

Permit

Environmental Protection Act 1994

Environmental authority EPML00945013 Gregory Crinum

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

Environmental authority number: EPML00945013

Environmental authority takes effect on 20 August 2026.

The anniversary date of this environmental authority is 15 September each year.

Environmental authority holder(s)

Name(s)	Registered address
Sojitz Gregory Crinum Pty Ltd	Central Plaza One Level 27 345 Queen Street BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 13: Mining black coal	MDL133; ML1789; ML1923; ML70061; ML7007
Ancillary 31 - Mineral processing 2(b) - Processing, in a year, the following quantities of mineral products, other than coke - more than 100,000t	MDL133; ML1789; ML1923; ML70061; ML7007
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)	MDL133; ML1789; ML1923; ML70061; ML7007
Ancillary 62 - Resource recovery and transfer facility operation 1(c) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 2 regulated waste	MDL133; ML1789; ML1923; ML70061; ML7007
Ancillary 62 - Resource recovery and transfer facility operation 1(d) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 1 regulated waste	MDL133; ML1789; ML1923; ML70061; ML7007
Ancillary 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	MDL133; ML1789; ML1923; ML70061; ML7007

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 land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (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 land (notice must be given within 20 business days).

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.

Permit

Environmental authority EPML00945013 Gregory Crinum

The anniversary day of this environmental authority is the same day each year. 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.



Signature

20 August 2026

Date

Alisha Stewart

Department of the Environment, Tourism, Science and Innovation

Delegate of the administering authority

Environmental Protection Act 1994

Enquiries:

Business Centre Coal

PO Box 3028

Phone: (07) 4987 9320

Email: CRMining@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

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

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

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 and Federal 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 Natural Resources and Mines, Manufacturing, and Regional and Rural Development (to clear vegetation), and the Department of Primary Industries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

Matters of national environmental significance (MNES) are regulated under the Commonwealth EPBC Act rather than under state legislation. You may need to submit a referral if your project potentially impacts any matters protected under the EPBC Act. For more information on self-assessments, and referral and assessment processes please visit the Department of Climate Change, Energy, the Environment and Water webpage, <https://www.dcceew.gov.au/environment/epbc/advice>.

Obligations under the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts)

The Cultural Heritage Acts require anyone who carries out a land-use activity to exercise a duty of care. This 'duty of care' means land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, and applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located. For more information on your obligations under this legislation, please visit the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism webpage at, <https://www.dwatsipm.qld.gov.au/>.

Conditions of environmental authority

Schedule A - General	
Condition number	Condition
A1	Prevent and / or minimise likelihood of environmental harm In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority. <i>Note: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.</i>
A2	Maintenance of measures, plant and equipment The environmental authority holder must ensure: a) that all reasonable and practicable measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed; b) that such measures, plant and equipment are maintained in a proper condition; and c) that such measures, plant and equipment are operated in a proper manner; d) all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A3	Monitoring and records Record, compile and keep for a minimum of 5 years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
A4	Where monitoring is a requirement of this environmental authority, ensure that an appropriately qualified person(s) conducts all monitoring.
A5	Notification of emergencies, incidents and exceptions All reasonable actions are to be taken to minimise environmental harm, or potential environmental harm, resulting from any emergency, incident or circumstances not in accordance with the conditions of this environmental authority.
A6	As soon as practicable after becoming aware of any emergency, incident or information about circumstances which results or may result in environmental harm not in accordance with the conditions of this environmental authority, the administering authority must be notified verbally or in writing.

Permit

Environmental authority EPML00945013 Gregory Crinum

A7	Not more than 10 business days following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, written advice must be provided to the administering authority in relation to: a) proposed actions to prevent a recurrence of the emergency or incident; b) the outcomes of actions taken at the time to prevent or minimise environmental harm; and c) proposed actions to respond to the information about circumstances which result or may result in environmental harm.
A8	As soon as practicable, but not more than 6 weeks following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, environmental monitoring must be performed and written advice must be provided of the results of any such monitoring performed to the administering authority.

Schedule B - Air	
Condition number	Condition
B1	Dust nuisance The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any nuisance sensitive or commercial place.
B2	When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within 14 days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place. Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place: a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method and b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a sensitive or commercial place downwind of the operational land, when monitored in accordance with: i. particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with AS 3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method; and ii. any alternative method of sampling PM10, which may be permitted by the current edition of Air Quality Sampling Manual as published by the administering authority.
B3	If monitoring indicates exceedence of the relevant limits in condition B2, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
B4	Odour nuisance The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
B5	When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

PermitEnvironmental authority EPML00945013 Gregory Crinum

B6	If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.
-----------	--

Schedule C – Water	
Condition number	Condition
W1	Contaminant Release Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
W2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in Table W1 and depicted in Figure 1 attached to this environmental authority.
W3	The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with conditions W31 to W33 inclusive is permitted.

Table W1 Mine Affected Water Release Points, Sources and Receiving Waters

Release Point	Easting (GDA94)	Northing (GDA94)	Contaminant Source and Location	Monitoring Point	Receiving waters description
Release Point 3	634886	7430742	Dam C	Pipe line outlet	Crinum Creek
Release Point 4	634790	7430766	Dam C Spillway	Dam spillway	Crinum Creek
Release Point 7	643078	7436775	F Block spillway	Dam spillway	Boundary Creek
Release Point 8A	638509	7434992	Ramp 4 & 4N, Ramp 5 & 5N	Pump line outlet	Crinum Creek
Release Point 8B	638505	7434998	Ramp 4 & 4N, Ramp 5 & 5N	Pump line outlet	Crinum Creek
Release Point 9	642902	7433452	Crinum East Trench	Pump line outlet	Transmission Line Creek
Release Point 10	644753	7438819	I Block Spillway	Dam spillway	Boundary Creek
Release Point 11	641427	7439370	TSF Western Cell Spillway	Dam spillway	Crinum Creek
Release Point 14	642320	7438555	Gregory Stormwater Dam Spillway	Dam spillway	Boundary Creek
Release Point 16	635861	7430744	Crinum East Trench, F Block, H Block, I Block, Gregory Stormwater,	Pump line outlet	Crinum Creek
Release Point 17	637448	7433186	Crinum North Underground at Crinum North Pump Gallery	Crinum North Pump Gallery	Crinum Creek

Note: Releases shall occur from one of the listed storages at a time.

