Permit

Environmental Protection Act 1994

Environmental authority EPML00873613

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

Environmental authority number: EPML00873613

Environmental authority takes effect when 250D provisions have been met.

The anniversary date of this environmental authority is 23 November each year.

Environmental authority holder(s)

Name(s)	Registered address
CHINOVA RESOURCES OSBORNE PTY LTD	Level 9 303 Coronation Drive MILTON QLD 4064

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 16 - Mining gold ore Schedule 3 17 - Mining copper ore Schedule 3 19 - Mining metal ore, other than a metal ore mentioned in items 11, 12, 14, 15, 16,17 or 18 Ancillary 07 - Chemical manufacturing 3(d) - Manufacturing, in a year, a total of 200t or more of any of the following – explosives Ancillary 08 - Chemical Storage 1 - Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) Ancillary 08 - Chemical Storage 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) Ancillary 31 - Mineral processing 2(a) - Processing, in a year, the following quantities of mineral products, other than coke - 1000t to 100,000t	ML90040, ML90057, ML90125, ML90128, ML90158, ML90183, ML90187

Environmentally relevant activity/activities	Location(s)
Ancillary 33 - Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year Ancillary 60 - Waste disposal 1(d) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) - more than 200,000t Ancillary 60 - Waste disposal 2(a) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - less than 2000t ERA 63 - Sewage Treatment 1(b-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	ML90040, ML90057, ML90125, ML90128, ML90158, ML90183, ML90187

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).

Mobile and temporary activities

If you operate a mobile and temporary environmentally relevant activity (ERA), other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

Contaminated land

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

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be

given within 24 hours); or

- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days) that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

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

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

b) if the authority states a day or an event for it to take effect – on the stated day or when the stated event happens; or

c) otherwise – on the day the authority is issued.

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 *Planning Act 2016* 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.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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.

T.Gibbs	18 September 2023
Signature	Date

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

Enquiries:
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Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Conditions of environmental authority

Schedule A - General Activity

A1-1 Words and phrases used throughout this Authority are defined in Schedule I - Definitions. Where a definition for a term used in this Authority is sought and the term is not defined within the Authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

A1-2 This Authority authorises environmental harm caused by the carrying out of the mining activities in accordance with the conditions of this Authority. Where a condition in this Authority refers to environmental harm the condition is taken to authorise the environmental harm occurring in compliance with the condition. Where there is no condition or this Authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising environmental harm.

A1-3 In carrying out the mining activity the Authority holder must comply with Schedule A-Table A1 (Authorised Mining Activities).

Schedule A – Table A1 (Authorised Mining Activities)

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
Waste Rock Dump (WRD) and Ore Stockpiles	Osborne WRD	90040	7557032	456179	15.27
			7557375	456485	
			7556882	456895	
	Osborne WRD West	90040	7556454	455557	13.71
			7556308	455791	
			7555792	455443	
			7555745	455677	
	Lucky Luke WRD	90187	7589350	441158	50
			7589244	440783	
			7588538	440723	
			7588534	441441	
			7589096	441452	

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
	Trekelano WRD	90125	7623669	386545	67.12
			7624290	385711	
			7624128	385177	
			7623307	385397	
Run of Mine (ROM)	Osborne ROM	90040	7556827	456502	16.44
	Lucky Luke ROM	90187	7589035	440664	6.65
Processing Area	Osborne Processing Plant	90040	7556706	456905	6.23
Open Cut Pit	Trekelano Inheritance Pit	90183 and 90125	7623834	386354	26.29
			7624093	386587	
			7624519	386464	
			7624490	386180	
			7623992	386151	
	Trekelano Pit	90125	7624594	386105	5.59
			7624742	386089	
			7624875	385999	
			7624707	385869	
			7624584	385915	
	Osborne Pit and Extension	90040	7556581	456043	26.01
			7556288	456108	
			7556488	455737	
			7556912	455809	

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
			7556945	456130	
	Lucky Luke Pit	90187	7589639	440727	10.09
			7589512	440546	
			7589306	440615	
Tailings Storage Facility (TSF)	TSF1	90040	7555186	456031	56.15
			7556153	456242	
			7556247	455757	
			7555308	455530	
	TSF2	90040	7556105	456703	159.5
			7555711	456725	
			7555207	456898	
			7555114	458141	
			7555928	458145	
			7556556	457893	
			7557021	457543	
			7557047	457159	
	TSF3	90040	7555801	455328	39.13
			7556079	455282	
			7555661	454796	
			7555496	454810	
			7555263	455543	
Dams and Diversions	TSF 2 Reclaim Dam	90040	7555416	457792	In TSF 2 footprint (21.65ha)
	Environmental Dams 2 and 3	90040	7557364	456550	4.54
	Environmental Dam 1	90040	7556351	455301	10.26
	Environmental Dam 4	90040	7556844	456960	0.486
	Trekelano Sediment Dam	90125	7623409	386049	3.09
	Lucky Luke Sediment Dam	90187	7588243	441472	0.93
	Lucky Luke Storm Water Dam	90187	7588777	440647	1
	Lucky Luke De-water Dam	90187	7589574	440500	0.76
	TSF 3 Reclaim Dam	90040	7556217	455103	18.26
Topsoil Stockpiles	TSF 1 Stockpile West	90040	7555961	455494	6.78
	TSF 2 Stockpile West	90040	7556042	456598	0.91
	TSF 1 WRD Stockpile	90040	7556317	456004	9.57

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
	TSF 2 Stockpile E	90040	7555997	458258	6.12
	TFS 2 Stockpile NE	90040	7556598	457805	3.39
	Osborne Pit Stockpile	90040	7556823	455671	5.34
	Lucky Luke Stockpile	90187	7588408	441055	14.42
Ancillary Infrastructure	Airport Health Clinic and STP	90040	7557614	454617	0.025
	Old Health Clinic and STP	90040	7556081	456287	0.025
	Contractor Workshop (open cut pit extension)	90040	7556586	456544	0.033
	Osborne Landfill/Lay-down	90040	7555984	456726	8.72
	Bowser/Power Station	90040	7556403	256878	2.2
	Osborne Mine Workshop	90040	7556598	457070	3.1
	Kulthor Surface Infrastructure	90040	7556544	454342	24.54
	Osborne Village	90040	7553040	455542	9.75
	Osborne Airstrip	90040 and 90158	7557623	454691	33.38
	New Osborne Core Shed	90040	7556844	454830	3.6
	Osborne Contractor Yard	90040	7556434	456206	2.84
	OSJ Shed	90040	7556858	454984	3.17
	Osborne Pit Workshop	90040	7556591	454844	3.2
	Trekelano Camp/Office	90125	7624881	386275	0.5
	Lucky Luke Landfill	90187	7588614	440641	0.61
	Lucky Luke Office/Workshop	90187	7587759	440598	0.89
	Gas and Borefields Pipelines	90040 and 90057	N/A	N/A	30.13

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
Roads and Tracks	Osborne	90040 and 90158	N/A	N/A	16.2
	Lucky Luke	90187	N/A	N/A	16.15
	Trekelano	90125 and 90128	N/A	N/A	1.61

A1-4 Access to the mining project via land authorised for that purpose by the *Mineral Resources Act 1989* is subject to the conditions of this Authority.

Maintenance of Measures, Plant and Equipment

A2-1 The Authority holder must:

(a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this Authority; and,

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

A2-2 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.

Monitoring and Measurements

A3-1 All instruments and devices used for the measurement or monitoring of any parameter under any condition of this Authority must be calibrated, appropriately operated and maintained.

A3-2 The Authority holder must record, compile and keep for a minimum of seven (7) years all monitoring results required by this Authority.

A3-3 Where monitoring is a requirement of this Authority, the Authority holder must ensure that a competent person(s) conducts all monitoring.

A3-4 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this Authority must be reviewed by a suitably qualified person for effectiveness in minimising the likelihood of environmental harm on an annual basis and amended promptly if required. Written certification of this review including identified issues and any subsequent actions undertaken in response must be recorded and provided to the administering authority upon request.

Inspection of Records, Reports, Plans and Investigations

A4-1 Promptly but within five (5) days of a request from the administering authority, the Authority holder must make available for inspection in the form and by the means requested by the administering authority all or any of the following:

(a) Monitoring results required under any condition of this Authority;

(b) Records required under any condition of this Authority;

(c) Reports required under any condition of this Authority;

(d) Plans required under any condition of this Authority;

(e) Investigations required under any condition of this Authority.

Risk Management

A5-1 The Authority holder must develop and implement a risk management system for mining activities which conforms to the Standard for Risk Management (ISO31000:2009) or the latest edition of the equivalently recognised Standard for Risk Management. The risk management system must be developed and implemented by 2 May 2012.

Emergency response/contingency

A6-1 The Authority holder must develop and implement an emergency response/contingency plan to respond to any potential emergency events.

A6-2 The emergency response/contingency plan required under condition A6-1 must include, but not be limited to the following:

(a) Response procedures to be implemented to prevent or minimise the risk of environmental harm arising from emergency events;

(b) Response procedures to minimise the extent and duration of environmental harm caused by an emergency event;

(c) The practices and procedures to be employed for remediation or mitigation of any environmental harm caused;

(d) The available resources for responding to an emergency event;

(e) Procedures to investigate the cause of any emergency events, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events;

(f) The provision and availability of documented procedures to staff attending any emergency events to enable them to effectively respond;

(g) Training of staff that will be called upon to respond to emergency events to enable them to effectively respond;

(h) Timely and accurate reporting of the circumstance and nature of emergency events to the administering authority in accordance with conditions of this Authority;

(i) Procedures for accessing monitoring points during emergency events and incidents; and

(j) Procedures to notify any occupiers or registered owners of affected land and other potentially impacted stakeholder who may be affected by the emergency event.

Notification of Emergencies, Event and Exceedences

A7-1 The Authority holder must provide written notification to the administering authority promptly but within twenty-four (24) hours after becoming aware of any emergency or event which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Authority.

A7-2 The Authority holder must notify the administering authority by telephone, email or facsimile promptly but within twenty-four (24) hours after becoming aware of any monitoring result that demonstrates an exceedence of any contaminant limit specified for a condition of this Authority, unless that condition specifies a different notification time-frame.

A7-3 Any notification for conditions (A7-1) and (A7-2) of this Authority must include but not be limited to the following:

(a) The Authority number and name of the Authority holder;

(b) The name and telephone number of the designated contact person;

(c) The location of the emergency, event or exceedence;

(d) The date and time of the emergency, event or exceedence;

(e) The time the Authority holder became aware of the emergency, event or exceedence;

(f) Where known:

(i) the estimated quantity, type and concentration of substances involved in the emergency, event or exceedence;

(ii) the actual or potential cause of the emergency, event or exceedence;

(iii) a description of the nature and effects of the emergency, event or exceedence including environmental risks, and any risks to public health or livestock;

(g) Any sampling conducted or proposed, relevant to the emergency, event or exceedence;

(h) Immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency, event or exceedence; and,

(i) What notification of stakeholders who may be affected by the emergency, event or exceedance has occurred or is being undertaken.

A7-4 Promptly but within ten (10) business days following the initial notification of any emergency, event or exceedence required for condition (A7-1) or (A7-2) of this Authority, the Authority holder must provide written advice to the administering authority in a form and by the means acceptable to the administering authority, which includes at a minimum:

(a) All details pertaining to the initial notification specified in condition (A7-3) of this Authority;

(b) Results and interpretation of any samples taken and analysed in relation to the emergency, event or exceedence;

(c) Outcomes of actions undertaken to prevent or minimise environmental harm;

(d) Any proposed actions to prevent a recurrence of the emergency, event or exceedence; and

(e) Any proposed actions and time-frames to further monitor and/or investigate the source, cause and extent of environmental harm resulting from the emergency, event or exceedence.

A7-5 The Authority holder must promptly, but not more than five (5) business days following the conduct of any further environmental monitoring and/or investigation nominated for condition (A7-4)(e) of this Authority, provide written advice to the administering authority detailing:

(a) The results of any monitoring and/or investigations performed;

(b) Any resultant actions and time-frames proposed to be undertaken.

A7-6 The Authority holder must promptly notify the occupiers or registered owners of affected land and any other potentially impacted stakeholder by telephone, email, or facsimile after becoming aware of any emergency, event or exceedence that has the potential to impact on environmental values or breaches any condition of this Authority concerning the release of contaminants to the environment.

A7-7 The notification in condition (A7-6) of this Authority must include the following:

(a) The location of the emergency, event or exceedence;

(b) The date and time of the emergency, event or exceedence;

(c) The estimated quantity and type of any substances involved in the emergency, event or exceedence;

(d) The potential impacts to environmental values caused by the emergency, event or exceedence; and,

(e) Where there is a potential impact on livestock or human health, precautionary measures that should be taken.

Complaints

A8-1 The Authority holder must record all environmental complaints received about the mining activities, promptly notify the administering authority of the complaint (within forty-eight (48) hours) and provide any details requested by the administering authority relating to the complaint, including at a minimum:

(a) Name, address and contact number of the complainant;

(b) Time and date of the 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/s responsible for resolving the complaint.

A8-2 The Authority holder must, when requested by the administering authority, undertake relevant specified monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including any analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within ten (10) business days of completion of the investigation, or no later than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

Community

A9-1 The Authority holder must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners reasonably expected to potentially be affected by the activities to ensure that any environmental, social, economic and cultural heritage impacts are identified and managed. This must include but not be limited to the following:

(a) Provide the opportunity for regular meetings to occur with all relevant stakeholders at a frequency of no less than once every six (6) months; and,

(b) Provide the opportunity for establishment of a consultative committee with representation for all relevant stakeholders that meet at regular intervals as determined by the committee only if required by the relevant stakeholders.

Third Party Auditing

A10-1 The holder of this environmental authority must:

(a) within 1 year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;

(b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and

(c) provide each report to the administering authority within 90 days of its completion.

Transition to New Standards

A11-1 Where a condition of this Authority requires compliance with a standard published externally to this Authority and the standard is amended or changed subsequent to the issue of this Authority, the Authority holder must:

(a) Comply with the amended or changed standard within 12 months of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation; and,

(b) Until compliance with the amended or changed standard is achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change.

Exploration

A12-1 All exploration activities carried out on the relevant mining tenures must comply with the provisions detailed in the administering authority's *Code of Environmental Compliance for Exploration and Mineral Development Projects* (the Code). Where there is a discrepancy between the Code and this Authority, the conditions of the Authority apply.

Suitably Qualified Person

A13-1 Any report, plan, audit or investigation required as a condition of this Authority must be undertaken by a suitably qualified person with appropriate skills and qualifications directly relevant to the field of study.

Trekelano Aggregate Production

A14-1 The holder of this environmental authority must ensure that only benign waste rock is used to produce aggregate on ML90125 for use off-site.

END OF SCHEDULE A

Schedule B – Air

General

B1-1 Unless authorised by this Authority, the release of noxious or offensive odour, dust or any other airborne contaminant resulting from the mining activities must not cause environmental harm.

B1-2 The holder of this Authority must ensure that bulk materials and mineral concentrate are transported in a manner that prevents the spillage and/or loss of particulate matter during transport.

B1-3 When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), odour, dust or any other airborne contaminant monitoring must be undertaken within a reasonable timeframe as specified by the administering authority, and the results thereof notified to the administering authority within ten (10) business days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected sensitive or commercial place and where relevant at upwind control site(s).

