

Department of Environment and Heritage Protection

Permit¹

Environmental Protection Act 1994

Environmental authority

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

Permit¹ number: EPML00817013

Environmental authority takes effect on 4 October 2013.

Anniversary date 19 November.

An annual return and the payment of the annual fee will be due each year on the anniversary day each year. At the time of issue the annual fee is \$30,028.80.

Environmental authority holder(s)

Name	Registered address
Kidston Gold Mines Limited	c/- Barrick Australia Pacific Ltd Brookfield Place - Level 9 125 St George Terrace PERTH WA 6000

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
Mining – Mining Lease- Other Activities - Site Specific <i>Environmental Protection Regulation 2008</i> Schedule 2A – Item 20 – A mining activity that is an ineligible ERA, other than a mining activity mentioned in items 9 to 19 Aggregate Environmental Score - 136	ML3347

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation



AS

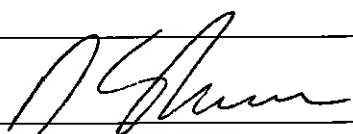
the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

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

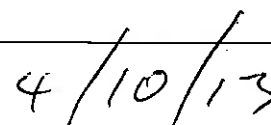
A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.



Signature



Date

Dean Sharpe
Delegate of the administering authority
Environmental Protection Act 1994

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Obligations under the *Environmental Protection Act 1994*

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

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

Location: Approximately 275km south-west of Cairns and 40km south of Einasleigh
 Located on Mining Lease ML3347

Relevant activity/ies:

Mining – Mining Lease- Other Activities - Site Specific

Environmental Protection Regulation 2008 Schedule 2A – Item 20 – A mining activity that is an ineligible ERA, other than a mining activity mentioned in items 9 to 19

Aggregate Environmental Score - 136

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

Schedules of Conditions

This **environmental authority** consists of the following schedules of conditions:

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B	Air	10
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SCHEDULE A – GENERAL

Activity

- A1 This environmental authority 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.

Maintenance of Measures, Plant and Equipment

- A2 The environmental authority holder must:
- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
 - (b) maintain such measures, plant and equipment in a proper condition;
 - (c) operate such measures, plant and equipment in a proper manner.
- A3 No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm caused by the mining activities.
- A4 All instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority must be calibrated, and appropriately operated and maintained.

Monitoring and Reporting

- A5 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority must be reviewed for effectiveness in minimising the likelihood of environmental harm on an annual basis and amended promptly as necessary to meet that objective.
- A6 The environmental authority holder must record, compile, evaluate and keep all monitoring results, records and documents required by this environmental authority, and any complaints received about the mining activities, and make available for inspection all or any of these records upon request by the administering authority.
- A7 Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) or body possessing appropriate experience and qualifications perform the required measurements.
- A8 All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.
- A9 All determinations of water quality must be:
- (a) made in accordance with methods prescribed in the latest edition of the administering authority's Water Quality Sampling Manual.
 - (b) collected from the monitoring locations identified within this environmental authority within two hours of each other where possible.
 - (c) carried out on representative samples.
- A10 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 when requested:
- (a) the date and time upon which the sample was taken;
 - (b) the monitoring point at which the sample was taken;
 - (c) the measured or estimated daily quantity of the contaminants released from all release points;
 - (d) the release flow rate at the time of sampling for each release point;
 - (e) the results of all monitoring and details of any exceedences with the conditions of this environmental authority; and

- (f) water quality monitoring data must be provided to the administering authority electronically in the specified format upon request.

Financial Assurance

- A11 The holder of this environmental authority must provide a financial assurance of an amount determined by the administering authority in accordance with the administering authority's Guideline – *Financial assurance for mining activities*, and in a form acceptable to the administering authority.
- A12 The amount of financial assurance may be reviewed by the administering authority, at any time including when a plan of operations is amended or replaced, the authority is amended or new information is obtained from an audit or other sources. The financial assurance must remain in force until the administering authority is satisfied no claim on the financial assurance will be required.

Risk Management

- A13 The environmental authority holder must before 29 August 2013 develop and implement a risk management system for mining activities which conforms to the Australian Standard for Risk Management (AS/NZ 4360:2004) or the latest edition of Australian Standard for Risk Management.

Emergency Response / Contingency Planning

- A14 An emergency response / contingency plan must be developed and implemented to respond to emergency events and incidents. The emergency response / contingency plan must be contained within the current Plan of Operations.
- A15 The emergency response / contingency plan must address but must not be limited to the following matters:
- (a) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from incidents;
 - (b) response procedures to minimise the extent and duration of environmental harm caused by an incident;
 - (c) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused;
 - (d) the resources to be used in response to an incident;
 - (e) procedures to investigate the cause of any incidents, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events;
 - (f) the provision and availability of documented procedures to staff attending any incident to enable them to effectively respond;
 - (g) training of staff that will be called upon to respond to incidents to enable them to effectively respond;
 - (h) timely and accurate reporting of the circumstance and nature of incidents to the administering authority;
 - (i) procedures for accessing monitoring points during incidents; and,
 - (j) procedures to notify any person who may be affected by the event as soon as reasonably possible and no later than 24 hours of becoming aware of the event with the following information to be provided at a minimum:
 - i. the location of the release;
 - ii. the date and time of the release;
 - iii. the estimated quantity (if found in detectable concentrations within the limits of reporting) and type of any contaminants involved in the incident; and,
 - iv. the potential impacts to environmental values, livestock and public health caused by the release.

Notification of Emergencies, Incidents and Exceedences

- A16 The environmental authority holder must notify the administering authority by telephone or facsimile as soon as reasonably possible and no later than 24 hours after becoming aware of:

- (a) any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority; or,
- (b) any monitoring result that indicates an exceedence of any environmental authority limit.

- A17 The notification must include but not be limited to the following:
- (a) the environmental authority number and name of the holder;
 - (b) the name and telephone number of the designated contact person;
 - (c) the location of the emergency, incident or exceedence;
 - (d) the date and time of the emergency, incident or exceedence;
 - (e) the time the holder of the environmental authority became aware of the emergency, incident or exceedence;
 - (f) the estimated quantity and type of substances involved in the emergency, incident or exceedence;
 - (g) the cause of the emergency, incident or exceedence if known;
 - (h) a description of the nature and effects of the emergency, incident or exceedence including risks to the environment, public health or live stock;
 - (i) immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency, incident or exceedence; and,
 - (j) details of any notification of persons who may be affected by the emergency, incident or exceedence.
- A18 Further written advice must be provided to the administering authority within fourteen (14) days following the initial notification of an emergency, incident or exceedence, including the following:
- (a) results and interpretation of any samples taken and analysed;
 - (b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm;
 - (c) proposed actions to prevent a recurrence of the emergency, incident or exceedence.

