

# Guideline

## Mining

### Model mining conditions

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*The purpose of this guideline is to provide a set of model conditions to form general environmental protection commitments given for mining activities, and environmental authority conditions for resource activities – mining activities imposed by the administering authority<sup>1</sup> under the Environmental Protection Act 1994.*

#### Introduction

The *Environmental Protection Act 1994* (EP Act) provides for the granting of environmental authorities for resource activities – mining activities.

In giving approval under the EP Act, the administering authority must address the regulatory requirements set out in the Environmental Protection Regulation 2008 and the standard criteria contained in the EP Act. The administering authority will give consideration to these regulatory requirements in the context of specific information about the environmental impacts of a particular project provided through an environmental impact statement or application documents.

The following model conditions may be used as a basis for proposing environmental protection commitments in the application documents. They may also be used to expedite the process of developing appropriate conditions for an environmental authority for a mining project in consultation with the administering authority.

The model conditions can be modified to suit the specific circumstances of a mining project subject to the assessment criteria outlined above. In such circumstances, variants of these conditions and/or different conditions may be applied at the discretion of the administering authority delegate and in consultation with the applicant. It is unlikely the administering authority will accept less rigorous environmental protection commitments or environmental authority conditions without clear evidence that the risk of the particular type of environmental harm addressed by those model conditions is otherwise addressed to at least the same extent by:

- a) the specific environmental management practices to be implemented
- b) technologies to be used; or
- c) the nature of the environmental values impacted by the project.

To meet the test of 'necessary or desirable' it is considered that a condition will meet this test if a demonstrable link exists to achieving the object of the EP Act. It is considered that conditions relating to monitoring and reporting under the issued authority allow the administering authority to assess the accuracy of information and assumptions made in the application and allow the detection of any trend toward environmental harm resulting from the activity.

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<sup>1</sup> The Department of Environment, Science and Innovation is the administering authority under the *Environmental Protection Act 1994*.



The conditions in this guideline do not cover all the conditions necessary for regulating a resource activity – mining activity. Officers should also refer to the separate guidelines: *Structures which are dams or levees constructed as part of environmentally relevant activities* (ESR/2016/1934<sup>2</sup>). The water schedule has been based on the model water conditions for coal mines in the Fitzroy Basin. As a result the surface water schedule conditions may not be applicable to other catchments or to other types of mines. The water schedule may also be subject to change as a result of the Isaac River mine water release pilot.

## How to use this guideline

### **New project applications**

The model conditions should be applied to all new mining project applications lodged after the guideline is approved.

### **Applications for new projects in progress**

For applications in progress on the date this guideline is approved, the applicant should be advised of the availability of the model conditions. If public notification has been completed on the basis of different draft conditions from the model conditions, the model conditions cannot be used unless the applicant wishes to re-notify.

### **Amendments**

For amendment applications where the amendment involves altering activities covered in the model mining conditions, negotiation with the environmental authority (EA) holder should take place such that the original conditions are amended to reflect the model mining conditions to the extent of the changed impacts as a result of the alteration to activities. If there is no increase in impacts or only a trivial increase in impacts as a result of the change, this is not an opportunity to impose the model conditions on an existing project, except to the extent that the applicant seeks to adopt the model conditions.

### **Compulsory amendments**

Where there are continual non-compliance issues and the model conditions would clearly alleviate the non-compliance then they can be used without negotiation, to the extent of the changed impacts as a result of the non-compliance. If there is no increase in impacts or only a trivial increase in impacts as a result of the non-compliance, this is not an opportunity to impose the model conditions on an existing project, except to the extent that the applicant seeks to adopt the model conditions.

The guidance above about not imposing model conditions on an existing mine without the consent of the EA holder obviously does not apply if the particular model conditions are considered necessary to address one or more of the circumstances listed in section 215(2) of the EP Act, for example, if an existing condition was on the basis of materially misleading information or it would overcome contraventions of the EP Act. However, in that situation, the model conditions should only be compulsorily imposed to the extent necessary to address the particular circumstance triggered by section 215.

### **Transfer of environmental authority holder**

The model conditions should not be imposed upon a transfer, unless at the request of the transferee.

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<sup>2</sup> This is the publication number, which can be used as a search term to find the latest version of the publication at [www.des.qld.gov.au](http://www.des.qld.gov.au).

### **Holders may choose to apply**

Holders of environmental authorities for existing mines may apply to adopt model conditions either in whole or on a schedule by schedule basis (or even part of a schedule, for example, if the existing mine has some site-specific conditions on a particular topic and other pro forma conditions). However, if an EA holder for an existing mine applies to adopt model conditions on one topic, this does not mean that model conditions on a different topic can be imposed in response to that amendment application. Similarly, if an application for an extension project is lodged, this should not be seen as an opportunity to impose the model conditions retrospectively on the existing mine except with the agreement of the holder.

If additional conditions are needed to manage particular site-specific or project-specific risks, they may be included. A company may also propose alternative conditions for particular site circumstances for negotiations with the department.

### **Further information**

The latest version of this publication can be found at [www.des.qld.gov.au](http://www.des.qld.gov.au) using the publication number ESR/2016/1936 (previously EM944) as a search term.

**Note:**

Explanatory notes are in green. Please delete prior to issue of EA.

Insertions required by applicants and/or the administering authority are in blue. Please delete prior to issue.

If an impact is not objectively relevant to the particular location or the project, then, unless the applicant has specifically requested the model conditions on that topic, there is no need to include conditions about it (for example, if the application does not include sewage treatment plants, there is no need to include conditions about them). Potentially, an applicant may request model conditions relating to an impact even if it is not relevant at the time of the decision, in case it becomes relevant later for reasons beyond the control of the applicant, such as residential development encroaching in future in the direction of a mine.

The terms 'sensitive place' and 'commercial place' used in these model conditions do not include places that are within the boundaries of the mining lease, nor places that are owned or leased by the holder of the authority or its related companies. For example, a mining camp operated by the EA holder would not be a sensitive place.

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## **Schedule A – General**

- A1** This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

Explanatory note – The first version of A2 may be used where the supporting EIS or application documents have enough information to demonstrate that an acceptable level of ground-truthing has been done on potential for flora/fauna impacts and other risk assessment so that DESI is comfortable that the right areas have been identified to indicate no go areas. If the EIS or other supporting information only proposes two types of areas (those to be disturbed and those not to be disturbed), it is only necessary to use paragraphs a) and b) below. However, if the EIS or other supporting information addresses and justifies limited disturbance within a mapped area, paragraph c) may be added, on the basis that the conditions for that limited disturbance are set out elsewhere in the conditions or in a report that is adopted by the conditions. If the limited disturbance relates to flora and fauna, refer to condition A3.

Where there is not enough information to show that an acceptable level of ground-truthing has been done, the second version of A2 should be used.

- A2** EITHER:

In carrying out the mining activity authorised by this environmental authority, disturbance of land:

- a) may occur in the areas marked 'A'
- b) must not occur in the areas marked 'B'
- c) may occur in the areas marked 'C' on the map that is annexure 1 to this environmental authority, but only in accordance with condition A3.

OR

In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Schedule K—Figure 1a (Project Infrastructure Layout—Mine Area) and Schedule K—Figure 1b (Project Infrastructure Layout—Support Infrastructure).

Explanatory note: Condition A3 should only be used if condition A2 includes optional paragraph c) authorising limited disturbance within a mapped area. These conditions are not to be used in relation to paragraphs a) and b) of condition A2. The model conditions below are examples only. Any authorisation of limited disturbance should be site-specific and based on an assessment of the EIS or other supporting information, including ground-truthing of the areas.

**Option 1 (for limited surface infrastructure)**

- A3** Any disturbance within the areas marked 'C' on the map that is annexure 1 to this environmental authority:
- a) is only authorised to the extent reasonably necessary for a road, fence, underground service, low-impact telecommunications facility, electrical sub-station, transmission grid works and supply network works, storage depots, similar minor infrastructure and ancillary facilities for any of the above minor infrastructure
  - b) any disturbance within areas marked 'A' or 'C' is not to impact adversely on areas marked 'B'.

**Option 2 (authorising sub-surface disturbance)**

- A3** Only sub-surface disturbance is authorised within the areas marked 'C' on the map that is annexure 1 to this environmental authority.
- A4** The holder of this environmental authority must:
- a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority
  - b) maintain such measures, plant and equipment in a proper and efficient condition
  - c) operate such measures, plant and equipment in a proper and efficient manner
  - d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

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**Monitoring**

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

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**Financial assurance**

- A6** The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
- A7** The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.

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## **Risk management**

### Explanatory note—risk management

Holders have the option of providing a risk management plan which is structured differently from the ISO provided that the alternative approach is reasonably justified.

- A8** The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by <<Insert date 3 months from date of issue>>
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## **Notification of emergencies, incidents and exceptions**

### Explanatory note—notification

If notification is given under an alternative notification condition of the environmental authority it is taken to be notification under this condition. If notification is required under sections 320–320G of the EP Act the additional requirements under sections 320–320G apply.

- A9** The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
- A10** Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:
- a) results and interpretation of any samples taken and analysed
  - b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm
  - c) proposed actions to prevent a recurrence of the emergency or incident.
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## **Complaints**

- A11** The holder of this environmental authority must record all environmental complaints received about the mining activities including:
- a) name, address and contact number for 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
  - h) person responsible for resolving the complaint.

- A12** The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

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### Third-party reporting

- A13** The holder of this environmental authority must:
- a) within one year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority
  - b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above
  - c) provide each report to the administering authority within 90 days of its completion.

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- A14** Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:
- a) comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in condition **XX**, the time specified in that condition
  - b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

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## Schedule B – Air

### Point source releases to air

- B1** Discharges of contaminants to air from the activity, other than dust and particulate matter addressed by condition B4, must be in accordance with **Tables B1—Release points (air)** and **B2—Contaminant limits (air)**.
- B2** Conduct a monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in **Table B2—Contaminant limits (air)** and which complies with the most recent edition of *AS4323.1 Stationary source emissions method 1: Selection of sampling positions*, and the most recent edition of the administering authority's air quality sampling manual.

**Table B1—Release points (air)**

Release point	Release point description	Source description	Minimum release height (metres above ground)	Minimum exit gas temperature (°C)	Minimum efflux velocity (m/s)
RP1	Processor mainstack	Mineral processor			
RP2	Drier stack	Crusher and drier			

**Table B2—Contaminant limits (air)**

Contaminant	Release point	Limit type	Release limit	Release limit units	Minimum monitoring frequency

- B3** The release of point source and fugitive emissions from the mining activities must not cause the concentrations of the contaminants listed in Table XX, when measured at [a sensitive place or at specified monitoring stations], to exceed the levels shown in Table XX.

### Dust and particulate matter monitoring

Explanatory note—sources of PM<sub>2.5</sub> are primarily from combustion sources and PM<sub>2.5</sub> is unlikely to be elevated if significant combustion sources are not present. Condition B4 (c) will therefore only be required if there is a significant source of air emissions from combustion sources.

The five exceedances for the PM<sub>10</sub> standard outlined in B4 (b) were introduced to account for the impact of bushfires, dust storms and fuel reduction burning for fire management purposes. The five exceedances are in essence arbitrary in that the number was chosen as it is difficult to determine exactly the number of times these events may happen in any one year. More than five exceedances as a result of one or more of these events would not be considered to be a breach of condition.

- B4** The environmental authority holder shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:
- a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method*.



- b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM<sub>10</sub>) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:
  - 1. *Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM<sub>10</sub> high volume sampler with size-selective inlet – Gravimetric method, or*
  - 2. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM<sub>10</sub> low volume sampler—Gravimetric method.*
- c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM<sub>2.5</sub>) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)<sub>2.5</sub>(/sub) low volume sampler—Gravimetric method.*
- d) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.*

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## Schedule C - Waste management

- C1** General waste must only be disposed of into the waste disposal trench facility of <insert tenement number> and identified in Schedule # Figure # – Site Map.

### Explanatory note—burning

If it can be demonstrated that other possible options have been considered in accordance with the waste management hierarchy, burning may also be permitted for mining activities in addition to clearing for extraction activities.