Dust Deposition Monitoring

B2- 1 The release of fugitive emissions from the activities must not cause the concentrations of the air quality characteristics listed in Table B1 (Air Quality Limits), to exceed the air quality limits when measured at or beyond the boundary of any mining lease(s) listed on this environmental authority and at a sensitive place and or a commercial place.

B2-2 By 1 September 2016, the environmental authority holder must ensure that an air quality monitoring program is developed by an appropriately qualified person and implemented that is capable of determining compliance with condition B2-1 of this environmental authority.

Schedule B - Table B1 (Air Quality Limits)

Contaminant	Limit Type/Measurement Period	Trigger Level	Air Quality Limit	Frequency of Monitoring
Dust Deposition[3]				
Arsenic and its compounds as arsenic[2]	Annual average	4µg/m^2/day[4]		One sample taken monthly- dust deposition monitoring
Cadmium and its compounds as cadmium[2]	Annual average	2µg/m^2/day[4]		
Lead and its compounds as lead[2]	Annual average	100 µg/m^2/day[4]	250 µg/m^2/day	
Copper and its compounds as copper[2]	Annual average	500 µg/m^2/day		
Dust deposition (total insoluble matter)	Monthly average		120 mg/m^2/day	

[2]Metal analysis must be carried out in accordance with a methodology sufficient to produce representative results capable of comparison against the respective limits and trigger values.

[3]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.

[4]Limits based on First General Administrative Regulation Pertaining to the Federal Emission Control Act (Technical Instructions on Air Quality Control – TA Luft) (Table 6).

Mineral Concentrate Management

B3-1 Mineral concentrate storage, handling and loading facitlites must be constructed, maintained and operated in a manner that prevents the release of contaminants to the receiving environment.

B3-2 The exterior of all vehicles, including trailers, must be free of mineral concentrate contamination prior to leaving any mineral concentrate storage facility.

Meteorological monitoring

B4-1 The Authority holder must establish and maintain a permanent meteorlogical station to continuously measure and record wind speed, wind direction, temperature, daily rainfall volume and rainfall intensity.

B4-2 The permanent meteorological station must be installed in accordance with the latest edition of the Bureau of Meteorology guideline Observation specifications No.2013.1 *Guidelines for the positioning and exposure of meteorological instruments and observing facilities.*

END OF SCHEDULE B

Schedule C – Water

C1-1 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 Authority.

C1-2 All determinations of water quality must be:

(a) Performed by a person(s) possessing appropriate experience and qualifications to perform the required measurements;

(b) Made in accordance with methods prescribed in the latest edition of the administering authority's monitoring and sampling manual;

(c) Collected from the monitoring locations identified within this Authority within two (2) hours of a release and within forty-eight (48) hours for all other monitoring;

(d) Carried out on representative samples;

(e) For laboratory determinations, carried out in a laboratory accredited (e.g. NATA) for the method of analysis being used.

C1-3 The following information must be recorded in relation to all water monitoring required for any condition of this Authority and submitted to the administering authority promptly but within two (2) days of a request:

(a) The date on which the sample was taken;

(b) The time at which the sample was taken;

(c) The monitoring point at which the sample was taken;

(d) The measured or estimated daily quantity of all contaminants released from any release point;

(e) The receiving waters flow rate at the time of sampling for each release point;

(f) The results of all monitoring and details of any exceedence with the conditions of this Authority; and,

(g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

C1-4 The Authority holder must develop, implement and maintain all reasonable measures/contingency plans to ensure all weather access to any sampling location listed in the Schedule C – Table C1 (Contaminant Release Points) of this Authority.

Contaminant Release to Waters

C2-1 The release of contaminants to waters must only occur from the release points specified in Schedule C - Table C1 (Contaminant Release Points) and as depicted in the following Figures of this Authority:

(a) Schedule I – Figure 1(a) (Surface Water and Groundwater Monitoring Locations; Osborne).

(b) Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations; Trekelano).

(c) Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations; Lucky Luke).

Note: the Authority holder must provide all Schedule I - Figures listed above in condition (C2-1) in a form and by the means acceptable to the administering authority by 1 April 2012.

C2-2 The release of contaminants to waters must be monitored at the locations specified in Schedule C - Table C1 (Contaminant Release Points) for all parameters listed in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) and at the following frequencies during release events or flow events:

- One sample must be taken within twelve (12) hours of any release event or flow event commencing. A second sample must be taken between twelve (12) and twenty-four (24) hours following the commencement of a release event or flow event.
- Where a release event or a flow event has a duration of twenty-four (24) hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases.

Note: The requirement to continue sampling release or flow events with a duration of twenty-four (24) hours or greater is only required if there is an exceedence at the release point of a release water contaminant trigger level or limit listed in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits).

Schedule C - Table C1 (Contaminant Release Points)

Release Point	Description of Waste Water Release	Description of Source	Description of Receiving Waters	Co-ordinates (MGA94, Z54)	
				Northing	Easting
Environmental Dam 1	Overflow of dam	Runoff from TSF 1	Carbo Creek	7556343	455189
Environmental Dam 3	Overflow of dam	Runoff from WRD	Noname Creek	7557282	456686
TSF 2 Reclaim Dam	Overflow of dam	Runoff from TSF 2	Little Sandy Creek	7555580	458015
Trekelano Environmental Dam 1	Overflow of dam	Runoff from WRD	Dermer Creek	7623486	385979
Lucky Luke Environmental Dam 1	Overflow of dam	Runoff from WRD	Lucky Luke Creek	7588243	441472

Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits)

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
pH (pH units)	6.0[3] (minimum)	6.0[9] (minimum)
	7.5[3] (maximum)	9.0[15] (maximum)
EC (µS/cm)	435[10]	1000[9]
Sulphate (SO_4^{2-}) (mg/L)	80th percentile[1,2,5] of reference[4]	1000[6]
Suspended Solids (mg/L)	For interpretation purposes	

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
Aluminium	For interpretation purposes. Results to be included in any investigation of an exceedance of the trigger levels for pH in accordance with condition C2-5.	
Arsenic[13]	80th percentile[1,2,5] of reference[4] or 0.013[3] as dissolved metals.	0.14[14] as dissolved metals
Cadmium	80th percentile[1,2,5] of reference[4] or 0.0002[3] as dissolved metals.	0.0008[14] as dissolved metals 0.01[6] as total metals
Cobalt	80th percentile[1,2,5] of reference[4] as dissolved metals.	0.09[8] as dissolved metals and 1[6] as total metals
Copper	80th percentile[1,2,5] of reference[4] or 0.0014[3] as dissolved metals.	0.03[15] as dissolved metals and 1[6] as total metals
Lead[11]	80th percentile[1,2,5] of reference[4] or 0.0034[3] as dissolved metals.	95th percentile[5] of reference value[7], [12] or 0.1[6] whichever is lower
Molybdenum[11]	80th percentile[1,2,5] of reference[4] or 1.9[3] as dissolved metals.	95th percentile[5] of reference value[7,12]
Nickel[11]	80th percentile[1,2,5] of reference[4] or 0.011[3] as dissolved metals.	0.017[14] as dissolved metals and 1[6] as total metals
Rhenium[11]	80th percentile[1,2,5] of reference[4] as dissolved metals.	95th percentile[5] of reference value[7,12]
Selenium (Total)	80th percentile[1,2,5] of reference[4] or 0.011[3] as dissolved metals.	0.02[6] as total metals
Zinc[11]	80th percentile[1,2,5] of reference[4] or 0.008[3] as dissolved metals.	95th percentile[5] of reference value[7], [12] or 20[6] whichever is lower
Hardness	For the purpose of interpretation	
Fluoride*	80th percentile[1,5] of reference[4]	95th percentile[5,14] of reference value[7], [12] or 26 whichever is lower

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
Phosphate*	80th percentile[1,2,5] of reference[4]	95th percentile[5] of reference value[7], [12] or 0.05 whichever is lower
Nitrogen *	80th percentile[1,2,5] of reference[4]	95th percentile[5] of reference value[7], [12] or 400 whichever is lower

[1] An interim trigger value can be derived from 'GREATER THAN OR EQUAL TO' 8 but 'LESS THAN OR EQUAL TO' consecutive reference site samples, derived using administering authority (2006) methodology (section 3.4.3.1).

[2] Trigger values are based on the 80th percentile of at least 10 and no more than 24 consecutive reference site samples, derived using the administering authority (2006) methodology (Table D1, and section 3.4.3.1).

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

[4] Reference sites are to be determined in accordance with Condition (C7-2) (j).

[5] 80th and 95th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).

[6] Contaminant limit based on ANZECC (2000) stock water quality guidelines.

[7] Limit levels based on reference data are to be based on 24 consecutive samples obtained at the time of a release (18 at a minimum).

[8] Contaminant limit based on ANZECC (2000) freshwater moderate reliability trigger value, section 8.3.7.1.

[9] Contaminant limit based on administering authority policy.

[10] Contaminant trigger based on Queensland Water Quality Guidelines (Table G.4 – 75th percentile).

[11] Monitoring must commence and trigger levels and contaminant limits apply when processing of ore from the Merlin Underground commences.

[12] Where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies.

[13] Analysis is based on total/combined species of the element, where the trigger level is exceeded, an analysis to determine and quantify speciated forms of the element is required.

[14] Contaminant limit based on ANZECC (2000) 80% species level of protection.

[15] Contaminant limit based on site specific data as at June 2016.

*Only required for the monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency): Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

C2-3 The volume of all water released to waters from each of the release points specified in Schedule C - Table C1 (Contaminant Release Points) must be determined and recorded.

C2-4 The release of contaminants to waters must not exceed the contaminant limits specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) for each parameter.

C2-5 If quality characteristics of the release exceed any of the trigger levels specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) during a release event, the holder of this Authority must compare the downstream results in the receiving waters during that release event to the trigger values specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) and:

(a) If the level of contaminants at the downstream site is the same or a lower value than the reference value for the quality characteristic during the release event then no action is to be taken; or

(b) If the level of contaminants at the downstream site is greater than the reference monitoring site data complete an investigation in accordance with the ANZECC and 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 exceedence of a trigger level has occurred and is being investigated, in accordance with requirement (b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

C2-6 The release of contaminants to waters must not produce in the receiving waters, 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 nor have any other properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm.

C2-7 Waters from areas potentially contaminated by oils and grease such as workshops and fuel storage areas must be effectively treated in a coalescing plate separator or equivalent prior to being placed in any location from which they may be released to waters.

C2-8 The release of waters must not cause erosion of the bed or banks of the receiving waters or result in deposition of sediment.

Stream Flow Monitoring

C3-1 During all release events, the volume of natural flow in receiving waters must be monitored immediately downstream of each release location specified in Schedule C - Table C1 (Contaminant Release Points) in a manner that ensures at a minimum:

(a) Stream flow in receiving waters is measured at the commencement of, during and following any release event until such time as flow in the receiving water ceases; and,

(b) Flow volume is determined at a level of accuracy that enables calculation of contaminant load in the receiving water for all contaminants listed in Schedule C - Table C4 (Receiving Water Contaminant Trigger Levels and Contaminant Limits).

C3-2 In the event that the methodology for calculating stream flow in receiving waters adopted to comply with condition (C3-1) is deemed to be unacceptable to the administering authority, the Authority holder will be required to install, operate and maintain gauging stations for all contaminant release points listed in Schedule C - Table C1 (Contaminant Release Points) before commencing any release to receiving waters from those locations.

C3-3 Notwithstanding any other condition of this Authority, the release of contaminants to waters must only take place during natural flow events when the background receiving water flow comprises a minimum of 95% of the total volume of the release.

Notification of release to waters

C4-1 The Authority holder must promptly (but no later than six (6) hours of having commenced releasing water to the receiving environment) notify the administering authority by telephone or e-mail of a release event. Notification must include the submission of written verification to the administering authority of the following information:

(a) Release commencement date/time;

(b) Expected release cessation date/time;

(c) Release point/s;

(d) Release volume (estimated);

(e) Receiving water/s including the natural flow rate; and

(f) Any details (including available data) regarding likely impacts on the receiving water(s).

C4-2 The Authority holder must promptly (but within twenty-four (24) hours after cessation of a release) notify the administering authority of the cessation of a release notified under condition (C4-1) and within twenty-eight (28) days provide the following information in writing:

(a) Release cessation date/time;

(b) Natural flow volume in receiving water;

(c) Volume of water released;

(d) Details regarding the compliance of the release with the conditions of this Authority (i.e. contamination limits, natural flow, discharge volume);

(e) All in-situ water quality monitoring results; and

(f) Any other matters pertinent to the water release event.

Receiving Environment Monitoring

C5-1 The quality of the receiving waters must be monitored for all parameters listed in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits) and at the locations and frequencies defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency) and as depicted in the following Figures of this Authority:

(a) Schedule I – Figure 1(a) (Surface Water and Groundwater Monitoring Locations – Osborne).

(b) Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations – Trekelano).

(c) Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations - Lucky Luke).

Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency)

Monitoring Point	**Description**	**Co-ordinates – MGA94, Z54**		**Monitoring frequency**
		Northing	**Easting**	
Receiving Waters				Event based sampling: - One sample must be taken within 2 hours of a release or flow event commencing. - Where a release or flow event has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases[2].
Carbo Creek	Carbo Ck downstream of Osborne mine	7551448	453756	
Little Sandy Creek	Little Sandy Ck downstream of Osborne mine	7556590	462763	
Dermer Creek	Dermer Ck downstream of Trekelano mine	7623898	386746	
Lucky Luke	Lucky Luke Downstream of mine	7587215	441403	

Monitoring Point	Description	Co-ordinates – MGA94, Z54		Monitoring frequency
		Northing	Easting	
No-name Creek	Noname Ck downstream of Osborne mine	7557804	458002	Sediment monitoring only in accordance with C6-1
Reference Sites[1]				Event based sampling: - One sample must be taken within 2 hours of a release or flow event commencing. - Where a release or flow event has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases[2].
Carbo Creek Reference	Carbo Creek Upstream of Osborne mine	7558797	448015	
Little Sandy Creek Reference	Little Sandy Creek Upstream of Osborne mine	7561729	455289	
Dermer Creek Reference	Dermer Creek Upstream of Trekelano mine	7625195	386332	
Lucky Luke Reference	Lucky Luke Upstream of mine	7591076	443023	
Monitoring sites				
No-name Creek	Noname Ck downstream of Osborne mine	7557804	458002	Monitoring for interpretive purposes only.

[1] Reference sites must:

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

[2] Continued sampling of release events with a duration of twenty-four (24) hours or greater is only required if there is an exceedence of a contaminant trigger level detected at the contaminant release point.

C5-2 If quality characteristics of the receiving water at the receiving water monitoring locations exceed any of the trigger levels specified in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits) during a release event, the Authority holder must compare the results of the receiving water monitoring site to the reference site monitoring data and:

(a) If the level of contaminants at the receiving water monitoring site does not exceed the reference site monitoring data, then no action is to be taken; or,

(b) if the level of contaminants at the receiving monitoring site is greater than the reference site monitoring data, complete an investigation in accordance with the ANZECC (2000) guidelines methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) Details of the investigations carried out; and,

(ii) Actions taken to prevent environmental harm.

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

C5-3 Contaminant levels in receiving waters must not exceed any of the contaminant limits defined in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits).

Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits)

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
pH (pH units)	6.0[3] (minimum)	6.0[12] (minimum)
	7.5[3] (maximum)	9.0[11] (maximum)
EC (µS/cm)	435[10]	1000[9]
Sulphate ($SO4^{2-}$) (mg/L)	80th percentile[1,2,5,14] of reference[4]	1000[6]
Suspended Solids (mg/L)	For the purpose of interpretation	
Aluminium	For interpretation purposes. Results to be included in any investigation of an exceedance of the trigger levels for pH in accordance with condition C5-2.	
Arsenic[13]	80th percentile[1,2,5,14] of reference[4] or 0.013[3]	0.14[8] as dissolved metals
Cadmium	80th percentile[1,2,5,14] of reference[4] or 0.0002[3]	0.0008[8] as dissolved metals 0.01[6] as total metals
Cobalt	80th percentile[1,2,5,14] of reference[4]	0.09 as dissolved metals and 1[6] as total metals
Copper	80th percentile[1,2,5,14] of reference[4] or 0.0014[3]	0.03[11] as dissolved metals and 1[6] as total metals
Lead[15]	80th percentile[1,2,5,14] of reference[4] or 0.0034[3]	95th percentile[5,14] of reference value[7, 12] or 0.1[6] whichever is lower
Molybdenum[15]	80th percentile[1,2,5,14] of reference[4] or 1.9[3]	95th percentile[5,14] of reference value[7,12]
Nickel	80th percentile[1,2,5,14] of reference[4] or 0.011[3]	0.0178 as dissolved metals and 1[6] as total metals

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
Rhenium[15]	80th percentile[1,2,5,14] of reference[4]	95th percentile[5,14] of reference value[7,12]
Selenium (Total)	80th percentile[1,2,5,14] of reference[4] or 0.011[3]	0.02[6] as total metals
Zinc[15]	80th percentile1[,2,5,14] of reference[4] or 0.008[3]	95th percentile[5,14] of reference value[7, 12] or 20[6] whichever is lower
Hardness	For the purpose of interpretation	
Fluoride*	80th percentile[1,5,14] of reference[4]	95th percentile[5,14] of reference value[7,12] or 2[6] whichever is lower
Phosphate*	80th percentile[1,2,5,14] of reference[4]	95th percentile[5,14] of reference value[7, 12] or 0.05 whichever is lower
Nitrogen*	80th percentile[1,2,5,14] of reference[4]	95th percentile[5,14] of reference value[7, 12] or 400 whichever is lower

[1] An interim trigger value can be derived from 'GREATER THAN OR EQUAL TO' 8 but 'LESS THAN OR EQUAL TO' 17 consecutive reference site samples, derived using administering authority (2006) methodology (section 3.4.3.1).

[2] Trigger values are based on the 80th percentile of at least 10 and no more than 24 consecutive reference site samples, derived using the administering authority (2006) methodology (Table D1, and section 3.4.3.1).

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

[4] Reference sites are to be determined in accordance with condition (C7-2) (j).

[5] 80th and 95th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).

[6] Contaminant limit based on ANZECC (2000) stock water quality guidelines.

[7] Limit levels based on reference data are to be based on 24 consecutive samples obtained at the time of a release (18 at a minimum).

[8] Contaminant limit based on ANZECC (2000) 80% species level of protection.

[9] Contaminant limit based on administering authority policy.

[10] Contaminant trigger based on Queensland Water Quality Guidelines (Table G.4 – 75th percentile).

[11] Contaminant limit based on site specific data.

[12] If the reference site also exceeds the value during the same event, the value of the reference site during the same event applies

[13] Analysis is based on total/combined species of the element, where the trigger level is exceeded, an analysis to determine and quantify speciated forms of the element is required.

[14] 80th and 95th percentiles to be determined based on Receiving Environment Monitoring Program.

[15] Monitoring must commence and trigger levels and contaminant limits apply when processing of ore from the Merlin Underground commences.

*Only required for the following monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency): Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

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

Stream Sediment Contaminant Levels

C6-1 Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season)* for the parameters defined in Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits) and at the monitoring locations defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency) and as depicted in the following Figures of this Authority:

(a) Schedule I – Figure 1(a) (Surface Water and Groundwater Monitoring Locations – Osborne).

(b) Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations – Trekelano).

(c) Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations – Lucky Luke).

*Note: If no contaminant release has occurred in the previous 12 months, sediment sampling frequency can be reduced to once per year, to be undertaken at the end of the dry season.

C6-2 If the quality characteristics of sediments exceed any of the trigger levels specified in Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits), the Authority holder must compare the results of the downstream site to the data from reference monitoring sites and:

(a) If the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or,

(b) If the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC (2000) guidelines methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) Details of the investigations carried out; and,

(ii) Actions taken to prevent environmental harm.

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

C6-3 Sediment contaminant levels must not exceed the sediment contaminant limits stated in Schedule C – Table C6 (Stream Sediment Trigger Levels and Contaminant Limits).

C6-4 If an exceedence in accordance with condition (C6-3) is identified, the Authority holder must notify the administering authority within seven (7) days of receiving the result.

Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits)

Parameter	Unit	Trigger Level	Contaminant Limit
Arsenic	mg/kg	Reference value[2] or 20[3], whichever is higher	70[1] or twice the reference value[2], whichever is higher
Cadmium	mg/kg	Reference value[2] or 1.5[3], whichever is higher	10[1] or three times the reference value[2], whichever is higher
Cobalt	mg/kg	Reference value[2]	Three times the reference value[2]

Parameter	Unit	Trigger Level	Contaminant Limit
Copper	mg/kg	Reference value[2] or 65[3], whichever is higher	270[1] or three times the reference value[2], whichever is higher
Lead[4]	mg/kg	Reference value[2] or 50[3], whichever is higher	220[1] or three times the reference value[2], whichever is higher
Molybdenum[4]	mg/kg	Reference value[2]	Three times the reference value[2]
Nickel	mg/kg	Reference value[2] or 21[3], whichever is higher	52[1] or three times the reference value[2], whichever is higher
Rhenium[4]	mg/kg	Reference value[2]	Three times the reference value[2]
Selenium	mg/kg	Reference value[2]	Three times the reference value[2]
Zinc[4]	mg/kg	Reference value[2] or 200[3], whichever is higher	410[1] or three times the reference value[2], whichever is higher
Fluoride*	mg/kg	Reference value[2]	Three times the reference value[2]
Nitrogen*	mg/kg	Reference value[2]	Three times the reference value[2]
Phosphate*	mg/kg	Reference value[2]	Three times the reference value[2]

[1] ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments

[2] Reference sites are defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency).

[3] ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.

[4] Monitoring must commence when processing of ore from the Merlin Underground commences.

* Only required for the following monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency): Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

C6-5 All stream sediment sampling must be undertaken in accordance with AS 5667.12 *Guidance on Sampling of Bottom Sediments of 1998*.

Receiving Environment Monitoring Program (REMP)

C7-1 A REMP must be developed and implemented by a suitably qualified person no later than three (3) months following issue of this Authority to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is all underlying groundwater, the waters of Carbo Creek, Little Sandy Creek, Noname Creek, Dermer Creek, Lucky Luke Creek and any connected

waterways that are downstream of a release point/s listed in Schedule C - Table C1 (Contaminant Release Points) of this Authority.

C7-2 The REMP must address (but not necessarily be limited to) the following:

(a) Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);

(b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy 2009);

(c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed;

(d) Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or level indicating adverse environmental impacts during the REMP;

(e) Monitoring for any potential adverse environmental impacts caused by the release;

(f) Monitoring of stream flow and hydrology;

(g) Monitoring of toxicants should consider the indicators specified in Schedule C - Table C2 (Release Water Trigger Levels and Contaminant Limits) to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC (2000) guidelines for slightly to moderately disturbed freshwater ecosystems;

(h) Monitoring as a minimum the parameters specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) (in addition to dissolved oxygen saturation and temperature);

(i) Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas sampling methodology/the latest edition of the administering authority's monitoring and sampling manual) and metals/metalloids in sediments (in accordance with ANZECC (2000) guidelines, BATLEY and/or the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments) for permanent, semi-permanent water holes and water storages;

(j) The locations of monitoring points, including reference/upstream and downstream sites, for all areas potentially impacted by activities authorised by this Authority. Reference sites must comply with the following criteria:

  (i) Be from the same bio-geographic and climatic region;

  (ii) Have similar geology, soil types and topography;

  (iii) Contain a range of habitats similar to those at the potentially impacted sites;

  (iv) Have a similar flow regime; and

  (v) Not be so close to the potentially impacted sites that any disturbance at the potentially impacted sites also results in a change at the reference site;

(k) The frequency or scheduling or sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within three (3) years (depending on wet season flows) in accordance with the latest edition of the administering authority's Queensland Water Quality Guidelines. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;

(l) Specify sampling and analysis methods and quality assurance and control;

(m) Any historical datasets to be relied upon;

(n) Description of the statistical basis on which conclusions are drawn; and

(o) Any spatial and temporal controls to exclude potential confounding factors.

C7-3 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with condition (C7-2) must be prepared and submitted in writing to the administering authority by 1 August 2013 and thereafter every twelve (12) months. This report must include an assessment of:

(a) Any assimilative capacity for those contaminants monitored;

(b) The suitability of current release limits to protect downstream environment values;

(c) If current release limits are identified as unsuitable to protect downstream environmental values, provide recommendations for more appropriate contaminant limits.

Groundwater

C8-1

Groundwater quality and level must be monitored for all parameters listed in Schedule C - Table C8 (Groundwater Contaminant Trigger Levels and Limits) and at the locations and frequencies defined in Schedule C - Table C7 (Groundwater Monitoring Locations and Frequency) and as depicted in the following Figures of this Authority:

(a) Schedule I – Figure 1(a) (Surface Water and Groundwater Monitoring Locations – Osborne).

(b) Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations – Trekelano).

(c) Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations - Lucky Luke).

Schedule C - Table C7 (Groundwater Monitoring Locations and Frequency)

Monitoring Point	Description	Co-ordinates (MGA94, Z54)		Surface RL[1] (m)	Monitoring frequency
		Northing	Easting		
Observation Bores					
New Bore western/north-western side of Osborne open cut pit (Targeting RL 1245m)	Osborne Open Cut Pit monitoring bore	TBA	TBA	TBA	Quarterly
KWB001	Kulthor monitoring bore	7556746	454068	264.24	
KWB002	Kulthor monitoring bore	7556629	454006	263.51	
Trekelano MB1	Trekelano old workings monitoring bore	7623895	386021	320.50	

Monitoring Point	Description	Co-ordinates (MGA94, Z54)		Surface RL[1] (m)	Monitoring frequency
		Northing	Easting		
Trekelano MB2	Trekelano old workings bore	7624289	386507	320.60	
Trekelano W2	Trekelano monitoring bore	7624301	385947	324.16	
Trekelano W4	Trekelano monitoring bore	7623909	386014	321.01	
Trekelano W7	Trekelano monitoring bore	7624580	385921	325.98	
TSF2 MB1	Osborne TSF 2 monitoring bore	7556767	457676	272.56	
TSF2 MB3a	Osborne TSF 2 monitoring bore	7555813	456937	267.91	
TSF2 MB4a	Osborne TSF 2 monitoring bore	7557005	457439	276.64	
TSF2 MB5	Osborne TSF 2 monitoring bore	7556439	457045	272.89	
TSF2 MB6	Osborne TSF 2 monitoring bore	7556363	457948	264.99	
TSF2 MB7	Osborne TSF 2 monitoring bore	7556620	457773	265.29	
TSF2 MB9	Osborne TSF 2 monitoring bore	7555086	458115	256.69	
TSF2 MB10	Osborne TSF 2 monitoring bore	7555059	458126	256.92	
Compliance Bores					
Trekelano W3	Trekelano monitoring bore	7624317	386743	321.66	Quarterly
Trekelano W5	Trekelano monitoring bore	7623160	386338	316.94	
TSF1 P1	Osborne TSF 1 monitoring bore	7555919	456211	280.81	
TSF1 P2	Osborne TSF 1 monitoring bore	7555919	456209	280.75	
TSF1 P3	Osborne TSF 1 monitoring bore	7555225	455622	280.86	
TSF1 P4	Osborne TSF 1 monitoring bore	7555225	455620	280.94	
TSF1 MB1	Replacement P5 and P6 Osborne TSF 1 monitoring bores	7556014	455358	276.48	
TSF1 P7	Osborne TSF 1 monitoring bore	7555467	456217	285.10	
TSF1 P8	Osborne TSF 1 monitoring bore	7555466	456216	285.05	
TSF2 MB11	Osborne TSF 2 monitoring bore	7555221	457017	268.88	
TSF2 MB12	Osborne TSF 2 monitoring bore	7556558	457017	263.57	

Monitoring Point	Description	Co-ordinates (MGA94, Z54)		Surface RL[1] (m)	Monitoring frequency
		Northing	Easting		
LLMB5	Lucky Luke monitoring bore	7588860	440457	304	Quarterly on commencement of mining at Lucky Luke deposit
LLMB6	Lucky Luke monitoring bore	7588162	440982	297	
LLMB7	Lucky Luke monitoring bore	7588816	441519	299	
Reference Bores[2] (Osborne and Cloncurry Projects)					
LLMB1	Lucky Luke reference bore	7589063	440566	300.60	Quarterly
LLMB2	Lucky Luke reference bore	7589696	440993	306.68	
BROLGA	Osborne and Cloncurry reference bore	7517727	451548	192	
MORT 1	Osborne and Cloncurry reference bore	7600388	452677	324	
MDWB10	Osborne and Cloncurry reference bore	7605428	447716	358.6	
MDWB12	Osborne and Cloncurry reference bore	7603223	448497	340	
MDWB16	Osborne and Cloncurry reference bore	7607944	447373	363	
MERB1	Osborne and Cloncurry reference bore	7619910	447448	396	

[1] RL must be measured to the nearest 5cm from the top of the bore casing

[2] Reference sites must:

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

a. To be installed and details provided to the administering authority before 25 October 2016.

C8-2 If the quality characteristics of groundwater from compliance bores identified in Schedule C - Table C7 (Groundwater Monitoring Locations and Frequency) exceed any of the trigger levels stated in Schedule C - Table C8 (Groundwater Contaminant Trigger Levels and Limits), the Authority holder must compare the compliance monitoring bore results to the reference bore results 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; and,

(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 (2000) guidelines methodology, into the potential for environmental harm and provide a written report to the administering authority

within three (3) months, outlining:

(i) Details of the investigations carried out; and,

(ii) Actions taken to prevent environmental harm.

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

C8-3 Groundwater from compliance bores identified in Schedule C - Table C7 (Groundwater Monitoring Locations and Frequency) must not exceed any of the limits defined in Schedule C - Table C8 (Groundwater Contaminant Trigger Levels and Limits).

C8-4 If an exceedence in accordance with condition (C8-3) is identified, the Authority holder must notify the administering authority within forty-eight (48) hours of receiving the result.

