Not required	0	0
Total	102.7	10.8	9.9	-	0	8.46

[#]The pit void is to remain as a non-use management area. The void has previously been re-profiled to create a safe and stable landform. Fences are to be installed at the perimeter of the residual void to prevent access by livestock.

[^]The diversion bund is to be left in place post-mining as agreed with the landholder. Sediment dam and drainage diversions to be left in place.

^{*}The haul road is predominantly located outside of the mining lease and is to be retained post-mining. The disturbance and rehabilitation calculations incorporate the portion of the haul road occurring on the ML only.

5.4 REHABILITATION PROGRESS

A field-based assessment of rehabilitation progress was undertaken in September 2018. This investigation provided a broad assessment of final landform stability and the success of past rehabilitation activities. The assessment involved surface water, stream sediment, topsoil quality sampling and analysis and a visual assessment of vegetation establishment and erosion to determine environmental values on the Project site and surrounding receiving environments.

For the most part, final landforms were found to be stable with minor and moderate areas of erosion occurring infrequently on the slopes of the WRD and pit. Rehabilitation success in terms of vegetation cover was limited across the Project site with the western portion of the WRD supporting the most prominent area of established groundcover vegetation. Groundcover species identified in rehabilitation areas include *Heteropogon contortus*, *Aristida spp.*, *Chloris gayana*, *Stylosanthes scabra* and *Sclerolaena spp.* A small number of pioneering Acacia shrubs were scattered across the rehabilitation areas.

Soils were sampled from representative sites within each rehabilitation domain and samples were analysed to identify soil characteristics in rehabilitation areas. Soil quality results from rehabilitation areas were compared to results obtained from representative reference sites as well as guideline values identified from various 'best practice' sources.

Where possible, stream sediment and surface water sampling was undertaken in Dingo Dam, the Open Cut Pit (OCP), sediment dam spillway (Sed Dam 1) and upstream and downstream sites in the receiving environment of Snake Creek (REMP US1 and DS2). The sediment dam and upstream sampling site on Snake Creek were dry at the time of sampling and could not be sampled for surface water.

The findings of the rehabilitation soils assessment as well as the surface water and stream sediment analysis are provided in the sections below.

5.4.1 Soil Site Comparison

A comparative topsoil study was completed at Lucky Break, to evaluate soil quality between reference and impact sites. This information can then be used to determine which areas are on target in terms of rehabilitation and which areas may require additional inputs.

A total of twelve sites were assessed, across three different mine rehabilitation domains, along with five sites in undisturbed areas to provide representative reference site data. Sampling sites were located as follows:

- The waste rock dump (WRD) – 3 sites;
- The run of mine (ROM) pad – 3 sites;
- Infrastructure areas – 2 sites in the office area, one site on the sediment dam spillway and three sites on the mine levee; and
- Reference areas – 5 sites.

At these sites, topsoil was analysed for both physical and chemical parameters, with results displayed in Table 7 below. Items shaded in orange are considered outside the bounds generally suitable for plant life as defined in various 'best practice' soil sampling resources, including:

- Hazelton P & Murphy B (2016) *Interpreting Soil Test Results – What do all the Numbers Mean?* (3rd Edition). CSIRO Publishing, Melbourne.
- Kabata-Pendias A & Pendias H (2001). *Trace Elements in Soils and Plants* (3rd Edition) CRC Press, New York; and
- Rayment GE & Lyons D (2011). *Soil Chemical Methods – Australasia*. Australian Soil and Land Survey Handbook Series. CSIRO Publishing, Melbourne.

The locations of soil sampling sites are shown in Figure 3.

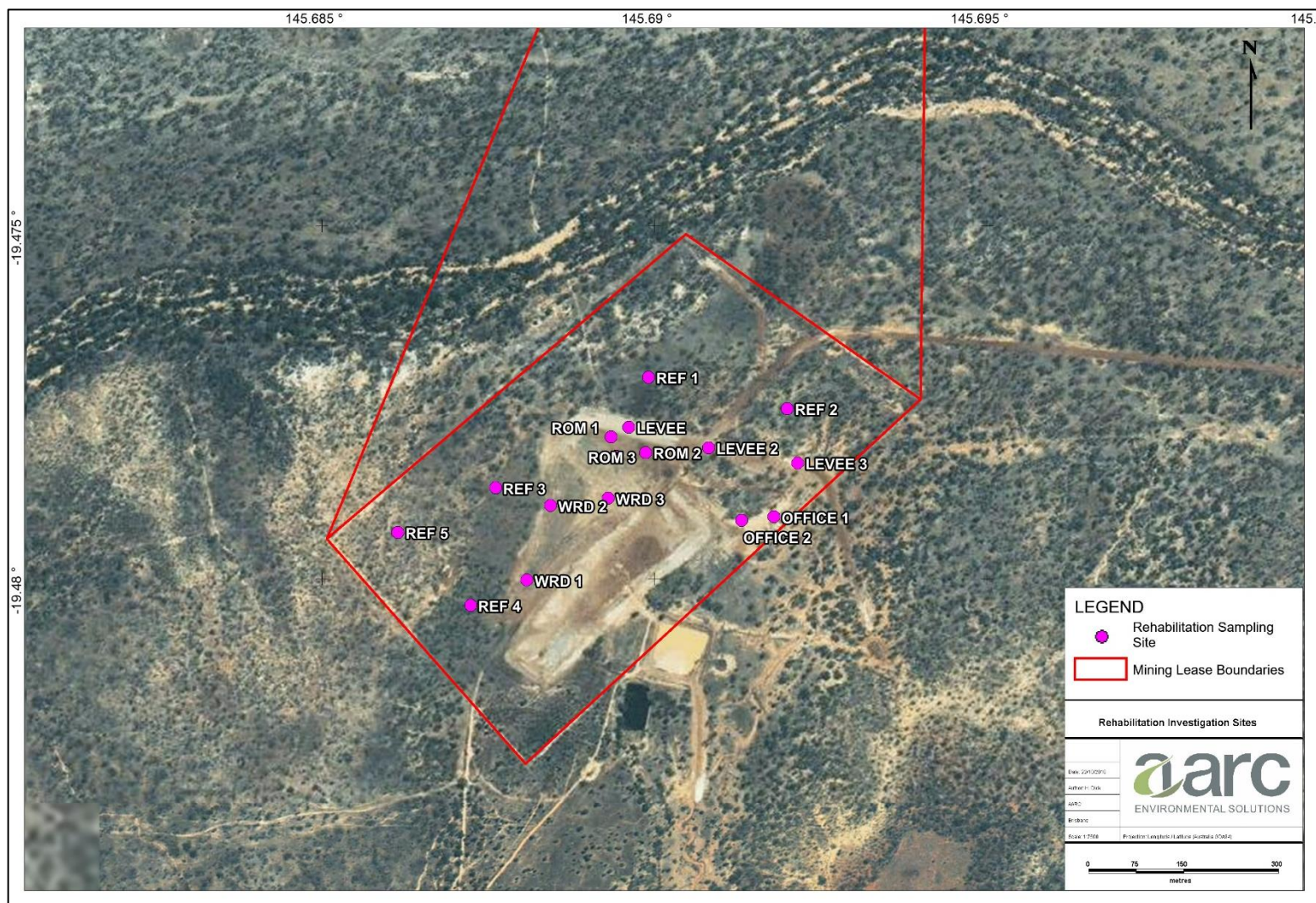


Figure 3 Soil Sampling Locations

Table 7 Soil Chemistry Results

Domain			Waste Rock Dump			ROM			Office		Sediment Dam				Reference Sites				
Site ID			WRD1	WRD2	WRD3	ROM 1	ROM 2	ROM 3	OFFICE 1	OFFICE 2	LEVEE	LEVEE 2	LEVEE 3	SED DAM 1	REF 1	REF 2	REF 3	REF 4	REF 5
Analyte	Unit	Range																	
Physical Parameters																			
Moisture Content	%	-	2.7	4	5.2	13.9	4.7	9.2	0.6	1.2	8.4	7.5	8.6	4.6	5.6	1.3	1.3	2.8	0.2
Colour (Munsell)	-	-	Very Dark Greyish Brown (3/2:10Y R)	Dark Brown (3/3:7.5Y R)	Dark Reddish Brown (3/4:5Y R)	Dark Reddish Brown (3/4:5Y R)	Dark Reddish Brown (3/4:5Y R)	Dark Brown (3/3:7.5Y R)	Dark Reddish Brown (3/4:5Y R)	Dark Brown (3/4:7.5Y R)	Brown (4/3:10Y R)	Dark Reddish Brown (5YR 3/4)	Dark Reddish Brown (5YR 3/3)	Very Dark Greyish Brown (10YR 3/2)	Very Dark Grey (3/1:2.5Y R)	Very Dark Greyish Brown (3/2:10Y R)	Very Dark Greyish Brown (3/2:10Y R)	Black (2.5/1:7.5Y R)	Dark Brown (3/3:10Y R)
Texture	-	-	Sandy Clay	Sandy Clay	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay	Sandy Clay	Gravell y Sand	Gravelly Sand	Sandy Clay	Sandy Clay	Sandy Clay	Clay Loam	Clay Loam	Sandy Clay	Sandy Clay Loam	Sandy Clay	Gravell y Sand
Emerson Class Number	-	>3 ¹	3	3	3	3	3	3	8	8	2	4	2	3	3	3	3	3	8
General Soil Characteristics																			
pH Value	pH Unit	5.5-7.5 ¹	6.5	5.4	7.4	7.7	7.2	7.7	7	6.8	8.6	7.9	7.5	5.5	7.2	5.8	6.5	6.5	6.1
Electrical Conductivity	dS/m	<0.45 ₂	0.034	0.472	1.2	0.066	0.063	0.141	0.051	0.042	0.613	0.289	2.34	0.375	0.053	0.032	0.04	0.032	0.011
Chloride	mg/kg	<600 ³	20	460	1840	30	30	90	20	20	740	360	3940	400	20	<10	10	<10	<10
Organic Matter	%	>1.72 ₁	2.2	1	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	1.1	3.7	2.1	2.4	1.6
Exchangeable Cations																			
Exchangeable Calcium	meq/10 Og	2-30 ¹	10.8	5.1	2.9	3.9	6.6	3.9	2.5	4.1	3.1	0.3	2.1	8.2	14.7	5	5.3	3.7	13.1
Exchangeable Magnesium	meq/10 Og	1-15 ¹	14.9	10.5	11	22.3	13.6	22.4	3.8	8.6	27.5	13	6.9	10.1	21.2	3.2	3.5	0.9	13.2
Exchangeable Potassium	meq/10 Og	0.2-2.0 ¹	0.7	0.5	0.5	0.5	0.8	0.8	0.4	0.5	0.7	0.5	0.8	0.9	0.8	0.5	0.4	0.3	0.5
Exchangeable Sodium	meq/10 Og	<0.1 ¹	0.1	0.5	2.1	0.6	2.2	1.8	0.3	0.3	7.7	1.9	1	0.6	1.2	0.2	<0.1	<0.1	<0.1