Complaints

- A19 Records must be kept of all environmental complaints received about the mining activities and must be made available for inspection by the administering authority on request including the following details:
- (a) name, address and contact number of the complainant;
 - (b) time and date of the complaint;
 - (c) reasons for the complaint;
 - (d) investigations undertaken;
 - (e) conclusions formed;
 - (f) actions taken to resolve the complaint;
 - (g) any abatement measures implemented; and,
 - (h) person responsible for resolving the complaint.
- A20 When requested by the administering authority, the environmental authority holder must undertake relevant specified monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within fourteen (14) days of completion of the investigation.

Community

- A21 The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication with residents and land owners to ensure that community impacts are identified and managed. This must include but not be limited to regular meetings with all relevant stakeholders at intervals of not less than twelve (12) months.

Third Party Auditing

- A22 Compliance with the conditions of this environmental authority must be audited annually by a suitably qualified third party auditor nominated by the environmental authority holder and accepted by the



administering authority within one year of the commencement of this environmental authority, and then at regular intervals not exceeding once every three years.

- A23 Upon receipt of the third party audit report, the environmental authority holder must submit a copy to the administering authority.
- A24 The third party auditor must certify the independent findings of the audit in the report.
- A25 The financial cost of the third party audit is the responsibility of the holder of this environmental authority.
- A26 The holder of this environmental authority must immediately act upon any recommendations arising from the audit report by:
- (a) investigating any non-compliance issues identified; and,
 - (b) as soon as practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.
- A27 Not more than three (3) months following the submission of the audit report to the administering authority, the holder of this environmental authority must provide a written report to the administering authority addressing the:
- (a) actions taken by the holder to ensure compliance with this environmental authority; and,
 - (b) actions taken to prevent a recurrence of any non-compliance issues identified.

Storage and Handling of Flammable and Combustible Liquids

- A28 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids must be stored and handled in accordance with the relevant Australian Standard where such is available. Where no relevant Australian Standard exists, store such materials within an effective on-site containment system.
- A29 Notwithstanding the requirements of any Australian Standard, any liquids stored on the licensed place that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land. 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) All chemical product drum storages must be bunded so that the capacity of the bund is sufficient to contain at least 100% of the maximum design storage volume within the bund.
- A30 All containment systems for chemicals and flammable or combustible liquids must be designed to minimise rainfall collection within the system.
- A31 The holder of the environmental authority must minimise the potential for contamination of land and waters by diverting stormwater around contaminated areas and facilities used for the storage of chemicals and flammable or combustible liquids.
- A32 Spillage of any contaminant must be contained and land remediated to prevent environmental harm.

Transition to New Standards

- A33 Where a condition requires compliance with a standard published externally to this authority and the standard is amended or changed subsequent to the issue of this authority:
- (a) Comply with the amended or changed standard within two (2) years, unless a different period is specified in the amended standard or relevant legislation.

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

Exploration

- A34 Disturbance due to exploration activities in areas not scheduled to be mined must be rehabilitated in accordance with the provisions detailed in the administering authority's *Code of Environmental Compliance for Exploration and Mineral Development Projects*.

END OF CONDITIONS FOR SCHEDULE A



SCHEDULE B - AIR

General

- B1 The release of dust, noxious or offensive odour or any other airborne contaminants resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.

END OF CONDITIONS FOR SCHEDULE B

SCHEDULE C - WATER

General

- C1 Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.
- C2 The maintenance and cleaning of vehicles and any other equipment or plant must not be carried out in areas from which contaminants can be released into any waters, roadside gutter or stormwater drainage system.
- C3 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must be cleaned up using dry methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system, roadside gutter or waters.

Contaminant Release to Waters

- C4 The release of contaminants to waters must only occur from the release points specified in Table C1 – Release Points and depicted in Schedule H Figure 1 – Existing Built Drainage, Clean Water Diversions and Seepage Containment Structures.
- C5 The release of contaminants to waters from the release points must be monitored at the locations and frequency specified in Table C1 – Release Points, for each quality characteristics specified in Table C2 – Release Water Trigger Levels and Contaminant Limits.

Table C1 - Release Points

Release Point	Description of Water Release	Description of Receiving Waters	Monitoring Frequency	Monitoring Location	
				Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)
TSF spillway	Stormwater overflow	Copperfield River	One sample must be taken within 12 hours of a release event ¹ commencing. A second sample must be taken between 12 and 24 hours after the release event ¹ commences. Where a release event ¹ has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until release ceases.	-18.9006	144.1490
Butchers Creek Dam spillway	Seepage waters & stormwater overflow	Copperfield River		-18.8874	144.1595
North Waste Rock Dump Seepage Dam spillway	Seepage waters	Charles Creek		-18.8614	144.1441
Managers Creek Dam spillway	Seepage waters & stormwater overflow	Copperfield River		-18.8778	144.1666
Sediment Dam 1 (HD2) spillway	Seepage waters & stormwater overflow	Copperfield River		-18.8625	144.1594
Sediment Dam 2 (HD3) spillway	Seepage waters & stormwater overflow	Copperfield River		-18.8684	144.1665
Sediment Dam 4 (HD5) spillway	Seepage waters & stormwater overflow	Charles Creek		-18.5853	144.1506

¹ Release event is a surface water release from water storages or contaminated areas on the licensed place.

- C6 The release of contaminants to waters must not exceed the contaminant limits stated in Table C2 – Water Trigger Levels and Contaminant Limits when measured at the release monitoring points specified in Table C1 – Release Points, for each quality characteristic.