- C2** Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
- C3** The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.

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### **Tailings disposal**

- C4** Tailings must be managed in accordance with procedures contained within the current plan of operations. These procedures must include provisions for:
- a) containment of tailings
  - b) the management of seepage and leachates both during operation and the foreseeable future
  - c) the control of fugitive emissions to air
  - d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings
  - e) maintaining records of the relative locations of any other waste stored within the tailings
  - f) rehabilitation strategy
  - g) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

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### **Acid sulphate soils**

- C5** Treat and manage acid sulphate soils in accordance with the latest edition of the *Queensland Acid Sulfate Soil Technical Manual*.

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## **Schedule D - Noise**

### **Noise limits**

- D1** The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table D1 – Noise limits** to be exceeded at a sensitive place or commercial place.

**Table D1 – Noise limits**

<b>Sensitive place</b>						
<b>Noise level dB(A) measured as:</b>	<b>Monday to Saturday</b>			<b>Sundays and public holidays</b>		
	<b>7am to 6pm</b>	<b>6pm to 10pm</b>	<b>10pm to 7am</b>	<b>9am to 6pm</b>	<b>6pm to 10pm</b>	<b>10pm to 9am</b>
<b>L<sub>Aeq, adj, 15 mins</sub></b>	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
<b>L<sub>A1, adj, 15 mins</sub></b>	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
<b>Commercial place</b>						
<b>Noise level dB(A) measured as:</b>	<b>Monday to Saturday</b>			<b>Sundays and public holidays</b>		
	<b>7am to 6pm</b>	<b>6pm to10pm</b>	<b>10pm to7am</b>	<b>7am to 6pm</b>	<b>6pm to 10pm</b>	<b>10pm to 7am</b>
<b>L<sub>Aeq, adj, 15 mins</sub></b>	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

*Table D1 – Noise limits notes:*

1. CV = Critical Value
2. AV = Adjustment Value
3. bg = background noise level (**L<sub>A90, adj, 15 mins</sub>**) measured over 3-5 days at the nearest sensitive receptor
4. To calculate noise limits in Table D1:  
 If  $bg \leq (CV - AV)$ :  
 Noise limit =  $bg + AV$   
 If  $(CV - AV) < bg \leq CV$ :  
 Noise limit = CV  
 If  $bg > CV$ :  
 Noise limit =  $bg + 0$
5. In the event that measured bg (**L<sub>A90, adj, 15 mins</sub>**) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level
6. If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the “Planning for Noise Control” guideline.

**Airblast overpressure nuisance**

**D2** The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table D2 – Blasting noise limits** to be exceeded at a sensitive place or commercial place.

**Table D2 – Blasting noise limits**

Blasting noise limits	Sensitive or commercial place limits	
	7am to 6pm	6pm to 7am
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	<insert either no blasting or limits justified by proponent not less stringent than 7am – 6pm>
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	<insert either no blasting or limits justified by proponent not less stringent than 7am – 6pm>

**Monitoring and reporting**

**D3** Noise monitoring and recording must include the following descriptor characteristics and matters:

- a)  $L_{AN,T}$  (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)
- b) background noise LA90
- c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels
- d) atmospheric conditions including temperature, relative humidity and wind speed and directions
- e) effects due to any extraneous factors such as traffic noise
- f) location, date and time of monitoring
- g) if the complaint concerns low frequency noise, Max  $L_{pLIN,T}$  and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

**D4** The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table D2 – Blasting noise limits** for:

- a) at least <insert number> % of all blasts undertaken on this site in each <insert period for example, month or year> at the nearest sensitive place or commercial place <at insert a place nominated in this authority>
- b) all blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.

## **Schedule E - Groundwater**

### **Contaminant release**

Explanatory note—the first version of condition E1 is only to be used when it has been identified that no release of contaminants to groundwater is to occur as a result of mining activities. The definition of a ‘contaminant’ is set out in Section 11 of the EP Act and relevantly includes any ‘gas, liquid or solid’, not just hazardous contaminants. For example, it would include the replenishment of aquifers with water of the same quality or higher quality than the aquifers.

The term ‘release’ is defined in Schedule 4 of the EP Act and relevantly, it should be noted that this includes passive releases and not merely controlled releases. Accordingly, if it is likely that the activity will lead to the passive replenishment of aquifers, even with good quality water, version 1 of condition E1 should not be used.

In relation to version 2 of condition E1 - Section 63 of the Environmental Protection Regulation 2008 addresses the topic of the release of ‘waste’ to groundwater. The term ‘waste’ is defined in Section 13 of the EP Act. Section 63 of the EP Regulation requires the administering authority to refuse an application if:

- a) the waste is not being, or may not be, released entirely within a confined aquifer (except for petroleum activities) or
- b) the release of the waste is affecting adversely, or may affect adversely, a surface ecological system; or
- c) the waste is likely to result in a deterioration in the environmental values of the receiving groundwater.

Paragraph b) is not intended to apply to a surface ecological system which is authorised to be cleared for the purpose of the mining activities. Paragraphs b) and c) are not intended to apply to trivial impacts.

Where contaminants are proposed to be released to groundwater the limits set out in the condition must not be exceeded at the release point. All the potential contaminants generated as part of the mining activity that have a release limit will be included in this table. The limit type and value will need to be determined in consultation with the administering authority.

#### **E1 EITHER**

The holder of this environmental authority must not release contaminants to groundwater.

#### **Or**

The holder of this environmental authority is authorised to release contaminants at the release points and at the release frequencies specified in **Table E1 - Groundwater release points, frequency** and comply with the release limits specified in **Table E2 - Groundwater release quality**.

**Table E1 - Groundwater release points, frequency**

Release points	Release frequency	Location	
		Easting (GDA2020 – Zone 54)	Northing (GDA2020 – Zone 54)

**Table E2 - Groundwater release quality**

Parameter	Release limit

**Monitoring and reporting**

- E2** All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
- E3** Groundwater quality and levels must be monitored at the locations and frequencies defined in **Table - E3 Groundwater monitoring locations and frequency** and [Schedule # – Figure #](#) (Groundwater Bore Monitoring Locations) for quality characteristics identified in **Table E4 - Groundwater quality triggers and limits**.

**Table E3 - Groundwater monitoring locations and frequency**

Monitoring point	Location		Surface RL (m) <sup>1</sup>	Monitoring frequency
	Easting (GDA2020 – Zone 54)	Northing (GDA2020 – Zone 54)		
<b>Reference bores<sup>2</sup></b>				
<b>Compliance bores</b>				

1. *Monitoring is not required where a bore has been removed as a direct result of the mining activity.*
2. *RL must be measured to the nearest 5cm from the top of the bore casing.*
3. *Reference sites must:*
  - (a) *have a similar flow regime*
  - (b) *be from the same bio-geographic and climatic region*
  - (c) *have similar geology, soil types and topography*
  - (d) *not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.*

**Table E4 - Groundwater quality triggers and limits**

Parameter	Contaminant triggers	Contaminant limit

**E4** Groundwater levels when measured at the monitoring locations specified in **Table E3 - Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table E5 - Groundwater level monitoring** below.

**Table E5 - Groundwater level monitoring**

Monitoring location	Level trigger threshold

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**Exceedance investigation**

- E5** If quality characteristics of groundwater from compliance bores identified in **Table E3 - Groundwater monitoring locations and frequency** exceed any of the trigger levels stated in **Table E4 - Groundwater quality triggers and limits** or exceed any of the groundwater level trigger threshold stated in **Table E5 - Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.
- E6** Results of monitoring of groundwater from compliance bores identified in **Table E3 - Groundwater monitoring locations and frequency**, must not exceed any of the limits defined in **Table E4 - Groundwater quality triggers and limits**.

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**Bore construction and maintenance and decommissioning.**

- E7** The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring

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**Schedule F - Water (Fitzroy model conditions)**

Explanatory note—the model conditions in this schedule are based on the Model Water conditions for coal mines in the Fitzroy River Basin. Alterations to the conditions will be necessary in different catchments to capture the environmental values, use of water resources and the quality characteristics of those catchments. Similarly, alterations will be required for mines other than coal mines.

An alternative approach to the surface water release conditions contained within this guideline is available based on the Isaac River mine water release pilot. Certain prerequisites will have to be met before a mining activity may apply to adopt the pilot water release conditions.

It should also be noted that these conditions may be subject to amendments that are dependent on the outcome of the Isaac River mine water release pilot.



**Contaminant release**

Explanatory note—the definition of ‘mine affected water’ is set out in the Definitions Schedule. The release of waters other than mine affected waters does not need to be listed in Table F1 (e.g.: overland flow water that has been diverted around mine infrastructure). 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 run-off containing sediment only that is not likely to have properties that would cause environmental harm based on the water quality parameters for mine affected water in Tables ##, do not need to be identified in Table F1.

There is no intention to prevent the internal transfer of waters on mine sites. Where this is adequately addressed in a water management plan, condition F3 is not required.

In addition, there is no requirement to list in Table F1 the holder’s or third parties’ artificial storage or transfer structures or other beneficial re-use points which are authorised under condition F24 (Water re-use).

- F1** 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.
- F2** 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 F1 - Mine affected water release points, sources and receiving waters** and depicted in Figure 1 attached to this environmental authority.
- F3** The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F28 is permitted.

**Table F1 - Mine affected water release points, sources and receiving waters**

Release point (RP)	Latitude (decimal degree, GDA2020)	Longitude (decimal degree, GDA2020)	Mine affected water source and location	Monitoring point	Receiving waters description
RP 1	XXXX	XXXX	e.g. Stormwater dam spillway Overflow	Dam spillway	Wet Creek
RP 2	XXXX	XXXX	e.g. Dam overflow pipe	Sampling tap on pipe where the pipe enters Sandy Creek	Sandy Creek

- F4** The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in **Table F2 - Mine affected water release limits** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic.

**Table F2 - Mine affected water release limits**

Quality characteristic	Release limits	Monitoring frequency	Comment
Electrical conductivity (µS/cm)	Release limits specified in Table F4 for variable flow criteria or condition F11.	Daily during release (the first sample must be taken within two hours of commencement of release)	
pH (pH Unit)	6.5 (minimum)  9.0 (maximum)	Daily during release (the first sample must be taken within two hours of commencement of release)	
Turbidity (NTU)	Current limit or limit derived from suspended solids limit and demonstrated correlation between turbidity to suspended solids historical monitoring data for dam water*	Daily during release* (first sample within two hours of commencement of release)	Turbidity is required to assess ecosystems impacts and can provide instantaneous results.

**F5** The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic and at the frequency specified in **Table F2 - Mine affected water release limits** and **Table F3 - Release contaminant trigger investigation levels, potential contaminants**.

*Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition F5 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.*

Explanatory note—the quality characteristics listed in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** should be assessed on a site by site basis by each mine prior to finalisation of amendment applications. The assessment should take into account such characteristics as the geology and chemical characteristics of the land to be disturbed, the types of contaminants likely to be found in processing and quality characteristics of receiving waters.

Based on this assessment, the quality characteristic should be either not be included in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** if below trigger levels; or included as priority contaminants in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** if above trigger levels. Assessment should involve comparison of representative data from dams that have historically been discharged or likely to be discharged from contaminant release points in **Table F1 - Mine affected water release points, sources and receiving waters**. Data may include historical results or sampling undertaken for this specific purpose.

It could also be demonstrated based on existing water quality information that the water source and relative water quality of some dams are the same, in which case such dams may not need to be sampled individually. For metals and metalloids, trigger levels apply if dissolved results exceed trigger levels. However, total (unfiltered) results for metals and metalloids can be used to disregard a characteristic for inclusion in **Table F3 - Release contaminant trigger investigation levels, potential contaminants**.