W4	The release of mine affected water to waters in accordance with condition W2 must not exceed the release limits stated in Table W2 when measured at the monitoring points specified in Table W1 for each quality characteristic.
-----------	---

Table W2 Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring frequency
Electrical conductivity (uS/cm)	10,000	Real time telemetry for EC and pH with grab samples at commencement and weekly thereafter when safe to do so and access permits
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily grab samples if telemetry not available The first sample must be taken as soon as practicable following commencement of release

W5	The release of mine affected water to waters from the release points must be monitored at the locations specified in Table W1 for each quality characteristics and at the frequency specified in Table W2 and Table W3. <i>Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition W5 is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.</i>
-----------	---

Table W3 Release Contaminant Trigger Investigation Levels - Potential Contaminants

Quality Characteristic	Trigger Levels (µg/L)	Monitoring Frequency
Aluminium	100	Commencement of release and thereafter weekly during release when safe to do so and access permits
Cadmium	0.2	
Chromium	1	
Copper	2	
Mercury	0.2	
Nickel	11	
Zinc	8	
Boron	370	
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	

Note:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The quality characteristics required to be monitored as per **Table W3** can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table W3** by amendment.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

W6	If quality characteristics of the release exceed any of the trigger levels specified in Table W3 during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in Table W3 and: - where the trigger values are not exceeded then no action is to be taken; or - where the downstream results exceed the trigger values specified Table W3 for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and: - if the result is less than the background monitoring site data, then no action is to be taken; or - if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: - details of the investigations carried out; and - actions taken to prevent environmental harm. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W6 2(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>
W7	If an exceedance in accordance with condition W6 2(b) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.
W8	Mine Affected Water Release Events The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in Table W4.
W9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition W2 must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in Table W4 for the release point(s) specified in Table W1 .
W10	Notwithstanding condition W8 and W9 , releases may occur from release points in Table W1 for a period of up to 28 days following a natural flow event that has exceeded the flow trigger of $\geq 0.1 \text{ m}^3/\text{s}$ at the applicable upstream gauging station.

Table W4 Contaminant Release during Flow Events

Receiving Water Description	Release Point	Gauging Station Description	Easting (GDA94)	Northing (GDA94)	Minimum Flow in Receiving Water Required for a Release Event (m^3/s)	Flow Recording Frequency
Crinum Creek	RP1 to RP17	Lilyvale Waterhole Gauging Station	640111	7439261	$\geq 0.1 \text{ m}^3/\text{s}$	Continuous (minimum daily)

W11	The 80th percentile of electrical conductivity (EC) values recorded at the downstream monitoring points specified in Table W6 must not exceed 1500 µS/cm at any time during the release influence period. The 80th percentile must be calculated using all EC values recorded by the monitoring station during the release influence period. <i>Note: The release influence period is the period during which the downstream monitoring points are influenced by mine affected water released from Gregory Crinum Mine and includes both the duration of release and any lag time between release point/s and downstream monitoring points</i>
W12	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in Table W1.
W13	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
W14	Notification of Release Event The environmental authority holder must notify the administering authority via WaTERS within twenty-four (24) hours after commencing a release of mine affected water to the receiving environment. Notification must include the submission of written advice 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).
W15	The environmental authority holder must notify the administering authority via WaTERS within 24 hours of the cessation of a release notified under Condition W14 and within 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 Agency Interest: Water of this environmental 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. <i>Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions W14 and W15, provided the relevant details of the release are included within the notification provided in accordance with conditions W14 and W15.</i>

W16	Release notification – potentially affected stakeholder The environmental authority holder must notify all potentially affected stakeholders on commencement (within 2 hours or another time frame as agreed to in writing with the relevant potentially affected stakeholder) of releasing mine affected water to the receiving environment. Notification must be in the form agreed to by the potentially affect stakeholder. Notification must include the following information unless otherwise agreed to by the potentially affected stakeholder: a) Release commencement date/time; b) Release location (release point/s); c) Release rate; d) Receiving waters for the release; e) Receiving water flow rate f) Water quality of the release including salinity and pH; and g) Estimated duration of the release.
W17	Notification of Release Event Exceedance If the release limits defined in Table W2 are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.
W18	The authority holder must, within 28 days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing: a) the reason for the release; b) the location of the release; c) all water quality monitoring results; d) any general observations; e) all calculations; and f) any other matters pertinent to the water release event.
W19	Receiving Environment Monitoring and Contaminant Trigger Levels The quality of the receiving waters must be monitored at the locations specified in Table W6 and depicted in Figure 2 for each quality characteristic and at the monitoring frequency stated in Table W5.

Table W5 Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 8.5	Real time telemetry for EC and pH with grab samples at commencement and weekly thereafter when safe to do so and access permits Daily grab samples if telemetry not available The first sample must be taken as soon as practicable following commencement of release
Electrical Conductivity (µS/cm)	1500 (80 th percentile)	

Table W6 Receiving Water Upstream Background Sites and Down Stream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Easting (GDA94)	Northing (GDA94)
Upstream Background Monitoring Points			
Monitoring Point 1	In Crinum Creek approximately 570 metres upstream of Release Point 11 (as the closest discharge point)	640309	7439565
Downstream Monitoring Points			
Monitoring Point 2	In Lilyvale Waterhole approximately 2,987 metres downstream of Release Point 8B (as the closest discharge point) and approximately 8690 metres downstream of Release Point 11 (the furthest discharge point)	636905	7432835
Monitoring Point 3	In Crinum Creek approximately 800m downstream of RP16 (as the closest discharge point) and approximately 12,595 metres downstream of Release Point 11 (the furthest discharge point)	635436	7430282
Monitoring Point 4	In Crinum Creek In Crinum creek approximately 1.8km downstream of RP16 (as the closest discharge point) and approximately 13,413 metres downstream of Release Point 11 (the furthest discharge point)	635869	7429542

Notes: The data from background monitoring points must not be used where they are affected by releases from other mines.

W20	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table W5 during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or b) where the downstream results exceed the upstream results, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: i. details of the investigations carried out; and ii. actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W20(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
------------	---

W21	Receiving Environment Monitoring Program The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Crinum Creek and connected or surrounding waterways within 5km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
W22	The REMP must: a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); and b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; and c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in Table W6); and d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the Queensland Water Quality Guidelines 2009. This should include monitoring during periods of natural flow irrespective of mine or other discharges; and e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in Table W2 and Table W3); and f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of <i>AS5667.1 Guidance on Sampling of Bottom Sediments</i>); and g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology, and h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; and i) describe sampling and analysis methods and quality assurance and control; and j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
W23	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions W21 and W22 must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

W24	Water reuse Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party for the purpose of: i) supplying stock water subject to compliance with the quality release limits specified in Table W7; or ii) supplying irrigation water subject to compliance with quality release limits in Table W8; or iii) supplying water for construction and/or road maintenance in accordance with the conditions of this environmental authority.
------------	--

Table W7 Stock Water Release Limits

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	5000

Table W8 Irrigation water release limits

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	Site specific value to be determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines

W25	Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited in artificial water storage structures, such as dams or tanks, for the purposes of supplying water to Kestrel Coal Mine. The volume, pH and electrical conductivity of water transferred to Kestrel Coal Mine must be monitored and recorded.
W26	If the responsibility for mine affected water is given or transferred to another person in accordance with conditions W24 or W25: a) the responsibility for the mine affected water must only be given or transferred in accordance with a written agreement (the third party agreement); and b) the third party agreement must include a commitment from the person utilising the mine affected water to use it in such a way as to prevent environmental harm or public health incidents and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the <i>Environmental Protection Act 1994</i>, environmental sustainability of the water disposal and protection of environmental values of waters; and c) the third party agreement must be signed by both parties to the agreement.