Table C2 - Water Trigger Levels and Contaminant Limits

Quality Characteristic	Trigger Levels (µg/L for toxicants)	Contaminant Limit (Mg/L for toxicants)
EC (µS/cm)	435 ⁹	1000 ⁴
pH (pH unit)	6.0 ² (minimum) 7.5 ² (maximum)	6.0 ⁴ (minimum) 8.5 ⁴ (maximum)
Sulphate (SO ₄ ²⁻) (mg/L)	9 ¹	1000 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.
Aluminium	55 ²	5 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.
Arsenic	13 ²	0.5 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.
Cadmium	0.2 ²	0.01 ³ or 95% of reference ⁶ , whichever is lowest.
Cobalt	50 ¹	1 ³ or 95% of reference ⁶ , whichever is lowest.
Copper	1.4 ²	1 ³ or 95% of reference ⁶ , whichever is lowest.
Cyanide (Total)	7 ²	1 ⁵
Lead	3.4 ²	0.1 ³ or 95% of reference ⁶ , whichever is lowest.
Manganese	1900 ²	95% of reference ⁶
Molybdenum	50 ¹	0.15 ³ or 95% of reference ⁶ , whichever is lowest.
Nickel	11 ²	1 ³ or 95% of reference ⁶ , whichever is lowest.
Zinc	8 ²	20 ³ or 95% of reference ⁶ , whichever is lowest.
Hardness (CaCO ₃)	Interpretational purposes only	

- 1 Trigger values are based on the 80th percentile of at least 10 but not more than 24 consecutive reference site samples derived using the administering authorities (2006) methodology (Table D1, and section 3.4.3.1).
- 2 Default trigger values from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian upland river ecosystems.
- 3 Contaminant limit based on ANZECC (2000) stock water quality guidelines.
- 4 Contaminant limit based on administering authority policy (Scientific Services, 2009).
- 5 Contaminant limit based on the predicted no effect concentration taken from page xii of the Sodium Cyanide (Priority Existing Chemical) Draft Assessment Report dated September 2009 (Department of Health & Ageing).
- 6 Where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies.
- 7 Default trigger value from Queensland Water Quality Guideline (Table G.4)

Note: All metals and metalloids must be measured for both total and dissolved (filtered) concentrations.

- C7** If quality characteristics of the release exceed any of the trigger levels specified in Table C2 - Water Trigger Levels and Contaminant Limits, during a release event, the environmental authority holder must compare the results of the downstream site to the data from reference monitoring sites and:
- (a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; and,
 - (b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARMCAZ (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - i. details of the investigations carried out; and
 - ii. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C7(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

- C8** If an exceedance in accordance with Condition (C7) is identified, the holder of the environmental authority must notify the administering authority within 14 days of receiving the result.

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- C9 The release of contaminants directly or indirectly to waters must not produce any:
 (a) visible discolouration of receiving waters; nor,
 (b) 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.
- C10 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

Stream Flow Monitoring

- C11 The holder of this environmental authority must install, operate and maintain stream flow gauging stations to determine and record stream flows at the locations downstream of each release point as specified in Table C3 – Contaminant Release during Flow Events.
- C12 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as the minimum flow in Table C3 – Contaminant Release during Flow Events, for the contaminant release points specified in Table C1 – Release Points.

Table C3 - Contaminant Release during Flow Events

Receiving Water Description	Release Point	Gauging Station Description	Latitude (GDA94)	Longitude (GDA94)	Minimum Flow in Receiving Water Required for a Release Event	Flow Recording Frequency
Copperfield River	Butchers Creek Dam spillway	Combination V-notch Rectangular Weir	-18.8874	144.1595	Twenty (20) times the rate at which treated waste waters are released	Continuous (minimum daily)
Charles Creek	North Waste Rock Dump Seepage Dam spillway	Combination V-notch Rectangular Weir	-18.8614	144.1441		

¹ The volume of flow can be determined by the height of water / flow. The actual flow must be a quantifiable measure. E.g. > or = 5 m³/sec.

- C13 At the time of release the flow rate in the receiving water must be at least twenty (20) times the rate at which treated waste waters are released.
- C14 The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in Table C1 - Release Points.

Receiving Waters Monitoring

- C15 The quality of the receiving waters must be monitored at the locations and frequency specified in Table C4 - Receiving Waters Monitoring Points and depicted in Schedule H Figure 2 – Location of Receiving Waters Monitoring Sites for each quality characteristic stated in Table C2 - Water Trigger Levels and Contaminant Limits.
- C16 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table C2 - Water Trigger Levels and Contaminant Limits the environmental authority holder must compare the downstream results to the reference results in the receiving waters and:
 (a) if the level of contaminants at the downstream site is the same or a lower value than the reference value for the quality characteristic then no action is to be taken; and,
 (b) if the level of contaminants at the downstream site is greater than the reference monitoring site data complete an investigation in accordance with the ANZECC & ARMCANZ (2000)

methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:

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

Note: Where an exceedence of a trigger level has occurred and is being investigated, in accordance with C16(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

- C17 The release of contaminants to receiving waters must not exceed the contaminant release limits stated in Table C2 - Waters Trigger Levels and Contaminant Limits for each quality characteristic.

Table C4 - Receiving Waters Monitoring Points

Monitoring Point	Description of Receiving / Reference Waters	Monitoring Frequency	Monitoring Location	
			Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)
Receiving Water Monitoring Sites				
W1 Copperfield River; immediately downstream of the confluence of the Copperfield River and the unnamed tributary (TSF spillway discharge)	Copperfield River	Event based sampling of release ² or flow events ³ . One sample must be taken within 12 hours of a release event ² or flow event ³ commencing. A second sample must be taken between 12 and 24 hours after the release event ² or flow event ³ commences.	-18.8973	144.1599
W2 Copperfield River; immediately downstream of the confluence of the Copperfield River and Managers Creek	Copperfield River	Where a release event ² or a flow event ³ has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until release or flow event ceases.	-18.8779	144.1702
W3 Copperfield River; TBA ¹ (km) downstream of the Kidston Gold Mine	Copperfield River	For routine monitoring, upon commencement of flow of river and monthly thereafter whilst river is flowing.	-18.8268	144.1788
W4 Charles Creek; immediately downstream of the confluence of Charles Creek and the unnamed tributary (TSF western wall seepage collection system)	Charles Creek		-18.8736	144.1291
W5 Charles Creek; immediately downstream of the confluence of Charles Creek and the unnamed tributary (North Dump	Charles Creek		-18.8323	144.1488

NS

Seepage Dam)				
Reference Sites				
WA Charles Creek; TBA ¹ (km) upstream of the Kidston Gold Mine	Charles Creek	For monitoring of release, upon commencement of release and weekly thereafter during release	-18.9015	144.1158
WB Copperfield River; TBA ¹ (km) upstream of the Kidston Gold Mine	Copperfield River	For routine monitoring, upon commencement of flow of river and monthly thereafter whilst river is flowing.	-18.9051	144.1625

1 To be determined and notified to the administering authority before 1 December 2012.

2 Release event is a surface water release from water storages or contaminated areas on the licensed place.

Monitoring of Water Storage Quality

C18 Water storages stated in Table C5 - Water Storage Monitoring must be monitored for the water quality characteristics specified in Table C6 – Water Storage Contaminant Limits, at the monitoring locations and at the monitoring frequency specified in Table C5 - Water Storage Monitoring.