Schedule C - Table C8 (Groundwater Contaminant Trigger Levels and Limits)

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)	Monitoring Frequency
pH (pH units)	6.0[3] (minimum)	6.0[9] (minimum)	Quarterly
	7.5[3] (maximum)	8.5[9] (maximum)	
EC (µS/cm)	435[10]	1000[9]	
Sulphate ($SO4^{2-}$) (mg/L)	80th percentile[1,2,5] of reference[4]	1000[6]	
Aluminium	80th percentile[1,2,5] of reference[4] or 0.055[3]	95th percentile[5] of reference value[7] or 5[6], whichever is lower	
Arsenic[12]	80th percentile[1,2,5] of reference[4] or 0.013[3]	95th percentile[5] of reference value[7] or 0.56 whichever is lower	
Cadmium	80th percentile[1,2,5] of reference[4] or 0.0002[3]	95th percentile[5] of reference value[7] or 0.01[6] whichever is lower	
Cobalt	80th percentile[1,2,5] of reference[4]	95th percentile[5] of reference value[7,11] or 1[6] whichever is lower	

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)	Monitoring Frequency
Copper	80th percentile[1,2,5] of reference[4] or 0.0014[3]	95th percentile[5] of reference value[7] or 1[6] whichever is lower	
Lead[14]	80th percentile[1,2,5] of reference[4] or 0.0034[3]	95th percentile[5] of reference value[7] or 0.01[8] whichever is lower	
Molybdenum[14]	80th percentile[1,2,5] of reference[4] or 1.9[3]	95th percentile[5] of reference value[7]	
Nickel	80th percentile[1,2,5] of reference[4] or 0.011[3]	95th percentile[5] of reference value[7] or 1[6] whichever is lower	
Rhenium[14]	80th percentile[1,2,5] of reference[4]	95th percentile[5] of reference value[7]	
Selenium (Total)	80th percentile[1,2,5] of reference[4] or 0.011[3]	95th percentile[5] of reference value[7] or 0.02[6] whichever is lower	
Zinc[14]	80th percentile[1,2,5] of reference[4] or 0.008[3]	95th percentile[5] of reference value[7] or 20[6] whichever is lower	
Hardness	For the purpose of interpretation, particularly in regard to metals analysis		

[1] An interim trigger value can be derived from 'GREATER THAN OR EQUAL TO' 8 but 'LESS THAN OR EQUAL TO' consecutive reference site samples, derived using administering authority (2006) methodology (section 3.4.3.1).

[2] Trigger values are based on the 80th percentile of at least 10 and no more than 24 consecutive reference site samples, derived using the administering authority (2006) methodology (Table D1, and section 3.4.3.1).

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

[4] Reference sites are to be determined in accordance with Condition (C7-2) (j).

[5] 80th and 95th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).

[6] Contaminant limit based on ANZECC (2000) stock water quality guidelines.

[7] Limit levels based on reference data are to be based on 24 consecutive samples obtained at the time of a release (18 at a minimum).

[8] Contaminant limit based on NHMRC Drinking Water Guidelines (2006).

[9] Contaminant limit based on administering authority policy.

[10] Contaminant trigger based on Queensland Water Quality Guidelines (Table G.4 – 75th percentile).

[13] Analysis is based on total/combined species of the element, where the trigger level is exceeded, an analysis to

determine and quantify speciated forms of the element is required.

[14] Monitoring must commence when processing of ore from the Merlin Underground commences.

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

C8-5 Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in the latest edition of the Agriculture and Resource Management Council of Australia and New Zealand manual titled Minimum Construction Requirements for Water Bores in Australia.

C8-6 The new groundwater bore (targeting the RL 1245m) to monitor the Osborne open cut pit is required to be installed by 30 September 2022 in accordance with condition C8-5. The environmental authority holder must provide TBA's for the new bore in Schedule C - Table C7 (Groundwater Monitoring Locations and Frequency) to the administering authority by 30 November 2022, in the form of an amendment application under the *Environmental Protection Act, 1994.*

Sewage Treatment

C9-1 Sewage effluent at the Osborne Mine sewage treatment facilities must be reused or evaporated and must not be directly released from the sewage treatment plant, except for locations identified in Schedule C - Table C9 (Sewage Effluent Release Points, Method and Volume) of this Authority.

C9-2 Sewage effluent must only be released to land within the nominated areas identified in Schedule C - Table C9 (Sewage Effluent Release Points, Method and Volume) and as depicted in Schedule I - Figure 4 (Effluent Irrigation Areas of this Authority).

Note: the Authority holder must provide Schedule I – Figure 4 (Effluent Irrigation Areas) in a form and by the means acceptable to the administering authority before undertaken any release of treated effluent to land.

C9-3 Sewage effluent releases to land must be consistent with the land release method and peak daily discharge to land specified in Schedule C - Table C9 (Sewage Effluent Release Points, Method and Volume) of this Authority.

Schedule C - Table C9 (Sewage Effluent Release Points, Method and Volume)

Release Point	Land Release Method	Contaminant Source	Peak Daily Discharge to Land (m^3)	Release Point / Monitoring Location (MGA94, Z54)	
				Northing	Easting
Sewage Treatment Systems					
Osborne Airport	Trench	Osborne Health Clinic	TBA	TBA	TBA
Lucky Luke Biocycle	Surface irrigation of treated effluent	Lucky Luke Office/Workshop	TBA	TBA	TBA

TBA – The Authority holder must provide this detail/information to the administering authority before commencing release of sewage effluent to land.

C9-4 Treated sewage effluent from the Lucky Luke Biocycle must only be released to land in accordance with the contaminant limits stated in Schedule C - Table C10 (Contaminant Release Limits to Land – Irrigation of Treated Effluent) and the conditions of this Authority.

C9-5 All septic systems must be designed, operated and maintained in accordance with the relevant Australian standard.

C9-6 The following minimum areas of land must be utilised for the irrigation of treated sewage effluent, excluding any necessary buffer zones:

(a) TBA m^2 for the Lucky Luke Biocycle.

TBA – The Authority holder must provide the details and justification for the proposed area and location of land for irrigation of treated sewage effluent in a form and by the means acceptable to the administering authority at least one (1) month before commencing irrigation of sewage effluent to land.

Schedule C - Table C10 (Contaminant Release Limits to Land – Irrigation of Treated Effluent)

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD)[1]	mg/L	20	Maximum	Quarterly
Total Suspended Solids	mg/L	30	Maximum	Quarterly
Nitrogen	mg/L	30 10 5	Maximum 50th percentile short term 50th percentile long term	Quarterly
Phosphorus	mg/L	15 8 5	Maximum 50th percentile short term 50th percentile long term	Quarterly
E coli	Organisms / 100ml	200	Maximum	Quarterly
Faecal Coliforms[1]	CFU / 100ml	1000	Maximum	Quarterly
pH	pH units	6.0 - 8.5	Range	Quarterly

[1] Based on at least 5 but no more than 10 consecutive samples

C9-7 The Authority holder must take all necessary measures to ensure that persons are not exposed to pathogens in treated sewage effluent, including:

(a) Selection of irrigation equipment with low exposure risk;

(b) Appropriate timing of irrigation;

(c) Restriction of access to areas either being irrigated or that are freshly irrigated;

(d) Buffers between irrigation areas and areas of human occupation;

(e) Monitoring relevant groundwater quality indicators from any potentially affected bores;

(f) Use of appropriate withholding periods for livestock grazing;

(g) Notices prominently displayed on areas undergoing wastewater irrigation, warning the public/personnel that the area is irrigated with treated waste water and not to use or drink the waste water;

(h) Lockable valves or removable handles must be fitted to all treated wastewater release pipes situated in public access areas.

C9-8 Treated effluent is permitted to be released to land provided that it is done in accordance with a written procedure that ensures:

(a) infiltration to groundwater and subsurface flows of contaminants to surface waters are prevented

(b) surface pondage and run-off of effluent is prevented

(c) degradation of soil structure is minimised

(d) soil sodicity and the build-up of nutrients and heavy metals in the soil and subsoil are minimised

(e) spray drift or overspray do not carry beyond effluent disposal areas

(f) the capacity of the land to assimilate nitrogen, phosphorous, salts, organic matter as measured by oxygen demand and water is not exceeded

(g) the build-up of nutrient in the soil and subsoil from effluent is controlled.

C9-9 Sewage effluent released to land must not cause spray drift or over spray to any odour sensitive place.

C9-10 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent in accordance with the conditions of this Authority, it must be directed to a wet weather storage facility or alternative measures taken to lawfully dispose of it.

C9-11 The daily volume of contaminants released to land from sewage systems must be determined by an appropriate method, with an accuracy of plus or minus 5%, for example a flow meter and records kept of such determinations and estimates.

Onsite Water Storages

C10-1 On site water storages must be monitored at the locations and frequencies defined in Schedule C - Table C11 (Onsite Water Storage Monitoring Locations) for parameters listed in Schedule C - Table C12 (Onsite Water Quality Limits).

Schedule C - Table C11 (Onsite Water Storage Monitoring Locations)

Monitoring Point	Co-ordinates (MGA94, Z54)		Monitoring frequency
	Northing	Easting	
Environmental Dam 1	7556343	455189	Quarterly (if water is present)
Environmental Dam 3	7557282	456686	
Trekelano Environmental Dam 1	7623486	385979	
Lucky Luke Environmental Dam 1	7588243	441472	
Lucky Luke Stormwater Dam	7588777	440647	

C10-2 In the event that waters defined in Schedule C - Table C11 (Onsite Water Storage Monitoring Locations) exceed the quality levels defined in Schedule C - Table C12 (Dam Water Quality Levels), the Authority holder must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

Schedule C - Table C12 (Dam Water Quality Levels)

Parameter	Unit	Test Value	Quality Level[2]
pH	pH unit	Range	Greater than 5.0, less than 9.0[3]
EC	µS/cm	Maximum	1500[4]
Turbidity	NTU	Maximum	Twice the reference value
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[5]	mg/L	Maximum	0.1[1]
Molybdenum[5]	mg/L	Maximum	0.15[1]
Nickel	mg/L	Maximum	1[1]
Rhenium[5]	mg/L	Maximum	Twice the reference value
Selenium	mg/L	Maximum	0.02[1]
Zinc[5]	mg/L	Maximum	20[1]

[1] Levels based on ANZECC (2000) stock water quality guidelines.

[2] Levels based on reference data are to be based on 24 consecutive samples (18 at a minimum)

[3] Page 4.2-15 of ANZECC (2000) “Soil and animal health will not generally be affected by water with pH in the range of 4–9”.

[4] Trigger levels based on administering authority policy

[5] Monitoring must commence when processing of ore from the Merlin Underground commences.

Note: Analysis for total metal concentrations.

Water Management Plan

C11-1 A Water Management Plan must be developed and implemented by 1 October 2012 that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this Authority.

C11-2 The Water Management Plan must be developed in accordance with the administering authority’s Guideline for Preparing a Water Management Plan 2009 and any updates that become available from time to time and must include at least the following components:

a) Contaminant source study;

b) Site water balance and model;

c) Water management system;

d) Saline and metalliferous drainage prevention and management measures;

e) Acid rock and neutral mine drainage prevention and management measures;

f) Emergency and contingency planning; and,

g) Monitoring and review.

C11-3 Each year the Authority holder must undertake and document a review of the Water Management Plan prior to the wet season (but no later than 1 November of each year) and a further review following the wet season (but no later than 1 May of the following year) to ensure that proper and effective measures, practices or procedures are in place so that operations are in accordance with the conditions of this Authority and that environmental harm is prevented or minimised.

C11-4 A copy of the Water Management Plan and/or documentation of any reviews of the Water Management Plan must be provided to the administering authority on request.

Stormwater and Water Sediment Controls

C12- 1 An Erosion and Sediment Control Plan must be developed by a suitably qualified person before 1 July 2012 and immediately implemented and maintained for all stages of mining activities on the mining lease(s) to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of stormwater.

C12-2 The Erosion and Sediment Control Plan must at minimum provide for the following stormwater management functions:

(a) Prevent or minimise the contamination of stormwater;

(b) Diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled;

(c) Contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this Authority;

(d) Roofing or minimising the size of areas where contaminants or wastes are stored or handled;

(e) Using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;

(f) Erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;

(g) Procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria;

(h) Training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

C12-3 Any spillage of wastes, contaminants or other materials must be cleaned up promptly to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

END OF SCHEDULE C

Schedule D – Noise

D1-1 Noise from mining activities must not cause environmental harm or nuisance unless authorised by a condition of this Authority.

D1-2 In the event of a complaint made to the administering authority (which is neither frivolous or vexatious) about noise generated in carrying out the licensed activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this Authority must take action to ensure that it is no longer an unreasonable noise.

Noise Monitoring

D2-1 Ensure that noise generated by the mining activities does not cause the criteria in Schedule D - Table D1 (Noise Limits).

Schedule D – Table D1 (Noise Limits)

Noise level dB (A) measured as	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am – 6pm	**6pm – 10pm**	**10pm – 7am**	**9am - 6pm**	**6pm – 10pm**	**10pm - 9am**
	Noise measured at a 'noise sensitive place'					
$L_{A10,}$ 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
	Noise measured at a 'commercial place'					
$L_{A10,}$ adj, 10 mins	BG+10	BG+10	BG+5	BG+10	BG+10	BG+5
$L_{A1,}$ adj, 10 mins	BG+15	BG+15	BG+10	BG+15	BG+15	BG+10

Note: The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

D2-2 When requested by the administering authority, the Authority holder must undertake and record noise monitoring within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint of environmental nuisance at any sensitive place or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

D2-3 Noise monitoring and recording must include the following descriptor characteristics and matters:

(a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 10 mins);

(b) Background noise $L_{A90,}$;

(c) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;

(d) Atmospheric conditions including temperature, relative humidity and wind speed and directions;

(e) Effects due to any extraneous factors such as traffic noise;

(f) Location, date and time of monitoring;

(g) If the complaint concerns low frequency noise, Max $L_{pLIN,T}$;

(h) If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

D2-4 The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of AS1055 *Acoustics – Description and measurement of environmental noise*.

Air Blast and Ground Vibration

D3-1 The Authority holder must ensure that blasting does not cause the limits for air blast overpressure in Schedule D - Table D2 (Air blast Overpressure Level) and peak particle velocity in Schedule D - Table D3 (Ground Vibration Limits) to be exceeded at any sensitive place or commercial place.

Schedule D – Table D2 (Air blast Overpressure Level)

Location	Monday to Friday 7 am - 6 pm Saturday 9 am - 6 pm	Sundays and Public Holidays 10am – 3pm
Sensitive or Commercial Place	Air blast overpressure level of 115 dB (linear peak) for nine out of ten consecutive blasts initiated and not greater than 120 dB (linear peak) at any time.	Air blast overpressure level of 115 dB (linear peak) for nine out of ten consecutive blasts initiated and not greater than 120 dB (linear peak) at any time.

Note: The method and measurement and reporting of overpressure levels must comply with the latest edition of the administering authorities guideline on noise and vibration from mining.

Schedule D – Table 3 (Ground Vibration Limits)

Location	Vibration measured	
	Monday to Friday 7am - 6 pm Saturday 9 am - 6 pm	Sundays and public holidays 10am – 3pm
Sensitive or Commercial Place	5mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time	5mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time

D3-2 When requested by the administering authority, blast monitoring of ground vibration and air blast overpressure must be undertaken within a reasonable and practicable timeframe nominated by the administering authority, to investigate any complaint of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

D3-3 Where blast monitoring detects non-compliance with the limits for air blast overpressure in Schedule D - Table D2 (Air blast Overpressure Level) and peak particle velocity in Schedule D - Table D3 (Ground Vibration Limits):

(a) Take steps to ensure compliance is achieved by subsequent blasts; and

(b) Continue to monitor all consecutive blasts until at least three (3) successive blasts comply with Schedule D - Table D2 (Air blast Overpressure Level) and Schedule D - Table D3 (Ground Vibration Limits).

D3-4 The method of measurement and reporting of vibration levels must comply with the most recent edition of the administering authority's guideline Noise and vibration from blasting.