Domain			Waste Rock Dump			ROM			Office		Sediment Dam				Reference Sites				
Site ID			WRD1	WRD2	WRD3	ROM 1	ROM 2	ROM 3	OFFICE 1	OFFICE 2	LEVEE	LEVEE 2	LEVEE 3	SED DAM 1	REF 1	REF 2	REF 3	REF 4	REF 5
Analyte	Unit	Range																	
Cation Exchange Capacity	meq/100g	6-25 ¹	26.5	16.8	16.5	27.3	23.2	28.8	7.1	13.4	39	15.7	10.9	19.9	37.8	8.9	9.2	5	26.8
Exchangeable Sodium Percent	%CEC	<6 ²	0.5	2.8	12.8	2.2	9.4	6.1	4.2	2	19.8	12	9.2	3.1	3.1	2.1	0.2	0.2	0.2
Calcium/Magnesium Ratio	-	>1 ¹	0.7	0.5	0.3	<0.2	0.5	<0.2	0.6	0.5	<0.2	<0.2	0.3	0.8	0.7	1.6	1.5	4.1	1
Total Metals																			
Aluminium	mg/kg	-	11800	14200	8240	11200	9700	13000	4890	5710	13200	6750	4740	13600	20500	8870	6350	15700	3290
Arsenic	mg/kg	<100 ⁴	13	13	6	9	7	12	<5	7	116	6	<5	10	12	8	45	6	11
Boron	mg/kg	<5000 ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	mg/kg	<20 ⁴	<1	2	3	3	3	3	1	<1	2	3	2	1	1	<1	<1	2	<1
Chromium	mg/kg	<100 ⁴	297	275	861	1130	1370	816	688	156	337	551	963	429	508	58	54	589	4
Cobalt	mg/kg	<100 ⁴	131	128	197	472	191	465	74	36	495	731	80	101	90	8	12	148	4
Copper	mg/kg	<7000 ⁴	26	49	43	45	28	60	13	22	79	102	20	34	35	14	20	14	18
Lead	mg/kg	<300 ⁴	16	18	26	18	12	23	12	7	19	36	23	20	20	11	<5	<5	6
Manganese	mg/kg	<3000 ⁴	1440	896	1570	2050	1240	2150	518	242	2450	5320	880	462	874	276	233	1160	383
Nickel	mg/kg	<400 ⁴	1090	1040	1890	7350	2540	5310	515	368	3620	4180	1940	1910	1110	25	34	3420	7
Zinc	mg/kg	<8000 ⁴	34	79	75	231	94	176	21	32	158	204	54	105	59	24	22	108	15
Extractable P, K (Colwell) and Nitrogen																			
Bicarbonate Extractable K (Colwell)	mg/kg	>161 ¹	360	446	245	281	258	511	213	230	780	<200	347	300	426	433	373	276	308
Bicarbonate Ext. P (Colwell)	mg/kg	>10 ¹	<5	34	<5	18	<5	13	<5	<5	11	<5	<5	20	8	<5	<5	<5	<5

Domain			Waste Rock Dump			ROM			Office		Sediment Dam				Reference Sites				
Site ID			WRD1	WRD2	WRD3	ROM 1	ROM 2	ROM 3	OFFICE 1	OFFICE 2	LEVEE	LEVEE 2	LEVEE 3	SED DAM 1	REF 1	REF 2	REF 3	REF 4	REF 5
Analyte	Unit	Range																	
Nitrate as N	mg/kg	>8 ¹	0.4	30	16.7	10.2	9.89	0.8	10.1	6.2	2.2	n/a	n/a	48.9	2.2	2.1	0.3	0.4	0.3
Sulphur																			
KCl-40 Extractable Sulphur	mg/kg	5-10 ¹	<10	47	66	<10	<10	10	<10	<10	30	<10	82	12	<10	<10	<10	<10	<10

Note: Items shaded in orange are outside of the bounds generally suitable for plant life.

Sources for guideline values:

1 – Interpreting Soil Test Results (3rd Edition) (2016);

2 – Soil Chemical Methods Australasia (2011), Table 3.1 (EC limit dependant on soil texture);

3 – Soil Testing and some soil test interpretations used by the Queensland DPI (1984), Table 1;

4 - National Environmental Protection (Assessment of Site Contamination) (2011), Schedule B1: Guideline on investigation levels for soil and groundwater. Table 1A (1), Category A.

5.4.1.1 Physical Parameters

Physical soil parameters are those items which are not based on chemical data, including soil moisture, colour, texture, and Emerson Class (observed soil dispersion). When comparing impact sites to reference sites, very little variability was observed in physical characteristics.

Soil moisture % ranged between 0.2% and 5.6% at reference sites, and 0.6 to 13.9% at impact sites. These differences are not considered damaging to plant life, though ROM1 (13.9%) may be subject to pooling. Soil colours were within similar ranges between all sites, ranging from black (3/2:10YR) to brown (4/3:1-YR) with reds and greys in between. Soil texture ranged from gravelly sands to sandy clays at both reference and impact sites, with most sites presenting an Emerson Class of 3 (dispersive if physically disturbed). One reference site (REF5), and two impact sites (office1 and office 2), produced Emerson Classes of 8 (non-dispersive), while two impact sites (LEVEE and LEVEE 3) showed a moderate dispersion reaction (Emerson Class 2) when soil particles were placed in water.

5.4.1.1 General Soil Characteristics

General soil characteristics include pH, Electrical Conductivity (EC), chloride content and organic matter %. These characteristics assist in defining the soil's ability to support plant life. pH values should generally measure between 5.5 and 7.5, as the availability of nutrients decreases outside of these limits. All reference sites were within the acceptable pH bounds, though five out of the twelve impact sites were not. WRD2 measured 5.4, considered strongly acidic, while impact sites ROM1, ROM3, LEVEE and LEVEE 2 measured 7.7, 7.7, 8.6 and 7.9 respectively, considered slightly and strongly alkaline.

EC and chloride results help to interpret the salinity of the soil, which can impact plant health if it is too high. None of the reference sites demonstrated elevated EC or chloride results. EC was considered elevated at WRD2 (0.472 dS/m), WRD3 (1.2 dS/m), LEVEE (0.613 dS/m) and LEVEE 3 (2.34 dS/m). High EC and chloride can impact plant osmotic capacity.

Soil organic matter is important to the general health of a soil and should present at >1.72 %. Reference sites REF1 (1.1%) and REF 2 (1.6 %) both did not reach this level, though all other reference sites were above 1.72% organic matter. Two of the impact sites (WRD1 and SED DAM 1) were found to have organic matter content over 1.72%, with all other sites falling below this mark. Low organic matter is common in drier parts of Queensland such as Lucky Break, as can be seen in the reference site results. However, increasing organic matter % in the topsoil would greatly increase the plant carrying capacity of the soil, and improve rehabilitation success.

5.4.1.2 Exchangeable Cations

The concentrations and ratios of exchangeable cations can impact the nutrient capacity and dispersion of a soil body. Of particular importance to dispersion is the percentage of exchangeable sodium (ESP), and ratio of calcium to magnesium (Ca/Mg ratio). Ultimately, however, the cation exchange capacity (CEC) of the soil determines how much impact these factors will have, as they operate based on a soil's clay content and ability to hold ions. Soils with a high cation exchange capacity are more likely to be affected by elevated ESP and low Ca/Mg ratios.

Reference sites at Lucky Break indicate soil dispersion is not likely. Although moderate CEC values were observed, ESP and Ca/Mg ratios were at an appropriate level. Impact sites that may experience issues with dispersion include WRD3, ROM2, ROM3, and LEVEE. This is due to a combination of CEC, ESP and Ca/Mg ratios.

Concentrations of calcium and potassium were adequate at all sites tested, though magnesium levels outside of the desirable range were observed at several reference and impact sites.

REF 1 exhibited high concentrations of magnesium, while REF4 was below the acceptable range. Being reference sites, these values may suggest that natural exchangeable cation levels in this area are somewhat variable. Impact sites which exhibit poor magnesium concentrations are ROM1, ROM3, OFFICE 2, and LEVEE.

5.4.1.3 Total Metals

Site alignment with appropriate total metal ranges varied depending on the type of metal being investigated. Although aluminum, boron, cadmium, copper, lead and zinc were considered within appropriate ranges for all sites, all other metals were found in elevated concentrations at some locations.

Elevated concentrations of arsenic were found at impact site LEVEE, which at 116 mg/kg was much higher than any other site analyzed. LEVEE 2 recorded an elevated manganese concentration of 5320 mg/kg which far exceeds all other reference and impact site values as well as the upper guideline value of 3000 mg/kg. Chromium, cobalt and nickel concentrations were found to be elevated above the desirable range at most impact sites, as well as reference sites REF 1 and REF 4 (although cobalt was high at REF 1 it remained within the desirable range). This suggests that concentrations of these elements may be naturally higher in certain soils of the Project region, although it should be noted that the highest concentrations were found at impact sites.

5.4.1.4 Exchangeable Phosphorous, Potassium, and Nitrogen

Exchangeable nitrogen, phosphorous and potassium (NPK) are considered the three most important macro-nutrients used by plants and are key to increasing the carrying capacity of the soil. Potassium was considered high across all reference and impact sites and is unlikely to be limiting plant growth in rehabilitated areas.

Nitrate (plant available nitrogen) concentrations ranged from 0.3 – 2.2 mg/kg at reference sites, and 0.4 – 48.9 mg/kg at impact sites. This meant that nitrate levels at all reference sites fell below the desirable nitrate level (>8 mg/kg) and that in these areas nitrogen concentration may be limiting plant growth. Four out of twelve impact sites (WRD1, ROM3, OFFICE 2 and LEVEE) exhibited similar results (0.4 – 6.2 mg/kg), although all others presented nitrate concentrations conducive to healthy plant growth.

Phosphorus concentrations varied between impact and reference sites, with all reference sites again presenting below the desirable concentration. Half of the impact sites showed similar results, with the other half containing phosphorous concentrations considered suitable for plant growth.

It is therefore likely that phosphorous and nitrogen are limiting factors in the natural environment directly surrounding the mine. Similar results observed at impact sites should not be considered abnormal.

5.4.1.5 Sulphur

Extractable sulphur was difficult to define, due to the limitations of available tests (no results <10 mg/kg could be presented). For this reason, all results which returned a value of <10 mg/kg were considered adequate for plant growth. All reference sites and seven out of twelve impact sites were found to contain <10 mg/kg of extractable sulphur. Five impact sites returned values which were considered too high to be suitable for plant life. These were WRD2, WRD3, LEVEE, LEVEE 3 and SED DAM 1.

5.4.1.6 Summary of Soil Site Comparison

In terms of soil quality, reference sites at the Lucky Break are generally performing better than impact sites. Locations which may potentially require topsoil amelioration are:

- WRD2 – Low pH, high EC and low organic matter;

- WRD3 – High EC, chloride and sulphur, low organic matter, and dispersion risk;
- ROM1 – High pH, low organic matter and poor cation concentrations;
- ROM2 – Low organic matter and dispersion risk;
- ROM3 – High pH, low organic matter, dispersion risk and poor cation concentrations;
- LEVEE – High pH, EC, chloride and sulphur, low organic matter, extreme dispersion risk, poor cation concentrations, and elevated arsenic;
- LEVEE 2 – High pH, low organic matter, poor cation concentrations, elevated manganese; and
- LEVEE 3 – High EC, chloride and sulphur, low organic matter, extreme dispersion risk and poor cation concentrations.

Soil ameliorants such as organic or biosolid amendments should be applied to areas of poor rehabilitation in conjunction with ripping and seeding activities. Soils in the vicinity of sampling site WRD2 may benefit from the application of lime. Care should be taken if disturbing the soil around the LEVEE site, as this area is likely to be considerably dispersive.

WRD1, OFFICE 1, OFFICE 2, and SED DAM 1 appear to be responding well to rehabilitation efforts, though will still need to be continually monitored during progressive rehabilitation activities to ensure their continued success. WRD1 contains established groundcover vegetation but will require ongoing monitoring and maintenance to ensure progressive rehabilitation. With adequate ripping, topsoiling and re-seeding these areas should result in successful plant growth and improved soil conditions.

5.4.2 Water Quality Analysis

Water quality sampling was undertaken by AARC environmental scientists during the site inspection on the 18th and 19th September 2018. Samples were collected from the open cut pit (OCP), Dingo Dam and a downstream receiving environment sampling point (REMP DS2) on Snake Creek. Sampling locations are shown in Figure 4 below. The results of the water quality analysis are provided in Table 8.