**Table F3 - Release contaminant trigger investigation levels, potential contaminants**

Quality characteristic	Trigger levels (µg/L)	Comment on trigger level	Monitoring frequency
Aluminium	55	<i>For aquatic ecosystem protection, based on SMD guideline</i>	Commencement of release and thereafter weekly during release
Arsenic	13	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Cadmium	0.2	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Chromium	1	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Copper	2	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Iron	300	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Lead	4	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Mercury	0.2	<i>For aquatic ecosystem protection, based on LOR for CV FIMS</i>	
Nickel	11	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Zinc	8	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Boron	370	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Cobalt	90	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Manganese	1900	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Molybdenum	34	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Selenium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Silver	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Uranium	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Vanadium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Ammonia	900	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Nitrate	1100	<i>For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN</i>	
Petroleum hydrocarbons (C6-C9)	20		

Quality characteristic	Trigger levels (µg/L)	Comment on trigger level	Monitoring frequency
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000	<i>Protection of livestock and short term irrigation guideline</i>	
Sodium	TBA		
Suspended Solids	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment*		
Sulphate (SO42-) (mg/L)	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment*	<i>Drinking water environmental values from NHMRC 2006 guidelines OR ANZECC</i>	

**Table F3 - Release contaminant trigger investigation levels, potential contaminants notes:**

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 F3 - Release contaminant trigger investigation levels, potential contaminants** 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 F3 - Release contaminant trigger investigation levels, potential contaminants** by amendment.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
4. LOR (limit of reporting) – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

**F6** If quality characteristics of the release exceed any of the trigger levels specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** and:

- a) where the trigger values are not exceeded then no action is to be taken, or
- b) where the downstream results exceed the trigger values specified **Table F3 - Release contaminant trigger investigation levels, potential contaminants** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and:
  1. if the result is less than the background monitoring site data, then no action is to be taken, or

2. 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 within 90 days of receiving the result, outlining:
  - (i) details of the investigations carried out
  - (ii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b (2) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

- F7** If an exceedance in accordance with condition F6 b (2) is identified, the holder of the environmental authority must notify the administering authority in writing within 24 hours of receiving the result.

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#### **Mine affected water release events**

- F8** 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 F4 - Mine affected water release during flow events**.
- F9** Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in **Table F4 - Mine affected water release during flow events** for the release point(s) specified in **Table F1 - Mine affected water release points, sources and receiving waters**.
- F10** The release of mine affected water to waters in accordance with condition F2 must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criterion for discharge specified in **Table F4 - Mine affected water release during flow events** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters**.
- or
- F11** The 80<sup>th</sup> percentile of electrical conductivity (EC) values recorded at the downstream monitoring points listed in **Table F4 - Mine affected water release during flow events** must not exceed XXXuS/cm over the duration of the release influence period and have a maximum value of no greater than 20 per cent of XXXuS/cm. The 80<sup>th</sup> percentile must be calculated using all EC values recorded by the monitoring station during the release influence period.

Note: The release influence period is the period during which the downstream monitoring points are influenced by mine affected water releases and includes both the duration of release and any lag time between release point/s and downstream monitoring points.

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Explanatory note— Table F4 – Mine affected water release during flow events

#### **Gauging station description:**

The intent here is that every release point in **Table F1 - Mine affected water release points, sources and receiving waters** is associated with a gauging station that measures flow upstream of the discharge point. More than one discharge point may be associated with the same gauging station. The gauging station should be

at a minimum distance from the discharge point such that water flow under trigger flow events will not significantly diminish by the time it reaches the discharge point.

The location of the gauging station should ideally be such that it is not significantly affected by other upstream point source releases or times of discharge are limited to periods of 'natural' flow. In the situation where there is an existing gauging station that is capable of performing all the monitoring functions required by these conditions, this gauging station may be used instead of having to install a new gauging station. Agreement to access the gauging stations is the responsibility of the environmental authority holder and is to be provided in writing to the administering authority.

Under certain circumstances it may be appropriate to have a downstream gauging station in addition to or in replacement of an upstream gauging station. The location should ideally not be affected by the discharge (for example, be measured off the main waterway). The need for this must be demonstrated on a case by case basis to show why an upstream gauging station is insufficient. This may be the case when mines are located in the upper parts of catchments or near the downstream confluence or a major waterway. Similarly, the gauging station should be at a distance from the discharge point such that water flow during triggered flow events will not significantly diminish between the discharge point and the measuring point (or the confluence with the creek being measured). For downstream flow triggers, some changes to calculation for flow triggers and maximum release flows would typically be required based on the relative sizes of the waterways involved.

**Flow triggers and EC quality criteria:**

The intent for flow triggers is that the times of discharge are limited to times around natural flow events only. Different flow regime methodologies are used to define mine affected water release opportunities, provide flexibility for site operators and to protect identified environmental values within receiving waters. The expectation is that where flow gauging data is available, it is used to calculate flow triggers. Where gauging data is not available or is insufficient, flow triggers should be based on runoff/stream flow estimates using appropriate hydrological calculations or models and known catchment area, rainfall estimations etc.

Separate methodologies for discharges which occur to local waterways rather than regional waterways will be applied as part of this revised approach. Due to the increased flexibility of the revised approach and consideration of a wider range of local factors the application of these model conditions to individual sites will require case-by case assessment and require sufficient background information to be provided. For example, it should be noted that discharges upstream of dams or lakes may require special considerations and generally stricter controls. Also, where multiple mines discharge to the same or closely connected waterways consideration of cumulative impacts will be necessary as part of the assessment process.

Model conditions do not preclude applicants from proposing alternative or additional conditions, nor restrict the administering authority from using alternative conditions where the case warrants. However, applications proposing alternative approaches will need to be supported by sufficient environmental risk assessment and contingency planning information to allow the administering authority to adequately consider the proposal.

There may be instances where case-by-case proposals can be considered for conditions to address management of particularly heavy rainfall and flooding that is similar to previous events, where there is sufficient information available based on: previous transitional environmental programs, monitoring and analysis, the environmental values of the receiving environment together with the experience of impacts on those environmental values, rigorous contingency and disaster response planning, and with particular regard to actual and potential cumulative impacts. For example, there may be potential to tailor a schedule of conditions to be triggered upon reaching nominated thresholds of rainfall, flow, flooding (or a combination) based on learning from an event that has occurred in the past; possibly adopting a similar framework to previous discharge permissions granted in similar circumstances, provided the framework was demonstrated to adequately address environmental risk to the satisfaction of the delegate.

**No/low flow stream conditions (best quality / low EC mine affected water):**

Discharge water quality will need to meet or be better than water quality objectives (or long-term background reference 75<sup>th</sup> / 80<sup>th</sup> percentile) for EC and will only be permitted for temporary periods after periods of significant flow. The focus of this is to allow 'good' quality water to be released when collected rather than having it stored over long durations resulting in deteriorating water quality. Any discharges made under no/low flow stream conditions must not contribute to or cause erosion and due consideration should be given to road/rail access, stock crossings etc. (particularly in relation to multiple mines discharging under no/low flow stream conditions on connected waterways). General principles include:

- a) Release at times when flow is on tail end of flow event only that is, following a flow above specified event flow trigger and when the flow reduces below the flow trigger again. This trigger will commence a discharge window of 4–6 weeks for good quality water only.
- b) End of pipe WQ ≤ WQO (or long term background reference 75<sup>th</sup>/80<sup>th</sup> percentile). May require assessment of downstream environmental values where WQO is more stringent (for example, drinking water supply).
- c) Duration of release is limited (dry ephemeral stream, four weeks after flow event ceases, use time after flow trigger for below – add additional time).
- d) Volume/rate will be considered on a case by case basis.

**Medium flow stream conditions (medium quality mine affected water):**

A flow trigger for the stream is required and will be set to avoid discharge of medium quality water during periods of no or low flow. General principles include:

- a) Requires the use of a stream flow trigger above which release can occur. The stream flow trigger must be representative of event flow and be above base/low flow (typically determined from hydrographs, historical flow/water quality data and/or modeling).
- b) End-of pipe EC <3500µS/cm. Options for either <1500µs/cm and <3500µS/cm as maximum limits can be considered which will result in different maximum discharge rates for different quality water. The better the quality of water to be released, the greater the volume that can be permitted.
- c) The design dilution/maximum discharge rate should be based on a site specific risk assessment. These should be designed to achieve an in-stream EC based on the location – upper (Zone 1), mid (Zone 2) or lower (Zone 3) catchment. The EC<sub>WQO high flow</sub> should be adopted as background EC for design calculations.
  - Zone 1, upper catchment mines, approximately <10km from top of waterway catchment.  
EC<sub>in stream</sub> = 1000µS/cm (toxicity guideline).
  - Zone 2, mid catchment mines, zones not within Zone 1 or Zone 3  
EC<sub>in stream</sub> = 700µS/cm
  - Zone 3, lower catchment mines (All regional waterways are considered Zone 3 from distance >50km from top of waterway catchment, refer to Zone 3 map) –  
EC<sub>in stream</sub> = EC<sub>high flow WQO</sub> + multiplier x (EC<sub>WQO low flow</sub> – EC<sub>WQO high flow</sub>)  
for example, multiplier = 0.2 for Isaac, Nogoia, Dawson
- d) EC in stream for calculations may vary according to other locally relevant environmental values that may need to be considered.

**High flow stream conditions (poorer quality water)**

This option might be used in some cases for mines that need to discharge higher EC wastewater than is allowable under medium flow stream conditions. Any discharge is required to have a higher level of dilution than with medium flow cases but still achieve a maximum incremental increase in the waterway. This option is most feasible for mines situated on regional waterways as the window for discharge is likely to be limited for local waterways. Some additional considerations on management of mixing zones and acute/chronic toxicity may be required in this case. General principles include:

- a) Requires the use of a stream flow trigger above which release can occur. The stream flow trigger must be representative of high event flow and be above medium flow (typically determined from hydrographs, historical flow/water quality data and/or modeling)
- b) End-of pipe EC must be  $> 3500\mu\text{S/cm}$  (but  $< 10,000\mu\text{S/cm}$ ). The better the quality of water to be released, the greater the volume that can be permitted
- c) The design dilution/maximum discharge rate should be based on a site specific risk assessment. These should be designed to achieve an in-stream EC based on the location – upper (Zone 1), mid (Zone 2) or lower (Zone 3) catchment as described above
- d) May need some additional indicators/requirements and requires case by case assessment

This option is likely to be less feasible for Zone 1 and 2 mines.

**Using condition F11 in place of F10**

Where condition F11 has been used instead of F10, Table F4 is to be modified to remove references to electrical conductivity release limits. The low, medium and high flow criteria and maximum release rate are also to be removed and replaced with minimum flow in receiving water criteria.



**Table F4 - Mine affected water release during flow events**

Receiving waters/stream	Release point (RP)	Gauging station	Gauging station latitude (decimal degree, GDA2020)	Gauging station longitude (decimal degree, GDA2020)	Receiving water flow recording frequency	Receiving water flow criteria for discharge (m <sup>3</sup> /s)	Maximum release rate (for all combined RP flows)	Electrical conductivity release limits
e.g. Wet Creek	Insert all release points that will release based on this gauging station flow. e.g. RP1, RP2 & RP3	e.g. Gauging station 1	XXXX	XXXX	Continuous (minimum daily)	Low Flow <XX m <sup>3</sup> /s for a period of <insert number of days> after natural flow events that exceed XX m <sup>3</sup> /s (where XX is a specified event flow trigger)	Insert < xx ML/day or < xx m <sup>3</sup> /s  Volume/rate to be determined on case by case basis	Electrical conductivity (µS/cm): <insert water quality objective or 75th percentile of long term background reference data>
						Medium Flow > XX m <sup>3</sup> /s (where XX is specified event flow trigger)	< XX m <sup>3</sup> /s (where XX is the maximum release rate determined on case by case basis )	Electrical conductivity (µS/cm) <insert value determined on case specific basis but typically <1500
							< YY m <sup>3</sup> /s (where YY is the maximum release rate determined on case by case basis)	Electrical conductivity (µS/cm) <insert value determined on case specific basis but typically <3500
						High Flow > ZZ m <sup>3</sup> /s (where ZZ is a specified high flow	< ZZ m <sup>3</sup> /s (where ZZ is the maximum release rate determined on case by case basis)	Electrical conductivity (µS/cm) <insert value determined on case specific basis but typically within a

						event trigger)		range of <3500 to <10,000
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**F12** The daily quantity of mine affected water released from each release point must be measured and recorded.