END OF SCHEDULE D

Schedule E - Waste

E1-1 A waste management program in accordance with Part 5 of the Environmental Management (Waste Management) Policy 2000 must be developed for the site by 30 November 2012 and immediately implemented and maintained. The waste management program must include:

(a) A description of the mining activities that may generate waste;

(b) The types and amounts of wastes generated by the mining activities;

(c) A program for reusing, recycling or disposing of all wastes;

(d) How the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal);

(e) Procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;

(f) Procedures for dealing with accidents, spills and other incidents;

(g) Details of any accredited management system employed, or planned to be employed, to deal with waste;

(h) How often the performance of the waste management program will be assessed;

(i) The indicators or other criteria on which the performance of the waste management program will be assessed; and

(j) Staff training and induction to the waste management program.

E1-2 Procedures for the management and maintenance of sewage treatment facilities and general waste disposal sites must be updated to reflect onsite operations and be made available to the administering authority within 10 Business Days of any request.

Waste Disposal

E2-1 All general and regulated waste other than authorised under condition (E2-2) must be removed from the site to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994.

E2-2 The only waste that can be disposed of at the licensed place is waste that has been

generated on-site, and is limited to:

a) Waste rock;

b) General waste including construction and demolition waste, green waste and domestic wastes;

c) Tyres; and

d) tailings

E2-3 General waste must only be disposed of in the waste disposal trench facilities located on ML90040 (Osborne) and ML90187 (Lucky Luke) and as depicted in Schedule I – Figure 2 (General Waste Disposal Area).

Note: the Authority holder must provide Schedule I – Figure 2 (General Waste Disposal Area) in a form and by the means acceptable to the administering authority by 1 May 2012.

E2-4 Notwithstanding condition E2-3, construction and demolition waste may also be disposed of in an open-cut pit or underground provided that the material is free of any regulated waste.

E2-5 General waste deposited in the active waste disposal trench must be compacted and covered with a layer of inert material following placement of the waste into the trench.

E2-6 Litter control methods must be effectively implemented at the active waste disposal trench.

E2-7 The active waste disposal trench must be constructed and operated to minimise the generation of leachate including a system of diversion drains or embankments to divert surface waters away from any area where contact with wastes or sources of contamination may occur.

E2-8 Completed waste disposal trenches must be capped with a low permeability material and compacted and contoured to effectively minimise water infiltration.

E2-9 A record of the location of trenches used for waste disposal must be maintained. Notwithstanding any other condition of this authority, such records must be maintained until the administering authority approves the surrender of this authority.

E2-10 Unless otherwise permitted by the conditions of this Authority, waste must not be burnt at the licensed place or taken off-site and burnt. An exception is made for timber, explosives boxes and cardboard, which may be stockpiled and burnt at the licensed place for the purpose of conducting fire and safety training exercises. All stockpiled timber material and cardboard must be managed in accordance with the general environmental duty so as to prevent contamination of the receiving environment.

Regulated waste

E3-1 Regulated waste, other than that authorised to be disposed of at the licensed place, may only be removed and transported by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994.

E3-2 Regulated waste generated by the mining activity can be temporarily stored at the licensed place awaiting removal provided it is stored to ensure there is minimal risk of causing fire or contamination.

E3-3 Each container of regulated waste stored at the licensed place awaiting movement off-site must be clearly marked to identify the contents.

E3-4 Hydrocarbon contaminated soils may be treated on site in accordance with an identified treatment for hydrocarbon contaminated soils by agreement with the administering authority.

Tyre storage and disposal

E4-1 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.

E4-2 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.

E4-3 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 at the licensed place in non-acid-forming waste rock dumps or underground stopes.

Waste Rock Management

E5-1 The Authority holder must develop, implement and submit to the administering authority a Waste Rock Management Plan, together with the certification by a suitably qualified person that the plan has addressed the requirements of condition (E5-3) and is in accordance with best practice environmental management prior to disposing of any waste rock.

E5-2 The Waste Rock Management Plan must be maintained to include all the requirements under Condition E5-3 and be made available to the administering authority upon any request within 10 business days.

E5-3 The Waste Rock Management Plan must include:

(a) Provisions for the characterisation of waste rock to predict the quality of runoff and seepage generated, including salinity, acidity, alkalinity, dissolved metals, metalloids and non-metallic inorganic substances.

(b) A program of progressive sampling to validate pre-mine waste rock characterisation, at a minimum frequency of one sample for every 50,000 tonnes of waste rock. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations; including, fluoride, antimony, molybdenum, arsenic, chromium, cobalt, nickel, uranium, tin, copper, lead, zinc and cadmium;

(c) Where the acid rock drainage potential and/or 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) A record of all waste rock characterisation and an inventory of the quantity of all waste rock stored/located on mining leases that are the subject of this Authority.

(e) Contingency planning for the management of acid rock and/or neutral mine drainage for all waste rock stored/located on mining leases that are the subject of this Authority.

(f) 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.

(g) 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.

(h) A sampling program to verify encapsulation and/or placement of potentially acid forming or acid forming waste rock that has a potential to generate acid mine drainage;

(i) How often the performance of the plan will be assessed;

(j) A Rehabilitation strategy which meets the rehabilitation objectives specified in Schedule F - Table F1 (Rehabilitation Requirements) and the Post Mine Land Use Plan;

(k) Monitoring or rehabilitation, research and/or trials to verify the requirements and methods for proposed decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover;

(l) Detailed waste rock dump designs that comply with all conditions of this Authority.

E5-4 Any waste rock characterised as acid forming or potentially acid forming must be either:

(a) Returned to underground voids as fill where it can be demonstrated there is a low risk of groundwater contamination.

(b) Placed in an Open Cut Pit in a manner that minimises exposure to oxidation and mobilisation of contaminants.

(c) Placed in the TSF1 (Oxide cell):

i. Where it can be demonstrated that conditions E6-1 and E7-1 can be met; and

ii. Volumes are minimised and are limited to no more than a total of 1 million tonnes.

Where the characteristics of waste rock in regards to acid producing potential is uncertain, this material must be treated as potentially acid forming until demonstrated otherwise.

E5-5 Waste rock dumps must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.

E5-6 Any seepage from waste rock dumps that does not comply with release conditions specified in Schedule C of this Authority must be captured and not released into the receiving environment.

E5-7 The Authority holder must submit detailed design plans, including schematic diagrams to the administering authority, at least one (1) month prior to commencing construction of any additional waste rock dump subsequent to the issue of this Authority.

Tailings management

E6-1 Tailings must be managed in accordance with documented procedures. These procedures must include provisions for:

(a) Containment of tailings in accordance with best practice environmental management practices;

(b) The management of seepage/leachate during operation and post-closure;

(c) The control of fugitive emissions to air;

(d) Characterisation to identify acid producing potential and metal concentrations of tailings, including:

(i) Determination of net acid producing potential (NAPP) and the level of the following contaminants: arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, tin, zinc and fluoride.

(ii) Where the acid producing potential of tailings material has not been conclusively determined geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies.

(iii) Where tailings are being deposited into a TSF, all reasonable and practicable measures must be taken to minimise the exposure of potentially acid forming materials to oxidising conditions.

(e) Rehabilitation strategy which meets the rehabilitation objectives specified in Schedule F – Land and Rehabilitation of this Authority; and

(f) Monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid drainage, erosion minimisation and establishment of vegetation cover.

(g) Maintaining the water level for the Osborne open cut pit at or below the RL1245m.

E6-2 Tailings must be contained in the designated tailings storage areas listed in Schedule A - Table A1 (Authorised Mining Activities), Osborne open cut pit or underground within the stope voids of Osborne Underground.

E6-3 The regulated waste licenced for disposal in the Tailings Storage areas listed in Schedule A- Table A1 (Authorised Mining Activities) and/or in the Osborne open cut pit is limited to:

(a) Tailings from the mineral processing operation originating from activities located on ML90187, ML90040, ML90057, ML90183, ML90125, ML90068, ML90128, ML90158 and ML2733;

(b) Potential acid forming material of up to 0.61 Million m^3 from TSF2;

(c) (EML Project) Tailings of up to 4.25 Million m^3;

(d) TSF2 material of up to 0.42 Million m^3 stockpiled on the ROM;

(e) Potential acid forming material of up to 0.88 Million m^3 stored on the TSF1 oxide cell;

(f) Mineralized waste and screen fines of up to 0.185 Million m^3;

(g) General inert site clean-up materials of up tp 0.05 Million m^3.

E6-4 The additional regulated waste streams described in Condition E6-3 cannot exceed the following maximum fill level elevation of RL1243m.

E6-5 Details of the relative volumes and locations of any waste stored within the Osborne open cut pit under condition E6-3 must be recorded and maintained and these records must be provided within 10 business days to the administering authority upon request.

E6-6 If the water level in the pit reaches RL1244m level, then the EA holder must take all necessary management and intervention actions to prevent the water level increasing to RL1245m.

E6-7 The water level for Osborne open cut pit must not exceed the RL1245m.

E6-8 The Maximum Allowable Water Level (RL 1245m) must be demarcated in the Osborne open cut pit in such a way that during routine inspections of that pit, it is clearly observable.

E6-9 Contaminants located within the Osborne open cut pit must not be released to any waters.

E6-10 The water level in the Osborne open cut pit must be monitored monthly and identified water levels are to be documented as required under condition A5-1 and E1-1.

Saline, Acid Rock and Metalliferous Drainage

E7-1 The Authority holder must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid rock and/or metalliferous drainage.

END OF SCHEDULE E

Schedule F – Land

General

F1-1 Other than as authorised under this Authority, contaminants must not be released to land in a manner which causes or potentially causes environmental harm.

F1-2 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 or waters.

Topsoil

F2-1 Topsoil and subsoil 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.

F2-2 Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release contaminants. Measures must include:

a) Vegetating stockpiles; and,

b) Minimising the height of stockpiles; and,

c) Re-using stockpiles as soon as possible.

Rehabilitation Objectives

F3-1 Land disturbed by mining must be rehabilitated in accordance with Schedule F - Table F1 (Rehabilitation Requirements).

Schedule F - Table F1 (Rehabilitation Requirements)

Mine Domain	Mine Feature Name	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
Waste Rock Dump (WRD) and Ore Stockpiles	Osborne WRD	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authorities Guideline - Rehabilitation Requirements for Mining Projects and will be defined in the Post Mine Land Use Plan.	TBD[1]	TBD[1]	TBD[1]
	Osborne WRD West				
	Lucky Luke WRD				
	Trekelano WRD				
Run of Mine (ROM)	Osborne ROM				
	Lucky Luke ROM				
Processing Area	Osborne Processing Plant				
Tailings Storage Facility (TSF)	TSF 1				
	TSF 2				
	TSF 3				
Dams and Diversions	Reclaim Dam				
	Environmental Dams 2 and 3				
	Environmental Dam 1				
	Environmental Dam 4				
	Trekelano Sediment Dam				

Mine Domain	Mine Feature Name	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Lucky Luke Sediment Dam				
	Lucky Luke Storm Water Dam				
	TSF 3 Reclaim Dam				
Topsoil Stockpiles	TSF 1 Stockpile West				
	TSF 2 Stockpile West				
	TSF 1 WRD Stockpile				
	TSF 2 Stockpile E				
	TSF 2 Stockpile NE				
	Pit Stockpile				
	Lucky Luke Stockpile				
Ancillary Infrastructure	Airport Health Clinic and STP				
	Contractor Workshop (open cut pit extension)				
	Osborne Landfill/Lay-down				
	Bowser/Power Station				
	Osborne Mine Workshop				
	Kulthor Surface Infrastructure				
	Osborne Village				
	Osborne Airstrip				
	New Osborne Core Shed				
	Osborne Contractor Yard				
	OSJ Shed				
	Osborne Pit Workshop				
	Trekelano Camp/Office				
	Lucky Luke Landfill				
	Lucky Luke Office/Workshop				
Pipelines	Borefilelds Pipeline				
	Gas Pipeline				
Roads and Tracks	Osborne				
	Lucky Luke				
	Trekelano				
Open Cut Pit	Trekelano Pit	Residual Void – safe, stable and non-polluting	TBD[1]	TBD[1]	TBD[1]
	Lucky Luke Pit				
	Trekelano Inheritance Pit				

Mine Domain	Mine Feature Name	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Osborne Pit and Extension	Residual Void - safe, stable and non-polluting	Storage of tailings and PAF waste rock	TBD[1]	TBD[1]

[1] Post mine land use, rehabilitation indicators and completion criteria are to be nominated in accordance with Condition (F5-1).

Rehabilitation Landform Criteria

F4-1 Progressive rehabilitation must commence within twelve (12) months of any area becoming available within the operational land, and must be in accordance with Post Mine Land Use required under condition F5-1. Progressive rehabilitation must occur where possible before the onset of the wet season.

F4-2 Rehabilitated areas must be managed to minimise the proliferation of species not consistent with rehabilitation objectives.

F4-3 All land subject to mining activities except for residual voids must be rehabilitated to:

a) Stable landforms with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;

b) Safe landforms, which are non-polluting, geo-chemically and geo-technically stable.

c) Ensure that any final landforms do not require ongoing maintenance; and

d) Ensure that the maintenance requirements for rehabilitated land are no greater than that required for the land prior to its disturbance by mining activities.

F4-4 Maintenance of rehabilitated areas must take place to ensure and demonstrate that:

(a) Landforms are stable;

(b) Erosion control measures remain effective;

(c) Stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;

(d) Plants show healthy growth and recruitment is occurring; and

(e) Rehabilitated areas are free of any declared pest species.

F4-5 Rehabilitation can be considered successful when:

a) The site can be managed for its designated land-use;

b) No greater management input is required than for other land in the area being used for a similar purpose and there is evidence that the rehabilitation has been successful for at least three (3) years;

c) The rehabilitation is carried out in accordance with the requirements, objectives indicators and completion criteria as specified in Schedule F - Table F1 (Rehabilitation Requirements) and in the Post Mine Land Use Plan; and

d) Written agreement is obtained from the landowner/holder and the administering authority.

Post Mine Land Use Plan

F5-1 The Authority holder must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP) by 1 January 2013. The PMLUP must describe how the rehabilitation objectives in Schedule F - Table F1 (Rehabilitation Requirements) will be achieved. The Post Mine Land Use Plan must include:

(a) Schematic representation of final land form inclusive of drainage features;

(b) Slope design;

(c) Cover design;

(d) Drainage design;

(e) Erosion controls proposed on reformed land;

(f) Description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;

(g) Proposed revegetation methods inclusive of plant species selection, re-profiling, respreading soil, soil ameliorants/amendments, surface preparation and method of propagation;

(h) Materials balance including available top soil and low permeability capping material ;

(i) Geotechnical, geochemical and hydrological studies;

(j) Chemical, physical and biological properties of soil and water;

(k) Nominate performance criteria for the cover system; and

(l) A rehabilitation monitoring program.

Rehabilitation Monitoring Program

F6-1 A rehabilitation monitoring program must be developed and be implemented on commencement of rehabilitation identified in Schedule F - Table F1 (Rehabilitation Requirements) by a suitably qualified person nominated by the Authority holder who possesses appropriate qualifications and experience in the field of mine site rehabilitation.

F6-2 The Authority holder must conduct rehabilitation monitoring in accordance with the program developed in condition (F6-1) on at least a yearly basis which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.