A Compliance Inspection carried out by DES (previously the Department of Environment and Heritage Protection) on 20 April 2016 determined that total aluminium concentrations in the Dingo Dam pit water was 18 mg/L. Water quality in the pit has since improved significantly with a total aluminium concentration of 8.04 mg/L recorded during recent sampling. The Australian and New Zealand Environment Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) stock water guideline level for aluminium is 5 mg/L. While the aluminium content has declined significantly, the water in the pit remains a potential cause of harm to stock if consumed. AUZ will continue to monitor the aluminium levels in the pit water and continue to prevent stock from accessing the water until the water quality is suitable for stock consumption.

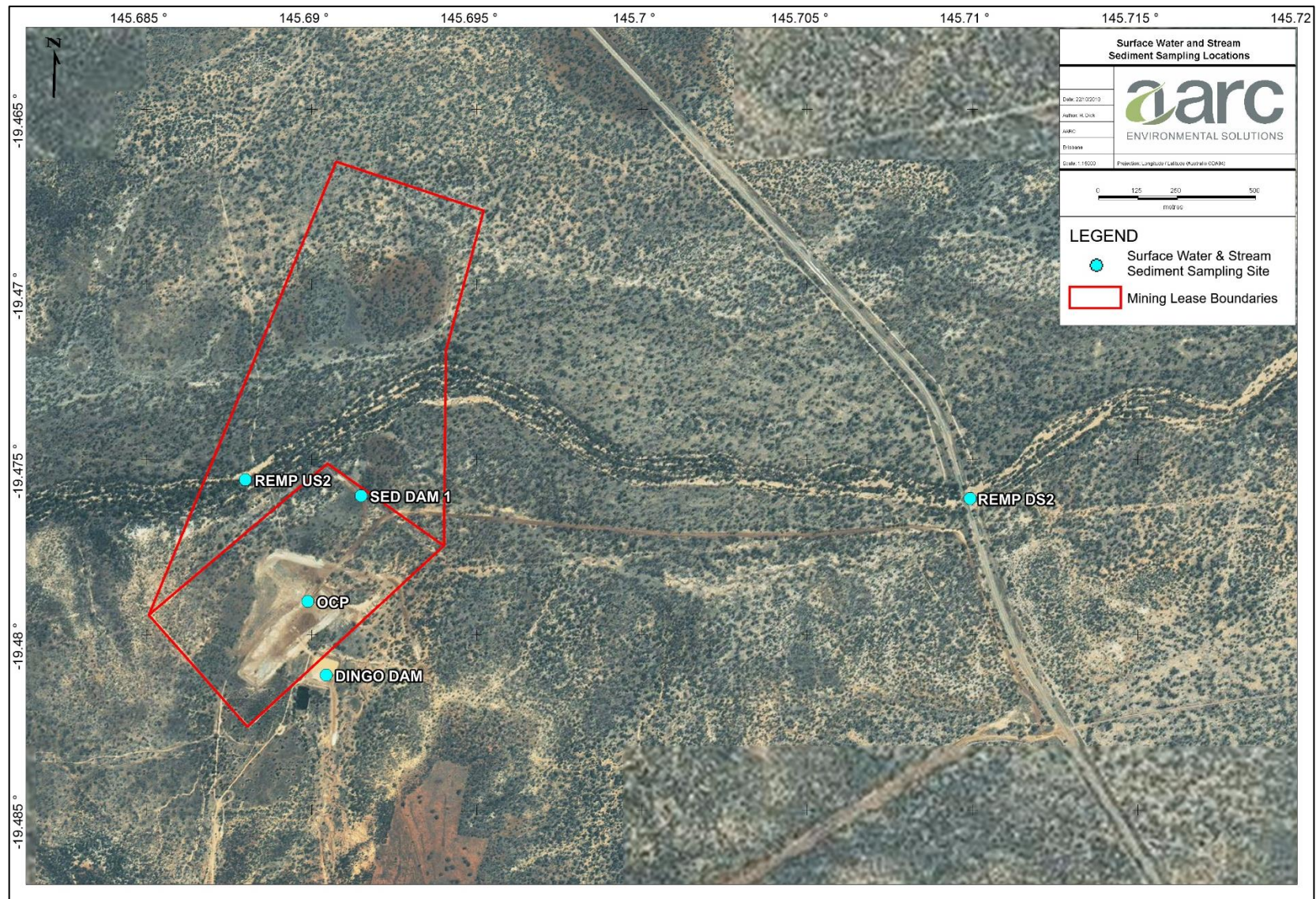


Figure 4 Surface Water and Stream Sediment Sampling Locations

Table 8 Water Quality Analysis

	Units	LOR	Stock Water ANZECC (2000)	Aquatic Ecosystem Protection (95%) ANZECC	EA Receiving Water Levels		OCP	DINGO DAM	REMP DS2
					Trigger Level	Limit			
Field - Physical Parameters									
Field pH	pH unit		-	6.5 - 8.0	6.0 - 8.6	6.0 - 9.0	7.46	7.72	7.89
Field Electrical Conductivity	µS/cm		-	20 - 250	888	1000	165.2	258.8	446.8
Temperature	°C		-	-	-	-	27.1	25.6	22.5
Total Dissolved Solids	mg/L		4000		-	-	102.6	163.16	305.9
ORP	mV	0.01	-	-	-	-	64.2	453.4	49.5
Laboratory - Physical Parameters									
Sodium Adsorption Ratio		0.01	-	-	-	-	2.16	1.53	2.47
Electrical Conductivity @ 25°C	µS/cm	1	-	20 – 250	888	1000	162	261	496
Total Dissolved Solids (Calc.)	mg/L	1	4000	-	-	-	105	170	322
Sulfate as SO4 - Turbidimetric	mg/L	1	1000	-	80th %ile	1000	4	2	3
Sodium	mg/L	1	-	-	-	-	23	28	60
Dissolved Metals									
Aluminum	mg/L	0.01	-	0.055	0.055	-	0.13	0.10	0.02
Arsenic	mg/L	0.001	-	0.013	0.013	-	<0.001	<0.001	0.010
Cadmium	mg/L	0.0001	-	0.0002	0.0002	-	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.001	-	0.001 (CrVI)	0.001	-	0.001	<0.001	<0.001
Cobalt	mg/L	0.001	-	-	0.0014	-	<0.001	<0.001	0.002
Copper	mg/L	0.001	-	0.0014	0.0014	-	0.002	0.001	0.003
Lead	mg/L	0.001	-	0.0034	0.0034	-	<0.001	<0.001	<0.001
Nickel	mg/L	0.001	-	0.011	0.011	-	0.008	0.002	0.003
Zinc	mg/L	0.005	-	0.008	0.008	-	<0.005	<0.005	<0.005
Mercury	mg/L	0.0001	-	0.0006	-	-	<0.0001	<0.0001	<0.0001

	Units	LOR	Stock Water ANZECC (2000)	Aquatic Ecosystem Protection (95%) ANZECC	EA Receiving Water Levels		OCP	DINGO DAM	REMP DS2
					Trigger Level	Limit			
Total Metals									
Aluminum	mg/L	0.01	5	-	-	5	8.04	2.83	0.57
Arsenic	mg/L	0.001	0.5	-	-	0.5	0.003	0.002	0.013
Cadmium	mg/L	0.0001	0.01	-	-	0.01	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.001	1	-	-	1	0.036	0.008	<0.001
Cobalt	mg/L	0.001	1	-	-	1	0.003	<0.001	0.003
Copper	mg/L	0.001	1	-	-	1	0.012	0.003	0.003
Lead	mg/L	0.001	0.1	-	-	0.1	0.005	0.001	0.004
Nickel	mg/L	0.001	1	-	-	1	0.095	0.019	0.004
Zinc	mg/L	0.005	20	-	-	20	0.026	0.008	<0.005
Mercury	mg/L	0.0001	0.002	-	-	-	<0.0001	<0.0001	<0.0001

Key:

- Detected concentration above ANZECC (2000) stock water purposes
- Detected concentration above Aquatic Ecosystem Protection 95%
- Detected concentration above the EA receiving water trigger levels
- Detected concentration above the EA receiving water contamination limits

5.4.2.1 Physical Parameters

Sampling from the three waterbodies detected pH levels within the EA trigger levels and release contaminant limits for receiving waters as well as the ANZECC (2000) aquatic ecosystem guidelines for the protection of 95% of aquatic species.

EC levels at all three sampling points fell well below the EA trigger level and release limit. A comparison against the ANZECC (2000) aquatic ecosystem guidelines revealed EC levels from Dingo Dam and REMP DS2 fell higher than the upper guideline limit of 250 $\mu\text{S}/\text{cm}$. EC was highest at REMP DS2 which consisted of a small pool of water immediately downstream of Gregory Development Road. Although downstream of the Project, the low EC level in the pit indicates the elevated downstream EC is not a result of releases from the pit.

Sulphate concentrations at all three sites fell well below the EA trigger levels and release limits and ANZECC 2000 guideline limits. Total Dissolved Solids (TDS) at all sites fell well below the ANZECC (2000) livestock drinking water guideline level of 4000 mg/L.

Overall, physical water quality analysis indicates water quality in the Dingo Dam catchment and receiving environment downstream of the Project are similar with no evidence of environmental impacts from the Project site.

5.4.2.2 Dissolved Metals

The OCP was found to contain elevated levels of dissolved chromium (0.001 mg/L) and copper (0.002 mg/L) when compared to EA trigger levels and ANZECC (2000) guideline limits of 0.001 mg/L for chromium and 0.0014 mg/L for copper. Dissolved aluminium in both the open cut pit (0.13 mg/L) and Dingo Dam (0.1 mg/L) exceeded the EA trigger level and ANZECC (2000) aquatic ecosystem guideline level of 0.055 mg/L. Given that Dingo Dam also contains high levels of dissolved aluminium, it is likely that these concentrations are the result of natural laterisation processes involving leaching and concentration of certain metals in surface runoff.

Sampling in the downstream receiving environment of Snake Creek (REMP DS2) detected elevated levels of cobalt and copper. The cobalt and copper concentrations of 0.002 mg/L and 0.003 mg/L respectively, fell above the EA trigger level and ANZECC (2000) guideline value of 0.0014 mg/L (cobalt and copper).

Of the dissolved metals found to be elevated in the OCP, only copper was found to be elevated in the receiving environment. The copper exceedance in the receiving environment was found to be notably higher than that of the OCP. Given that the downstream sampling point in Snake Creek was located adjacent to the Gregory Development Road, water quality is more likely to have been influenced by runoff from the road than any potential releases from site.

5.4.2.3 Total Metals

Analysis of total metals in the open cut pit revealed a total aluminium concentration of 8.04 mg/L, an exceedance of the EA release contaminant limit and ANZECC (2000) livestock drinking water guideline level of 5 mg/L. Although total aluminium remains elevated, current concentrations are significantly lower than the concentration recorded in April 2016 (18 mg/L).

The source of the aluminium is most likely from the remaining remnants of the orebody (nickel laterite) and associated overburden material located on top of the laterite. The laterisation process concentrates certain metals including aluminium. Therefore, laterite orebodies do naturally contain elevated metal contents in the mineralised zone and aluminium is just one of the suite of elevated metal contents to percolate into run-off water and therefore accumulate in the bottom of the pit.

It is therefore concluded that the source for the aluminium is within the pit itself and not from some external or separate source. The pit contains a low level (< 1m) of standing water that under normal conditions, cannot flow elsewhere due to the pit size and final landform and is therefore easily contained within the current pit void. Consistent with recent findings, total aluminium levels are expected to continue to decline over time as exposed surfaces become void of metals and aluminium in suspension settles into the pit substrate.

5.4.2.4 Summary of Water Quality

Elevated water quality characteristics in the downstream receiving environment are in most cases higher than pit water quality and are considered independent and potentially the result of natural variation. Water quality analysis indicates that the mine is not causing environmental harm to the water quality of the downstream receiving environment.