**F13** 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.

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**Notification of release event**

**F14** The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release 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) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)
- c) release point/s
- d) release rate
- e) release salinity
- f) receiving water/s including the natural flow rate.

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.

**F15** The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition F14 and within 28 days provide the following information in writing:

- a) release cessation date/time
- b) natural flow rate in receiving water
- c) volume of water released
- d) details regarding the compliance of the release with the conditions of Department Interest; Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume)
- e) all in-situ water quality monitoring results
- f) any other matters pertinent to the water release event.

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 F14 and F15, provided the relevant details of the release are included within the notification provided in accordance with conditions F14 and F15.

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**Notification of release event exceedance**

- F16** If the release limits defined in **Table F2 - Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.
- F17** The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:
- a) the reason for the release
  - b) the location of the release
  - c) the total volume of the release and which (if any) part of this volume was non-compliant
  - d) the total duration of the release and which (if any) part of this period was non-compliant
  - e) all water quality monitoring results (including all laboratory analyses)
  - f) identification of any environmental harm as a result of the non-compliance
  - g) all calculations
  - h) any other matters pertinent to the water release event.

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**Receiving environment monitoring and contaminant trigger levels**

- F18** The quality of the receiving waters must be monitored at the locations specified in **Table F6 - Receiving water upstream background sites and downstream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table F5 - Receiving waters contaminant trigger levels**.

**Table F5 - Receiving waters contaminant trigger levels**

Quality Characteristic	Trigger Level	Monitoring Frequency
pH (pH units)	6.5 – 9.0	Daily during the release
Electrical Conductivity (µS/cm)	TBA <i>Note: for protection against toxicity this may need to be reduced in some circumstances e.g. where in close proximity upstream of a drinking water dam or regional waterway</i>	
Suspended solids (mg/L)	To Be Determined. Turbidity may be required to assess ecosystems impacts and can provide instantaneous results.	
Sulphate (SO <sub>4</sub> <sup>2-</sup> ) (mg/L)	250 (Protection of drinking water Environmental Value)	

**Table F6 - Receiving water upstream background sites and downstream monitoring points**

Monitoring points	Receiving waters location description	Latitude (decimal degree, GDA2020)	Longitude (decimal degree, GDA2020)
Upstream background monitoring points			
Monitoring point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Monitoring point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Downstream monitoring points			
Monitoring point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX
Monitoring point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX

*Table F6 - Receiving water upstream background sites and downstream monitoring points notes:*

- a) *The upstream monitoring point should be within Xkm the release point.*
- b) *The downstream point should not be greater than Xm from the release point.*
- c) *The data from background monitoring points must not be used where they are affected by releases from other mines.*

**F19** If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table F5 - Receiving waters contaminant trigger levels** 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
  1. details of the investigations carried out
  2. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F19 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

**F20** All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.

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### Receiving environment monitoring program (REMP)

- F21** The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the **XX** and connected or surrounding waterways within **XX** (for example, **X**km) downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
- F22** A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
- F23** A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

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### Water reuse

#### Explanatory notes—Water reuse conditions

Mine affected water reuse conditions acknowledge that there is beneficial potential for using mine affected water. How the water is to be reused is not to be stipulated, this is for the third party to determine as they are better placed to make this decision.

- F24** 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 (with the consent of the third party).

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### Annual water monitoring reporting

- F25** 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:
- 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
  - g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

### Temporary interference with waterways

- F26** 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) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.

### Water management plan

- F27** A Water Management Plan must be developed by an appropriately qualified person and implemented.

### Stormwater and water sediment controls

- F28** 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.
- F29** Stormwater, other than mine affected water, is permitted to be released to waters from:
- a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F28
  - b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F27, for the purpose of ensuring water does not become mine affected water.

## Schedule G - Sewage treatment

Explanatory note—G1 may need amendment if other contaminants are permitted to be released to land. Monthly monitoring of E-coli may be revised based on location/remoteness of mine site.

- G1** The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in **Table G1 - Contaminant release limits to land**.

**Table G1 - Contaminant release limits to land**

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD) <sup>1</sup>	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	Monthly
Nitrogen	mg/L	30	Maximum	Monthly
Phosphorus	mg/L	15	Maximum	Monthly
E-coli	Organisms/100ml	1000	Maximum	Monthly
pH	pH units	6.0 – 9.0.	Range	Monthly

- G2** Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:
- a) within the nominated area(s) identified in [Schedule ##—Figure ##](#) (sewage treatment plant and effluent disposal)
  - b) other land for the purpose of dust suppression and/or firefighting.
- G3** The application of treated effluent to land must be carried out in a manner such that:
- a) vegetation is not damaged
  - b) there is no surface ponding of effluent
  - c) there is no run-off of effluent.
- G4** If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.
- G5** All sewage effluent released to land must be monitored at the frequency and for the parameters specified in **Table G1 - Contaminant release limits to land**.
- G6** The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.
- G7** When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.
- G8** A minimum area of <<insert area>> of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

*Explanatory note — the supply of treated wastewater for re-use is regulated under the [Water Supply \(Safety and Reliability\) Act 2008](#).*

- G9** Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the Act whilst using the treated sewage effluent.

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## **Schedule H - Land and rehabilitation**

*Explanatory note—Table H1 - Rehabilitation Requirements*

*Tables should be kept as concise as reasonably practicable, without losing clarity. For example, if requirements for more than 1 domain are the same, there is no need to set out a separate row for each domain. The components shown in the table below are only examples of rehabilitation requirements. Only mine features that are present in the mines should be listed. The contents of **Table H1 - Rehabilitation Requirements** below are included as examples only.*

- H1** Land disturbed by mining must be rehabilitated in accordance with **Table H1 - Rehabilitation requirements**.

**Table H1 - Rehabilitation requirements**

Mine domain	Mine feature name	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Dams ML XXXX	Tailings dam	1. Safe	(a) Site safe for humans and animals	(a) Structural, geotechnical and hydraulic adequacy of the dam	
		2. Non-polluting	(a) Acid mine drainage will not cause environmental harm	(a) Technical design of capping (b) Surface and groundwater monitoring	e.g. Monitoring meeting release limits
		3. Stable	(a) Minimise erosion	(a) Engineered structure to control water flow (b) Vegetation cover	e.g. Surface armour/ engineered drop structures in place and functioning  e.g. X% foliage cover recorded over a period of X years
		4. Self-sustaining	Describe post mine land use of land suitability or land capability	(a) Species diversity (b) Presence of key species	e.g. Certification that X% species diversity achieved and maintained for X years  e.g. Certification that key species present over a period of X years
Waste rock dump					
Infrastructure					
Voids					
Roads					

**H2** Rehabilitation must commence progressively in accordance with the plan of operations.



### Contaminated Land

- H3** Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
- H4** Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.
- H5** Minimise the potential for contamination of land by hazardous contaminants.

### Impacts to Prescribed Environmental Matters

*Note: Conditions H6-H16 were developed separately by DESI in consultation with QRC, APPEA and AMEC to reflect the requirements of the Environmental Offsets Act 2014 following its introduction in July 2014. These conditions have replaced conditions H6 and H7 from Version 5 of this guideline. Definitions for 'significant residual impacts', 'prescribed environmental matters', 'existing authority', 'designated precinct', 'strategic environmental areas', 'appropriately qualified person', 'environmental offset', 'maximum extent of impact' and 'notice of election' are provided for in the definitions schedule.*

If significant residual impacts to a prescribed environmental matter were not proposed or authorised, there is no need to include Table H2 - Significant residual impacts to prescribed environmental matters or a reference to Table H2 in condition H6. Or, if significant residual impacts to a prescribed environmental matter were proposed and authorised, include the full condition H6 and Table H2, populated as per the instructions given in Appendix 1.

- H6** Significant residual impacts to prescribed environmental matters <<other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*>>, are not authorised under this environmental authority or the *Environmental Offsets Act 2014* <<unless the impact(s) is specified in Table H2 - Significant residual impacts to prescribed environmental matters>>.

**Table H2 - Significant residual impacts to prescribed environmental matters**

Prescribed environmental matter	Location of impact	Maximum extent of impact <<OR Maximum extent of impact – stage 1>>
<b>REGULATED VEGETATION</b>		
Endangered regional ecosystem – insert RE ID	e.g., maps/figures, coordinates, lot(s) on plan(s), resource authorities or project areas.	X ha
Of concern regional ecosystem (not within an urban area) – insert RE ID	as per above	X ha

Prescribed environmental matter	Location of impact	Maximum extent of impact <<OR Maximum extent of impact – stage 1>>
Regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map – <a href="#">insert RE ID</a>	as per above	X ha
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – <a href="#">insert RE ID and Broad Vegetation Group</a>	as per above	X ha
Essential habitat (not in an urban area) for endangered wildlife – <a href="#">insert species name</a>	as per above	X ha
Essential habitat (not in an urban area) for vulnerable wildlife – <a href="#">insert species name</a>	as per above	X ha
<b>Connectivity areas</b>		
Connectivity area that is a regional ecosystem (not in urban area) – <a href="#">insert RE ID</a>	as per above	X ha
<b>Wetlands and watercourses</b>		
A wetland in a wetland protection area shown on the Map of referable wetlands (HES wetlands in GBR) – <a href="#">insert reference</a>	as per above	X ha
A wetland of high ecological significance shown on the Map of referable wetlands – <a href="#">insert reference</a>	as per above	X ha
<b>Designated precincts in strategic environmental areas</b>		
Designated precinct in a strategic environmental areas – <a href="#">insert reference</a>	as per above	X ha
<b>Protected wildlife habitat</b>		
An area shown as a high risk area on the flora survey trigger map that contains plants that are endangered or vulnerable wildlife – <a href="#">insert area and species names</a>	as per above	X ha
An area not shown as a high risk area on the flora survey trigger map that contains plants that are endangered or vulnerable wildlife – <a href="#">insert area and species names</a>	as per above	X ha
A non-juvenile koala habitat tree located in an area shown as a bushland habitat, high value rehabilitation habitat or medium value rehabilitation habitat in the 'Map of Assessable Development Area Koala Habitat Values' – <a href="#">insert reference</a>	as per above	X ha
Habitat for an animal that is endangered wildlife – <a href="#">insert area and species name</a>	as per above	X ha
Habitat for an animal that is vulnerable wildlife – <a href="#">insert area and species name</a>	as per above	X ha
Habitat for an animal that is special least concern wildlife – <a href="#">insert area and species name</a>	as per above	X ha
<b>Protected areas</b>		

Prescribed environmental matter	Location of impact	Maximum extent of impact <<OR Maximum extent of impact – stage 1>>
National park – <a href="#">insert reference</a>	as per above	X ha
Regional park – <a href="#">insert reference</a>	as per above	X ha
Nature refuge – <a href="#">insert reference</a>	as per above	X ha
<b>Highly protected zones of State marine parks</b>		
Conservation park zone – <a href="#">insert reference</a>	as per above	X ha
Marine national park zone – <a href="#">insert reference</a>	as per above	X ha
Preservation zone – <a href="#">insert reference</a>	as per above	X ha
Other zones – <a href="#">insert reference</a>	as per above	X ha
<b>Fish habitat areas</b>		
A declared fish habitat area – <a href="#">insert reference</a>	as per above	X ha
<b>Waterway providing for fish passage</b>		
Fish passage (not in an urban area) – <a href="#">insert reference</a>	as per above	X ha
<b>Marine plants</b>		
Marine plant (not in an urban area) – <a href="#">insert reference</a>	as per above	X ha
<b>Legally secured offset area</b>		
Legally secured offset area – <a href="#">insert reference</a>	as per above	X ha

Include condition H7 in all environmental authorities. If Table H2 is not needed to be included in the environmental authority, then delete all grey text from the condition.

- H7** Records demonstrating that each impact to a prescribed environmental matter <<*not listed in Table H2 - Significant residual impacts to prescribed environmental matters*>> did not, or is not likely to, result in a significant residual impact to that matter must be:
- a) completed by an appropriately qualified person; and
  - b) kept for the life of the environmental authority.