F6-3 Verification of rehabilitation success is to be carried out for each mine domain. Monitoring must be carried out for each mine domain identified in Schedule F – Table F1 (Rehabilitation Requirements) at a minimum sampling intensity that includes sufficient replication to enable statistical analysis of results at an acceptable power.

F6-4 From 1 January 2017, the environmental authority holder must complete and document an annual review on the performance of all Tailings Storage Facility rehabilitation, including at minimum:

a) A comparison of measured cover system performance with predicted/modelled performance and cover system design specifications.

b) An assessment of revegetation success in consideration of the approved post mine land-use.

c) The function of vegetation as part of the cover system with regard to stability and erosion resistance.

d) The presence and extent of differential settlement and/or subsidence.

e) Erosion of rehabilitated areas.

f) Seepage rates and quality.

F6-5 From 1 June 2022, a summary of the annual reviews conducted in accordance with condition F6-4 must be summarised on a three yearly basis and submitted to the administering authority upon request.

Post Closure Management Plan

F7-1 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 at the licensed place; or

(b) A shorter period if:

(i) The site is proven to be geo-technically and geo-chemically stable; and,

(ii) 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,

(iii) Be prepared at least six (6) months prior to final production onsite.

F7-2 The Post Closure Management Plan must include the following elements:

(a) Operation and maintenance of:

(i) Wastewater collection and reticulation systems;

(ii) Wastewater treatment systems;

(iii) The groundwater monitoring network;

(iv) Final cover systems; and

(v) Vegetative cover.

(b) Monitoring of:

(i) Surface water quality;

(ii) Groundwater quality;

(iii) Seepage rates;

(iv) Erosion rates;

(v) The integrity and effectiveness of final cover systems;

(vi) The health and resilience of vegetative cover.

Infrastructure

F8-1 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 d to in writing by the administering authority and the landowner.

Chemicals and Flammable or Combustible Liquids

F9-1 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.

F9-2 Notwithstanding the requirements of any Australian Standard, any liquids stored at the licensed place that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

F9-3 Where no relevant Australian Standard is available, the following must be applied:

(a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 25% of the second largest storage tank in multiple storage areas; and

(b) Drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

F9-4 All containment systems must be designed to minimise rainfall collection within the system.

Residual Voids

F10-1 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 Authority.

F10-2 The holder must manage residual voids and any void resulting from mining activities 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;

(b) Capping of sulphide exposures in void base;

(c) Limiting the period of exposure of sulphides in void walls and base to oxidising conditions;

(d) Managing the catchment which reports to the void; and

(e) Geo-technical stability of final void.

F10-3 The Authority holder must complete an investigation into the management of residual voids and beneficial post mine land use options for residual voids, and provide a report to the administering authority by 1 March 2013. The investigation must include at a minimum:

(a) Options available for minimising final void area and volume;

(b) Final potential wall and base rock exposure quality in terms of acid producing potential and levels of environmentally relevant salts and metals;

(c) A void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long-term, including assessment of potential final void water quality;

(d) Measures for preventing any contaminated water in the pit entering groundwater;

(e) Management options for maximising final void water quality;

(f) A pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall

and the effects of significant hydrological events;

(g) A study of void capability to support native flora and fauna;

(h) Identification of end of mine void rehabilitation success criteria, final void areas and volumes and suitability/options for beneficial post mine land use.

F10-4 The Authority holder must provide a Residual Void Rehabilitation Plan to the administering authority by 1 March 2013 for review and comment. The Plan must be based on the outcomes of the investigation undertaken for condition (F10-4), and at a minimum propose:

(a) Decommissioning strategies for residual voids;

(b) Final landform design criteria for residual voids ;

(c) Final landform acceptance criteria for residual voids.

(d) On acceptance of the criteria proposed in the Residual Void Rehabilitation Plan by the administering authority, the criteria must be specified in the Authority.

Biodiversity

F11-1 In the event of identification of rare or threatened species at the licensed place, a diagrammatic representation of the species occurrence relative to operations together with a management and monitoring strategy for species conservation must be prepared to the satisfaction of the administering authority.

F11-2 The holder of this environmental authority must provide an offset for impacts on state significant biodiversity values, in accordance with the *Queensland Biodiversity Offset Policy*. The biodiversity offset must be consistent with the offset identified in the Biodiversity Offset Strategy (as per condition F11-3) and must be either:

(a) legally secured prior to impacting on state significant biodiversity values; or

(b) where a land based offset is to be provided, legally secured within twelve (12) months of the later of either of the following:

i) the date of issue of this environmental authority; or

ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under condition F11-3(e); or

(c) where an offset payment is to be provided, paid to Balance of the Earth Trust within four (4) months of the later of either of the following:

i) the date of issue of this environmental authority; or

ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under condition F11-3(e).

F11-3 A Biodiversity Offset Strategy must be developed and submitted to the administering authority thirty (30) days, or a lesser time period agreed to by administering authority, prior to impacting on state significant biodiversity values. The Biodiversity Offset Strategy must be at a standard accepted by the administering authority before impact on state significant biodiversity values can occur. The Biodiversity Offset Strategy must include, at a minimum:

(a) demonstration that the activity has avoided or minimised impacts to state significant biodiversity values;

(b) where there will be impacts to State significant biodiversity values, a detailed description of the values that will be impacted, and the extent of that impact;

(c) mapping that details the surveyed locations of any state significant biodiversity values at the licensed place;

(d) results of a flora and fauna assessment of the affected area to determine if the operations will directly impact on any state significant biodiversity values detailed in the Queensland Biodiversity Offset Policy;

(e) project stages for the provision of offsets

(f) the proposed offset delivery mechanism for each stage

(g) where an offset transfer is proposed, or where a land based offset is to be secured within twelve (12) months of commencement of the relevant stage, evidence that an offset can be located within the landscape; and

(h) an ecological equivalence assessment where required by the Queensland Biodiversity Offset Policy.

F11-4 Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act* 2014.

F11-5 Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:

a) completed by an appropriately qualified person; and

b) kept for the life of the environmental authority.

Contaminated Land

F13-1 Prior to making an application for Surrender or approval for Progressive Rehabilitation, the Authority holder must undertake a contaminated land assessment/investigation of the relevant areas of the licensed place in accordance *with the administering authority's Guideline for the Assessment and Management of Contaminated Land in Queensland*.

F13-2 A Soil Monitoring Program must be developed by a suitably qualified person and implemented within one (1) year of re-commencing ore processing at the Osborne Processing Plant. The Soil Monitoring Program must assess the impacts on soil from wind or water borne contaminants resulting from mining activities and must be conducted using appropriate quality assurance and quality control procedures for assessing contaminated soil.

F13-3 As a minimum, the Soil Monitoring Program specified under condition (F13-2) of this Authority must:

(a) Assess the levels of copper in the top fifty (50) millimetres of soil;

(b) Use transect grids of appropriate dimensions, nominally fifty (50) metre square transects, unless an alternative dimension is approved by the administering authority in writing;

(c) Cover targeted areas located down-wind of potential sources of contaminants (including the Osborne Processing Plant); and,

(d) Involve comparison of target areas (potentially impacted) against un-impacted reference site/s.

F13-4 Soil monitoring of copper must be referenced to the levels for public open space land use that are site specifically determined in accordance with the Ecological Investigation Levels (EILs) in the *National Environment Protection (Assessment of Site Contamination) Measure or any approved variation thereof*.

F13-5 In the event that levels of copper are increasing and approach the site specific EILs, dust emission and water transport controls must be reviewed and improved to further minimise the spread of contamination into undisturbed areas.

F13-6 Highly contaminated areas identified in the report Detailed Site Investigation, Land Contamination associated with the Osborne ore processing and concentrate handling areas, February 2010, Barrick Osborne must be cleared of gross metal contamination by 1 December 2013, unless the Authority holder provides a report by a suitably qualified person to the administering authority which is accepted, proposing an alternative time-frame.

F13-7 Aboriginal cultural heritage surveys must be undertaken prior to conducting the works set out in condition (F13-6). Remedial works must be conducted in a manner that does not impact upon identified cultural heritage areas.

END OF SCHEDULE F

Schedule G – Regulated Structures

Assessment of Hazard Category

G1-1 The hazard category of any structure must be assessed by a suitably qualified and experienced person:

(a) in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures; and

(b) in any of the following situations:

i. prior to the design and construction of the structure; or

ii. prior to any change in its purpose or the nature of its stored contents.

G1-2 A hazard assessment report and certification must be prepared for any structure assessed and the report may include a hazard assessment for more than one structure.

G1-3 The holder of this environmental authority must, on receipt of a hazard assessment report and certification, provide to the administering authority one electronic copy of the hazard assessment report and certification.

G1-4 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.

G1-5 The holder of this environmental authority must take reasonable and practical measures so that each dam associated with the mining activity is designed, constructed, operated and maintained in accordance with accepted engineering standards and is fit for the purpose for which it is intended.

Design and Construction of a Regulated Structure

G2-1 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.

G2-2 Construction or modification of any dam determined to be in the significant or high hazard category (i.e. a regulated structure) must not be commenced unless the location, basic details, hydraulic performance and disturbance area of that dam are specifically referenced in this environmental authority.

G2-3 Prior to commencing construction of a regulated dam, the holder of the environmental authority must submit to the administering authority a design plan that has been certified by a suitably qualified and experienced person, as compliant in all respects with this environmental authority, and in accordance with accepted engineering standards.

G2-4 Construction of a regulated structure is prohibited unless the holder has:

(a) submitted a hazard category assessment report and certification to the administering authority;

(b) commissioned a suitably qualified and experienced person to prepare a design plan for the structure; and

(c) received the certification from 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 environmental authority.

G2-5 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*.

G2-6 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*;

(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.

G2-7 The design plan for a regulated structure must include, but is not limited to:

(a) certification that the design plan

i. is in accordance with the "*Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*", including subsidiary certifications if necessary; and

ii. addresses the requirements in G2-7(b) to (h).

(b) A design report which provides:

i. a description of all the documents which constitute the design plan;

ii. a statement of:

(a) the applicable standards including engineering criteria, industry guidelines, relevant legislation and regulatory documents, relied upon in preparing the design plan; and

(b) all relevant facts and data used in preparing the design plan, including any efforts made to obtain necessary facts and data, and any limitations or assumptions to facts and data used in preparing the design plan;

(c) the hazard category of the regulated structure; and

(d) setting out the reasoning of the suitably qualified and experienced person who has certified the design plan, as to how the design plan provides the necessary required performance

iii. documentation of hydrological analyses and estimates required to determine all elements of the design including volumes and flow capacities;

iv. detailed criteria for the design, operation, maintenance and decommissioning of the regulated structure, including any assumptions;

v. design, specification and operational rules for any related structures and systems used to prevent failure scenarios;

(c) Drawings showing the lines and dimensions, and locations of built structures and land forms associated with the regulated structure;

(d) Consideration of the interaction of the pit design with the levee or regulated dam design;

(e) An operational plan that includes;

i. normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

ii. contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any

overtopping or loss of structural integrity of the regulated structure;

(f) A plan for the decommissioning and rehabilitation of the regulated structure at the end of its operational life;

(g) Details of reports on investigations and studies done in support of the design plan;

(h) Any other matter required by the suitably qualified and experienced person.

G2-8 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.

G2-9 Where a regulated dam is to be managed as part of an integrated containment system and the DSA volume is to be shared across the integrated containment system, the design and operating rules for the system as a whole must be documented in a system design plan that is certified by a suitably qualified and experienced person.

G2-10 The system design plan must contain:

(a) the design plans, and

(b) the ‘as constructed’ plans, and

(c) the operational rules for each individual regulated dam that forms part of the integrated system, and

(d) the standards of serviceability and accessibility of water transfer equipment or structures, and

(e) the operational rules for the system as a whole.

Operation of a regulated structure

G3-1 Operation of a regulated structure is prohibited unless:

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

i. one electronic copy of the design plan and certification of the ‘design plan’ in accordance with condition (G2-5);

ii. a set of ‘as constructed’ drawings and specifications;

iii. certification of those ‘as constructed drawings and specifications’ in accordance with condition (G2-6); 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.

(b) the requirements of this authority relating to the construction of the regulated structure have been met.

G3-2 Each regulated structure must be maintained and operated in a manner that is consistent with the current design plan, the current operational plan, and the associated certified ‘as constructed’ drawings for the duration of its operational life until decommissioned and rehabilitated.

G3-3 The holder of this environmental authority must take reasonable and practicable control measures to prevent the causing of harm to persons, livestock or wildlife through the construction and operation of a regulated structure. Reasonable and practicable control measures may include, but are not limited to:

(a) the secure use of fencing, bunding or screening; and

(b) escape arrangements for trapped livestock and fauna.

Mandatory Reporting Level

G4-1 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.

G4-2 The holder of this environmental authority 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.

G4-3 The holder of this environmental authority must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

Annual Inspection Report

G5- 1 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

G5-2 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed:

(a) against the most recent hazard assessment report and design plan (or system design plan);

(b) against recommendations contained in previous annual inspections reports;

(c) against recognised dam safety deficiency indicators;

(d) for changes in circumstances potentially leading to a change in hazard category;

(e) for conformance with the conditions of this authority;

(f) for conformance with the ‘as constructed’ drawings;

(g) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems); and

(h) for evidence of conformance with the current operational plan.

G5-3 A suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and including recommended actions to ensure the integrity of the regulated structure.

G5-4 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*".

G5-5 The holder must:

(a) upon receipt of the annual inspection report, consider the report and its recommendations and take action to ensure that the regulated structure will safely perform its intended function; and

(b) within twenty (20) business days of receipt of the annual inspection report, notify the administering

authority in writing, of the recommendations of the inspection report and the actions being taken to ensure the integrity of each regulated structure.

G5-6 A copy of the annual inspection report must be provided to the administering authority and within twenty (20) business days of receipt of the annual inspection report.

Design Storage Allowance

G6-1 On 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).

G6-2 The holder of this environmental authority 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.

G6-3 The holder of this environmental authority 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.

Performance review

G7-1 The holder of this environmental authority 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.

G7-2 The holder of this environmental authority must take action to modify its water management or linked containment system so as to ensure that the regulated dam or linked containment system will perform in accordance with the requirements of this authority, for the subsequent November to May period.

Note: Action may include seeking the necessary approvals for physical modification of a regulated dam.

Transfer arrangements

G8-1 The holder of this environmental authority must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, hazard assessment, design plan and other supporting documentation, to a new holder and the administering authority on transfer of this authority.

Decommissioing and Rehabilitation

G9-1 Prior to the cessation of mining activities, each regulated structure must be decommissioned such that:

(a) ongoing environmental harm is minimised by the regulated structure:

i. becoming a safe site for humans and animals at the completion of rehabilitation; and

ii becoming a stable landform, that no longer contains flowable substances and minimises erosion impacts; and

iii not allowing for acid mine drainage; and

v. being approved or authorised under relevant legislation for a beneficial use; or

being a void authorised by the administering authority to remain after decommissioning;

and

(b) the regulated structure is compliant with all other relevant rehabilitation requirements of this authority.

Regulated Structures Location and Performance

G10-1 Each regulated structure named in Column 1, of Schedule G - Table G1 (Location of Regulated Dams) must be wholly located within the control points noted in Columns 2 and 3 of Table G1, below, for that structure.