5.4.3 Stream Sediment Sampling

Stream sediment sampling was undertaken in conjunction with the water quality sampling. Samples were collected from the open cut pit (OCP), Dingo Dam, the Sediment Dam and upstream and downstream receiving environment sampling points (REMP US1 and REMP DS2) located on Snake Creek. Sampling locations are shown in Figure 4.

The results of the sediment quality analysis have been compared against the EA stream sediment trigger levels and contaminant limits and are provided in 0. In the absence of sediment trigger levels and contaminant limits for onsite water storages (Dingo Dam, OCP and Sed Dam 1), all sampling points have been compared to the receiving water trigger and contaminant values for sediments.

Table 9 Stream Sediment Quality Results

	Unit	LOR	EA Receiving Water Levels & Limits		DINGO DAM	SED DAM 1	OCP	REMP DS2	REMP US2
			Trigger Level	Contaminant Limit					
Physical Parameters									
Moisture Content	%	1.0	N/A	N/A	28.8	3.6	----	<1.0	<1.0
	%	0.1	N/A	N/A	----	----	17.5	----	----
Sulfate as SO4 2-	mg/kg	100	Ref value	2 x Ref value	160	300	100	<100	<100
Total Metals									
Aluminum	mg/kg	50	Ref value	2 x Ref value	10900	13600	13100	1300	1150
Arsenic	mg/kg	5	20	70	8	10	10	7	7
Boron	mg/kg	50	N/A	N/A	<50	<50	<50	<50	<50
Cadmium	mg/kg	1	1.5	10	<1	1	2	<1	<1
Chromium	mg/kg	2	80	370	77	429	1210	4	3
Cobalt	mg/kg	2	Ref value	2 x Ref value	10	101	366	<2	<2
Copper	mg/kg	5	65	270	24	34	42	<5	<5
Lead	mg/kg	5	50	220	10	20	17	7	5
Manganese	mg/kg	5	N/A	N/A	198	462	1700	82	125
Nickel	mg/kg	2	21	52	44	1910	4850	<2	<2
Zinc	mg/kg	5	200	410	30	105	129	6	5

Key:

Detected concentration above the EA receiving water trigger levels

Detected concentration above the EA receiving water contamination limits

EA receiving water trigger levels and contaminant limits are based on the ANZECC (2000) values for Aquatic Ecosystems: ISQG low trigger values and high values respectively (where available).

5.4.3.1 Sulphate

Sulphate levels were highest at Sed Dam 1 (300 mg/kg), followed by Dingo Dam (160 mg/kg) and the OCP (100 mg/kg). Upstream and downstream sites on Snake Creek recorded sulphate levels below the detection limit. A lack of historical sediment data across the Project site means that sulphate levels could not be compared against trigger levels or contaminant limits. It is evident from the results however that the mine disturbance has had no impacts on sulphate levels in sediments downstream of the Project site.

5.4.3.2 Total Metals

Since no historical sediment data is available for the Project, suitable reference trigger and contaminant limit values could not be determined for aluminium, cobalt and manganese. Since these parameters have not been assigned ISQG values, comparisons could not be made against EA trigger or contaminant values. Regardless, it is evident from the sediment results that aluminium, cobalt and manganese levels were higher at Dingo Dam, Sed Dam 1 and OCP when compared to upstream and downstream sites on Snake Creek.

The analysis of metal concentrations against EA trigger levels revealed elevated levels of cadmium in the OCP and elevated nickel in Dingo Dam. These concentrations remain below the contaminant limits. No other trigger level exceedances were detected in the sediment samples.

Contaminant limit exceedances were recorded for chromium and nickel at OCP and Sed Dam 1. No other contaminant limit exceedances were recorded across the sampling sites.

Sediment concentrations for aluminium, chromium, cobalt, manganese, nickel and zinc at OCP and Sed Dam 1 fell notably higher than those concentration in DINGO DAM and the receiving water sites on Snake Creek. These findings indicate that mine disturbed soils of the open cut pit and Sed Dam spillway contain accumulated metals.

5.4.3.3 Summary of Sediment Quality

The sulphate and total metals analysis indicate that impacts to sediment quality are confined to areas of mine disturbance with no detrimental impacts on the environmental values of downstream sediments.

5.5 REHABILITATION METHODOLOGY

The site inspection and broad assessment of rehabilitation success formed the basis for determining future rehabilitation recommendations and methodologies.

Future rehabilitation activities required to achieve rehabilitation certification include:

- Minor earthworks to repair erosion on the slopes of the WRD and access ramps;
- Ripping and seeding to all areas of existing disturbance where vegetation establishment has not been successful;
- Soil amelioration in conjunction with ripping in the WRD and ROM pad areas; and
- Rehabilitation maintenance of rehabilitation areas including minor reseeding, erosion repairs and weed management.

Progressive rehabilitation efforts planned for the term of this Plan are outlined in the sub-sections below.

5.5.1 Infrastructure Areas

Infrastructure disturbance areas on the Dingo Dam ML include the office area, levees or diversions and the haul road. The haul road is to be retained with no further rehabilitation activities required. While the levees have been re-profiled to a suitable landform some minor earthworks will be required to repair erosion in the north of the mine levee. The sediment dam levee is constructed to a low grade and remains stable with no erosion recorded during the recent site visit. No rehabilitation activities are required for the sediment dam levee.

Rehabilitation of the office area was completed by QNPL at the completion of mining. Despite the previous rehabilitation efforts, vegetation establishment in the office area has been limited. During the term of this Plan, rehabilitation activities in this area shall include ripping, re-seeding and management to facilitate vegetation establishment.

5.5.2 Waste and Overburden

The WRD was re-contoured, topsoiled and seeded by QNPL at the completion of mining. Recent site inspections revealed that approximately 0.25 ha of the WRD area contains established groundcover vegetation. Vegetation establishment was very limited across the remainder of the WRD with a sporadic presence of grasses and pioneering shrubs (*Acacia spp.*).

The WRD was found to be stable with minor erosion gullies noted on the eastern and southern slopes. Erosion gullies on the eastern slope varied from minor (to a depth of 40 cm) to moderate (80 – 100 cm deep). Eroded drainage gullies were also recorded on the access roads from the WRD to the ROM pad and the ROM to the pit.

Rehabilitation activities to be undertaken on the WRD during the term of the Plan shall include ripping and re-seeding as well as minor earthworks to repair erosion rills and gullies on the WRD slopes and access ramps.

5.5.3 Run of Mine

At the completion of mining, all Run of Mine (ROM) material was removed from the ROM pad and rehabilitation activities including re-contouring, topsoil application and seeding were undertaken. The ROM pad rehabilitation area consists of a cracking clay surface material that is flat to gently sloping from the south-west corner to the north-east corner of the ROM. Vegetation establishment has been successful in the north-east corner of the ROM. The remainder of the ROM pad will require ripping and re-seeding during the current term of this Plan to facilitate vegetation establishment.

5.5.4 Voids

The Dingo Dam pit contains a low level of standing water and historically contains excessive levels of aluminium. Pit water quality testing undertaken in April 2016 revealed total aluminium concentrations of 18 mg/L, an exceedance of the ANZECC (2000) guideline level for stock drinking water of 5 mg/L. Recent pit water quality sampling and analysis demonstrated that total aluminium levels continue to exceed the ANZECC guideline limits despite a significant decline to 8.04 mg/L.

The Dingo Dam ML (and pit) is currently fenced to exclude livestock access. This fencing will remain until the perimeter of the pit has been separately fenced. Given the potentially toxic levels of aluminium in the Dingo Dam residual void, it is intended that the void will remain as a Non-use Management Area (NUMA). Rehabilitation activities for the residual void will be limited to fencing of the void perimeter. Pit water quality sampling and analysis should be conducted quarterly to monitor total aluminium levels.

5.5.5 Water Management

No water management activities are required during the term of this PoO.

The sediment dam located in the east of the Project site consists of a shallow depression with a constructed diversion bund along its eastern boundary. At the time of recent site inspections this area was dry and contained mature trees with limited groundcover vegetation. The sediment dam is to remain in place and no specific rehabilitation management actions are required for this area.

5.6 REHABILITATION COST ESTIMATE AND FINANCIAL ASSURANCE

The amount of Financial Assurance applicable to the Project has been calculated based on the cost of rehabilitation and maintenance of existing disturbance and rehabilitation areas during the term of the PoO.

The total financial assurance required is calculated at **\$95,595.00** excluding GST. A summary of the financial assurance proposed under the PoO is included within the Financial Assurance Calculator and is provided in Appendix B.

The financial assurance cost estimate is predominantly based on default unit rates provided in the current FA calculator. The unit rates and costing used for the mobilisation and demobilisation of plant and equipment for the various rehabilitation activities are based on a third-party quote. The unit costs

for rehabilitation activities are based upon consideration of known contractor's rates and are believed to be realistic.

The justification for the alternative unit rates is contained in Appendix C and the third-party quote is provided in Appendix D.

6.0 COMPLIANCE STATEMENT

6.1 INTRODUCTION

This Compliance Statement seeks to address s288(1)(d) and s288(3) of the EP Act, which require confirmation of the extent to which the PoO complies with the Project's EA and verification of the determination of the financial assurance.

6.1.1 Auditor's Name

Julie Byrd
Senior Environmental Scientist
AARC Environmental Solutions Pty Ltd (AARC)
PO Box 4887
Cairns QLD 4870
Ph: (07) 4057 9402
Fax: (07) 3217 8775

6.1.2 Auditor's Credentials

Julie is a qualified environmental consultant with over 10 years relevant industry experience.

6.1.3 Relationship with Environmental Authority Holder

Environmental Consultant to Australian Mines Ltd.

6.1.4 Date and Method of Audit

The assessment of the PoO compliance with the EA conditions consisted of a desktop and site-based verification of activities and disturbance footprints combined with the auditor's existing knowledge of site layout and conditions. Estimates and maps for areas of existing disturbance and current rehabilitation on the Project site have been prepared by AARC following ground-truthing on site.

6.1.5 Mining Project Name

Lucky Break Project.

6.1.6 Environmental Authority and Mining Lease Numbers

The Lucky Break Project is authorised under the EA EPML00900713, which was last issued on 9th March 2018. Tenements associated with the Project are:

- Lucky Break – ML 10332; and
- Dingo Dam - ML 10324.

6.2 AUDIT PROCESS

6.2.1 Compliance of the Plan with the Environmental Authority

This PoO is written in compliance with the requirements of conditions detailed in EA EPML00900713. Refer to Section 4.0 and Table 4 for actions and documentation required to comply with the EA conditions (the Action Program).

6.2.2 Audit of the Rehabilitation Program

The rehabilitation schedule and rehabilitation cost estimate for the term of this PoO are detailed in Section 5.0. The rehabilitation costs are an estimate of the total costs to complete rehabilitation of the Project site based on the current extent of disturbance with no new disturbance proposed during the term of this PoO.

6.2.3 Verification of Financial Assurance

The financial assurance for the EA has been calculated as required under section 295 (3) of the EP Act, which refers to the DES guideline *ESR/2015/1758 (formerly EM1010) - Financial Assurance under the Environmental Protection Act 1994* (DES, 2016). The financial assurance required under this Plan is \$95,595 as calculated in Section 5.0.

6.3 CONCLUDING REMARKS AND CERTIFICATION

I, Julie Byrd, being aware that it is an offence under section 480 of the *Environmental Protection Act 1994* to provide false or misleading information, state that:

- I am authorised to sign on behalf of the person (meaning a corporation or individual) holding the EA;
- The Plan complies with the conditions of the EA;
- The amount of the financial assurance for the EA has been calculated in accordance with the guideline under section 295(3)(b);
- Opinions and judgements expressed herein, which are based on our understanding and interpretation of currently regulatory standards, should not be construed as legal opinions;
- AARC Environmental Solutions Pty Ltd does not accept any liability for misrepresentation of information or for items not visible, accessible, nor are able to be inspected; and
- Information obtained from AUZ has been assumed to be correct and complete. Estimate and maps for areas of disturbance, or areas that have or will be disturbed on the Project site have been ground-truthed by AARC or supplied by Australian Mines Ltd.