W27	Water General All determinations of water quality and biological monitoring must be: a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; b) made in accordance with methods prescribed in the latest edition of the administering authorities <i>Monitoring and Sampling Manual</i>; c) collected from the monitoring locations identified within this environmental authority, within 10 hours of each other where possible; d) carried out on representative samples; and e) analysed at a laboratory accredited (e.g. NATA) for the method of analysis being used. <i>Note: Condition W27 requires the <i>Monitoring and Sampling Manual</i> to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.</i>
W28	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with conditions W31 to W33 inclusive: a) must not produce any visible discolouration of receiving waters; and b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.
W29	Annual Water Monitoring Reporting The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return: 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 mine affected water released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and g) water quality monitoring data must be provided to the administering authority in the specified electronic format via WaTERS .
W30	Temporary Interference with waterways Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) <i>Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities</i>.

W31	Water Management Plan A Water Management Plan must be developed by an appropriately qualified person and implemented. The Water Management Plan must: a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and b) be developed to include: i. a study of the source of contaminants; ii. a water balance model for the site; iii. a water management system for the site; iv. measures to manage and prevent saline drainage; v. measures to manage and prevent acid rock drainage; vi. contingency procedures for emergencies; and vii. a program for monitoring and review of the effectiveness of the water management plan.
W32	The Water Management Plan must be reviewed each calendar year by an appropriately qualified person.
W33	A copy of the Water Management Plan must be provided to the administering authority on request.
W34	Saline drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.
W35	Acid and Metalliferous Drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid and metalliferous drainage.
W36	Stormwater and water sediment controls An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
W37	Stormwater, other than mine affected water, is permitted to be released to waters from: i) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition W36; and ii) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions W31 to W33 inclusive, for the purpose of ensuring water does not become mine affected water.
W38	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

W39	Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.
W40	Sewage effluent All effluent released from the sewage treatment facilities must be monitored at the frequency and for the parameters specified in Table W9 (Sewage effluent quality targets).

Table W9 Sewage effluent quality targets

Quality characteristics	Release limit	Units	Limit type	Monitoring frequency
5 day Biochemical Oxygen Demand	20	mg/L	max	Monthly
pH	6.0 to 9.0	pH Units	range	Monthly
Free Chlorine Residual	1	mg/L	max	Monthly
Thermotolerant coliforms	<1000	Cfu/100mL ²	max	Monthly
Total Nitrogen	30	mg/L	max	Monthly
Total Phosphorous	15	mg/L	max	Monthly

W41	Sewage effluent used directly from the sewage treatment facilities for dust suppression or irrigation must not exceed sewage effluent release limits defined in Table W9 .
W42	Sewage effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place.
W43	Sewage effluent from sewage treatment facilities not used for dust suppression or irrigation must be reused or evaporated.
W44	Groundwater The holder of the environmental authority must develop and implement a groundwater monitoring program. The program must be able to detect a significant change to ground water quality values (consistent with the current suitability of the groundwater for domestic and agricultural use) due to activities that are part of this mining project.
W45	The holder of the environmental authority must report the results and analysis of groundwater monitoring to the administering authority on request.

Permit

Environmental authority EPML00945013 Gregory Crinum

W46	Subject to Condition W48 groundwater levels must be monitored and groundwater draw down fluctuations in excess of 2m per year, not resulting from the pumping of licensed bores, must be notified within 14 days to the administering authority following completion of monitoring.
W47	The method of water sampling required by the environmental authority must comply with that set out in the current edition of the administering authority's <i>Monitoring and Sampling Manual</i> .
W48	Groundwater affected by the mining activities must be monitored at the locations and frequencies defined in Table W10 .

Table W10 Groundwater monitoring locations and frequency

Monitoring Point	Easting (GDA 94)	Northing (GDA94)	Monitoring Frequency
Basal10	645137	7430335	Quarterly
Basal 3	633508	7431560	Quarterly
Basal9	633834	7432890	Quarterly
Basalt11	634189	7433635	Quarterly
Basalt5	633518	7431546	Quarterly
Permian1	646707	7430975	Quarterly
Permian3	635311	7437197	Quarterly
Permian4	633832	7432885	Quarterly
Basal Sand North	644531	7433980	Quarterly
Basalt North	644531	7433980	Quarterly
Basal Sand South	645611	7432480	Quarterly
Basalt South	645603	7431971	Quarterly

W49	If the groundwater contaminant trigger levels defined in Table W11 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and submit the investigation to the administering authority via WaTERS within 28 days of receiving the analysis results.
------------	---

Table W11 Groundwater contaminant trigger levels

Parameter	Unit	Trigger Levels	Limit Type
Groundwater Level	RL	To be provided by 21 November 2014.	Greater than 2 metre drawdown from the background level.
pH	pH Units	6.5 - 8.5	Minimum/Maximum
Electrical Conductivity	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Total Dissolved Solids	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Calcium	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Magnesium	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Sodium	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Potassium	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Chlorine	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
SO ₄	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
CO ₃	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
HCO ₃	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Iron	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Aluminium	To be determined	To be determined	To be determined

Parameter	Unit	Trigger Levels	Limit Type
	Report submitted 21 November 2014.	Report submitted 21 November 2014.	Report submitted 21 November 2014.
Silver	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Arsenic	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Mercury	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Antimony	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Molybdenum	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Selenium	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.
Total Petroleum Hydrocarbons	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.	To be determined Report submitted 21 November 2014.