Table C5 - Water Storage Monitoring

Water Storage Description	Monitoring Location	Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)	Monitoring frequency
TSF Sediment Dam	TSF Sediment Dam spillway	-18.9006	144.149	Quarterly
TSF Reclaim Dam	TSF Reclaim Dam spillway	-18.8847	144.1514	
Tailings Dam Western Wall Seepage Sump (S7)	Sump	-18.8827	144.1412	
Tailings Dam Western Wall Seepage Sump (S8)	Sump	-18.8877	144.1381	
Tailings Dam Western Wall Seepage Sump (S9)	Sump	-18.8899	144.1358	
Tailings Dam Western Wall Seepage Sump (S11)	Sump	-18.8969	144.1312	
Butchers Creek Dam	Butchers Creek Dam spillway	-18.8874	144.1595	
Managers Creek Dam	Managers Creek Dam spillway	-18.8778	144.1666	
North Waste Rock Dump Seepage Dam	North Waste Rock Dump Seepage Dam spillway	-18.8614	144.1441	
Sediment Dam 1 (HD2)	Sediment Dam spillway	-18.8625	144.1594	
Sediment Dam 2 (HD3)	Sediment Dam spillway	-18.8684	144.1665	
Sediment Dam 4 (HD5)	Sediment Dam spillway	-18.5853	144.1506	
Eldridge Pit	Base of ramp	-18.8695	144.1564	Annually
Wises Pit	Base of ramp	-18.8756	144.1495	

- C19 In the event that water storages defined in Table C5 - Water Storage Monitoring, exceed the contaminant limits defined in Table C6 – Water Storage Contaminant Limits, the holder of the environmental authority must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

Table C6 – Water Storage Contaminant Limits

Parameter	Unit	Limit	Limit Type
EC	µS/cm	5970 ¹	Maximum
pH	pH units	4 – 9 ²	Range
Sulphate	mg/L	1000 ¹	Maximum
Aluminium	mg/L	5 ¹	Maximum
Arsenic	mg/L	0.5 ¹	Maximum
Cadmium	mg/L	0.01 ¹	Maximum
Cobalt	mg/L	1 ¹	Maximum
Copper	mg/L	1 ¹	Maximum
Cyanide (Total)	mg/L	10 ³	Maximum
Lead	mg/L	0.1 ¹	Maximum
Molybdenum	mg/L	0.15 ¹	Maximum
Nickel	mg/L	1 ¹	Maximum
Zinc	mg/L	20 ¹	Maximum

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

2 Contaminant limit take from page 4.2-15 of ANZECC (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

3 Limit previously negotiated with environmental authority holder.

Note: Analysis based upon total contaminant concentrations.

Stream Sediment Contaminant Levels

- C20 Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Table C4 - Receiving Waters Monitoring Points and Schedule H Figure 2 – Location of Receiving Waters Monitoring Sites, for the parameters defined in Table C7 - Stream Sediment Trigger Levels and Contaminant Limits.
- C21 If quality characteristics of the release exceed any of the trigger levels specified in Table C7 - Stream Sediment Trigger Levels and Contaminant Limits, during a release event, the environmental authority holder must compare the results of the downstream site to the data from reference monitoring sites and:
- if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; and,
 - if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARM CANZ (2000) methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - details of the investigations carried out; and,
 - actions taken to prevent environmental harm.

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Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C21(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

- C22** The release of contaminants to water must not result in an exceedance of the sediment contaminant limits stated in Table C7 - Stream Sediment Trigger Levels and Contaminant Limits when measured at the monitoring points specified in Table C4 - Receiving Waters Monitoring Points, for each quality characteristic.

Table C7 - Stream Sediment Trigger Levels and Contaminant Limits

Parameter	Unit	Trigger Level ²	Limit ³
Cyanide	mg/kg	0.1 ⁴	0.1 ⁴
Arsenic	mg/kg	Reference value ¹ or 20 ² , whichever is higher.	70 ³ or 3 times the reference value ¹ , whichever is higher
Cadmium	mg/kg	Reference value ¹ or 1.5 ² , whichever is higher.	10 ³ or 3 times the reference value ¹ , whichever is higher
Copper	mg/kg	Reference ¹ or 65 ² , whichever is higher.	270 ³ or 3 times the reference value ¹ , whichever is higher
Nickel	mg/kg	Reference value ¹ or 21 ² , whichever is higher.	52 ³ or 3 times the reference value ¹ , whichever is higher.
Lead	mg/kg	Reference value ¹ or 50 ² , whichever is higher.	220 ³ or 3 times the reference value ¹ , whichever is higher
Zinc	mg/kg	Reference value ¹ or 200 ² or, whichever is higher.	410 ³ or 3 times the reference value ¹ , whichever is higher
Particle size distribution for interpretation purposes			

1 Reference sites as defined in Table C4 - Receiving Waters Monitoring Points.

2 ANZECC (2000) interim sediment quality guideline - low values.

3 ANZECC (2000) interim sediment quality guideline - high values.

4 Origin TBA by environmental authority holder before 1 November 2012.

Note: Sediment quality contaminant levels are based upon total contaminant concentrations.

- C23** If an exceedance in accordance with Condition (C22) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.
- C24** All stream sediment sampling must be undertaken in compliance with AS 5667.1 *Guidance on Sampling of Bottom Sediments* dated 1998 or subsequent versions of this publication.

Receiving Environment Monitoring Program

- C25** A Receiving Environment Monitoring Program (REMP) must be developed and implemented before 1 November 2013 to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being released from the licensed place, with the aim of identifying and describing the extent of any adverse impacts to local environmental values and for monitoring any changes in the receiving waters including groundwater.

A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

Note: For the purposes of the REMP, the receiving environment is the waters and connected waterways downstream of the release points identified in Table C1 – Release Points.