Signature:



Date: 31/10/2018

Name: Julie Ann Byrd

Title: Senior Environmental Scientist

Company: AARC Environmental Solutions Pty Ltd, consultant to Australian Mines Ltd.

7.0 REFERENCES

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Appendix A Environmental Authority (EPML00900713)

Permit

Environmental Protection Act 1994

Environmental authority EPML00900713

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

Environmental authority number: EPML00900713

Environmental authority takes effect on 09 March 2018

Environmental authority holder(s)

Name(s)	Registered address
SCONI MINING OPERATIONS PTY LTD	Level 1 83 Havelock St WEST PERTH WA 6005 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 15: Mining nickel ore	ML10324
Resource Activity, Schedule 2A, 15: Mining nickel ore	ML10332
Resource Activity, Ancillary 33 - Crushing, milling, grinding or screening, Crushing, grinding, milling or screening more than 5000t of material in a year	ML10324
Resource Activity, Ancillary 33 - Crushing, milling, grinding or screening, Crushing, grinding, milling or screening more than 5000t of material in a year	ML10332

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

Environmental authority

- 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.

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.

Filiz Tansley
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
Department of Environment and Heritage Protection
Phone: 07 4222 5352
Email: ESCairns@ehp.qld.gov.au

Date issued: 09 March 2018

Legislative Requirements and Conditions of Environmental Authority

Condition

General

A1 Activity

This environmental authority authorises environmental harm referred to in the conditions. 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 The activities approved under this environmental authority must be undertaken in accordance with plans/maps included in Schedule I.

A3 Maintenance of measures, plant and equipment

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 condition; and
- (c) Operate such measures, plant and equipment in a proper manner.

- 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 Monitoring

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 The holder of this environmental authority must, when requested by the administering authority, supply monitoring records, plans and reports in the form and by the means requested by the administering authority within a timeframe nominated or agreed to by the administering authority.

A7 All monitoring referred to in this environmental authority must be undertaken by an appropriately qualified person using monitoring equipment that is accurately calibrated and maintained in accordance with manufacturer's specifications.

A8 Except as otherwise authorised by the administering authority, all analysis and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analysis and tests.

A9 Financial assurance

The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.

A10 The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.

A11 Risk management

The holder of this environmental authority must develop and implement an environmental management system for mining activities which mirrors the content requirement of the Standard for Environmental Management Systems (ISO14001:2004) or the latest edition of an Australian standard for environmental management systems by 31 July 2015.

A12 Notification of emergencies, incidents and Releases

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.

A13 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;
- (c) proposed actions to prevent a recurrence of the emergency or incident.

A14 The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

A15 Complaints

The holder of this environmental authority must record all environmental complaints received about the mining activities including:

- (a) name, address and contact number of the complainant;
- (b) time and date of complaint;
- (c) reasons for the complaint;
- (d) investigations undertaken;
- (e) conclusions formed;
- (f) actions taken to resolve the complaint;
- (g) any abatement measures implemented; and
- (h) person responsible for resolving the complaint.

A16 Third party auditing

The holder of this environmental authority must:

- a) By 31 July 2016 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.

A17 Exploration

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 (the code). Where a condition in this Environmental Authority refers to a matter addressed in the code, the condition of this Environmental Authority is taken to prevail.

A18 Transition to Standards

Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:

- a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in Schedule D – Regulated Dams, the time specified in that condition
- b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Condition

Condition

D1 Assessment of consequence category

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).

D4 Design and construction of a regulated structure

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).

D5 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.

D6 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 Regulated Dams/Levees register.

D7 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.
- c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

D8 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.

D9 Operation of a regulated structure

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

- a) the holder has submitted to the administering authority:
 - i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition D5, and
 - ii) a set of 'as constructed' drawings and specifications, and
 - iii) certification of those 'as constructed drawings and specifications' in accordance with condition D8, 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.

D10 Mandatory reporting level

Conditions (D11) to (D14) inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

- D11 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.
- D12 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.
- D13 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.
- D14 The holder must record any changes to the MRL in the Register of Regulated Structures.
- D15 Design storage allowance**
- 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.
- D16 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).
- D17 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.

D18 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.

D19 Annual inspection report

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

D20 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.

D21 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).

D22 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.

D23 Transfer arrangements

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.

D24 Decommissioning and rehabilitation

Dams must not be abandoned but be either:

- a) decommissioned and rehabilitated to achieve compliance with condition (D25); 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).

D25 After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria:

- a) the landform is safe for humans and fauna;
- b) the landform is stable with no subsidence or erosion gullies for at least three (3) years;
- c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated;
- d) not allowing for acid mine drainage; or
- e) there is no ongoing contamination to waters (including groundwater);
- f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the Instructions for the treatment and management of acid sulfate soils (2001);
- g) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;
- h) for land that is not being cultivated by the landholder:
 - a. groundcover, that is not a declared pest species is established and self-sustaining
 - b. vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining, and
 - c. the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies).
- i) for land that is to be cultivated by the landholder, cover crop is revegetated, unless the landholder will be preparing the site for cropping within 3 months of petroleum activities being completed.

D26 Register of Regulated Dams

A Register of Regulated Dams must be established and maintained by the holder for each regulated dam:

- D27 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.
- D28 The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition (D9) has been achieved.
- D29 The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.
- D30 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.
- D31 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.

E1 Waste Disposal

The only waste that can be disposed of on site is waste that is generated on site. Waste generated on site is limited to:

- waste rock; and
- general waste (including construction, demolition waste, green waste, putrescible and domestic wastes).

E2 Regulated waste

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

E3 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.

E4 Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents.

E5 Tyre storage and disposal

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 200m² and at least 10m from any other tyre storage area.

E6 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.

E7 Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practicably implemented, waste tyres generated from mining activities may be disposed of on site in non-acid forming waste rock dumps or underground stopes.

E8 Waste rock disposal

The holder of this environmental authority must develop, implement and submit to the administering authority a waste rock management plan with the Plan of Operations and update and resubmit the plan with each Plan of Operations.

E9 Waste rock and spoil disposal must not occur on the site unless the holder has submitted to the administering authority a waste rock management plan.

E10 The waste rock management plan must 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 program to validate pre-mine waste rock characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations including (to be provided by proponent by 31 May 2012);
- (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 potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the generation of acid mine drainage;
- (f) a materials balance and disposal plan demonstrating how waste rock that has a potential to generate neutral and/or saline mine drainage will be selectively placed and managed to minimise the generation of neutral and/or saline mine drainage;
- (g) a sampling program to verify encapsulation and/or placement of potentially acid forming / acid forming waste rock / waste rock that has a potential to generate neutral mine drainage;
- (h) how often the performance of the plan will be assessed;
- (i) a Rehabilitation strategy which meets the rehabilitation objectives specified in Table C1 Rehabilitation Requirements; and
- (j) 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 acid mine drainage, erosion minimisation and establishment of vegetation cover.

E11 The waste rock dump must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.

Condition

Acoustic

F1 Noise Monitoring

Where requested by the administering authority, the holder of this environmental authority must undertake noise monitoring in accordance with condition F2 and ensure that noise generated by the mining activities does not cause the criteria in Table F1 – Noise Limits to be exceeded at any sensitive place or commercial place.

Table F1
Table F1 - Noise Limits

Noise level dB(A) measured as:	Sensitive place or commercial place					
	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
L_{A10} , adj, 10 mins	BG+5	BG+5	BG+3	BG+5	BG+5	BG+0
L_{A1} , adj, 10 mins	BG+10	BG+10	BG+5	BG+10	BG+10	BG+5

Note: In the event that the measured **background** noise level (BG) is less than 25 dB(A), then 25 dB(A) can be substituted for the measured **background** level.

Note: The method of measurement and reporting of noise levels must comply with the latest edition of the **administering authority's** Noise Measurement Manual or the most recent version of AS1055 Acoustics – Description and measurement of environmental noise.

F2 Noise monitoring and recording must include the following descriptor characteristics and matters:

- (i) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);
- (ii) Background noise L_{A90} ;
- (iii) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
- (iv) Atmospheric conditions including temperature, relative humidity and wind speed and directions;
- (v) Effects due to any extraneous factors such as traffic noise;

- (vi) Location, date and time of monitoring;
- (vii) If the complaint concerns low frequency noise, Max $L_{pLIN,T}$; and
- (viii) If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

Condition

Air

B1 General

Unless authorised by this environmental authority, the release of noxious or offensive odour, dust 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 motor vehicles (including trains) used for transporting bulk materials have appropriate load preparation to prevent the spillage and / or loss of material, particulate matter and / or windblown dust during transport.

B3 Nuisance Limits for Dust and Particulates

The holder of this environmental authority must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of 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 most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method and Australian Standard AS/NZS3580.1.1:2007 “Methods for siting and analysis of ambient air, Part 1.1: Guide for siting air monitoring equipment” (or more recent versions as they become available).

Note: Five (5) days of exceedances allowed each year including natural causes.

B4 Meteorological monitoring

The holder of this Environmental Authority must record, compile, evaluate and keep all monitoring records obtained from the permanent meteorological station.

Condition

Land

C1 Rehabilitation Objectives

Land disturbed by mining must be rehabilitated in accordance with Table C1 -Rehabilitation Requirements.

C2 Rehabilitation must commence progressively as areas become available and in accordance with the Plan of Operations.

C3 Topsoil

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.

Table C1
Table C1 - Rehabilitation Requirements

Mine Domain and tenure	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Dams ML10324 ML10332	Sediment Dam 1 Sediment Dam 2	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authority guideline for Rehabilitation of Mining Projects and must be defined in	To be provided in the PMLUP in accordance with Condition C4	To be provided in the PMLUP in accordance with Condition C4	To be provided in the PMLUP in accordance with Condition C4

Waste ML10324 ML10332	Overburden Dumps	the Post Mine Land Use Plan (PMLUP).			
Run of Mine (ROM) ML10324 ML10332	ROM pad Low grade ore stockpiles				
Ancillary Infrastructure ML10324 ML10332	Workshop Office Fuel storage Roads and Tracks Diesel Backup				
Voids ML10324 ML10332	Circular Laterite Pit Dingo Dam Pit				
Exploration ML10324 ML10332	Circular Laterite South East Extension				
Mining area ML10324 ML10332	Topsoil Dumps				
Services ML10332	Waste Disposal Trench				

C4 Post Mine Land Use Plan

The holder must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP) by 30 November 2016 and update and resubmit the plan with each subsequent Plan of Operations. The PMLUP must describe how the rehabilitation objectives in Table C1 –

Rehabilitation requirements will be achieved. On acceptance of the PMLUP by the administering authority, rehabilitation objectives, indicators and completion criteria must be specified in the environmental authority.

The Post Mine Land Use Plan must include:

- (a) residual void investigation in accordance with Condition (C9);
- (b) schematic representation of final land form inclusive of drainage features;
- (c) slope design;
- (d) cover design;
- (e) drainage design;
- (f) erosion controls proposed on reformed land;
- (g) description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;
- (h) proposed revegetation methods inclusive of plant species selection, re-profiling, resspreading soil, soil ameliorants/amendments, surface preparation and method of propagation;
- (i) materials balance including available top soil and low permeability capping material ;
- (j) geotechnical, geochemical and hydrological studies;
- (k) chemical, physical and biological properties of soil and water;
- (l) performance criteria for the cover system; and
- (m) a rehabilitation monitoring program.