Include condition H8 in all environmental authorities that authorise a significant residual impact to a prescribed environmental matter. Include the relevant condition reference, depending on whether staging will be undertaken.

- H8** An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table H2 - Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition H11 [for staged offsets] OR condition H15 [for non-staged offsets].

### Staged impacts

Insert conditions H9-H13 if the environmental authority application, or a notice of election provided prior to the environmental authority application being decided, proposed to carry out the activities that will, or are likely to, result in a significant residual impact to a prescribed environmental matter in stages, as well as the undertaking of environmental offsets in stages.

- H9** The significant residual impacts to a prescribed environmental matter authorised in condition H6 for which an environmental offset is required by condition H8 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
- H10** Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority:
- a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and
  - b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.
- H11** The report required by condition H10 must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
- H12** A notice of election for the staged environmental offset referred to in condition H11, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
- H13** Within six months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority:
- a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and
  - b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

**Non-staged impacts**

Insert conditions H14-H16 if the environmental authority application, or a notice of election provided prior to the environmental authority application being decided, did not propose to carry out the activities that will, or are likely to, result in significant residual impacts to a prescribed environmental matter, or the undertaking of environmental offsets in stages. Offset debits are not allowed for non-staged impacts and any exceedances of the maximum extent of impact authorised in Table H2 are likely to be investigated further as a compliance matter.

If the administering authority is satisfied that conditions H14 and H15 are not required, i.e., because sufficient information has been provided in the environmental authority application, then these conditions are not necessary for inclusion in the environmental authority.

- H14** Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition H8, a report completed by an appropriately qualified person that contains an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority.
- H15** The report required by condition H14 must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority.
- H16** The notice of election for the environmental offset required by condition H15, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

## **Schedule I – Watercourse diversions**

Explanatory note— Watercourse diversions

The following conditions are only to be used where approval is sought to divert a watercourse associated with a resource activity under a new or amending an environmental authority pursuant to the EP Act. A watercourse diversion must meet criteria defined under section 20(4) of the *Water Act 2000*. This specifies that:

A person may interfere with water if:

- a) the interference is a diversion of a watercourse and is associated with a resource activity
- b) the impacts of the interference were assessed as part of a grant of an environmental authority for the resource activity
- c) the environmental authority was granted with a condition about the diversion of the watercourse.

These conditions do not apply to existing watercourse diversions authorised under the *Water Act* or other relevant legislation (e.g. *Central Queensland Coal Associates Agreement Act 1968*). It is not proposed that current authorised watercourse diversions regulated under the *Water Act* will automatically transition across to the EP Act or a transition will be encouraged.

Existing water licences will remain under the regulatory framework of the *Water Act* unless a proponent requests a transition to the EP Act. Such a transition could only occur under an amendment to an existing EA. The administering authority will decide on a case-by-case basis whether or not this application for an EA amendment represents a minor amendment.

The watercourse diversion must achieve the outcomes of a permanent or temporary watercourse diversion as part of any future performance criteria.

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### **Permanent watercourse diversions**

- 11** Permanent watercourse diversions, or the re-establishment of a pre-existing watercourse where a temporary watercourse diversion is being replaced, must be designed and constructed to:
  - a) incorporate natural features (including geomorphic and vegetation) present at the location of the diversion
  - b) maintain the pre-existing hydrologic characteristics of surface water and groundwater systems for the area in which the watercourse diversion is located
  - c) maintain the hydraulic characteristics of the permanent watercourse diversion that are equivalent to other local watercourses and are suitable for the area in which the diversion is located without using artificial structures that require on-going maintenance
  - d) maintain sediment transport and water quality regimes that allow the diversion to be self-sustaining, while minimising any impacts to upstream and downstream water quality, geomorphology or vegetation
  - e) maintain equilibrium and functionality in all substrate conditions at the location of the diversion.

### **Temporary watercourse diversions**

- I2** Temporary watercourse diversions must be designed and constructed to:
- a) maintain the pre-existing hydrologic characteristics of surface water systems for the area in which the watercourse diversion is located
  - b) maintain the hydraulic characteristics of the watercourse diversion that are equivalent to other local watercourses and are suitable for the area in which the diversion is located. Where structures that require on-going maintenance are used, they must not compromise the equilibrium and performance of the temporary watercourse diversion and adjoining watercourses
  - c) maintain sediment transport and water quality regimes that minimise any impacts to upstream and downstream water quality, geomorphology or vegetation
  - d) maintain equilibrium and functionality at all substrate conditions at the location of the diversion.
- 

### **Design plan – All diversions**

- I3** A certified Design Plan that achieves condition I1 for permanent watercourse diversions and condition I2 for temporary watercourse diversions must be submitted to the administering authority at least 10 business days before commencing construction of the diversion.
- I4** The certified design plan for any temporary or permanent watercourse diversion must be consistent with the functional design/s that formed a part of the application documents for this authority.
- 

### **Construction and operation – All diversions**

- I5** A certified set of 'as constructed' drawings and specifications must be submitted to the administering authority within 60 business days from the completion of construction of the temporary or permanent watercourse diversion, or re-establishment of the pre-existing watercourse. These drawings and specifications must state:
- a) that the 'as constructed' drawings and specifications meet the original intent of the design plan for the watercourse diversion
  - b) construction of the watercourse diversion is in accordance with the design plan.
- 

### **Register – All diversions**

- I6** The details of watercourse diversions planned and constructed under an environmental authority must be accurately recorded on the Register of Watercourse Diversions kept by the holder of the authority. An electronic copy must be provided to the administering authority on request.

### **End of conditions**

## **ADVICE - OTHER AREAS OF CONCERN TO BE CONSIDERED**

### **Monitoring**

Upon request from the administering authority, copies of monitoring records and reports should be made available and provided to the administering authority's nominated office within 10 business days or an alternative timeframe agreed between the administering authority and the holder.

Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority should be reviewed for effectiveness in minimising the likelihood of environmental harm on an annual basis, and amended promptly if required, unless a particular review date and amendment program is specified in the plan, system or program.

### **Light**

A condition about light should not be imposed unless this is likely to be a relevant issue for the mine due to the proximity of sensitive places. If so, the following condition may be included:

- AXX In the event of a complaint about light from any mining activity that, after investigation, is in the opinion of an authorised person causing a nuisance at a sensitive place, the holder of this environmental authority must take appropriate action to mitigate the nuisance. The holder of this environmental authority must take the action within the reasonable time set by the administering authority.

### **Chemicals and flammable or combustible liquids**

All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods should be stored and handled in accordance with the current Australian standard where such is applicable.

Flammable and combustible liquids, including petroleum products, should be stored and handled in accordance with the latest edition of AS1940—The storage and handling of flammable and combustible liquids.

Where no relevant Australian standard exists store such materials within an effective on-site containment system.

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.

### **Meteorological monitoring**

Environmental authority holders are encouraged to establish and maintain an automatic weather station to measure and record wind speed, wind direction, temperature and rainfall intensity to aid in the compliance with conditions of approval.

It is possible for environmental authority holders to utilise relevant and available weather monitoring information collected by other parties as reference data.

### **Waste rock**

A waste rock and spoil disposal plan should be developed and include, where relevant, at least:

- a) effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances
- b) a program of progressive sampling and characterisation to identify dispersive and non-dispersive spoil and the salinity, acid and alkali producing potential and metal concentrations of waste rock

- c) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the potential generation of acid mine drainage
- d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid-forming and acid-forming waste rock
- e) how often the performance of the plan will be assessed
- f) the indicators or other criteria on which the performance of the plan will be assessed
- g) rehabilitation strategy.

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

### **Transportation**

It is recommended that the holder of the environmental authority ensure that vehicles (including trains) used for transporting bulk materials from mining lease(s), leave the mining lease(s) with appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust during transport.



## Definitions

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the EP Act 1994 or subordinate legislation, the definition in the EP Act or subordinate legislation must be used.

**‘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.

**‘administering authority’** is the agency or department that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

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

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

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

**‘blasting’** means the use of explosive materials to fracture:

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

**‘certified’**, with respect to watercourse diversions, means assessed and approved by a suitably qualified and experienced person. In relation to ‘as constructed’ drawings and specifications, the certification must be by the suitably qualified person who supervised the construction of the watercourse diversion, or re-establishment of the watercourse.

Explanatory note— **‘certification’**, **‘certifying’** or **‘certified’**

Only include regulated structures version of this definition if environmental authority controls regulated structures in the conditions.

**‘certification’**, **‘certifying’** or **‘certified’** by an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

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

**'chemical'** means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and *Veterinary Chemicals Code Act 1994* (Commonwealth), or
- b) a dangerous good under the *Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council*, 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
  - (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
  - (vi) manufacture of plastic or synthetic rubber.

**'commercial place'** means a workplace 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.

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

**'construction'** or **'constructed'**, in relation to watercourse diversions, is the process of building, or modifying an existing diversion, but does not include investigations and testing necessary for the purpose of preparing a design plan.

**'design plan'** is a document that contains the design, operation, monitoring and revegetation criteria of a watercourse diversion that addresses the outcomes stated in conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:

- a) required information under a functional design
- b) the location, function and description of geomorphic and riparian vegetation features within the proposed watercourse diversion
- c) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion
- d) a revegetation and vegetation management plan (a revegetation plan) for the diversion
- e) engineering drawings depicting the physical attributes and dimensions of the diversion
- f) (if relevant) the staged development of a permanent watercourse diversion including the proposed use of temporary watercourse diversions with identified lifespans
- g) all investigation and other reports relied on by the design

- h) plans and specifications sufficient to complete construction and revegetation in accordance with the design.

**‘designated precinct’** has the meaning in Part 5 section 15(3) of the Regional Planning Interests Regulation 2014 and means:

- for a strategic environmental area mentioned in section 4(1) – the area identified as a designated precinct on the strategic environmental area map for the strategic environmental area; or
- if a strategic environmental area is shown on a map in a regional plan – the area identified on the map as a designated precinct for the strategic environmental area.

**‘disturbance’** of land includes:

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

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

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

**‘EC’** means electrical conductivity.

**‘effluent’** means treated waste water released from sewage treatment plants.

**‘environmental offset’** has the meaning in section 7 of the *Environmental Offsets Act 2014*.

**‘equilibrium’** means a state where ‘balance’ is achieved despite changing variables.

**‘existing authority’** has the meaning in section 94 of the *Environmental Offsets Act 2014*.

**‘functional design’** is a document that contains ‘conceptual’ information about the design, operation and revegetation criteria of a watercourse diversion that addresses the outcomes stated in the conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:

- a) geomorphic and vegetation assessment of the existing watercourse
- b) hydrologic conditions of the existing watercourse

- c) the proposed watercourse diversion route
- d) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion.

**‘functionality’:** the purpose that something is designed or expected to fulfil.

**‘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 *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*.

**‘holder’**, for a mining tenement, means a holder of the tenement under the *Mineral Resources Act 1989*, and the holder of the associated environmental authority under the *Environmental Protection Act 1994*.

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

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

**‘land use’** –means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

**‘licensed place’** means the mining activities carried out at the mining tenements detailed in Table # (page #) of this environmental authority.

**‘m’** means metres.

**‘maximum extent of impact’** means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project’s life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

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

**‘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:
    - 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.

**'minimise'** is to reduce to the smallest possible amount or degree.

**'NATA'** means National Association of Testing Authorities, Australia.

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

**'non polluting'** means having no adverse impacts upon the receiving environment.

**'notice of election'** has the meaning in section 18(2) *Environmental Offsets Act 2014*.

**'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 (mm/s).

**'permanent watercourse diversion'** is a man-made structure that incorporates the geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained according to an engineering standard that ultimately achieves a self-sustaining watercourse able to function without features or characteristics that rely on ongoing maintenance or that impose a financial or other burden on the proponent, government or the community.

**'pre-existing watercourse'** is the section of watercourse from which the flow of water will be diverted as a result of the construction and operation of a watercourse diversion.