Schedule G - Table G1 (Location of Regulated Dams)

Name of Regulated Dam	Easting (MGA94, Z54)	Northing (MGA94, Z54)
TSF 1	456031	7555186
	456242	7556153
	455757	7556247
	455530	7555308
TSF 2	457276	7557123
	456955	7555756
	457888	7555148
	458113	7555362
	458096	7555995
TSF 3	455328	7555801
	455282	7556079
	454796	7555661
	454810	7555496
	455543	7555263

G10-2 Each regulated dam named in column 1 of Schedule G - Table G1 (Location of Regulated Dams), must be consistent with the details noted in columns 2 through to and including 7 of Schedule G -Table G2 (Basic Details of Regulated Dams), below, for that dam.

Schedule G – Table G2 (Basic Details of Regulated Dams)

Name of Regulated Dam	Hazard Category	Surface area of dam at spillway (ha)	Max. volume of dam at spillway (m^3)	Max. depth of dam at spillway (m)	Spillway Level (m AHD)	Use of Dam
TSF 1	TBA	TBA	TBA	TBA	TBA	Storage of tailings

Name of Regulated Dam	Hazard Category	Surface area of dam at spillway (ha)	Max. volume of dam at spillway (m^3)	Max. depth of dam at spillway (m)	Spillway Level (m AHD)	Use of Dam
TSF 2	TBA	TBA	TBA	TBA	TBA	Storage of tailings
TSF 3	TBA	TBA	TBA	TBA	TBA	Storage of tailings

G10-3 Each regulated dam named in column 1 of Schedule G - Table G1 (Location of Regulated Dams), must meet the hydraulic performance criteria noted in columns 2 through to and including 4 of Schedule G - Table G3 (Hydraulic Performance of Regulated Dams), below, for that dam.

Schedule G - Table G3 (Hydraulic Performance of Regulated Dams)

Column 1	Column 2[1]	Column 3[1]	Column 4[1]
Name of Regulated Dam	**Spillway Capacity (AEP)**	**Design Storage Allowance (AEP)**	**Mandatory Reporting Level (AEP)**
TSF 1	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm
TSF 2	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm
TSF 3	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm

[1]TBA - The requirements of column 2, 3 and 4 will be finalised based on the risk classification and final certified design plans.

Transitional Arrangements

G-11 Each regulated structure specified below must, within a period of three years (the transitional period) from the date of issue of this environmental authority meet the performance requirements of conditions G10-2 and G10-3:

(a) TSF 1;

(b) TSF 2; and

(c) TSF 3

G11-2 During the transitional period, each regulated structure specified in condition (G11-1) must comply with either conditions (G10-1) and (G10-2) or the conditions set out in Schedule H – Transitional Arrangements for Regulated Structures of this authority which schedule expires at the end of the transitional period.

General

G11-3 During the transitional period, for each declared regulated structure listed in condition G11-1, either:

(a) Certification must be provided, by a suitably qualified and experienced person, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*:

i. that the declared regulated structure is suitable for use as a regulated structure and can be transitioned to meet with either conditions H10-2 and H10-3 of this authority; and

ii. of any design plans for the modification of the declared regulated structure where modification is required to meet with either conditions H10-2 and H10-3 of this authority; or

(b) The declared regulated structure must be decommissioned.

Schedule H – Regulated Structures

H1-1 The conditions outlined in Schedule H – Transitional Arrangements for Dams remain applicable during the transitional period referred to in conditions G11-1 to G11-3 of this environmental authority and will cease to apply after 1 November 2015.

H1-2 During the transitional period, the holder must ensure that any dam listed in Schedule H - Table 1 (Location of Dams) is operated and maintained to achieve all requirements outlined in Schedule H - Table 2 (Dam Performance Criteria).

Schedule H — Table 1 (Location of Dams)

Name of Regulated Dam	Easting (MGA94, Z54)	Northing (MGA94, Z54)
TSF 1	456031	7555186
	456242	7556153
	455757	7556247
	455530	7555308
TSF 2	457276	7557123
	456955	7555756
	457888	7555148
	458113	7555362
	458096	7555995
TSF 3	455328	7555801
	455282	7556079
	454796	7555661
	454810	7555496
	455543	7555263

Schedule H - Table 2 (Dam Performance Criteria)

Column 1	Column 2	Column 3	Column 4
Name of Regulated Dam	**Spillway Capacity (AEP)**	**Design Storage Allowance (AEP)**	**Mandatory Reporting Level (AEP)**
TSF 1	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm
TSF 2	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm
TSF 3	1:1000 year wet season	1:100 year 2 month wet season plus inputs from mineral processing	1:100 year 72 hour storm

H1-3 The holder must mark the mandatory reporting level defined in Schedule H - Table 2 (Dam Performance Criteria) on the spillway of all dams containing hazardous waste within the operational land.

H1-4 The holder must promptly notify the administering authority when the pondage level of a dam containing hazardous waste reaches the mandatory reporting level defined in Schedule H - Table 2 (Dam Performance Criteria).

H1-5 The construction and operation of any dam containing hazardous waste within the operational land must comply with Schedule H - Table 3 (Size and Purpose of Dams).

Schedule H — Table 3 (Size and Purpose of Dams)

Name of Dam	Maximum surface area of dam at (ha)	Max. volume of dam (m^3)	Max. depth of dam (m)	Purpose of Dam
TSF 1	56.2	5.5 million	30	Storage of tailings
TSF 2	159.1	13 million	30	Storage of tailings
TSF 3	39.1	4.7 million	30	Storage of tailings

END OF SCHEDULE H

Definitions

Words and phrases used throughout this licence are defined below except where identified in the Environmental Protection Act 1994 or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

Interpretation

"EIS" means the environmental impact statement titled 'Initial Environmental Advice Statement, Osborne Project NWQLD' and dated April 1993. Although legally the Authority is the enforceable document, not the EIS, if there was any need for interpretation of the conditions, then the interpretation should be in the context of the EIS if applicable.

Definitions

"acceptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete (same as completion criteria).

"administering authority" means:

(a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 - the local government; or

(b) for another matter - the chief executive.

"air blast overpressure" means energy transmitted from the blast site within the atmosphere in the form of pressure waves. As these waves pass a given position, the pressure of the air rises very rapidly then falls more slowly then returns to the ambient value after a number of oscillations. The pressure wave consists of both audible (noise) and inaudible (concussion) energy. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dB) using the linear frequency-weighting.

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

"ANZECC (2000) guidelines" means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) published by the Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand.

"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 relating to the subject matter using the relevant protocols, standards, methods or literature.

"ARD" means acid rock drainage and refers to the low pH, high heavy metal pollutant typical of sulphidic mine wastes, and most commonly associated with the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.

"ARI" or Average Recurrence Interval means the average, or expected value of the periods between exceedences of a given rainfall total accumulated over a given duration.

"assess" 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 at any time:

- exactly what has been assessed and the precise nature of that assessment;
- the relevant legislative, regulatory and technical criteria on which the assessment has been based;

- the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"Authority" means an Environmental Authority (mining activities) issued pursuant to the Environmental Protection Act 1994.

"Authority holder" or "holder" means the holder of this Environmental Authority.

"benign waste rock" means rock that has been characterised as non-acid producing.

"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.

"chief executive" means the chief executive of the Department of Environment and Resource Management or its successor.

"commercial place" means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land "dB (linear) peak" is the maximum reading in decibels (dB) obtained using the :P" time – weighting characteristic as specified in AS 1259.1 – 1990 with all frequency-weighted networks inoperative.

"commissioning" means when all systems and equipment required for commercial operation of the plant have been implemented and are fully operational, and the plant is generating electricity at design steady-state conditions for at least two weeks, then the Plant will be deemed to have been commissioned for the purpose of this authority. Commissioning is the end of the preparation phase in order to start operating and producing electricity commercially. This includes the completion of all performance tests and the combustion tuning of the gas turbines.

"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 and demolition waste" means waste generated as a result of construction or demolition as defined in the Waste Reduction and Recycling Regulation 2011.

"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.

"event based" means a storm event producing sufficient water to permit a monitoring creek bed flow of 30cm or more at the sampling station.

"environment" includes:

(a) Ecosystems and their constituent parts, including people and communities; and

(b) All natural and physical resources; and

(c) The qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; and,

(d) The social, economic, aesthetic and cultural conditions that affect or are affected by, things

mentioned in paragraphs (a) to (c).

"Environmental Authority" means a license or approval issued pursuant to the Environmental Protection Act 1994.

"flow event" means a surface water flow that occurs as a result of rainfall.

"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 Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995)

"LA 10, adj, 10 min" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

"LA 1, adj, 10 min" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response

"LA, max adj, T" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

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

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

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

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

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

"licensed place" means all areas covered by a Mining Lease/s listed in this Environmental Authority.

"mandatory reporting level" or "MRL" means a warning and reporting level determined in accordance with the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995). An MRL is the lowest level required in a regulated dam to allow either of the following to be retained:

- the runoff from a 72 hour duration storm at the ARI specified in Schedule G – Table G3 (Hydraulic Performance of Regulated Dams); or
- a wave allowance at that ARI as estimated using a recognised engineering method

"material change" means a different mining method, or changes to processing method, that changes the impact of the mining operation.

"N m^3" or "normal cubic metre" means the volume of a dry gaseous contaminant occupying 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.

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

"PAF" means potentially acid forming waste rock

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

"Prescribed environmental matters" has the meaning in section 10 of the *Environmental Offsets Act* 2014, limited to the matters of state environmental significance listed in schedule 2 of the *Environmental Offsets Regulation* 2014.

"protected area" means

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

- a marine park under the Marine Parks Act 1992; or

- a World Heritage Area.

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

"rare or threatened species" means species listed as 'rare', 'vulnerable' or 'endangered' as protected under the Nature Conservation Act 1992.

"regulated dam" means any dam in the significant or high hazard category as assessed using the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME1995).

"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.

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

"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.

"sediment dam" means sedimentation dams as defined in the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

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

"sensitive place" means;

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

- a motel, hotel or hostel; or

an educational institution; or

- a medical centre or hospital; or

- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or

- a public park or gardens; or

- a place used as a workplace, an office or for business or commercial purposes which is not part of the mining

activity and does not include employees accommodation or public roads.

"significant disturbance" - includes:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;

- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

- areas where land use suitability or capability has been diminished;

- areas within a watercourse, waterway, wetland or lake where mining activities occur;

- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;

- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or

- areas where land has been contaminated.

"Significantly disturbed land" - Land is significantly disturbed if -

(a) it is contaminated land; or

(b) it has been disturbed and human intervention is needed to rehabilitate it and includes:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;

- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

- areas where land use suitability or capability has been diminished;

- areas within a watercourse, waterway, wetland or lake where mining activities occur;

- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;

- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or

- areas where land has been contaminated.
However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);

- areas previously significantly disturbed which have achieved the rehabilitation outcomes;

- by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objectives due to circumstances beyond the control of the mine operator (such as climatic conditions);

- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;

- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

Significant residual impact is defined in section 8 of the *Environmental Offsets Act* 2014.

"spillway" means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

"stable" means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

"suitably 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.

"suitably qualified engineer" in relation to dams means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 1988, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person 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 suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and

c) a total of five years of suitable experience and demonstrated expertise each, 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

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), and any under ground water, any part-thereof.

Appendices Schedule I - Maps/Plans

Schedule I - Figure 1(a) (Surface Water and Groundwater Monitoring Locations; Osborne)

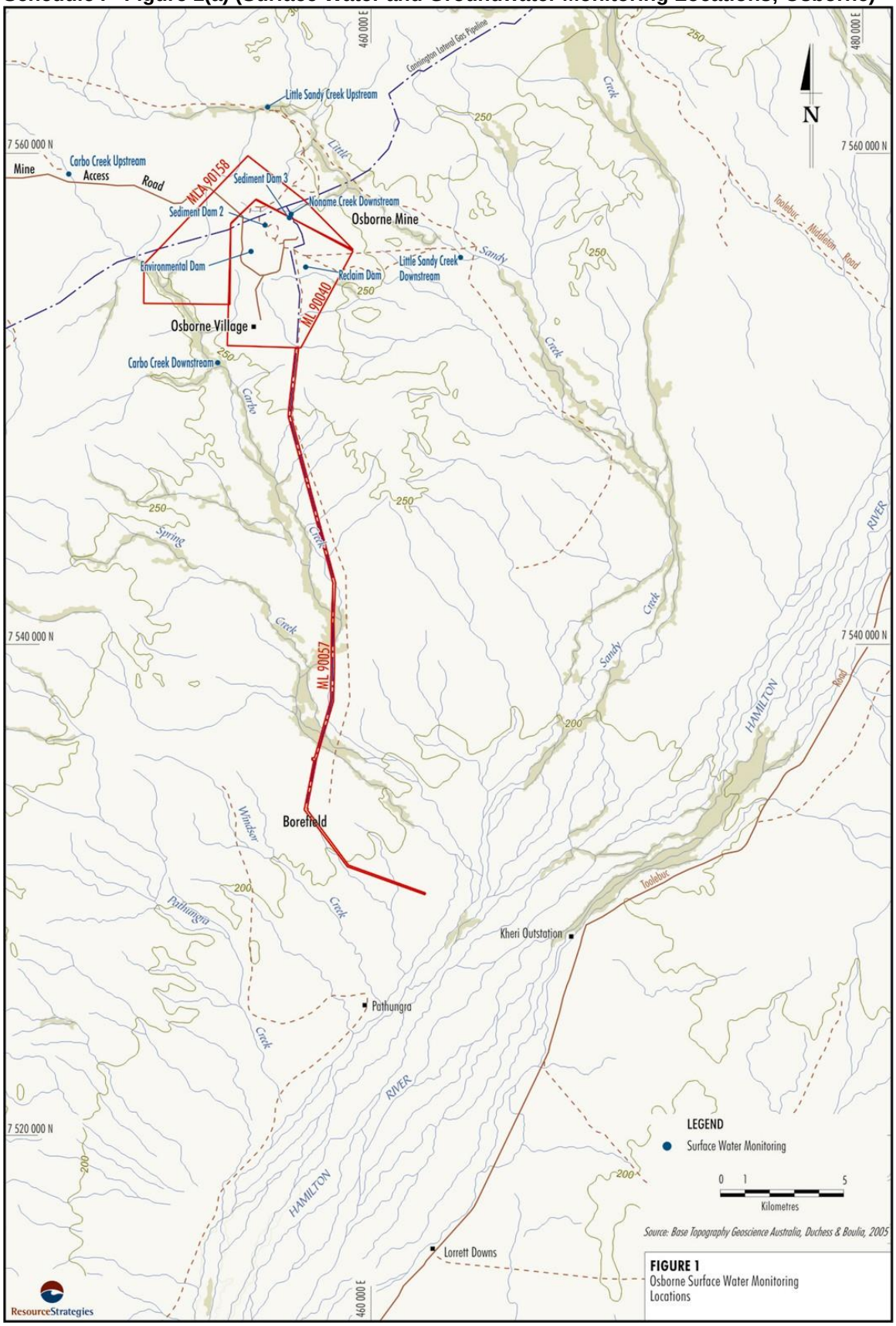
Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations; Trekelano)

Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations; Lucky Luke)