- C26** The REMP must address but should not necessarily be limited to the following:
- (a) Description of potentially affected receiving surface waters and groundwater's including key communities, reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
 - (b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy);

- (c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment upon which the REMP is proposed;
- (d) Water and sediment quality targets to be achieved within the receiving environment, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the period of the REMP;
- (e) Monitoring for any potential adverse environmental impacts caused by the release;
- (f) Monitoring of stream flow and hydrology;
- (g) Monitoring of toxicants that should consider the characteristics specified in Table C2 - Release Water Trigger Levels and Contaminant Limits, to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC (2000) & ARM CANZ guidelines for slightly to moderately disturbed ecosystems;
- (h) Monitoring of physical chemical parameters as a minimum those specified in Table C2 - Release Water Trigger Levels and Contaminant Limits (in addition to dissolved oxygen saturation and temperature). The list of quality characteristics required to be monitored as per Table C2 will be reviewed once the results of the monitoring data is gathered or becomes available and if it is determined that there is no need to monitor for certain individual quality characteristics, these can be removed from Table C2;
- (i) Monitoring biological indicators (for macro-invertebrates in accordance with the administering authorities' monitoring and sampling manual (AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC (2000) & ARM CANZ, BATLEY and/or the most recent version of AS5667.1 *Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages;
- (j) The locations of monitoring points (including the locations of reference/upstream and downstream sites for each release point). Reference sites must comply with the following criteria:
 - i. be from the same bio-geographic and climatic region;
 - ii. have similar geology, soil types and topography;
 - iii. contain a range of habitats similar to those at the test sites;
 - iv. have a similar flow regime; and,
 - v. not be so close to the downstream sites that any disturbance at the downstream site also results in a change at the reference site;
- (k) The frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within 2 years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
- (l) Specify sampling and analysis methods and quality assurance and control;
- (m) Any historical datasets to be relied upon;
- (n) Description of the statistical basis on which conclusions are drawn; and
- (o) Any spatial and temporal influences to exclude potential confounding factors.

C27 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with Condition (C26) must be prepared and submitted in writing to the administering authority before 31 August 2015. This should include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values.

Saline & Metalliferous Drainage

C28 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 and/or metalliferous mine drainage.

Groundwater

C29 Groundwater quality and level must be monitored at the locations and frequencies defined in Table C8 - Groundwater Monitoring Locations and Frequency and Schedule H Figure 3 – Groundwater Monitoring Locations, for parameters defined in Table C9 - Groundwater Trigger Levels and Contaminant Limits.

Table C8 - Groundwater Monitoring Locations and Frequency

Monitoring Point	Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)	Surface RL ² (m)	Monitoring Frequency
Compliance Bores				
AB1 North-East of TSF	-18.8912	144.1527	523	Quarterly
AB7 East of TSF	-18.8917	144.1538	525	
AB8 West of TSF	-18.8897	144.1355	531	
AB13 West of TSF	-18.8838	144.1368	529	
AB14 West of TSF	-18.8748	144.1374	528	
Reference Bores				
AB2 East of TSF	-18.8917	144.1559	524	Quarterly
Reference Bore No.2 (TBA)	TBD ¹	TBD ¹	TBD ¹	

1 To be determined and notified to the administering authority before 1 December 2012.

2 RL measurements to be taken from top of bore casing.

- C30 If quality characteristics of groundwater from compliance bores identified in Table C8 - Groundwater Monitoring Locations and Frequency, exceed any of the trigger levels stated in Table C9 - Groundwater Trigger Levels and Contaminant Limits, the environmental authority holder must compare the compliance monitoring bore results to the reference bore results and:
- (a) if the level of contaminants at the compliance bore does not exceed the reference monitoring site data, then no action is to be taken; and,
 - (b) if the level of contaminants at the compliance bore is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC (2000) & ARMCANZ methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - i. details of the investigations carried out; and,
 - ii. actions taken to prevent environmental harm.

Note: Where an exceedence of a trigger level has occurred and is being investigated in accordance with C30(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

- C31 Groundwaters from bores identified in Table C8 - Groundwater Monitoring Locations and Frequency, must not exceed any of the limits defined in Table C9 - Groundwater Trigger Levels and Contaminant Limits.
- C32 If an exceedence in accordance with Condition (C31) is identified, the holder of the environmental must notify the administering authority within fourteen (14) days of receiving the result.

Table C9 - Groundwater Trigger Levels and Contaminant Limits

Quality Characteristic	Trigger Levels (µg/L for toxicants)	Contaminant Limit (Mg/L for toxicants)
EC (µS/cm)	435 ¹	1000 ⁴
pH (pH unit)	6.0 ² (minimum) 7.5 ² (maximum)	6.0 ⁴ (minimum) 8.5 ⁴ (maximum)
Sulphate (SO ₄ ²⁻) (mg/L)	9 ¹	1000 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.
Aluminium	55 ²	5 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.

Arsenic	13 ²	0.5 ³ (mg/L) or 95% of reference ⁶ , whichever is lowest.
Cadmium	0.2 ²	0.01 ³ or 95% of reference ⁶ , whichever is lowest.
Cobalt	50 ¹	1 ³ or 95% of reference ⁶ , whichever is lowest.
Copper	1.4 ²	1 ³ or 95% of reference ⁶ , whichever is lowest.
Cyanide (Total)	7 ²	1 ⁵
Lead	3.4 ²	0.1 ³ or 95% of reference ⁶ , whichever is lowest.
Manganese	1900 ²	95% of reference ⁶ ,
Molybdenum	50 ¹	0.15 ³ or 95% of reference ⁶ , whichever is lowest.
Nickel	11 ²	1 ³ or 95% of reference ⁶ , whichever is lowest.
Zinc	8 ²	20 ³ or 95% of reference ⁶ , whichever is lowest.
Level and chloride	Interpretational purposes only	

- 1 Trigger values are based on the 80th percentile of at least 10 but not more than 24 consecutive reference site samples derived using the administering authorities (2006) methodology (Table D1, and section 3.4.3.1).
- 2 Default trigger values from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian upland river ecosystems.
- 3 Contaminant limit based on ANZECC (2000) stock water quality guidelines.
- 4 Contaminant limit based on administering authority policy (Scientific Services, 2009).
- 5 Contaminant limit based on the predicted no effect concentration taken from page xii of the Sodium Cyanide (Priority Existing Chemical) Draft Assessment Report dated September 2009.
- 6 Where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies.
- 7 Default trigger value from Queensland Water Quality Guideline (Table G.4)

Note: All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered).

- C33 Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in the latest edition of the Agriculture and Resource Management Council of Australia and New Zealand manual titled *Minimum Construction Requirements for Water Bores in Australia*.
- C34 An annual monitoring report must be prepared and presented to the administering authority when requested. This report shall include but not be limited to:
- (a) a summary of the previous twelve (12) months monitoring results required under this approval in graphical form showing relevant limits;
 - (b) an evaluation/explanation of the data from any monitoring programs;
 - (c) a summary of any record of quantities of releases required to be kept under this approval;
 - (d) a summary of the record of equipment failures or events recorded, which have resulted in non-compliance with approval conditions; and,
 - (e) an outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.