C5 Post Closure Management Plan

A Post Closure Management Plan for the site must be prepared at least thirty six (36) 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 18 months prior to final production onsite.

C6 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; and
 - (vi) the health and resilience of vegetative cover.

C7 Residual Void Outcome

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.

C8 The holder of this Environmental Authority must manage mining voids during the operation and decommissioning phases to maximise the potential post mine beneficial uses, by consideration of the following:

- a) limiting sulphide exposures in void walls; and
- b) capping of sulphide exposures in void base; and
- c) limiting period of exposure of sulphides in void walls and base to oxidising conditions; and
- d) managing catchment into the void; and
- e) geo-technical stability of final void.

C9 Decommissioning strategies for the final voids must be provided in the Post Mine Land Use Plan including the following information:

- a) final potential wall and base rock exposure quality in terms of acid producing potential and levels of environmentally relevant salts and metals; and
- b) expected periods of exposure for wall and base rock with acid producing potential; and
- c) management options for maximising final void water quality; and
- d) assessment of potential final void water quality.

C10 Saline, Acid and Metalliferous Drainage

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

C11 Only waste rock that is characterised as unreactive/benign material that will not cause environmental harm (such as acid, neutral or saline mine drainage) may be used for the construction of temporary or permanent structures within the operation areas.

C12 Infrastructure

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 landowner.

C13 Chemicals and flammable or combustible liquids

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 current, relevant Australian Standard where such is applicable.

C14 Contaminated Land

Any spillage of wastes, contaminants or other materials must be cleaned up promptly. 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.

Condition

Water

G1 General

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.

G2 Contaminant Release to Waters

The release of contaminants to waters must only occur from the release points specified in Table G1 - Contaminant release points. These points are depicted in the plans/maps in Schedule I.

Table **Table G1 - Contaminant release points**
G1

Release Point	Latitude (GDA94)	Longitude (GDA94)	Contaminant Source and Location, and Description of Release Point	Monitoring Point, including description and Longitude or easting (GDA94)	Receiving Waters Description
Sediment Dam 1	-19.476024	145.691493	Sediment Dam 1/ Stormwater Dam Spillway Overflow	Dam Spillway	Snake Creek
Sediment Dam 2	-19.471393	145.691751	Sediment Dam 2/ Stormwater Dam Spillway Overflow	Dam Spillway	Snake Creek

G3 The release of contaminants to waters from the release points must be monitored at the locations specified in Table G1 - Contaminant release points for each quality characteristic and at the frequency specified in Table G2 - Contaminant release limits.

Table **Table G2 - Contaminant release limits**
G2

Quality Characteristic	Release Limit	Monitoring Frequency
Electrical conductivity ($\mu\text{S/cm}$)	1000 or 95th percentile ¹ of reference, whichever is lower.	Daily during release (first sample must be taken within 24 hours of commencement of release)
pH (pH units)	6.0 (minimum) 9.0 (maximum)	
Turbidity (NTU)	For interpretation purposes only	
Suspended Solids (mg/L)	For interpretation purposes only	
Sulphate (SO_4^{2-}) (mg/L)	1000 ² or 95th percentile ¹ of reference, whichever is lower	
Aluminium (mg/L)	5 ² or 95th percentile ¹ of reference, whichever is lower.	
Arsenic (mg/L)	0.5 ² or 95th percentile ¹ of reference, whichever is lower.	
Cadmium (mg/L)	0.01 ² or 95th percentile ¹ of reference, whichever is lower.	
Chromium (mg/L)	1 ² or 95th percentile ¹ of reference, whichever is lower.	
Copper (mg/L)	1 ² or 95th percentile ¹ of reference, whichever is lower.	
Cobalt (mg/L)	1 ² or 95th percentile ¹ of reference, whichever is lower.	
Lead (mg/L)	0.1 ² or 95th percentile ¹ of reference, whichever is lower.	
Nickel (mg/L)	1 ² or 95th percentile ¹ of reference, whichever is lower.	
Zinc (mg/L)	20 ² or 95th percentile ¹ of reference, whichever is lower	

Reference site concentration determined from reference site specified in Table G5 - Receiving water reference sites and downstream monitoring points.

ANZECC/ARMCANZ (2000) values for livestock drinking water quality Table 4.3.2.

ANZECC/ARMCANZ (2000) major ions of concern for livestock drinking water quality Section 4.3.3.4 – Volume 1

Contaminant limits are based on total amounts

Note: Where the 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference for the same event applies.

*Note: The method of sampling of waters must comply with that set out in the latest edition of the **administering authority's** Water Quality Sampling Manual.*

G4 The release of contaminants to waters must not exceed the contaminant release limits stated in Table G2 - Contaminant release limits for each quality characteristic.

G5 **Stream Flow Monitoring**

The release to waters must only occur when there is continuous water flows in the receiving water.

G6 The daily volume of contaminants released from each release point must be measured and recorded at the monitoring points in Table G1 - Contaminant release points whilst a release is occurring.

G7 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.

G8 The environmental authority holder must take reasonable action to provide all weather access to the receiving environment and background monitoring locations defined in Table G5 - Receiving water reference sites and downstream monitoring points.

G9 **Onsite Water Storages**

Water storages stated in Table G3 - Water Storage Monitoring must be monitored for the water quality characteristics specified in Table G4 - Onsite water storage contaminant limits at the monitoring locations and at the monitoring frequency specified in Table G3 - Water storage monitoring.

Table G3 **Table G3 - Water storage monitoring**

Water Storage Description	Latitude	Longitude (GDA94)	Monitoring Location	Frequency of Monitoring
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	(GDA94)			
Sediment Dam 1	-19.476024	145.691493	Dam Spillway	Quarterly
Sediment Dam 2	-19.471393	145.691751	Dam Spillway	Quarterly

G10 In the event that water storages defined in Table G3 - Water storage monitoring exceed the contaminant limits defined in Table G4 - Onsite water storage contaminant limits, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by livestock.

Table G4 **Table G4 - Onsite Water Storage Contaminant Limits**

Quality Characteristic	Test Value	Contaminant Limit ³
pH (pH unit)	Range	Greater than 4, less than 9 ²
EC (µS/cm)	Maximum	5970 ¹
Sulphate (mg/L)	Maximum	1000 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
Zinc (mg/L)	Maximum	20 ¹

Notes:

¹Contaminant limit based on ANZECC and ARMCANZ (2000) stock water quality guidelines.

²Page 4.2-15 of ANZECC and ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4-9".

³Total measurements (unfiltered) must be taken and analysed.

G11 Receiving environment monitoring and contaminant trigger levels

The quality of the receiving waters must be monitored at the locations specified in Table G5 - Receiving water reference sites and downstream monitoring points for each quality characteristic and at the frequency stated in Table G6 - Receiving waters contaminant trigger and contaminant limit levels, and Table G7 - Stream sediment trigger and contaminant levels.

Condition

Condition

Table G5 **Table G5 - Receiving water reference sites and downstream monitoring points**

Monitoring Points	Receiving Waters Location Description	Latitude (GDA94)	Longitude (GDA94)
Reference ¹ Monitoring Points – a minimum 2 sites must be nominated			
Reference #1 Sediment and Receiving waters	Snake Creek approximately 300 metres upstream of all site disturbance	-19.476129	145.684473
Reference #2 Sediment and Receiving waters	Snake Creek approximately 300 metres upstream of all site disturbance	-19.475612	145.688002
Downstream Monitoring Points			
Downstream #1 Sediment and Receiving waters	Snake Creek approximately 400 metres downstream of RP2 (Sediment Trap 2)	-19.475658	145.706959
Downstream #2 Sediment and Receiving waters	Snake Creek approximately 400 metres downstream of RP2 (Sediment Trap 2)	-19.476218	145.709432

¹ Reference sites must:

1. be from the same bio-geographic and climatic region;
2. have similar geology, soil types and topography;
3. contain a range of habitats similar to those at the test sites;
4. have a similar flow regime; and

5. not be so close to the test sites that any **disturbance** at the test site also results in a change at the reference site.

Notes:

1. The reference monitoring points should be within 300m of the release point.
2. The downstream point should not be greater than 500m from the release point.
3. The data from reference monitoring points must not be used where they are affected by releases from other mines.
4. Sampling locations must be provided in plans/maps in Schedule I by 30 December 2014

Condition

Water

Table G6 - Receiving waters contaminant trigger and contaminant limit levels

Parameter	Trigger Level	Limit	Limit Type	Monitoring Frequency
pH	6.0 – 8.6 ¹	6 – 9.0 ⁷	Range	Daily during the release
EC	888 ¹ or 80 th percentile of reference ² value whichever is higher	1000 or 95 th percentile of reference ² value or whichever is lower	Maximum	Daily during the release
Aluminium (mg/L)	0.055 ³ or 80 th percentile of reference ² value whichever is higher	5 ⁵ or 95 th percentile of reference value or whichever is lower	Maximum	Daily during the release
Arsenic (mg/L)	0.013 ³ or 80 th percentile of reference ² value whichever is higher	0.5 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Cadmium (mg/L)	0.0002 ³ or 80 th percentile of reference ² value whichever is higher	0.01 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Chromium (mg/L)	0.001 ³ or 80 th percentile of reference ² value whichever is higher	1 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release

Cobalt (mg/L)	0.0014 ³ or 80 th percentile of reference ² value whichever is higher	1 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Copper (mg/L)	0.0014 ³ or 80 th percentile of reference ² value whichever is higher	1 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Lead (mg/L)	0.0034 ³ or 80 th percentile of reference ² value whichever is higher	0.1 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Nickel (mg/L)	0.011 ³ or 80 th percentile of reference ² value whichever is higher	1 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Sulphate (mg/L)	80 th percentile of reference ²	1,000 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release
Zinc (mg/L)	0.008 ³	20 ⁵ or 95 th percentile of reference ² value whichever is lower	Maximum	Daily during the release

¹ Based on the 80th percentile of the data from Basalt River (refer to Appendix C, Volume 2, Table 1)

² Reference sites must:

6. be from the same bio-geographic and climatic region; and

7. have similar geology, soil types and topography; and

8. contain a range of habitats similar to those at the potentially impacted sites; and

9. have a similar flow regime; and

10. not be so close to the test sites that any **disturbance** at the test site also results in a change at the reference site

³ **Contaminant** trigger based on ANZECC (2000) values for Aquatic Ecosystems, Table 3.4.1 and are to be analysed as Dissolved Metals (field filtered).

⁴ Based on the maximum value in the data from Basalt River (refer to Appendix C, Volume 2, Table 1)

⁵ **Contaminant** limits based on ANZECC (2000) values for Livestock Drinking Water Quality, Table 4.3.1 and 4.3.2 and are to be analysed as Total Metals (unfiltered).

⁶ Default trigger values – from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian upland river ecosystems.

⁷ Based on ANZECC (2000) value for Livestock Drinking Water Quality, section 4.2.10.1– Volume 1

Note: This does not apply to **dams** containing **hazardous waste**

G12 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table G6 - Receiving waters contaminant trigger and contaminant limit 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 is 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 /-- AMPERSAN --/ 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 this G12(b) condition, no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period.

G13 Results of monitoring of receiving waters from downstream monitoring points identified in Table G5 - Receiving water reference sites and downstream monitoring points, must not exceed any of the contaminant limits in Table G6 - Receiving waters contaminant trigger and contaminant limit levels.

G14 Stream Sediment

Sediment quality must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Table G5 - Receiving water reference sites and downstream monitoring points and for the parameters defined in Table G7 - Stream sediment trigger and contaminant levels. These points are depicted on plans/maps in Schedule I.