W50	Background groundwater monitoring program A background groundwater monitoring program must be developed to include bore(s) that are located an appropriate distance from potential sources of impact from mining activities to provide the following: a) representative groundwater samples from the aquifers potentially affected by mining activities; b) at least 12 sampling events (monthly sampling) to determine background groundwater quality as far as practicable; c) background groundwater quality in hydraulically isolated background bore(s) that have not been affected by any mining activities; d) identify the number and locations of groundwater bores required to assess groundwater impacted by mining activities and background non-mine impacted aquifers required in condition W48; and e) final groundwater contaminant trigger levels and limits required in condition W49.
------------	--

W51	The groundwater monitoring data must be reviewed on an annual basis. The review must include the assessment of groundwater levels and data quality, and the suitability of the monitoring network. The assessment must be submitted to the administering authority via WaTERS within 28 days of receiving the report.
W52	Lilyvale waterhole Subject to the conditions W52 to W65 , the authority holder must abide to the timeframes, actions, targets and strategies as specified in the submitted <i>BMA Gregory Crinum Mine- Action and Implementation Plan- Lilyvale Waterhole Mitigation Measures, 5 December 2008</i> .
W53	This environmental authority does not authorise the excavation of sediment from Lilyvale waterhole without prior approval from the administering authority.
W54	The water level in Lilyvale waterhole must be maintained, and minimise groundwater drawdown effects resulting from mining activities, until natural recharge of the groundwater aquifer can occur.
W55	Subject to condition W54 , the environmental authority holder must determine a minimum trigger water level to commence supplementing water into Lilyvale waterhole and a maximum level to cease water addition. The trigger water levels should simulate seasonal water level variations.
W56	Lilyvale Waterhole Quality Monitoring The authority holder must collect water quality samples from Lilyvale waterhole and the supplement water in accordance with Table W12 and the supplement water to be added into Lilyvale waterhole must comply with the contaminant limits defined in Table W13 . The water level of Lilyvale waterhole and the volume of water supplemented must be recorded in accordance with Table W12 The monitoring data must be submitted to the administering authority on request.

Table W12 Lilyvale waterhole quality monitoring

Parameter	Unit	Monitoring frequency
Electrical Conductivity	µS/cm	Prior to commencing water supplement and on ceasing the water supplement.
pH	pH units	Prior to commencing water supplement and on ceasing the water supplement.
Total Suspended Solids	mg/L	Prior to commencing water supplement and on ceasing the water supplement.
Lilyvale water level height	m	Prior to commencing water supplement and on ceasing the water supplement.
Volume of water added	L or ML	Prior to commencing water supplement and on ceasing the water supplement.

Table W13 Supplement water quality limits

Parameter	Unit	Minimum	Maximum
Electrical Conductivity	µS/cm	N/A	No greater than the existing Lilyvale waterhole salinity.
pH	pH units	6.5	8.5

W57	G North Wetland Area The environmental authority holder is authorised to release non-mine affected water from the G North wetland area. Releases will be in accordance with the conditions of this environmental authority, in addition to: a) Releases will be conducted during the release period from 1st November to 1st April. Releases are authorised from 1st November following a natural flow $\geq 5\text{m}^3/\text{s}$ measured at the downstream monitoring points in Table W6 of the environmental authority; b) The quality of water released from the G North wetland area must not exceed water quality parameters measured at downstream monitoring points; c) The maximum volume of water to be released under this condition is 15GL; d) Any release will be at a maximum release rate of 5m³/sec; and e) Releases from the G North wetland area outside the period 1st November to 1st April must be in accordance with condition W11 of the environmental authority.
W58	The holder of this environmental authority shall provide weekly release reports to the administering authority following the commencement of a release in accordance with condition W58. These reports shall include as a minimum: a) Release rate (m³/s); b) Volume of the release; c) All available water quality data (including telemetry data and laboratory analytical results where available); d) Information on any communications with stakeholders; and e) Expected duration of the release.

Schedule D – Noise	
Condition number	Condition
D1	Noise from activities must not cause an environmental nuisance at any noise sensitive or commercial place.
D2	All noise from activities must not exceed the levels specified in Table D1 at any noise affected place.
D3	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include: 1. LA 10, adj, 10 mins; 2. LA 1, adj, 10 mins; 3. the level and frequency of occurrence of impulsive or tonal noise; 4. atmospheric conditions including wind speed and direction; 5. effects due to extraneous factors such as traffic noise; and 6. location date and time of recording.
D4	Noise is not considered to be a nuisance under condition D1 if monitoring shows that noise does not exceed the following levels in the time periods specified in Table D1 .

Table D1 Noise limits

Noise level dB(A)	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'					
LA10, adj, 10 mins	B/g + 5	B/g + 5	B/g + 0	B/g + 5	B/g + 5	B/g + 0
LA1, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
	Noise measured at a 'Commercial place'					
LA10, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
LA1, adj, 10 mins	B/g + 15	B/g + 15	B/g + 10	B/g + 15	B/g + 15	B/g + 10

D5	The method of measurement and reporting of noise monitoring must comply with the latest edition of the administering authority's <i>Noise Measurement Manual</i> .
D6	If monitoring indicated exceedence of the limits in Condition D4 , then the environmental holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
D7	Vibration nuisance Vibration from the licensed activities must not cause an environmental nuisance, at any sensitive or commercial place.
D8	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
D9	Vibration monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D10	If monitoring indicates exceedence of the relevant limits in Table D2 , then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table D2 Vibration limits

Location	Vibration measured
Sensitive or commercial place	5 mm/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

Note: The method of measurement and reporting of vibration levels must comply with the latest edition of the administering authority's vibration and air blast overpressure monitoring guideline.

D11	Airblast overpressure nuisance The airblast overpressure level from blasting operations on the premises must not exceed the limits defined in Table D3 at any nuisance sensitive or commercial place.
------------	--

Table D3 Airblast overpressure level

Permit

Environmental authority EPML00945013 Gregory Crinum

Location	Airblast overpressure measured
Sensitive or commercial place	Air blast overpressure level of 115 db (Linear peak) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 db (Linear peak) at any time.

D12	When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
D13	Airblast overpressure monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D14	If monitoring indicates exceedence of the relevant limits in Table D2 , then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
D15	The method of measurement and reporting of airblast overpressure levels must comply with the latest edition of the administering authority's <i>Noise Measurement Manual</i> .

Schedule E – Waste	
Condition number	Condition
E1	Storage of Tyres Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored in stable stacks and at least 10 metres from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
E2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 metre radius of the scrap tyre storage area.
E3	Disposing of scrap tyres resulting from the authorised activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable. A record must be kept of the number and location for tyres disposed.
E4	Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.
E5	Waste Management A Waste Management Plan must be implemented and must cover: - describe how Gregory Crinum coal mine recognise and apply the waste management hierarchy; - identify characterisations of wastes generated from the project and general volume trends over the past 5 years; - a program for safe recycling or disposal of all wastes- reusing and recycling where possible; - waste commitments with auditable targets to reduce, reuse and recycle; - the waste management control strategies must consider: - the type and amount of wastes generated by the mining activity; - segregation of the wastes; - storage of the wastes; - transport of the wastes; - monitoring and reporting matters concerning the waste; - emergency response planning; - disposal, reused and recycling options; - identify the potential adverse and beneficial impacts of the wastes generated; - detail the hazardous characteristics of the waste generated (if any); - cover a disposal procedure for hazardous wastes; - outline the process to be implemented to allow for continuous improvement of the waste management systems; - identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and