Stormwater, Sediment and Erosion Controls

- C35 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of mining activities on the licensed place to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of storm water.
- C36 The Erosion and Sediment Control Plan must be included in the Plan of Operations and provide for at least the following stormwater management functions:
- (a) prevent or minimise the contamination of stormwater;

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- (b) diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled;
- (c) contaminated stormwater runoff, incident rainfall and leachate is collected and treated, reused, or released in accordance with the conditions of this environmental authority;
- (d) roofing or minimising the size of areas where contaminants or wastes are stored or handled;
- (e) using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;
- (f) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;
- (g) procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and,
- (h) training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

- C37 Erosion prevention and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of stormwater.
- C38 The erosion and sediment control plan must be consistent with any certified design plans for regulated dams on the licensed place.
- C39 Suitable banks and / or diversion drains must be installed and maintained to exclude stormwater runoff from entering any containment or other structures used for the storage or treatment of contaminants or wastes.

Water Management Plan

- C40 A Water Management Plan must be developed and implemented by 1 November 2012 that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.
- C41 The Water Management Plan must be developed in accordance with the latest version of the administering authorities *Guideline for Preparing a Water Management Plan* and must include at least the following components:
- (a) contaminant source study;
 - (b) site water balance and model;
 - (c) a description of the water management system and its components;
 - (d) saline and/or acid mine drainage prevention and management measures;
 - (e) emergency and contingency planning;
 - (f) monitoring and review.
- C42 Each year the holder of the environmental authority must undertake a review of the Water Management Plan prior to the wet season (i.e. no later than 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices and procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.
- C43 A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

END OF CONDITIONS FOR SCHEDULE C



SCHEDULE D – NOISE AND VIBRATION

Noise Nuisance

D1 Noise from the mining activity must not cause an environmental nuisance at any sensitive place.

END OF CONDITIONS FOR SCHEDULE D

SCHEDULE E – REGULATED DAMS

Regulated Dams Containing Hazardous Waste

- E1 The Design Storage Allowance for dams specified in the *Code of Environmental Compliance for Mining Lease Projects* and this environmental authority are a minimum design storage requirement and any releases from any dams to the receiving environment must meet the trigger and contaminant limits set out under Schedule C Table C2 – Water Trigger Levels and Contaminant Limits.
- E2 The construction and operation of any regulated dam containing hazardous waste on the licensed place must comply with Table E1 – Size and Purpose of Regulated Dams Containing Hazardous Waste.

Table E1 - Size and Purpose of Regulated Dams Containing Hazardous Waste

Name of Dam Containing Hazardous Waste	Site	Maximum Surface Area (Ha)	Maximum Volume (m ³)	Maximum Depth (m)	Purpose
Tailings Storage Facility	HD 1	310	68,000,000	32	Storage of Cyanide Tailings
Sediment Dam 1	HD 2	1	16,000	3.2	Prevent the release of potentially contaminated stormwater runoff and/or seepage from the waste rock dumps
Sediment Dam 2	HD 3	1	15,000	3	
Sediment Dam 4	HD 5	0.5	12,500	5	
Butchers Creek Dam	HD 6	3	60,000	4	
North Dump Seepage Dam	HD 7	1	5,000	0.5	Prevent the release of potentially contaminated stormwater runoff and/or seepage from the waste rock dumps
South East Dump Seepage Dam	TBD ¹	TBD ¹	TBD ¹	TBD ¹	
East Dump Seepage Dam	HD 9	0.5	10,000	3	
Managers Creek Dam	TBD ¹	TBD ¹	TBD ¹	TBD ¹	
Reclaim Dam	HD 11	0.5	7,500	2	
Wises Pit	HD 12	52	43,500,000	240	Storage of Cyanide Tailings
Eldridge Pit	HD 13	52	49,900,000	270	Containment of potentially contaminated stormwater runoff and/or seepage from the waste rock dumps

¹ To be determined and notified to the administering authority before 1 December 2012

- E3 The location of any regulated dam containing hazardous waste must be located on the licensed place within the polygonal area defined by the co-ordinates listed in Table E2 - Location of Regulated Dams Containing Hazardous Waste.

Table E2 - Location of Regulated Dams Containing Hazardous Waste

Name of Dam Containing Hazardous Waste	Site Code	Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)
Tailings Storage Facility	HD1	-18.8819	144.1475
		-18.8906	144.1528
		-18.8958	144.1511
		-18.8986	144.1481
		-18.8803	144.1425

Name of Dam Containing Hazardous Waste	Site Code	Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)
		-18.8864	144.1403
		-18.9011	144.1294
		-18.8795	144.145
		-18.893	144.1331
Sediment Dam 1	HD2	-18.8625	144.1594
		-18.8631	144.1592
		-18.8633	144.1597
		-18.8631	144.16
Sediment Dam 2	HD3	-18.8672	144.167
		-18.8683	144.1666
		-18.8683	144.1658
		-18.8681	144.1658
Sediment Dam 4	HD5	-18.8581	144.1501
		-18.858	144.1511
		-18.8586	144.1511
		-18.8589	144.1503
Butchers Creek Dam	HD6	-18.8861	144.1606
		-18.8869	144.1603
		-18.8869	144.1594
		-18.8844	144.155
		-18.8869	144.1577
		-18.8855	144.155
		-18.8858	144.1577
North Dump Seepage Dam	HD7	-18.8614	144.1425
		-18.8614	144.1442
		-18.8622	144.1436
		-18.8622	144.1428
South East Dump Seepage Dam	HD8	-18.8812	144.1601
		-18.8822	144.1601
		-18.8822	144.161
		-18.8812	144.161
East Dump Seepage Dam	HD9	-18.8772	144.1661
		-18.8781	144.1653
		-18.8775	144.1647
		-18.8769	144.1653
TSF Wetlands	HD10	-18.8858	144.1517
		-18.8844	144.1511
		-18.8842	144.15
		-18.8847	144.1497
		-18.8856	144.1506
Reclaim Dam	HD11	-18.8847	144.1528
		-18.8856	144.1525

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Name of Dam Containing Hazardous Waste	Site Code	Latitude (GDA94 MGA z55)	Longitude (GDA94 MGA z55)
Wises Pit	HD12	-18.8853	144.1519
		-18.885	144.1517
		-18.8761	144.1572
		-18.8783	144.1556
		-18.8789	144.1528
		-18.8769	144.1489
		-18.8744	144.1486
		-18.873	144.152
		-18.873	144.1545
		-18.8744	144.1565
Eldridge Pit	HD13	-18.8744	144.1594
		-18.8711	144.1544
		-18.8719	144.155
		-18.8683	144.1555
		-18.8665	144.158
		-18.8667	144.16
		-18.8683	144.162
		-18.8707	144.163
Managers Creek Dam	HD14	-18.8778	144.1668
		-18.8774	144.1662
		-18.8781	144.1654
		-18.8785	144.1658

Hydraulic Performance Criteria

- E4 Regulated dams constructed on the licensed place must comply with the hydraulic performance criteria shown in Table E3 - Hydraulic Performance Criteria for Regulated Dams.