Table G7 **Table G7 - Stream sediment trigger and contaminant levels**

Parameter	Trigger Level	Limit	Limit type
Aluminium (mg/kg dry wt)	Reference value	2 x reference site concentration	Maximum
Arsenic (mg/kg dry wt)	20 ¹ or reference value, whichever is higher	70 ² or 2 x reference site concentration, whichever is higher	Maximum
Cadmium (mg/kg dry wt)	1.5 ¹ or reference value, whichever is higher	10 ² or 2 x reference site concentration, whichever is higher	Maximum
Chromium (mg/kg dry wt)	80 ¹ or reference value whichever is higher	370 ² or 2 x reference site concentration, whichever is higher	Maximum
Copper (mg/kg dry wt)	65 ¹ or reference value, whichever is higher	270 ² or 2 x reference site concentration, whichever is higher	Maximum
Cobalt (mg/kg dry wt)	Reference value	2 x reference site concentration	Maximum
Lead (mg/kg dry wt)	50 ¹ or reference value, whichever is higher	220 ² or 2 x reference site concentration, whichever is higher	Maximum

Nickel (mg/kg dry wt)	21 ¹ or reference value, whichever is higher	52 ² or 2 x reference site concentration, whichever is higher	Maximum
Sulfate (mg/kg dry wt)	Reference value	2 x reference site concentration	Maximum
Zinc	200 ¹ or reference value, whichever is higher	410 ² or 2 x reference site concentration, whichever is higher	Maximum

¹ ANZECC (2000) values for Aquatic Ecosystems: ISQG Low trigger values, Table 3.5.1

² ANZECC (2000) values for Aquatic Ecosystems: ISQG High values, Table 3.5.1

Note: 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.

G15 If quality characteristics of the sediment at the downstream monitoring points exceed any of the trigger levels specified in Table G7 - Stream Sediment Trigger and Contaminant Levels, the holder of this environmental authority must compare the results of the downstream sites 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 /-- AMPERSAN --/ 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 condition G15 (b), no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period.

G16 Results of monitoring of sediments from downstream monitoring points identified in Table G5 - Receiving water reference sites and downstream monitoring points, must not exceed any of the sediment contaminant limits in Table G7 - Stream Sediment Trigger and Contaminant Levels.

G17 Receiving Environment Monitoring Program (REMP)

The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) by 3 December 2015 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 downstream environment and connected or surrounding waterways within 2km 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.

- G18 A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
- G19 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 administering 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.

G20 Water General

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.

G21 Water Management Plan

A Water Management Plan must be developed by an appropriately qualified person and implemented by 31 July 2016.

- G22 Each year the holder of the Environmental Authority must undertake a review of the Water Management Plan prior to the wet season (i.e. by 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this Environmental Authority and that environmental harm is prevented or minimised.

G23 Groundwater

Groundwater quality and level must be monitored at the locations and frequencies defined in Table G8 - Groundwater Monitoring Locations and Frequency. These points are depicted on plans/maps in Schedule I for quality characteristics identified in Table G9 - Groundwater quality triggers and limits.

G24 If quality characteristics of groundwater from Compliance bores identified in Table G8 - Groundwater Monitoring Locations and Frequency exceed any of the trigger levels stated in Table G9 - Groundwater quality triggers and limits, the holder of this Environmental Authority must compare the Compliance bore results to the reference bore results and:

- a) if the level of contaminants at the compliance 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 bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC /-- AMPERSAN --/ 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 G24(b), no further reporting is required for subsequent trigger events for that quality characteristic during the reporting period.

G25 Results of monitoring of groundwater from compliance bores identified in Table G8 - Groundwater monitoring locations and frequency, must not exceed any of the limits in Table G9 - Groundwater quality triggers and limits.

G26 The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring

G27 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.

Table G8 **Table G8 - Groundwater monitoring locations and frequency**

Monitoring Point	Latitude (GDA94)	Longitude (GDA94)	Surface RL ¹ (m)	Monitoring Frequency
Compliance Bores				
Compliance Bore #1 <i>Spyglass Research Station, Manager's Residence</i>	-19.492591	145.685579	390	Monthly
Compliance Bore #2 <i>To be located at Gregory Development Road</i>	(to be provided by proponent by 30 March 2015)	(to be provided by proponent by 30 March 2015)	(to be provided by proponent by 30 March 2015)	Monthly
Reference Bores²				
(to be provided by 30 December 2015 and subject to the groundwater monitoring program)	(to be provided by proponent by 1 June 2015)	(to be provided by proponent by 1 June 2015)	(to be provided by proponent by 1 June 2015)	Monthly

¹RL measurement to be taken from top of bore casing

²Reference sites must:

- be from the same bio-geographic and climatic region; and*
- 12. *have similar geology, soil types and topography; and*
- 13. *contain a range of habitats similar to those at the potentially impacted sites; and*
- 14. *have a similar flow regime; and*
- 15. *not be so close to the test sites that any **disturbance** at the test site also results in a change at the reference site*

Notes:

1. *Compliance Bore #1 to be located at the manager's residence*
2. *Compliance Bore #2 to be located near Gregory Development Road*

table G9 **Table G9 - Groundwater quality triggers and limits**

Parameter	Contaminant trigger	Contaminant Limit	Trigger type
pH (pH units)	6.5-8.5 ¹	6.5-8.5 ¹	Range
Aluminium (mg/L)	0.055 ¹ or 80 th percentile of reference site concentration ^[6] whichever is higher	5 or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Arsenic (mg/L)	0.013 ¹ or 80 th percentile of reference site concentration ^[6] whichever is higher	0.5 or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Cadmium (mg/L)	0.0002 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	0.01 ^[3] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Chromium (mg/L)	0.0033 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	1 ¹ or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Cobalt (mg/L)	0.0014 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	1 ^[3] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Copper (mg/L)	0.0014 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	1 ^[3] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Lead (mg/L)	0.0034 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	0.1 ^[3] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Nickel (mg/L)	0.011 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	1 or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Sulphate (mg/L)	80 th percentile of reference site concentration ^[6] whichever is higher	1000 ^[4] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum
Zinc (mg/L)	0.008 ^[2] or 80 th percentile of reference site concentration ^[6] whichever is higher	20 ^[3] or 95 th percentile of reference site concentration ^[6] whichever is lower	Maximum

Note: For water quality objectives parameters, all metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels.

¹ Based on ANZECC (2000) value for Livestock Drinking Water Quality, section 4.2.10.1– Volume 1

² ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

³ ANZECC/ARMCANZ (2000) values for livestock drinking water quality Table 4.3.1 and Table 4.3.2.

⁴ ANZECC/ARMCANZ (2000) major ions of concern for livestock drinking water quality Section 4.3.3.4 – Volume 1.

⁵ ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Table 3.3.5 for EC.

⁶ Reference value determined from reference bore specified in Table G8 - Groundwater monitoring locations and frequency.

Note: The method of sampling of waters must comply with that set out in the latest edition of the Environmental Protection Agency's Water Quality Sampling Manual.

Definition

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

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

- a) stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;
- b) control of geochemical and contaminant transport processes;
- c) quality of runoff waters and potential impact on receiving environment;
- d) vegetation establishment, survival and succession;
- e) vegetation productivity, sustained growth and structure development;
- f) fauna colonisation and habitat development;
- g) 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;
- h) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- i) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- j) resilience of vegetation to disease, insect attack, drought and fire;
- k) vegetation water use and effects on ground water levels and catchment yields.

acid mine drainage (AMD) means any contaminated discharge emanating from a mining operation formed through a series of chemical and biological reaction, when geological strata is disturbed and exposed to oxygen and moisture as a result of mining operations.

acid rock drainage means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of mining activities.

administering authority means the Department of Environment and Heritage Protection or its successor or predecessors.

AEP means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.

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

appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

assessed by a suitably qualified and experienced person in relation to a hazard 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 determination has been based;

(c) the relevant data and facts on which the determination 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 determination has been based using the relevant data and facts, and the relevant criteria.

background, with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

blasting means the use of explosive materials to fracture:

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

bunded means within bunding consistent with Australian Standard 1940.

Certification, certifying or certified by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams, 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 at any time:

- a) exactly what is being certified and the precise nature of that certification;
- b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
- c) the relevant data and facts on which the certification 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 certification has been based using the relevant data and facts, and the relevant criteria.

chemical means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth); or
- b) a dangerous good under the dangerous goods code; or

- c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997; or
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or
- e) any substance used as, or intended for use as:
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - ii. a surface active agent, including, for example, soap or related detergent; or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - iv. a fertiliser for agricultural, horticultural or garden use; or
- f) a substance used for, or intended for use for:
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - ii. manufacture of plastic or synthetic rubber.

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 regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

contaminated means the substance has come into contact with a contaminant.

contaminant(s) A contaminant can be:

- a) a gas, liquid or solid; or
- b) an odour; or
- c) an organism (whether alive or dead), including a virus; or
- d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
- e) a combination of contaminants.

control measure(s) means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

dam means a land-based structure or a void that is designed to contain, divert or control 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 is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include all investigation and design reports, plans and specifications sufficient to hand to a contractor for construction, and planned decommissioning and rehabilitation outcomes; so as to address all hazard scenarios that would be identified by a properly conducted hazard assessment for the structure. Documentation must be such that a 'suitable qualified and experience person' could conduct an independent review without seeking further information from the designer.

design storage allowance or DSA means an available volume, estimated in accordance with the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams" published by the administering authority, that must be provided in a dam as at the first of November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in table 5 of that Manual.

disturbance of land includes:

- a) compacting, removing, covering, exposing or stockpiling of earth;
- b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
- c) carrying out mining within a watercourse, waterway, wetland or lake;
- d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
- e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
- f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

- a) areas off lease (e.g. roads or tracks which provide access to the mining lease);
- b) areas previously disturbed which have achieved the rehabilitation outcomes;
- c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner.
- e) disturbance that pre-existed the grant of the tenure.

domestic waste means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

dwelling means any of the following structures or vehicles that is principally used as a residence:

- a) a house, unit, motel, nursing home or other building or part of a building; or
 - b) a caravan, mobile home or other vehicle or structure on land; or
- a water craft in a marina.

EC means electrical conductivity.

environmental authority holder means the holder of this environmental authority.

general waste means waste other than regulated waste.

hazard in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

hazard 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 Hazard Categories and Hydraulic Performance of Dams” published by the administering authority.

hazardous waste means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

the holder means the holder of this environmental authority

infrastructure means water storage dams, levees, roads and tracks, buildings and other structures built for the purpose of the mining activity.

land in the land schedule of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the Environmental Protection Act 1994. For the purposes of the Acts Interpretation Act 1954, it is expressly noted that the term ‘land’ in this environmental authority relates to physical land and not to interests in land.

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

licensed place means the mining activities carried out at the mining tenements detailed in Schedule A – Table A1 of this environmental authority.

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

m means metres.

mg/L means milligrams per litre.

mineral(s) 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 therefrom;
- 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.

NATA means National Association of Testing Authorities, Australia.

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

noxious means harmful or injurious to health or physical well being.

offensive means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting,

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

process water(s) means water used or produced during the mineral development activities.

receiving environment in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

- a) a watercourse;
- b) groundwater; and
- c) an area of land that is not specified in Schedule A – Table A1 (Authorised Activities) of this environmental authority.

The term does not include land that is specified in Schedule A – Table A1 (Authorised Activities) of this environmental authority.

receiving waters means the waters into which this environmental authority authorises releases of contaminated water.

release event means a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

RL means reduced level, relative to mean sea level as distinct from depths to water.

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.

regulated dam(s) means any dam in the significant or high hazard category as assessed using the “Manual for Assessing Hazard Categories and Hydraulic Performance of Dams” published by the administering authority.

regulated waste means non-domestic waste mentioned in schedule 7 of the Environmental Protection Regulation 2008 (whether or not it has been treated or immobilised), and includes:

- a) for an element – any chemical compound containing the element; and
- b) anything that has contained the waste.

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.