	k) incorporates a staff awareness and induction program that encourages re-use and recycling; and l) how the waste will be stored, handled and transferred in a proper and effective manner; and m) 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; and n) procedures for dealing with accidents, spills, and other incidents that may impact on waste management; and o) details of any accredited management system employed, or planned to be employed, to deal with the waste; and p) how often the performance of the waste management practices will be assessed; and q) indicators or other criteria on which the performance of the waste management practices will be assessed; and r) a system for regular review; and s) be updated at intervals of no greater than 5 years.
E6	Waste must not be burned or allowed to be burned on the licensed site unless by approval of the administering authority.
E7	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.
E8	Records must be kept for 5 years, and must include the following information: a) date of pickup of waste; b) description of waste; c) cross reference to relevant waste transport documentation; d) quantity of waste; e) origin of the waste; f) destination of the waste; and g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal. <i>Note: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.</i>
E9	Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the <i>Environmental Protection (Waste Management) Policy 2000</i> .
E10	All regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the <i>Environmental Protection Act 1994</i> .
E11	Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the <i>Environmental Protection Act 1994</i> .

Schedule F – Land	
Condition number	Condition
F1	Topsoil Topsoil must be strategically stripped ahead of mining in accordance with a topsoil management plan.
F2	A topsoil inventory which identifies the topsoil requirements for the Gregory Crinum mine project and availability of suitable topsoil on site must be detailed in the Plan of Operations.
F3	PRCP Schedule Progressive rehabilitation of the disturbed land must be carried out in accordance with the approved Progressive Rehabilitation and Closure Plan (PRCP) schedule P-PRCP-100938087 for this environmental authority.
F4	Surrender The holder must meet the conditions and the rehabilitation milestones under the PRCP schedule prior to the surrender of the environmental authority.
F5	Preventing contaminant release to land Contaminants must not be released to land in manner which constitutes nuisance, material or serious environmental harm.
F6	Storage and handling of flammable or combustible liquids All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of <i>AS 1940 – Storage and Handling of Flammable and Combustible Liquids</i> (or a more recent edition).
F7	Spillage of all flammable and combustible liquids must be controlled in a manner that prevents environmental harm.
F8	Storage and handling of chemicals All chemicals must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of the relevant Australian Standard.
F9	Spillage of all chemicals must be controlled in a manner that prevents environmental harm.
F10	All explosives, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the relevant Australian Standard.
F11	All chemicals and flammable or combustible liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is

Permit

Environmental authority EPML00945013 Gregory Crinum

	impervious to the materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied: a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.
F12	Acid rock drainage and leachate management Subject to the release limits defined in the Department Interest - Water, all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater or water course.
F13	Exploration Disturbance due to exploration activities in areas not authorised to be mined must be rehabilitated in accordance with provisions detailed in the <i>Eligibility criteria and standard conditions for exploration and mineral development projects</i>.

Schedule G – Regulated Structures	
Condition number	Condition
G1	Assessment of consequence category The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i> at the following times: a) prior to the design and construction of the structure, if it is not an existing structure; or b) prior to any change in its purpose or the nature of its stored contents.
G2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
G3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i> .
G4	Design and construction ¹ of a regulated structure Conditions G5 to G9 inclusive do not apply to existing structures. Note ¹: <i>Construction of a dam includes modification of an existing dam—refer to the definitions.</i>
G5	All regulated structures must be designed by, and constructed ² under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i>. Note ²: <i>Certification of design and construction may be undertaken by different persons.</i>
G6	Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.
G7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i> , and must be recorded in the Regulated Dams/Levees register.
G8	Regulated structures must: a) be designed and constructed in accordance with and conform to the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i>; b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:

	i) floodwaters from entering the regulated dam from any watercourse or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. c) For regulated dams associated with a failure to contain – seepage, have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
G9	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.
G10	Operation of a regulated structure, except for an existing structure, is prohibited unless: a) the holder has submitted to the administering authority: i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition G6; ii) a set of 'as constructed' drawings and specifications; iii) certification of those 'as constructed drawings and specifications' in accordance with condition G9; iv) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; v) the requirements of this authority relating to the construction of the regulated structure have been met; vi) the holder has entered the details required under this authority, into a Register of Regulated Structures; and vii) there is a current operational plan for the regulated structures.
G11	For existing structures that are regulated structures: a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and b) there must be a current operational plan for the existing structures.
G12	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
G13	Conditions G14 to G17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
G14	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.

G15	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
G16	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
G17	The holder must record any changes to the MRL in the Register of Regulated Structures.
G18	Design storage allowance The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
G19	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
G20	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
G21	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
G22	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
G23	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.
G24	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635)</i> .
G25	The holder must: a) Within 20 business days of receipt of the annual inspection report, provide to the administering authority: i) The recommendations section of the annual inspection report; and ii) If applicable, any actions being taken in response to those recommendations; and b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days ³ of receipt of the request.

	Note : <i>Some model conditions, such as model conditions for dams associated with a resource activity - non mining activity, the notification requirements may be located in a separate part of the conditions of an environmental authority (e.g. under notification requirement conditions).</i>
G26	Transfer arrangements The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
G27	Register of Regulated Structures A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
G28	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.
G29	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition G10 and G11 has been achieved.
G30	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
G31	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
G32	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
G33	Transitional arrangements All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.
G34	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table G1 (Transitional requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
G35	Table G1 ceases to apply for a structure once any of the following events has occurred: a) It has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or b) It has been decommissioned; or c) It has been certified as no longer being assessed as a regulated structure.

G36	Certification of the transitional assessment required by G33 and G34 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.
------------	--

Table G1 (Transitional Hydraulic Performance Requirements for Existing Structures)

Transition period required for existing structures to achieve the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (Version 4, 10 April 2014)</i>			
Compliance with Criteria	High	Significant	Low
90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing)	Within 5 years or as per compliance requirements (e.g. TEP timing)	Review consequence assessment every 5 years.

Schedule H – Community	
Condition number	Condition
H1	Community Engagement Gregory Crinum Mine must develop and implement a community engagement plan, with the purpose of detailing strategies for, but not limited to: a) active consultation with the “ ‘Western Kangoulu’ traditional owners, and any other relevant stakeholders, regarding the progression of mining activities that have a potential to effect environmental, cultural and aesthetic values of the Lilyvale Waterhole; b) methods to appropriately resource community engagement activities; c) methods to ensure that all communication between the mine and relevant community groups regarding the potential effects for the environment, cultural and aesthetic values that could be compromised by mining activities are transparent; d) details of timing for community engagement projects to ensure that community groups have the opportunity to influence decisions made towards pertinent issues; e) methods to which active consultation will be undertaken, including: i. determine the variety of consultation mechanisms that will be implemented for engagement activities; ii. determine the appropriate time and venue for communication; iii. identify the community members should be consulted on a particular issue; and iv. details of feedback processes for community groups and the mine.
H2	Complaint response When requested by the administering authority, the environmental authority holder must undertake relevant specified monitoring within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint of environmental harm at any sensitive place or commercial place. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within 14 days of completion of the investigation, or receipt of monitoring results, whichever is the latter.
H3	The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request: a) name and address and contact details of the complainant; b) time and date of complaint; c) reasons for the complaint; d) investigations undertaken; e) conclusions formed; f) actions taken to resolve the complaint; g) any abatement measures implemented; and h) person responsible for resolving the complaint.