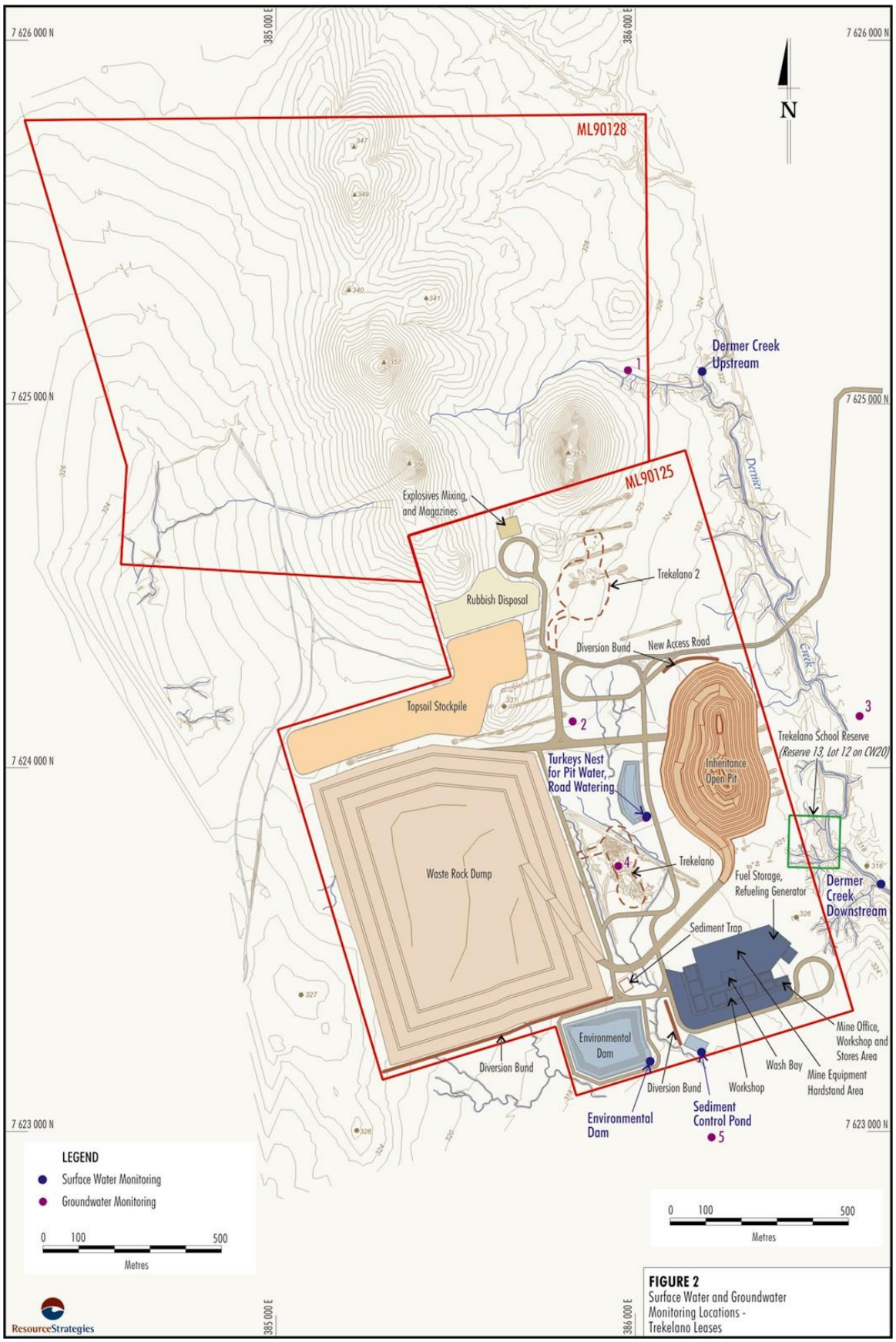
Schedule I - Figure 2 (Effluent Irrigation Areas)

Schedule I - Figure 3 (General Waste Disposal Area)

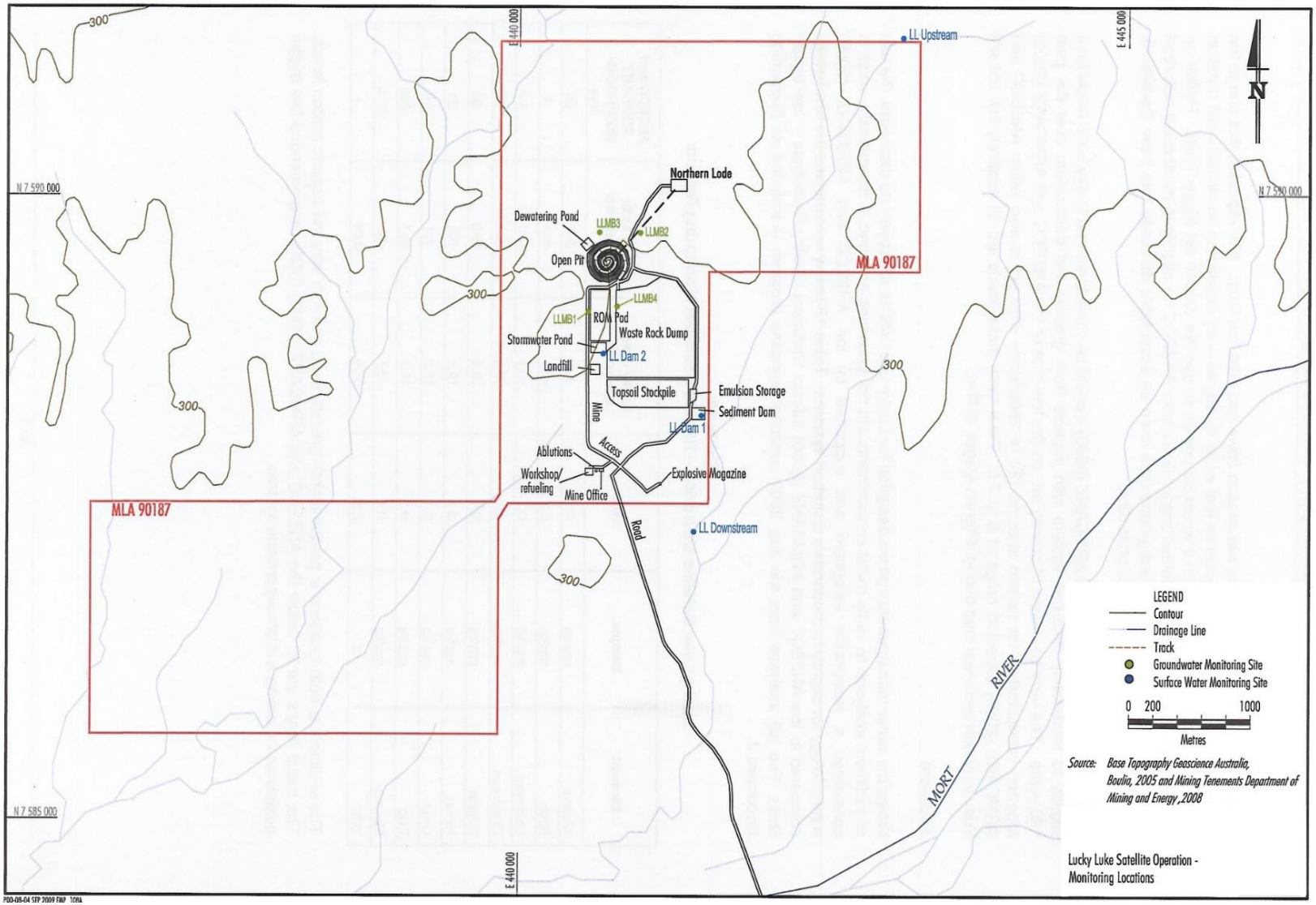
Schedule I - Figure 1(a) (Surface Water and Groundwater Monitoring Locations; Osborne)



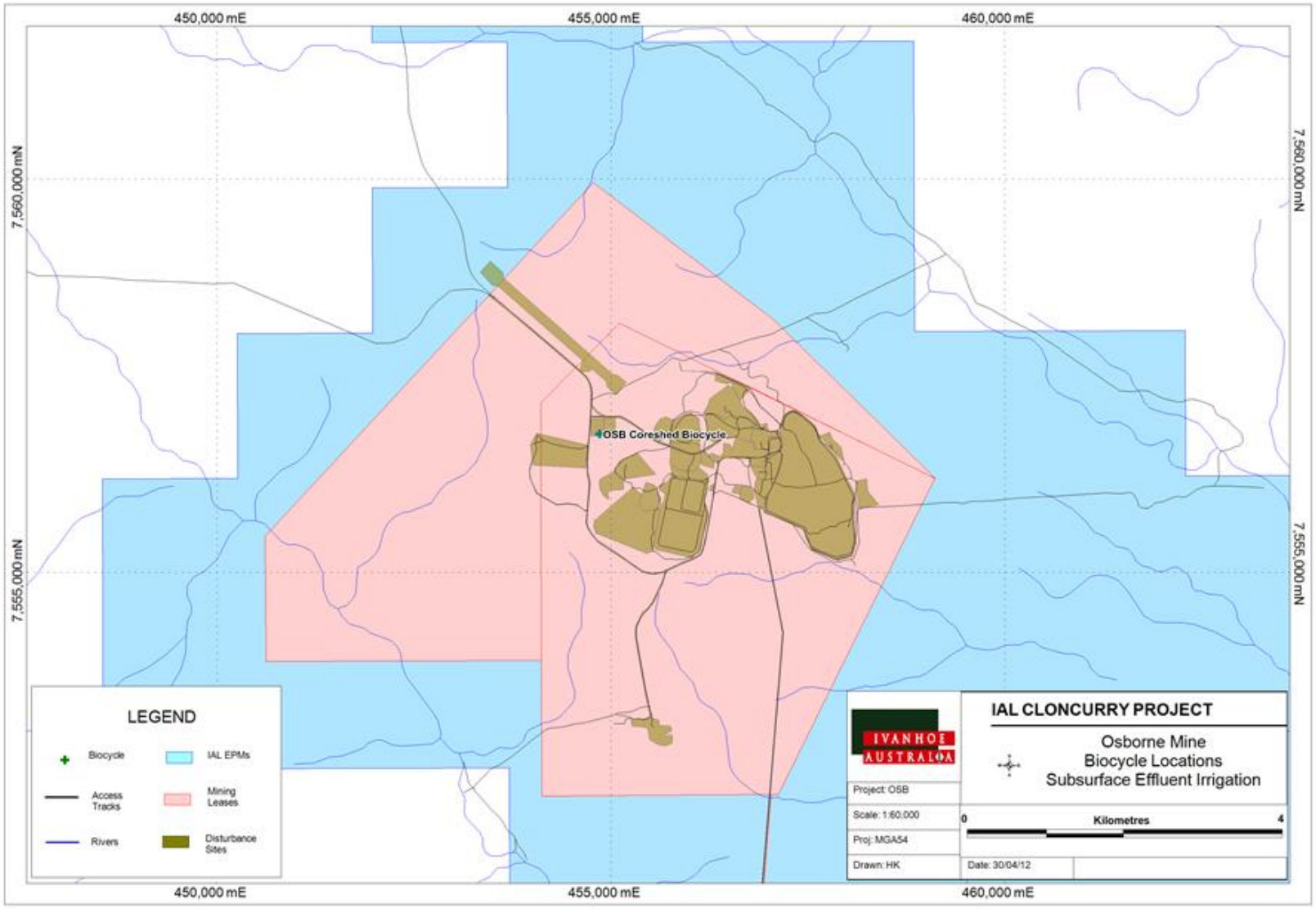
Schedule I - Figure 1(b) (Surface Water and Groundwater Monitoring Locations; Trekelano)



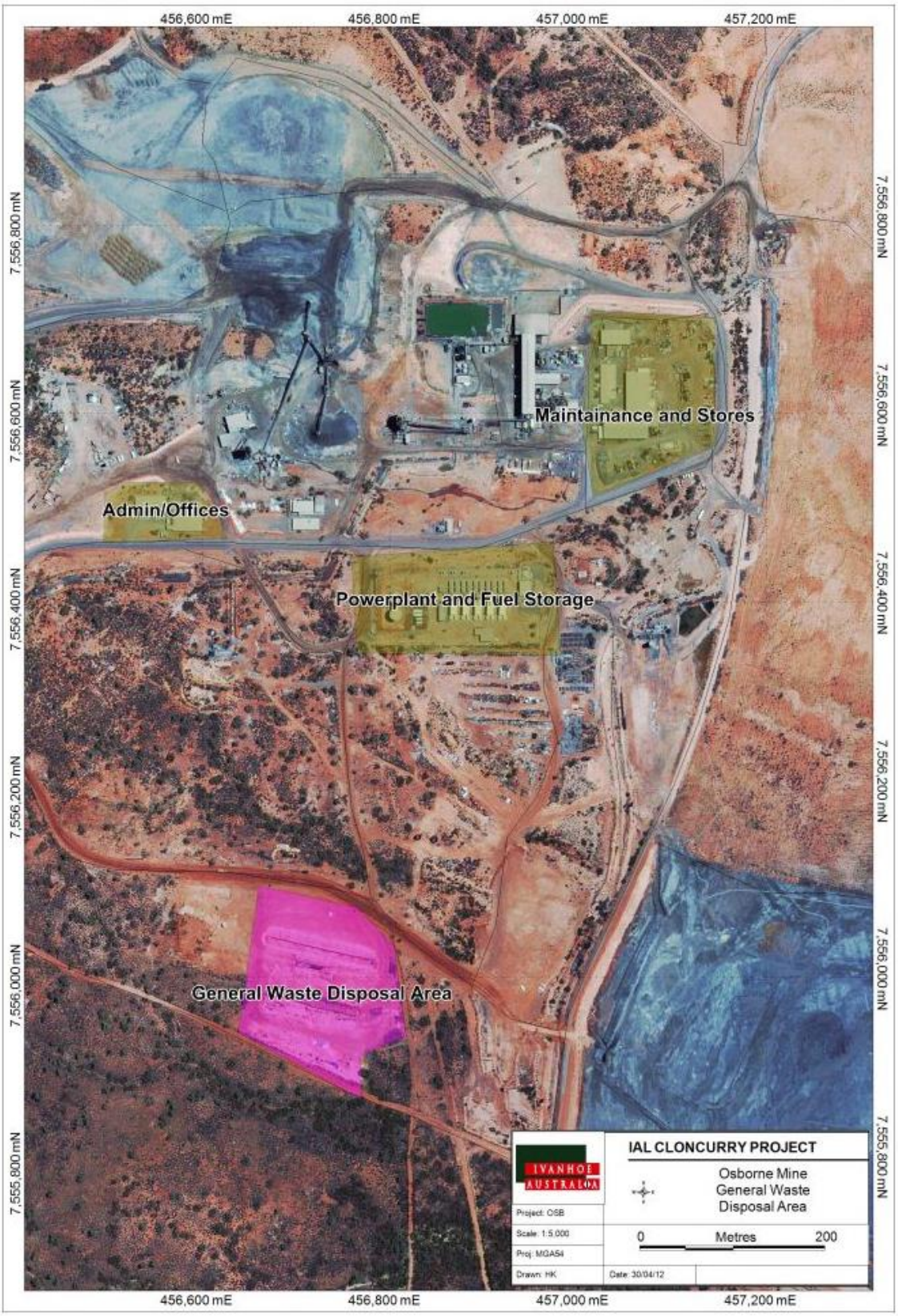
Schedule I - Figure 1(c) (Surface Water and Groundwater Monitoring Locations; Lucky Luke)



Schedule I - Figure 2 (Effluent Irrigation Areas)



Schedule I - Figure 3 (General Waste Disposal Area)



END OF CONDITIONS FOR SCHEDULE I

END OF ENVIRONMENTAL AUTHORITY