Table E3 - Hydraulic Performance Criteria for Regulated Dams

Name of Regulated Dam	Design Storage Allowance (Dams other than levees) AEP	Spillway Capacity or Diversion Capacity (Levees) AEP ^P	Mandatory Reporting Level ¹ (Dams other than levees) AEP ²
Tailings Storage Facility	1 in 10 AEP, 3 month wet season plus other inputs for the 3 month wet season. To be available on 1st November each year	1 in 10,000 AEP	1 in 100 AEP
Sediment Dams	N/A ³	1 in 100 AEP	1 in 100 AEP
Butchers Creek Dam			
Reclaim Dam			
Waste Rock Dump Seepage Dams			

Name of Regulated Dam	Design Storage Allowance (Dams other than levees) AEP	Spillway Capacity or Diversion Capacity (Levees) AEP	Mandatory Reporting Level ¹ (Dams other than levees) AEP ²
Managers Creek Dam	1 in 20 AEP, 3 month wet season plus other inputs for the 3 month wet season. To be available on 1st November each year	1 in 100 AEP	1 in 100 AEP, 72 hour duration storm event
Wises Pit	N/A ⁴	N/A ⁴	N/A ⁴
Eldridge Pit	N/A ⁴	N/A ⁴	N/A ⁴

- 1 Refers to the level below the spillway crest required to contain either the AEP (design risk) 72hr storm or the AEP (design risk) wave allowance, whichever is lower.
- 2 AEP means the Annual Exceedence Probability which is the probability that at least one event in excess of a particular magnitude will occur in any given year.
- 3 Design Storage Allowance is unknown and therefore not applicable for these existing regulated dams.
- 4 Hydraulic Performance Criteria not applicable as there is no release from final voids.

- E5 The spillway for any regulated dam containing hazardous waste constructed within on the licensed place must be designed to withstand the peak flow from the critical design storm in Table E3 - Hydraulic Performance Criteria for Regulated Dams
- E6 The environmental authority holder must notify the administering authority as soon as possible but within 24 hours of the level in any regulated dam reaching the mandatory reporting level in Table E3 - Hydraulic Performance Criteria for Regulated Dams, and must immediately act to prevent or minimise the risk of environmental harm.
- E7 In the event the mandatory reporting level of the Managers Creek Dam is exceeded, the available storage capacity of the dam must be returned to below the mandatory reporting level within 7 days by the transfer of water to an alternative regulated dam with available storage capacity.

Certification and Operation

- E8 The environmental authority holder must repair, maintain, operate and decommission the dams defined in Table E2 - Location of Regulated Dams Containing Hazardous Waste, in accordance with an acknowledged design plan that must comply with the standard environmental conditions in the *Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste*.
- E9 When construction or modification of any regulated dam is complete and prior to commencing operation of that dam, the holder must submit to the administering authority two copies of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the submitted design plan and that the dam is compliant with this environmental authority.
- E10 All containment embankments of all regulated dams must be monitored for signs of embankment deterioration.

Decommissioning of Tailings Storage Facility - Objective

- E11 The environmental authority holder must prior to surrender of the tenures on which the Tailings Storage Facility is located, implement either:
- (a) a plan for de-commissioning the Tailings Storage Facility such that, amongst other things, contaminated water will no longer be stored in the facility, the containment embankment and its contents will be structurally stable and resistant to erosion and any seepage or other emissions will not cause environmental harm; or,
 - (b) a site management plan for the continued operation and maintenance of the Tailings Storage Facility.

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Decommissioning of Regulated Dams – Objective

- E12 Regulated dams containing hazardous waste must not be abandoned and must be dealt with in accordance with the conditions of this environmental authority.
- E13 On cessation of operation of any regulated dam, that regulated dam must be maintained so as to avoid environmental harm until that regulated dam is decommissioned.

Decommissioning of Regulated Dams – Documentation and Compliance

- E14 Decommissioning activities for dams must be documented in detail in the Plan of Operations under which the activities are to occur. Where the detailed documentation is not already contained in the Design Plan for the dam, the detailed documentation is considered to be an amendment to the Design Plan and must be submitted as an amendment to the Design Plan.

Water Management – Regulated Dams

- E15 The holder of this environmental authority shall maintain and operate measures for all regulated dams of adequate capacity to ensure that all water leaving the licensed place at the release points defined Table C1 – Release Points, complies with the water quality release limits listed in Table C2 - Release Water Trigger Levels and Contaminant Limits.

Note: No release of contaminants to land is authorised.

END OF CONDITIONS FOR SCHEDULE E



SCHEDULE F – LAND & REHABILITATION

Rehabilitation Landform Criteria

- F1 All areas significantly disturbed by mining activities must be rehabilitated to a safe, stable, non-polluting landform with a self-sustaining vegetation cover in accordance with Table F1 - Rehabilitation Requirements.