PermitEnvironmental authority EPML00945013 Gregory Crinum

H4	In consultation with the administering authority, cooperate with and participate in any community environmental liaison committee established in respect of either the licensed place specifically or the industrial estate where the licensed place is located.
-----------	--

Schedule S – Subsidence	
Condition number	Condition
S1	Authorised Subsidence Subject to conditions S2 through S11, the holder of this environmental authority is authorised to subside Crinum Creek and Balmoral Creek. This subsidence is authorised to occur as a result of underground longwall mining activities at Crinum North underground as depicted in Figure 3.
S2	This environmental authority does not authorise the use of top coal caving (or thick seam mining) methods where it would result in subsidence of the bed or banks of Crinum Creek or Balmoral Creek.
S3	Subsidence Management Plan A subsidence management plan must be developed and implemented by the holder of this environmental authority prior to the commencement of activities that result in subsidence of a watercourse, 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 environmental authority.
S4	The subsidence management plan must be developed to the satisfaction of the Administering Authority in accordance with the departmental guideline “Watercourse Subsidence – Central Queensland Mining Industry” or any subsequent versions and must include at least the following components: a) The condition of the existing watercourse (including a baseline assessment); b) The proposed impacts of subsidence on the watercourse and floodplain including but not limited to: i) Physical condition of surface drainages • Erosion • Areas susceptible to higher levels of erosion such as watercourse confluences • Incision processes • Stream widening • Tension cracking • Lowering of bed and banks • Creation of in stream waterholes • Changes to local drainage patterns ii) Overland Flow • Capture of overland flow by subsided long-wall panels • Increased overbank flows due to lowering of high bank of watercourses • The portion of local and large scale catchment likely to be captured by subsided long-wall panels and the associated impacts on downstream users iii) Water Quality • Surface water

	• Groundwater • Overland flow water detained in subsided long-wall panels iv) Land condition: Current land condition to be impacted by subsidence. v) Infrastructure • Detail of existing infrastructure (pipelines, railway, power lines and haul roads) should be identified where there is a potential impact from effects of land subsidence. Proposed options for mitigating any impacts associated with subsidence and how these mitigation methods will be implemented c) A risk assessment; d) A monitoring, evaluation and maintenance program. e) Cumulative Impacts on watercourse or catchments; f) Impacts on groundwater.
S5	A copy of the Subsidence Management Plan must be provided to the administering authority on request.
S6	Annual Inspection The holder of this environmental authority must arrange for each subsided longwall panel to be inspected within the bed and banks of the watercourse annually by a suitably qualified and experienced person, in accordance with conditions S7 to S10.
S7	The annual inspection must be conducted prior to 1 November each year.
S8	At each annual inspection, the condition of each subsided longwall panel must be assessed, including the structural, geotechnical and hydraulic adequacy of the subsided longwall panel and the adequacy of the works with respect to the subsidence management plan.
S9	For each inspection, a copy of a report certified by a suitably qualified and experienced person, including any recommendations, must be provided to the administering authority within 5 business days of receipt of a final report.
S10	The report must detail any remedial works that have been undertaken and the outcomes of these works.
S11	Remedial Works The holder of the Environmental Authority, if directed by the Adminstrating Authority, shall carry out any remedial works that are deemed necessary to minimise impacts on the physical integrity of the watercourse from subsidence.

END OF CONDITIONS

Definitions

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

20th percentile flow means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

Accepted engineering standards in relation to dams, means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments, and relevant Australian and New Zealand Standards.

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

- a) vegetation establishment, survival and succession;
- b) vegetation productivity, sustained growth and structure development;
- c) fauna colonisation and habitat development;
- d) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- g) resilience of vegetation to disease, insect attack, drought and fire; and
- h) vegetation water use and effects on ground water levels and catchment yields.

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

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

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

Affected person is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

Annual inspection report means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

- a) against recommendations contained in previous annual inspections reports;
- b) against recognised dam safety deficiency indicators;
- c) for changes in circumstances potentially leading to a change in consequence category;
- d) for conformance with the conditions of this authority;
- e) for conformance with the 'as constructed' drawings;
- f) 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);
- g) for evidence of conformance with the current operational plan.

Annual exceedance probability or AEP the probability that at least one event in excess of a particular magnitude will occur in any given year.

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

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 means the Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000

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

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

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

- a) exactly what has been assessed and the precise nature of that determination;
- b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

Associated works in relation to a dam, means:

- a) operations of any kind and all things constructed, erected or installed for that dam; and
- b) any land used for those operations.

Authority means an environmental authority or a development approval.

Bed and banks for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

Biosolids means the treated and stabilised solids from sewage.

Blasting means the use of explosive materials to fracture:

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

Bunded means within bunding consistent with Australian Standard 1940.

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

Certifying, certify or certified have a corresponding meaning as 'certification'. **"chemical"** means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- b) a dangerous good under the dangerous goods code; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*; or
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or
- e) any substance used as, or intended for use as:
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - ii. a surface active agent, including, for example, soap or related detergent; or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - iv. a fertiliser for agricultural, horticultural or garden use; or
- f) a substance used for, or intended for use for:
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - ii. manufacture of plastic or synthetic rubber.

Chemical means –

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth)*; or
- b) a dangerous good under the dangerous goods code; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*; or
- d) a drug or poison in the *Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth*; or
- e) any substance used as, or intended for use as –
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - ii. a surface active agent, including, for example, soap or related detergent; or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - iv. a fertiliser for agricultural, horticultural or garden use; or
- f) a substance used for, or intended for use for –
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - ii. manufacture of plastic or synthetic rubber.

Commercial place means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

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

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

Contaminate means to render impure by contact or mixture.

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

Consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

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

Contaminant A contaminant can be: simultaneously

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

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

Cover material means any soil or rock suitable as a germination medium or landform armouring.

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

Dam crest volume means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

Design plan is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an **annual exceedance probability** (AEP) specified in that Manual.

Designer for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

Development approval means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*. “**domestic waste**” means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

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

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

Effluent treated waste water discharged from sewage treatment plants.

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

End-of-pipe means the location at which water is released to waters or land.