**'prescribed environmental matters'** has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.

**'protected area'** means – a protected area under the *Nature Conservation Act 1992*, or

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

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

- a) a watercourse
- b) groundwater
- c) an area of land that is not specified in [Schedule # – Table # \(Authorised Activities\)](#) of this environmental authority.

The term does not include land that is specified in [Schedule # – Table # \(Authorised Activities\)](#) of this environmental authority.

**‘receiving waters’** means the waters into which this environmental authority authorises releases of mine affected water.

**‘rehabilitation’** the process of reshaping and revegetating land to restore it to a stable landform.

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

**‘representative’** means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

**‘revegetation’** is the re-establishment of vegetation<sup>3</sup> of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

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

**‘saline drainage’** The movement of waters, contaminated with salts, as a result of the mining activity.

**‘self-sustaining’** means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics

**‘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.

Note: The definition of ‘sensitive place’ and ‘commercial place’ is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

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<sup>3</sup>Not including a species declared under the Land Protection (Pest and Stock Route Management) Regulation 2003 as a category class 1 pest, category class 2 pest or category class 3 pest.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

**'significant residual impact'** has the meaning in section 8 *Environmental Offsets Act 2014*.

**'strategic environmental areas'** has the meaning in section 11(1) of the *Regional Planning Interest Act 2014*.

**'suitably qualified and experienced person'** means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 2002*, who has an **appropriate level of expertise** in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

An **appropriate level of expertise** includes:

- demonstrable competency, experience and expertise in:
  - investigation, design or construction of watercourses diversions
  - operation and maintenance of watercourse diversions
  - geomechanics with particular emphasis on channel equilibrium, geology and geochemistry
  - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
  - hydraulics with particular reference to sediment transport and deposition and erosion control
  - hydrogeology with particular reference to seepage and groundwater
  - solute transport processes and monitoring thereof, or
- sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise\***:
  - they consider it reasonable to rely on that advice and information
  - the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

**Persons with relevant expertise** include:

- Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.
- Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.

- **Vegetation Expert:** person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains. .
- **Groundwater Expert:** person who has demonstrated competency and relevant experience in groundwater systems.
- **Surface Water Expert:** person who has demonstrated competency and relevant experience in hydrology.
- **Engineer:** person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Persons Act 2002* or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions.
- **Soils Expert:** person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

**‘temporary watercourse diversion’** is a man-made structure that may incorporate geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained to an engineering standard that ensures the diversion does not compromise the equilibrium and performance of the diversion and adjoining watercourses. A temporary diversion is replaced by a permanent diversion, or the re-establishment of the pre existing watercourse, within the timeframe specified in the design plan.

**‘the Act’** means the *Environmental Protection Act 1994*.

**‘ $\mu\text{S/cm}$ ’** means micro siemens per centimetre.

**‘water’** is defined under Schedule 4 of the *Water Act 2000*.

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

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

**‘waters’** includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.



**Disclaimer:**

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment, Science and Innovation should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

**Approved:**

7 March 2017

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**Version History**

Version	Effective date	Description of changes
6.00	5 May 2016	The guideline has been revised to reflect (1) the commencement of the <i>Environmental Offsets Act 2014</i> , and (2) the repeal of the <i>Wild Rivers Act 2000</i> (existing wild river conditions to be deleted).
6.01	7 March 2017	Guideline updated to fix minor typographical errors.
6.02	9 July 2018	The document template, header and footer have been updated to reflect current Queensland Government corporate identity requirements and comply with the Policy Register.

## **Appendix**

### **Guidance on compliance with model mining conditions**

This section provides guidance on how to comply with the general conditions outlined in Model mining conditions guideline, ESR/2016/1936<sup>4</sup>. Officers should also refer to the separate guidelines: Structures which are dams or levees constructed as part of environmentally relevant activities (ESR/2016/1934<sup>4</sup>).

Generally the conditions do not outline 'how' the environmental authority (EA) holder must achieve the required environmental outcomes. This is referred to as outcome focused conditioning. With outcome focused conditioning, it is the responsibility of the EA holder to assess the most efficient and effective way to achieve the outcome for their own particular circumstance.

In addition to outcome-focussed conditions, in some instances 'how to' conditions may be appropriate for site-specific or project-specific reasons. While these 'how' conditions are by nature not outcome focused, they are required to ensure that a clear environmental value that has been identified can be protected.

The following information has been provided to aid the EA holder in determining the most effective and efficient method to achieve compliance with each model condition of an environmental authority. Possible solutions to achieving compliance with each condition are provided but they are not an exhaustive source. It is possible for the EA holder to decide to achieve the condition outcomes in a manner that is different to that outlined below. The EA holder will need to be satisfied that they can demonstrate, if required, that the outcome of the condition can still be achieved by the alternate approach.

Guidance on how to comply with conditions is not provided for every condition. Where there is no guidance provided on how to comply with a condition there may be details of the requirements to meet the desired outcome within the condition.

Please note, if amended conditions are imposed or agreed which involve changes to existing infrastructure, consideration should be given to an appropriate transitional period enabling the infrastructure work to be undertaken and this should be included in the condition, on a case-by-case basis.

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<sup>4</sup> This is the publication number, which can be used as a search term to find the latest version of the publication at [www.des.qld.gov.au](http://www.des.qld.gov.au).

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## Schedule A – General

**A1** This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

### How do I comply?

No further guidance provided to that outlined in the condition.

**A2** Either:

In carrying out the mining activity authorised by this environmental authority, disturbance of land

- a) may occur in the areas marked 'A'
- b) must not occur in the areas marked 'B'
- c) may occur in the areas marked 'C' but only in accordance with the conditions in Schedule Z on the map that is annexure 1 to this environmental authority.

OR

In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Schedule K—Figure 1a (Project Infrastructure Layout—Mine Area) and Schedule K—Figure 1b (Project Infrastructure Layout—Support Infrastructure).

### How do I comply?

The first version of A2 may be used where the supporting EIS or application documents have enough information to demonstrate that an acceptable level of ground-truthing has been done on potential for flora/fauna impacts and other risk assessment so that DESI is comfortable that the right areas have been identified to indicate no go areas. If the EIS or other supporting information only proposes two types of areas (those to be disturbed and those not to be disturbed), it is only necessary to use paragraphs a) and b) below. However, if the EIS or other supporting information addresses and justifies limited disturbance within a mapped area, paragraph c) may be added, on the basis that the conditions for that limited disturbance are set out elsewhere in the conditions or in a report that is adopted by the conditions. If the limited disturbance relates to flora and fauna, refer to Schedule Z.

Where there is not enough information to show that an acceptable level of ground-truthing has been done, the second version of A2 should be used.

### Option 1 (for limited surface infrastructure)

**A3** Any disturbance within the areas marked 'C' on the map that is annexure 1 to this environmental authority:

- a) is only authorised to the extent reasonably necessary for a road, fence, underground service, low-impact telecommunications facility, electrical sub-station, transmission grid works and supply network works, storage depots, similar minor infrastructure and ancillary facilities for any of the above minor infrastructure
- b) any disturbance within areas marked 'A' or 'C' is not to impact adversely on areas marked 'B'.

**Option 2 (authorising sub-surface disturbance)**

**A3** Only sub-surface disturbance is authorised within the areas marked 'C' on the map that is annexure 1 to this environmental authority.

**How do I comply?**

Condition A3 should only be used if condition A2 includes optional paragraph c) authorising limited disturbance within a mapped area. These conditions are not to be used in relation to paragraphs a) and b) of condition A2. The model conditions are examples only. Any authorisation of limited disturbance should be site-specific and based on an assessment of the EIS or other supporting information, including ground-truthing of the areas.

**A4** The holder of this environmental authority must:

- a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority
- b) maintain such measures, plant and equipment in a proper and efficient condition
- c) operate such measures, plant and equipment in a proper and efficient manner
- d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

**How do I comply?**

No further guidance provided other than that outlined in the condition.

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**Monitoring**

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

**How do I comply?**

The holder of the environmental authority should implement a monitoring program that enables the holder and administering authority to determine compliance with this approval.

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**Financial assurance**

**A6** The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.

**How do I comply?**

Refer to the latest version of the Financial assurance under the EP Act guideline, which can be located on the administering authority's website at [www.des.qld.gov.au](http://www.des.qld.gov.au) (search for ESR/2015/1758).

**A7** The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.

**How do I comply?**

No further guidance provided to that outlined in the condition.

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## **Risk management**

**A8** The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by <<Insert date 3 months from date of issue>>

### **How do I comply?**

Companies have the option of providing a risk management plan which is structured differently from the ISO provided that the alternative approach is reasonably justified.

### **Notification of emergencies, incidents and exceptions**

**A9** The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority.

### **How do I comply?**

If notification is given under an alternative notification condition of the environmental authority it is taken to be notification under this condition. If notification is required under sections 320–320G of the EP Act the additional requirements under sections 320–320G apply.

The notification should include, but not be limited to:

- 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 or incident
- d) the date and time of the emergency or incident
- e) the time the holder of the environmental authority became aware of the emergency or incident
- f) where known
  1. the estimated quantity and type of substances involved in the emergency or incident
  2. the actual or potential cause of the emergency or incident
  3. a description of the nature and effects of the emergency or incident including environmental risks, and any risks to public health or livestock
- g) any sampling conducted or proposed, relevant to the emergency or incident
- h) immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency or incident
- i) what notification of owners and occupiers who may be affected by the emergency or incident has occurred or is being undertaken.

**A10** Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

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

**How do I comply?**

No further guidance provided to that outlined in the condition.

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**Complaints**

**A11** The holder of this environmental authority must record all environmental complaints received about the mining activities including:

- a) name, address and contact number for 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
- h) person responsible for resolving the complaint.

**How do I comply?**

No further guidance provided other than that outlined in the condition.

**A12** The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

**How do I comply?**

No further guidance provided to that outlined in the condition.

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### Third-party reporting

**A13** The holder of this environmental authority must:

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

#### How do I comply?

The holder must, at its cost, arrange for independent certification by the third party within one year to report on compliance with the conditions of the environmental authority. Within 90 days of completing the report required under condition A13, provide the written report to the administering authority which should contain details of any non-compliance issues that were found (if no non-compliance issues were found this should be stated in the report). If non-compliance issues were found the report must also address:

- a) actions taken, or being undertaken, by the holder of this environmental authority to ensure compliance with this environmental authority
- b) actions taken, or being undertaken, to prevent a recurrence of non-compliance.

**A14** Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority the holder of this environmental authority must:

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

#### How do I comply?

No further guidance provided to that outlined in the condition.

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## Schedule B - Air

### Point source releases to air

**B1** Discharges of contaminants to air from the activity, other than dust and particulate matter addressed by condition B4, must be in accordance with **Tables B1—release points (air)** and **B2—contaminant limits (air)**.

### How do I comply?

The release of contaminants specified in condition should be:

- a) directed vertically upwards, with no impedence
- b) in accordance with the criteria in **Table B1—Release points (air)**
- c) at a mass emission rate and concentration that do not exceed the limits stated in **Table B2—Contaminant limits (air)**.

**B2** Conduct a monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in **Table B2—Contaminant limits (air)** and which complies with the most recent edition of AS4323.1 'Stationary source emissions method 1: Selection of sampling positions' and the most recent edition of the administering authority's air quality sampling manual.

### Table B1—Release points (air)

### Table B2—Contaminant limits (air)

### How do I comply?

A monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in **Table B2—Contaminant limits (air)** should be conducted to comply with the following:

- a) Monitoring at the release points should comply with the most recent edition of AS4323.1 Stationary source emissions method 1: Selection of sampling positions
- b) The following tests should be performed and recorded for each sample taken at each release point specified in **Table B1 - Point Source Air Emissions**
  - 1. gas velocity, volume and mass flow rate
  - 2. temperature
  - 3. water vapour concentration (for non-continuous sampling)
  - 4. the actual test methods and accuracy
- c) During the sampling period the following additional information should be gathered
  - 1. plant throughput rate at time of sampling
  - 2. fuel type and consumption rate
  - 3. any factors that may influenced odour and particular emissions
  - 4. the odour and/or particulates treatment system operating status
- d) Monitoring of contaminant release should be carried out in accordance with the most recent edition of the administering authority's air quality sampling manual.