Table F1 - Rehabilitation Requirements

Disturbance Type ¹	Projective Surface Area (ha) ¹	Post-mine Land Description ^{1,2}	Post-Mine Land Suitability Classification ^{1,2}	Land Use Acceptance Criteria ¹
General Disturbance	335	Low Intensity Grazing ³	VII	As specified in the Rehabilitation Monitoring Manual ⁴
Sediment Dams	2	Low Intensity Grazing ³	VII	Water quality compliant with ANZECC (2000) stock water quality guidelines
Open Cut Pits	107	Wildlife Habitat	VIII	
Butchers Creek Dam, Managers Creek Dam and Waste Rock Dump Seepage Dams	TBD ⁵	Wildlife Habitat	VIII	
Tailings Storage Facility	310	Low Intensity Grazing ³	VII	As specified in the Rehabilitation Monitoring Manual ⁴ with water quality compliant with ANZECC (2000) stock water quality guidelines
Waste Rock Dumps	260	Low Intensity Grazing ³	VII	

- 1 Source EMOS (Environmental Management Overview Strategy, Kidston Gold Mine Project North Queensland Mining Lease 3347 dated 19 March 2003) except as otherwise stated.
- 2 Land Capability defined by Rosser et al (1974) Land Capability Classification for Agricultural Purposes. Division of Land Utilisation, Technical Bulletin, No. 14 QDPI.
- 3 Low Intensity Grazing is defined as the sustainable stocking rate able to be maintained in perpetuity for the rehabilitated areas in question.
- 4 Methods for the assessment of rehabilitation and criteria for determining rehabilitation success at Kidston Gold Mine, July 2001 or more recent updates following further research undertaken on site that are acceptable to the administering authority.
- 5 To be determined and notified to the administering authority before 1 December 2012.

- F2 Landform rehabilitation monitoring must be conducted annually in accordance with the Rehabilitation Monitoring Manual developed for Kidston Gold Mine.

Grazing Pasture Outcome

- F3 Areas that are to be rehabilitated to low intensity grazing must comply with the following outcomes;
- (a) possess a self-sustaining vegetation with vegetation cover, dry matter production and species composition and distribution comparable to analogue sites identified in the Rehabilitation Monitoring Manual;
 - (b) result in stable landforms with rates of erosion comparable to those of analogue sites; and,
 - (c) meet the acceptance criteria listed in Table F1 – Rehabilitation Requirements.
- F4 The environmental authority holder must complete an investigation into the rehabilitation of disturbed areas and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in Condition (F3) at least one year prior to any application for surrender of this environmental authority.

Residual Void Outcome

- F5 Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority.

Infrastructure

- F6 All infrastructure constructed by or for the environmental authority holder during mining activities including water storage structures must be removed from the licensed place prior to mining lease surrender except where agreed to in writing by the land owner / holder.

Rehabilitation Monitoring Program

- F7 The holder of the environmental authority must develop and implement a Rehabilitation Monitoring Program on at least a yearly basis which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.
- F8 The rehabilitation monitoring program must be developed before 1 November 2013 and be implemented by a person nominated by the environmental authority holder possessing appropriate qualifications and experience in the field of rehabilitation management.
- F9 Verification of rehabilitation success is to be determined by comparison with the criteria documented in the Post Mine Land Use Plan required under Condition (F10).

Post Mine Land Use Plan

- F10 A Post Mine land Use Plan for the licensed place must be prepared before 1 November 2013 and be developed and implemented for a nominal period of:
- (a) at least thirty (30) years following the cessation of mining activities on the licensed place; or
 - (b) a shorter period if the licensed place is proven to be geo-technically and geo-chemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the licensed place will result in environmental harm.
- F11 The Post Mine Land Use Plan must be included in the Plan of Operations and updated with each subsequent Plan of Operations describing how the rehabilitation objectives in Table F1 – Rehabilitation Requirements will be achieved.
- The Post Mine Land Use Plan must include:
- (a) schematic representations of final land form inclusive of drainage features;
 - (b) slope design;
 - (c) cover design including a report on the effectiveness of existing cover systems;
 - (d) drainage design;
 - (e) erosion controls on reformed land;
 - (f) description of the experimental design for the monitoring of analogue and rehabilitated areas inclusive of statistical design;
 - (g) proposed revegetation criteria including:
 - i. species diversity, abundance and composition,
 - ii. projective cover,
 - iii. dry matter production, and
 - iv. stocking rates to ensure self-sustaining vegetation is maintained.
 - (h) proposed revegetation methods inclusive of plant species selection, re-profiling, resspreading soil, soil ameliorants/amendments, surface preparation and method of propagation;
 - (i) materials balance including available top soil and low permeability encapsulation media for capping;
 - (j) research program and associated milestones;
 - (k) geotechnical, geochemical and hydrological studies;

- (l) chemical, physical and biological properties of soil and water;
- (m) measurable completion criteria for each rehabilitation indicator that enables determination of rehabilitation success for each disturbance type;
- (n) rehabilitation monitoring program, including the monitoring of:
 - i. surface water quality;
 - ii. groundwater quality;
 - iii. erosion rates;
 - iv. integrity and effectiveness of final cover of final cover systems; and,
 - v. health and resilience of vegetative cover;
- (o) grazing management plan, and,
- (p) operation and maintenance of:
 - i. the surface water management system;
 - ii. groundwater monitoring network;
 - iii. final cover systems; and,
 - iv. vegetative cover.

END OF CONDITIONS FOR SCHEDULE F

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SCHEDULE G – DEFINITIONS/ACRONYMS

Words and phrases used throughout this Environmental Authority are defined below. Where a definition for a term used in this Environmental Authority is sought and the term is not defined, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies apply.

"EMOS" means the environmental management overview strategy report titled Kidston Gold Mine Environmental Management Plan, dated 2005. Although legally the environmental authority is the enforceable document, not the EMPlan, if there was any need for interpretation of the conditions, then the interpretation should be in the context of the EMPlan.

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

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

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

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

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

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

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

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

"land" in the 'land schedule' of this document means land excluding waters and the atmosphere. "noise sensitive place" or a "commercial place"

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

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

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

"low intensity grazing" means the sustainable stocking rate able to be maintained in perpetuity for the rehabilitated areas in question.

"noxious" means harmful or injurious to health or physical wellbeing, other than trivial harm.

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

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

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

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

"sensitive place" means:

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

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

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

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

- (a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- (b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:
 - i. investigation, design or construction of dams;
 - ii. operation and maintenance of dams;
 - iii. geomechanics with particular emphasis stability, geology and geochemistry;
 - 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; or
 - viii. dam safety.

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

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

END OF CONDITIONS FOR SCHEDULE G

A handwritten signature in black ink, consisting of stylized, overlapping letters, likely representing the initials 'KS'.

SCHEDULE H - Maps / Plans



Figure 1 – Existing Built Drainage, Clean Water Diversions and Seepage Containment Structures

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Figure 2 – Location of Receiving Waters Monitoring Sites

Note: Revised figure to be provided before 1 December 2012.

Figure 3 – Groundwater Monitoring Locations

Note: Revised figure to be provided before 1 December 2012.

END OF CONDITIONS FOR SCHEDULE H

END OF PERMIT