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 drainage means the movement of waters, contaminated with salts, as a result of the mining activity.

sensitive place means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

- b) a motel, hotel or hostel; or
- c) an educational institution; or
- d) a medical center or hospital; or
- e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- f) a public park or gardens.

stable in relation to land, means land form dimensions are and will remain within tolerable limits now and in the foreseeable future. Issues to be properly considered in regard to whether or not the landform is stable include geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

suitably qualified and experienced person in relation to dams means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 2002, or at the relevant time holds a 'deemed registration' within the meaning of the Mutual Recognition (Queensland) Act 1992; and has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- (a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- (b) a total of five years of demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
- (c) a total of five years of demonstrated expertise in three of the following categories:
 - investigation and design of dams.
 - construction, operation and maintenance of dams.
 - 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.
 - dam safety.

µS/cm means micro siemens per centimetre.

void(s) means any constructed, open excavation in the ground.

waste water means used water from the activity, process water or contaminated storm water.

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

water quality means the chemical, physical and biological condition of water.

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 banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.

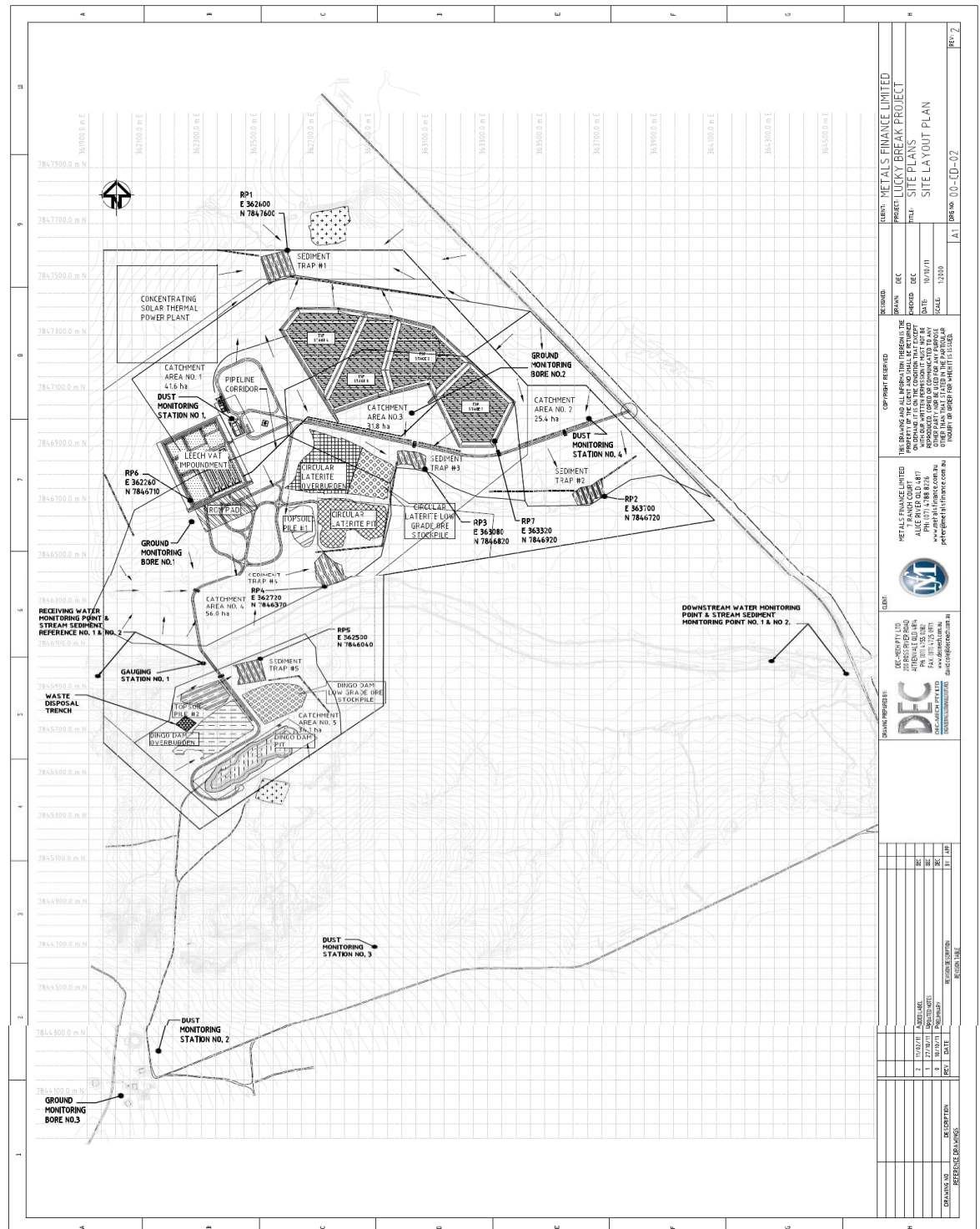
Appendices

Appendix

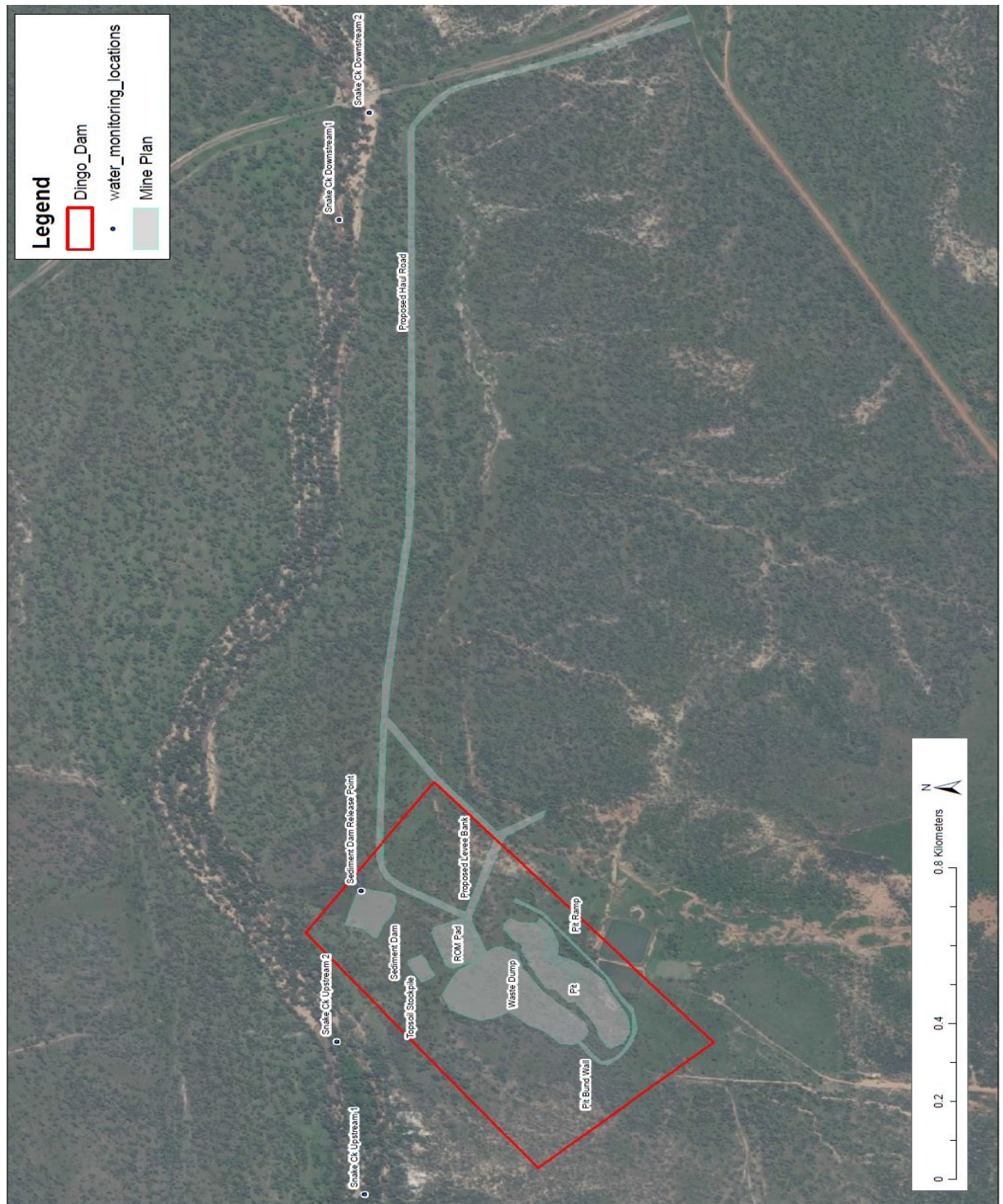
Appendix 1 - Map of mine site layout

Appendix 2 - Map of mine plan

Appendix 1 - Map of mine site layout



Appendix 2 - Map of mine plan



Appendix B Financial Assurance Calculator Summary

Summary Report of Financial Assurance Estimator

Environmental Authority: EPML00900713

Tenure Number: ML 10324, ML 10332

Site Name (if applicable): Lucky Break Project

EA Holder: SCONI MINING OPERATIONS PTY LTD

Current Financial Assurance: \$42,739.00

Date of Last Financial Assurance: 1 June 2016

Site Contact: Tim Maclean

Position: Chief Operating Officer

Address:
Level 6,
66 St Georges Terrace
Perth WA 6000

Phone: (08) 6166 5802 **Email:** tmaclean@australianmines.com.au

Domain	Rehabilitation Liability
Domain 1: Infrastructure	\$1,700
Domain 2: Tailings Storage Facilities (1)	\$0
Domain 2: Tailings Storage Facilities (2)	\$0
Domain 2: Tailings Storage Facilities (3)	\$0
Domain 3: Overburden & Waste Dumps (1)	\$14,521
Domain 3: Overburden & Waste Dumps (2)	\$0
Domain 3: Overburden & Waste Dumps (3)	\$0
Domain 4: Water Management	\$0
Domain 5: Pits (1)	\$55,550
Domain 5: Pits (2)	\$0
Domain 5: Pits (3)	\$0
Domain 6: Other Management Issues	\$11,354
Subtotal	\$83,126

Contingencies		Rehabilitation Liability
Project Management	10%	\$8,313
Environmental Maintenance and Monitoring	5%	\$4,156
Subtotal		\$12,469

Total Rehabilitation Liability for the Operation (excl. Contingencies)	\$95,595
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This is an accurate assessment of the rehabilitation liability for the site.

Julie Byrd Senior Environmental Scientist 31/10/2018
Assessment Completed By Title Date:

Tim Maclean Chief Operating Officer 31/10/2018
Site Manager Title Date:

Appendix C Rehabilitation Unit Rate Justification

Third Party Rehabilitation Quote

Activity / Equipment	Cost (exc. GST)	Contractor Quote
Plant and Equipment Mobilisation (Grader and Dozer)	\$1950 (per item)	Longpocket Earthmoving & Track Press Services Pty Ltd
Plant and Equipment Demobilisation (Grader and Dozer)	\$1950 (per item)	

Appendix D Third Party Quote

24th October 2018

Attention: Hollie Dick
AARC Environmental Solutions Pty Ltd
Suite 5, 1 Swann Road Taringa, QLD 4068

Dear Hollie,

Lucky Break Mine

Thank you for your email and the opportunity to supply our company rates. Please see below rates as requested for the rehabilitation activities at the Lucky Break Mine site:

- Mobilisation = \$1,950.00 + GST for each machine required
- De-Mobilisation = \$1,950.00 + GST for each machine required
- CAT D6R Dozer with Semi U Blade = \$220.00 per hour + GST
- Grader = \$190.00 per hour + GST

We trust you find the above pricing satisfactory and look forward to speaking with you further.

Kind Regards

Kayla
Long Pocket Earthmoving Pty Ltd

Mobilisation and De-Mobilisation pricing is valid for 12 months from date of letter. Plant hire rates are valid for 6 months from date of letter.