**B3** The release of point source and fugitive emissions from the mining activities must not cause the concentrations of the contaminants listed in **Table XX**, when measured at [\[a sensitive place or at specified monitoring stations\]](#), to exceed the levels shown in **Table XX**.

### How do I comply?

No further guidance provided to that outlined in the condition.



- B4** The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:
- a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.
  - b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM<sub>10</sub>) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, for no more than 5 exceedances recorded each year, when monitored in accordance with the most recent version of either
    1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air Determination of suspended particulate matter – PM<sub>10</sub> high volume sampler with size-selective inlet – Gravimetric method; or
    2. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air Determination of suspended particulate matter – PM<sub>10</sub> low volume sampler– Gravimetric method.
  - c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM<sub>2.5</sub>) suspended in the atmosphere of 25 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – PM (sub)<sub>2.5</sub>(/sub) low volume sampler – Gravimetric method.
  - d) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.

**How do I comply?**

Sources of PM<sub>2.5</sub> are primarily from combustion sources and PM<sub>2.5</sub> is unlikely to be elevated if significant combustion sources are not present. Condition B4 c) will therefore only be required if there is a significant source of air emissions from combustion sources.

The five exceedances allowed each year within in B4 b) are only permitted to allow for events that are known to occur, but which cannot be managed by the environmental authority holder. Such events could include emissions from bushfires, fuel reduction burning for fire management purposes or dust storms. More than five exceedances due to such events would not be considered to be in breach of B4 b) if the environmental authority holder can demonstrate that the exceedance was cause by such events outlined above.

## **Schedule C - Waste management**

To achieve the outcomes of the waste management conditions section, the holder of this environmental authority should develop, implement and maintain a waste management program that should include:

- a) a description of the mining activities that may generate waste
- b) waste management control strategies including:
  - 1. the types and amounts of wastes generated by the mining activities
  - 2. segregation of the wastes
  - 3. storage of the wastes
  - 4. transport of the wastes
  - 5. monitoring and reporting matters concerning the waste
- c) the hazardous characteristics of the wastes generated including disposal procedures for hazardous wastes
- d) a program for reusing, recycling or disposing of all wastes
- e) how the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (that is, avoidance, reuse, recycling, energy recovery, disposal)
- f) 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
- g) procedures for dealing with accidents, spills and other incidents
- h) details of any accredited management system employed, or planned to be employed, to deal with waste
- i) how often the performance of the waste management program will be assessed
- j) the indicators or other criteria on which the performance of the waste management program will be assessed
- k) staff training and induction to the waste management program.

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

Litter control methods should be implemented at the active waste disposal trench.

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

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

The holder of this environmental authority should maintain a record of the location of trenches used for waste disposal. Notwithstanding any other condition of this authority, such records be maintained until the administering authority approves the surrender of this authority.

All general and regulated waste (other than for example, waste rock, scats , rejects, tailings, construction and demolition waste, putrescibles and domestic wastes, minor quantities of regulated wastes incidental to and commingled with domestic waste, green wastes, tyres ) must be removed from the site to a facility that is lawfully able to accept the waste under the EP Act.

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

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

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

For the disposal and storage of scrap tyres, reference to Operational policy—Disposal and storage of scrap tyres at mine sites ESR/2016/2380 should be made on the administering authority’s website at [www.des.qld.gov.au](http://www.des.qld.gov.au).

**C1** General waste must only be disposed of into the waste disposal trench facility of <insert tenement number> and identified in Schedule # Figure # – Site Map.

**How do I comply?**

No further guidance provided other than that outlined in the condition.

**C2** Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

**How do I comply?**

If it can be demonstrated that other possible options have been considered in accordance with the waste management hierarchy, burning may also be permitted for mining activities in addition to clearing for extraction activities.

**C3** The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.

**How do I comply?**

No further guidance provided to that outlined in the condition.

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### Tailing disposal

- C4** Tailings must be managed in accordance with procedures contained within the current plan of operations. These procedures must include provisions for:
- a) containment of tailings
  - b) the management of seepage and leachates both during operation and the foreseeable future
  - c) the control of fugitive emissions to air
  - d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings
  - e) maintaining records of the relative locations of any other waste stored within the tailings
  - f) rehabilitation strategy
  - g) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

#### How do I comply?

No further guidance provided to that outlined in the condition.

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### Acid sulfate soils

- C5** Treat and manage acid sulphate soils in accordance with the latest edition of the Queensland Acid Sulfate Soil Technical Manual.

#### How do I comply?

No further guidance provided to that outlined in the condition.

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## Schedule D- Noise

### Noise limits

- D1** The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table D1 – Noise limits** to be exceeded at a sensitive place or commercial place.

#### Table D1 – Noise limits

#### How do I comply?

The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library & educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial and retail activity, protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. However, accommodation for mine employees or contractors is a sensitive place, even if the land is held by a mining company or related company, if occupation is not restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

Where there are two or more potential noise sources, it can be difficult to differentiate between them to determine if the mining activity is in exceedance of its noise limits. In these circumstances a site specific condition and monitoring requirements may need to be developed.

Noise is not considered to be a nuisance if monitoring demonstrates that noise from the activity does not exceed the limits outlined in **Table D1 – Noise limits** or equivalent site specific noise limit condition. It is recommended that if model condition A1, authorising of environmental harm, does not form part of the approval, than a similar condition be included within the adopted noise conditions.

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### **Airblast overpressure nuisance**

**D2** The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table D2 – Blasting noise limits** to be exceeded at a sensitive place or commercial place.

### **Table D2 – Blasting noise limits**

#### **How do I comply?**

No further guidance provided other than that outlined in the condition.

#### **Monitoring and reporting**

**D3** Noise monitoring and recording must include the following descriptor characteristics and matters:

- a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)
- b) background noise LA90
- c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels
- d) atmospheric conditions including temperature, relative humidity and wind speed and directions
- e) effects due to any extraneous factors such as traffic noise
- f) location, date and time of monitoring
- g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

### How do I comply?

The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's Noise Measurement Manual or the most recent version of AS1055 Acoustics – description and measurement of environmental noise. Where the conditions do not specify that noise limits are to be achieved at the boundary, monitoring can be undertaken at the noise sensitive place or the boundary. If the monitoring identifies exceedances of limits, monitoring at the noise sensitive place may however pose difficulties for the mining activity when trying to demonstrate that they are not the source of the noise when there are multiple noise sources.

Where the noise nuisance complaint relates to a sensitive place or commercial place that is less than five kilometres (5km) from the activity, monitoring will need to be undertaken for a period of at least three days.

For continuous/ongoing/multiple complaints originating at the same sensitive or commercial place, noise monitoring should be implemented such that exceedance of noise criteria outlined in **Table D1 – Noise limits** can be identified immediately. This may involve the implementation of real time directional noise monitoring stations. These monitoring stations should continuously monitor noise levels and the direction of that noise relative to the monitor. Procedures should be implemented such that the appropriate persons are notified immediately upon identification of noise limit exceedance.

- D4** The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table D2 – Blasting noise limits** for:
- a) at least <insert number>% of all blasts undertaken on this site in each <insert period e.g. month or year> at the nearest sensitive place or commercial place <at insert a place nominated in this authority>
  - b) all blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.

### How do I comply?

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

Where blast monitoring detects non-compliance with **Table D2 – Blasting noise limits** the holder of this environmental authority should:

- a) take steps to ensure compliance is achieved by subsequent blasts
- b) continue to monitor all consecutive blasts until at least three successive blasts comply with **Table D2 – Blasting noise limits**.

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## **Schedule E - Groundwater**

### **Contaminant release**

<b>E1</b> The holder of this environmental authority must not release contaminants to groundwater.
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#### **How do I comply?**

This condition is only to be used when it has been identified that no release of contaminants to groundwater is to occur as a result of mining activities. The definition of a 'contaminant' is set out in Section 11 of the EP Act and relevantly includes any 'gas, liquid or solid', not just hazardous contaminants. For example, it would include the replenishment of aquifers with water of the same quality or higher quality than the aquifers. The term 'release' is defined in Schedule 4 of the EP Act and relevantly, it should be noted that this includes passive releases and not merely controlled releases. Accordingly, if it is likely that the activity will lead to the passive replenishment of aquifers, even with good quality water, this condition should not be used.

#### **OR**

<b>E1</b> The holder of this environmental authority is authorised to release contaminants at the release points and at the release frequencies specified in <b>Table E1 - Groundwater release points, frequency</b> and comply with the release limits specified in <b>Table E2 - Groundwater release quality</b> .
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#### **Table E1 - Groundwater release points, frequency**

#### **Table E2 - Groundwater release quality**

#### **How do I comply?**

This condition is only to be used when it has been identified that release of contaminants to groundwater is authorised to occur as a result of mining activities.

Section 63 of the Environmental Protection Regulation 2008 addresses the topic of the release of 'waste' to groundwater. The term 'waste' is defined in Section 13 of the EP Act. Section 63 of the EP Regulation requires the administering authority to refuse an application if:

- (a) the waste is not being, or may not be, released entirely within a confined aquifer (except for petroleum activities), or
- (b) the release of the waste is affecting adversely, or may affect adversely, a surface ecological system, or
- (c) the waste is likely to result in a deterioration in the environmental values of the receiving groundwater.

Paragraph (b) is not intended to apply to a surface ecological system which is authorised to be cleared for the purpose of the mining activities. Paragraphs (b) and (c) are not intended to apply to trivial impacts.

Where contaminants are proposed to be released to groundwater the limits set out in the condition must not be exceeded at the release point. All the potential contaminants generated as part of the mining activity that have a release limit will be included in this table. The limit type and value will need to be determined in consultation with the administering authority.

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### **Monitoring and reporting**

<b>E2</b> All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
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**How do I comply?**

Monitoring methods should be in accordance with the latest edition of the Queensland Monitoring and Sampling Manual, AS/NZS 5667:11 1998 Water Sampling Guidelines – Part 11 Guidance on groundwater, and the Australian Governments Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1). Analyses should be carried out on representative samples, at a laboratory accredited (for example, NATA) for the method of analysis being used.

**E3** Groundwater quality and levels must be monitored at the locations and frequencies defined in **Table E3 - Groundwater monitoring locations and frequency** and **Schedule # – Figure #** (Groundwater Bore Monitoring Locations) for the quality characteristics identified in **Table E4 - Groundwater quality triggers and limits**.

**Table E3 - Groundwater monitoring locations and frequency**

**Table E4 - Groundwater quality triggers and limits**

**How do I comply?**

Monitoring locations must be suitably positioned to detect any impacts caused by the activity and ensure compliance with the conditions of the environmental authority.

Monitoring methods should be in accordance with the latest edition of the Queensland Monitoring and Sampling Manual, AS/NZS 5667:11 1998 Water Sampling Guidelines – Part 11 Guidance on groundwater, and the Australian Governments Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1)

Generic parameters and associated triggers and limits have not been provided given they would vary from site to site. This does not suggest though that any and every parameter should be included within this table. Only parameters that are relevant to groundwater quality associated with the activity should be included.

**E4** Groundwater levels when measured at the monitoring locations specified in **Table E3 - Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table E5 - Groundwater level monitoring** below.

**Table E5 - Groundwater level monitoring**

**How do I comply?**

The level trigger thresholds will be site specific and dependent upon what type of aquifer is present. A 5 metre reduction in water level for consolidated aquifers such as sandstone or a two metre reduction in water level for unconsolidated aquifers such as shallow aquifers may be appropriate.

Depending upon site specifics, it could be possible that the level trigger threshold can be based on a percentage of annual average change of the aquifer rather than the five metre or two metre outline above.

Where there are localities that have known external influences on the fluctuation of groundwater levels, these should also be taken into account when setting the trigger level thresholds. This will avoid unnecessary investigations into exceedances being required by condition E6.