Environmental authority means an environmental authority under Chapter 5 of the *Environmental Protection Act 1994*.

Environmental authority holder means the holder of this environmental authority.

Environmentally relevant activity means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed under Schedule 1 of the *Environmental Protection Regulation 1998*.

Excessive seepage means seepage of mine affected water at a rate that exceeds the rate predicted by the Seepage Management Plan.

Existing structure existing structure' means a structure that prior to 3 November 2014 meets any or both of the following:

- a) a structure with a design that is in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) and that is considerable in progress; or
- b) a structure that is under considerable construction or that is constructed.

Extreme Storm Storage – means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority

Financial assurance means a security required under the *Environmental Protection Act 1994* by the Administering Authority to cover the cost of rehabilitation or remediation of disturbed land or to secure compliance with the environmental authority.

Flare pit means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted, The flare pit is only used during the drilling and work over process on a petroleum well.

Floodwater means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

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

General waste means waste other than regulated waste.

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

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

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

Holder means:

- a) where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or
- b) where this document is a development approval, any person who is the registered operator for that development approval.

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

Infrastructure means water storage dams, roads and tracks, buildings and other structures built for the purpose and duration of the conduct of the environmentally relevant activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams, waste dumps, voids, or stockpiles and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.

LA 10, adj, 10 mins 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 mins 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.

LAr,1 hour means the rating level, equal to LAeq,adj,1 hour.

Lake includes:

- a) lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- b) the bed and banks and any other element confining or containing the water.

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

Landfill means land used as a waste disposal site for lawfully putting solid waste on the land.

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

Low consequence dam means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

mg/L means milligrams per litre.

Permit

Environmental authority EPML00945013 Gregory Crinum

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

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

But does *not* include:

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

Mine affected water

- a) means the following types of water:
 - i. pit water, tailings dam water, processing plant water;
 - ii. water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2008 if it had not formed part of the mining activity;
 - iii. rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
 - iv. groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
 - v. groundwater from the mine's dewatering activities;
 - vi. a mix of mine affected water (under any of paragraphs i)-v) and other water.
- b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
 - i. land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
 - ii. land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:

Permit

Environmental authority EPML00945013 Gregory Crinum

- a. areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
 - b. evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
- iii. both.

Mine water means process water and contaminated storm water.

Modification or modifying (see definition of 'construction')

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

Nature includes:

- a) ecosystems and their constituent parts; and
- b) all natural and physical resources; and
- c) natural dynamic processes.

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

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

Operational land means the land associated with the project for which this environmental authority has been issued.

Operational plan includes:

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

Palletised means stored on a movable platform on which batteries are placed for storage or transportation.

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).

Potentially Affected Stakeholders includes (but should not be limited to)

- a) The administering authority; and
- b) A local landholder whose property is riparian, downstream of the release point specified in Table W1 of the environmental authority and is determined by the environmental authority holder to be potentially impacted by mine affected water releases; and
- c) Other party nominated by the administering authority; ;and
- d) The relevant local government authority; and
- e) A Resource Operations Licence (ROL) holder or other water entitlement holder under the Water Act 2000 located between the nearest compliance point listed in Table 1 of the operational policy and the release point specified in Table W1 of the environmental authority; and
- f) Does not include a landholder or other party who by written agreement with the environment authority holder has declined to be notified for the purpose of this condition

Protected area means:

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

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

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

Process water means water used or produced during the mineral development activities.

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

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

Recycled water means appropriately treated effluent and urban stormwater suitable for further use.

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

Register of Regulated Structures includes:

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

Permit

Environmental authority EPML00945013 Gregory Crinum

- m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated dam means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

Regulated structure includes regulated dam, land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

Regulated waste means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes:

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

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

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.

Saline drainage means the movement of waters, contaminated with salt(s), as a result of the mining activity.

Sensitive place means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- b) a motel, hotel or hostel; or
- c) an educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- f) a public park or gardens.

Sewage means the used water of person's to be treated at a sewage treatment plant.

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.

Permit

Environmental authority EPML00945013 Gregory Crinum

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

Stormwater means all surface water runoff from rainfall.

Structure means dam or levee.

Suitably qualified and experienced person in relation to dams means one 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 at least four of the following categories, with the 'geomechanics of dams' category being compulsory:
 - i. geomechanics of dams with particular emphasis on stability, geology and geochemistry.
 - ii. investigation, design or construction of dams.
 - iii. operation and maintenance of dams.
 - iv. hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
 - v. hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.
 - vi. hydrogeology with particular reference to seepage, groundwater.
 - vii. solute transport processes and monitoring thereof.
 - viii. dam safety.

Suitably qualified and experienced person in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

- a) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- b) for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

System design plan means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

Trackable waste means a waste or combination of waste stated in Schedule 1 of the *Environmental Protection (Waste Management) Regulation 2000*.

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

Tolerable limits means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

Void means any man-made, open excavation in the ground.

Waste as defined in section 13 of the *Environmental Protection Act 1994*.

Waste management hierarchy has the meaning given by the *Environmental Protection (Waste Management) Policy 2000*.

Waste management principles has the meaning given by the *Environmental Protection (Waste Management) Policy 2000*.

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

Water means –

- a) water in waters or spring;
- b) underground water;
- c) overland flow water; or
- d) water that has been collected in a dam.

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

Watercourse has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently—

- (a) in a natural channel, whether artificially improved or not; or
- (b) in an artificial channel that has changed the course of the watercourse.

Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

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

Water year means the 12-month period from 1 July to 30 June.

Wet season means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

µg/L means micrograms per litre

µs.cm-1 means microsiemens per centimetre

END OF DEFINITIONS

Attachments:

Figure 1 – Mine Affected Water Release Points

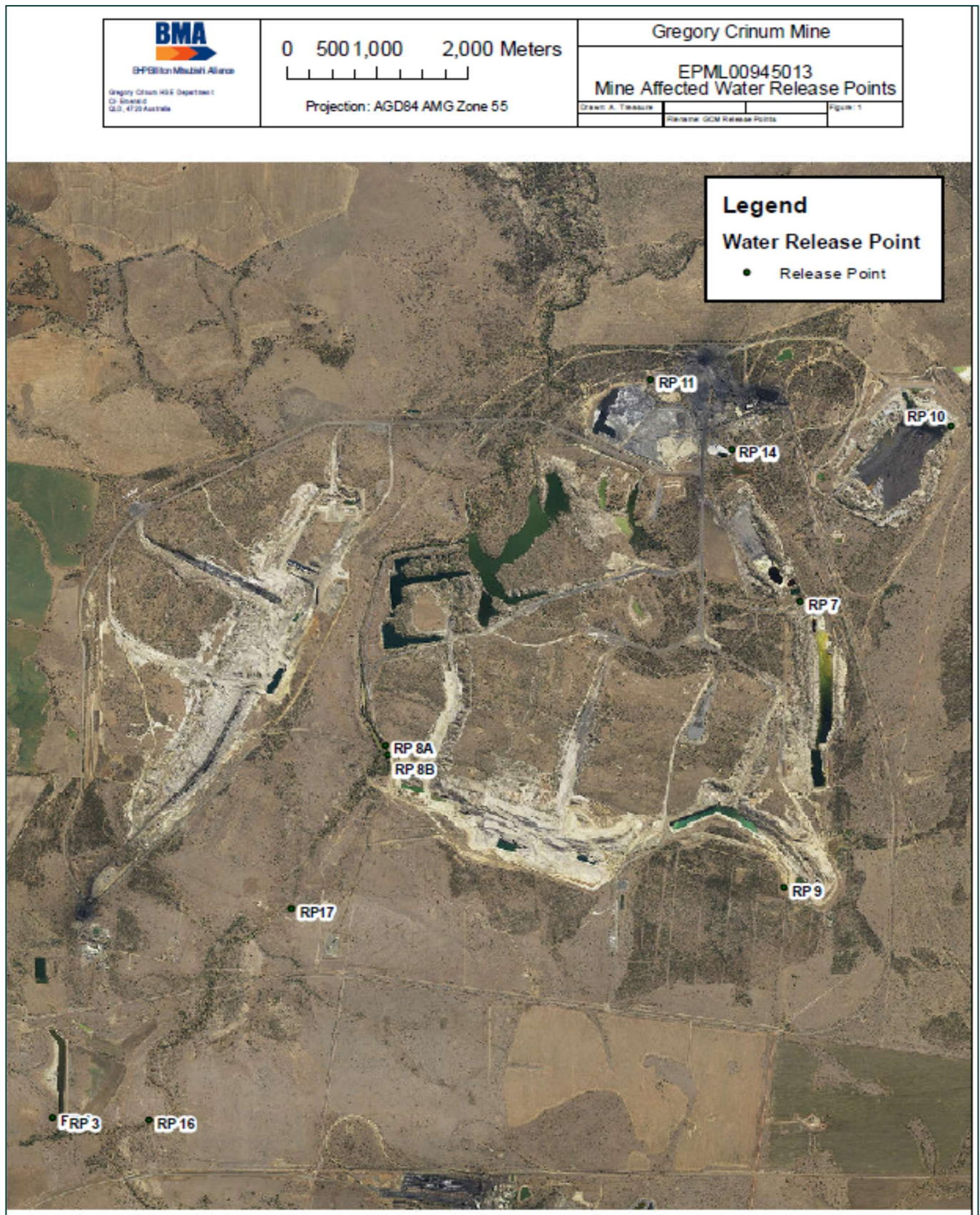
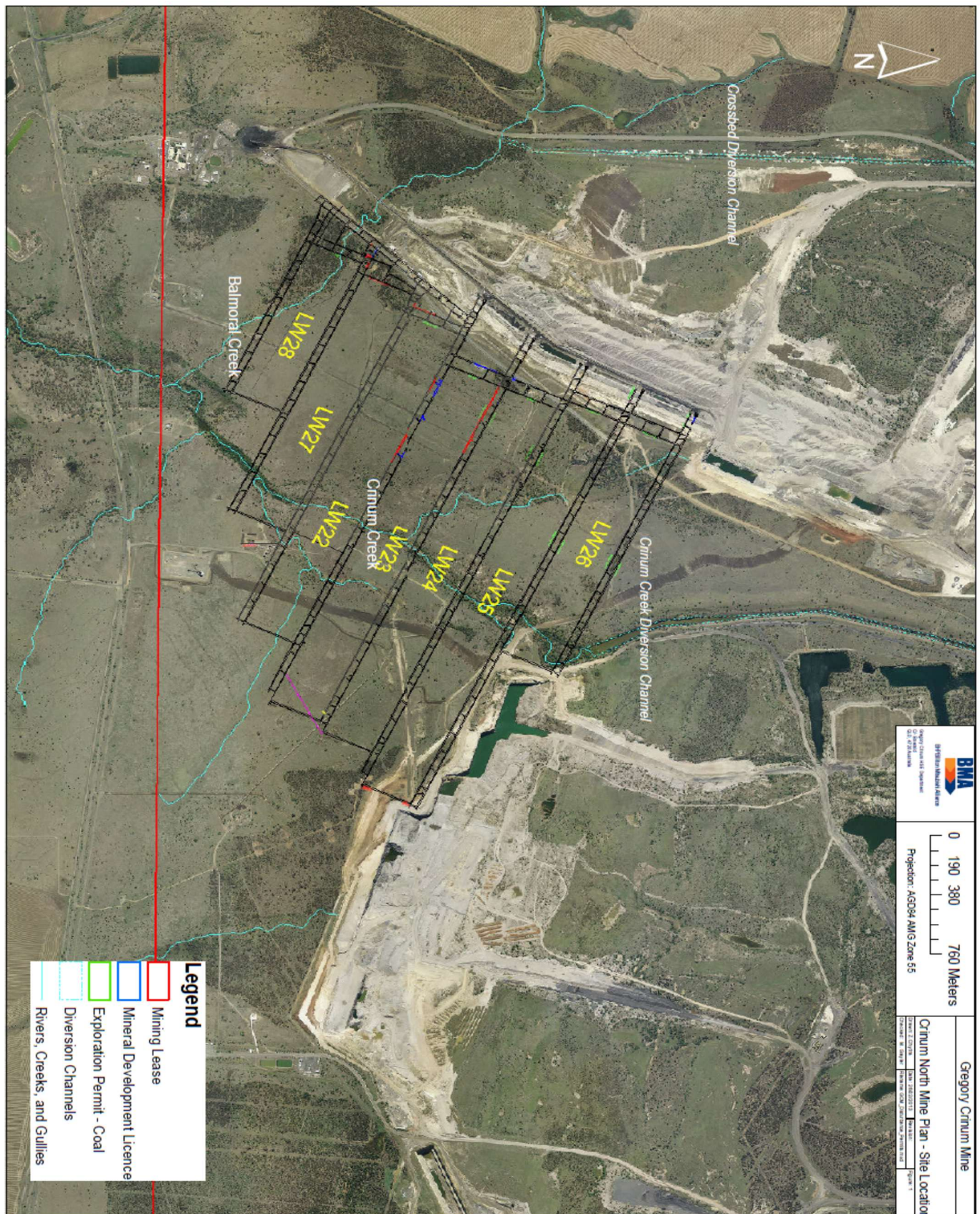


Figure 2 – Receiving Water Monitoring Points



Figure 3 – Crinum North Underground Longwall Panels



END OF ENVIRONMENTAL AUTHORITY