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### **Exceedance investigation**

**E5** If quality characteristics of groundwater from compliance bores identified in **Table E3 - Groundwater monitoring locations and frequency** exceed any of the trigger levels stated in **Table E4 - Groundwater quality triggers and limits** or exceed any of the groundwater level trigger threshold stated in **Table E5 - Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000

#### **How do I comply:**

If the level of contaminants at the compliance monitoring bore does not exceed the reference bore results, then no action is to be taken. If however the level of contaminants at the compliance monitoring bore is greater than the reference bore results, an investigation is to be completed in accordance with the ANZECC and ARMCANZ 2000 into the potential for environmental harm and a written report is to be provided to the administering authority within three months, outlining:

- a) details of the investigations carried out
- b) details of environmental impacts observed
- c) actions taken to prevent environmental harm.

Where an exceedance of a trigger level has occurred and is being investigated, then no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

**E6** Results of monitoring of groundwater from compliance bores identified in **Table E3 - Groundwater monitoring locations and frequency**, must not exceed any of the limits defined in **Table E4 - Groundwater quality triggers and limits**.

#### **How do I comply:**

No further guidance provided other than that outlined in the condition.

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### **Bore construction and maintenance and decommissioning.**

**E7** The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring

#### **How do I comply?**

As a minimum, groundwater bores (including groundwater monitoring bores) must be constructed, maintained and decommissioned in accordance with methods prescribed in the latest edition of the National Uniform Drillers Licensing Committee manual titled Minimum Construction Requirements for Water Bores in Australia.

Oil-based drilling fluids, oil-based additives, synthetic based drilling fluids or synthetic based additives must not be used in the construction of groundwater bores.

Current Material Safety Data Sheets for all substances used for the drilling of groundwater bores must be made available to the administering authority promptly upon request.

Corrective measures must be taken immediately if the holder of this environmental authority becomes aware that bore construction, maintenance or decommissioning have resulted in a change in groundwater quality or groundwater levels or have caused interconnection of aquifers.

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## Schedule F – Water (Fitzroy model conditions)

### Contaminant Release

**F1** 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.

**F2** 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 F1 - Mine affected water release points, sources and receiving waters** and depicted in Figure 1 attached to this environmental authority.

**F3** The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F28 is permitted.

### How do I comply?

No further guidance to that outlined in the conditions and associated explanatory notes.

#### Table F1 - Mine affected water release points, sources and receiving waters

**F4** The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in **Table F2 - Mine affected water release limits** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic.

#### Table F2 - Mine affected water release limits

**F5** The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic and at the frequency specified in **Table F2 - Mine affected water release limits** and **Table F3 - Release contaminant trigger investigation levels, potential contaminants**.

*Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition F5 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.*

#### Table F3 - Release contaminant trigger investigation levels, potential contaminants

### How do I comply?

No further guidance to that outlined in the conditions and associated explanatory notes.

**F6** If quality characteristics of the release exceed any of the trigger levels specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** during a release event, the environmental authority holder must compare the down-stream results in the receiving waters to the trigger values specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** and:

- a) where the trigger values are not exceeded then no action is to be taken; or
- b) where the down-stream results exceed the trigger values specified **Table F3 - Release contaminant trigger investigation levels, potential contaminants** for any quality characteristic, compare the results of the down-stream site to the data from background monitoring sites
  - 1. if the result is less than the background monitoring site data, then no action is to be taken; or
  - 2. 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 within 90 days of receiving the result, outlining
    - i. details of the investigations carried out
    - ii. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b (2) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

**F7** If an exceedance in accordance with condition F6 b (2) is identified, the holder of the environmental authority must notify the administering authority in writing within 24 hours of receiving the result.

**How do I comply?**

No further guidance provided to that outlined in the condition.

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**Mine affected water release events**

**F8** 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 F3 - Release contaminant trigger investigation levels, potential contaminants**.

**F9** Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in **Table F4 - Mine affected water release during flow events** for the release point(s) specified in **Table F1 - Mine affected water release points, sources and receiving waters**.

**F10** The release of mine affected water to waters in accordance with condition F2 must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criterion for discharge specified in **Table F4 - Mine affected water release during flow events** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters**.

or

**F11** The 80th percentile of electrical conductivity (EC) values recorded at the downstream monitoring points listed in **Table F4 - Mine affected water release during flow events** must not exceed XXXuS/cm over the duration of the release influence period and have a maximum value of no greater than 20 per cent of XXXuS/cm. The 80th percentile must be calculated using all EC values recorded by the monitoring station during the release influence period.

#### **Table F4 - Mine affected water release during flow events**

##### **How do I comply?**

No further guidance to that outlined in the conditions and associated explanatory notes.

**F12** The daily quantity of mine affected water released from each release point must be measured and recorded.

**F13** 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.

##### **How do I comply?**

No further guidance provided to that outlined in the condition.

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#### **Notification of release event**

**F14** The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release 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) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)
- c) release point/s
- d) release rate
- e) release salinity
- f) receiving water/s including the natural flow rate.

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.

**F15** The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation, of a release notified under Condition F14 and within 28 days provide the following information in writing:

- a) release cessation date/time
- b) natural flow rate in receiving water
- c) volume of water released
- d) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)
- e) all in-situ water quality monitoring results
- f) any other matters pertinent to the water release event.

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 F14 and F15, provided the relevant details of the release are included within the notification provided in accordance with conditions F14 and F15.

**How do I comply?**

The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response, in the event condition F14 is contravened due to extenuating circumstances, such as in emergencies which prevent communications, applicable monitoring equipment has been destroyed as a result of the emergency or access is prevented. The administering authority expects the environmental authority holder though to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.

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**Notification of release event exceedance**

**F16** If the release limits defined in **Table F2 - Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.

**How do I comply?**

It should be noted however that a release which has exceeded release limits is no longer compliant and should cease. Any release that continues when limits in **Table F2 - Mine affected water release limits** have been breached will be subject to compliance action by the administering authority.

**F17** The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

- a) the reason for the release
- b) the location of the release
- c) the total volume of the release and which (if any) part of this volume was non-compliant
- d) the total duration of the release and which (if any) part of this period was non-compliant
- e) all water quality monitoring results (including all laboratory analyses)
- f) identification of any environmental harm as a result of the non-compliance
- g) all calculations
- h) any other matters pertinent to the water release event.

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### Receiving environment monitoring and contaminant trigger levels

**F18** The quality of the receiving waters must be monitored at the locations specified in **Table F6 - Receiving water upstream background sites and downstream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table F5 - Receiving waters contaminant trigger levels**.

#### Table F5 - Receiving waters contaminant trigger levels

#### Table F6 - Receiving water upstream background sites and downstream monitoring points

#### How do I comply?

The intent is that that each discharge point has both an upstream and downstream monitoring point associated with it. These monitoring points should be located as close as practicable to the release point and the distances should be defined in the footnotes in **Table F6 - Receiving water upstream background sites and downstream monitoring points**. The location of flow monitoring points should also be considered in selecting upstream monitoring points. Other considerations include accessibility, particularly during wet weather conditions.

**F19** If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table F5 - Receiving waters contaminant trigger levels** 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
  1. details of the investigations carried out
  2. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F19 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

**F20** All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.

**How do I comply?**

All determinations of water quality and biological monitoring should be made in accordance with methods prescribed in the latest edition of the Department of Environment, Science and Innovation (or its successor) Monitoring and Sampling Manual. Samples should be collected from monitoring locations identified within this environmental authority. Analyses should be carried out on representative samples, at a laboratory accredited (for example, NATA) for the method of analysis being used.

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**Receiving environment monitoring program (REMP)**

**F21** The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the XX and connected or surrounding waterways within XX (for example, Xkm) 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.

**F22** A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administrating authority upon request.

**F23** A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

**How do I comply?**

The Receiving Environment Monitoring Program (REMP) should be used to assess the local receiving waters for the specified discharge locations. The monitoring should not be specifically designed to assess compliance of the release – this is covered by other conditions. The key purpose of the REMP is to assess the overall condition of the local receiving waters and assessment should be against water quality objectives and relevant guidelines.

Note that in some cases where discharge occurs to ephemeral streams, there may be a need to include downstream sensitive receiving waters or environmental values outside of the specified REMP area. An example of this would be where there are no semi-permanent/permanent waterholes in the specific area but 1 is located further downstream prior to the confluence with the next major waterway. For further guidance on what to include in a REMP, please refer to the Draft DESI REMP Document for Fitzroy Coal Mines and Additional Information. There is a potential for beneficial linkages of REMP monitoring to regional waterway monitoring programs, such as the Fitzroy Partnership monitoring program. For example DESI intends to maintain monitoring information compiled through individual REMP programs through an internal database under development. Industry has indicated its willingness to see this data shared with the Fitzroy Partnership for the purpose of a regional water monitoring program. Likewise it is possible for environmental authority holders to utilise relevant and available water monitoring information collected by other parties, such as the Fitzroy Partnership, as reference data for the purposes of the REMP required by this section.

The REMP should:

- 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 (for example, seasonality)
- b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected
- c) include monitoring from background reference sites (for example, upstream or background) and downstream sites from the release (as a minimum, the locations specified in Table 6)
- 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 2006*. This should include monitoring during periods of natural flow irrespective of mine or other discharges
- e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in Table 2 and 3 )
- f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of *AS5667.1 Guidance on Sampling of Bottom Sediments*)
- g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology
- h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents
- i) describe sampling and analysis methods and quality assurance and control
- j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.

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### Water reuse

**F24** 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 (with the consent of the third party).



### **How do I comply?**

Note that the definition of 'wastewater' under the *Water Supply (Safety and Reliability) Act 2008* specifically exempts spent or used water generated from mining activities. In addition, there is an exemption from water service provider registration requirements if there is no charge for the water supply. Mines are encouraged to provide water to their neighbours and communities. Previous versions of these model water conditions specified terms to be included in agreements with those third parties, but current policy is that the commercial terms of these agreements, including the purposes for which the third parties require the water, are a matter for direct negotiation between the parties.

The provision of re-use water to artificial water storage structures, or direct application to land for purposes such as dust suppression in road maintenance and construction work, constitutes an authorised 'release' which does not need to be addressed under condition F2. However, as part of the annual review of water management plans, an outline should be included about beneficial re-use arrangements, for water balance purposes.

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### **Annual water monitoring reporting**

- F25** 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:
- 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
  - g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

### **How do I comply?**

No further guidance provided to that outlined in the condition.

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### **Temporary interference with waterways**

- F26** 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) Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities.

### **How do I comply?**

No further guidance provided to that outlined in the condition.

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### **Water management plan**

**F27** A Water Management Plan must be developed by an appropriately qualified person and implemented.

#### **How do I comply?**

The Water Management Plan should be developed in accordance with Department of Environment, Science and Innovation guideline *Preparation of water management plans for mining activities* and include:

- a) a study of the source of contaminants
- b) a water balance model for the site
- c) a water management system for the site
- d) measures to manage and prevent saline drainage
- e) measures to manage and prevent acid rock drainage
- f) contingency procedures for emergencies
- g) a program for monitoring and review of the effectiveness of the water management plan.

The Water Management Plan should be reviewed annually to assess the adequacy of the plan, ensure actual and potential environmental impacts are managed, and identify any necessary amendments to the plan.

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### **Stormwater and water sediment controls**

**F28** 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.

**F29** Stormwater, other than mine affected water, is permitted to be released to waters from:

- a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F28
- b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F27 for the purpose of ensuring water does not become mine affected water.

#### **How do I comply?**

Stormwater, other than mine affected water, is permitted to be released to waters from erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F28. Stormwater is permitted to be released from water management infrastructure that is installed and operated in accordance with a Water Management Plan required by condition F27, for the purpose of ensuring water does not become mine affected.

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.

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.

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## **Schedule G- Sewage treatment**

**G1** The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in **Table G1 - contaminant release limits to land**.

### **Table G1 - Contaminant release limits to land**

#### **How do I comply?**

F1 may need amendment if other contaminants are permitted to be released to land. Monthly monitoring of E coli may be revised based on location/remoteness of mine site.

- G2** Treated sewage effluent may only be released to land in accordance with the conditions of this approval:
- a) within the nominated area(s) identified in [Schedule ## – Figure ##](#) (Sewage Treatment Plant and Effluent Disposal)
  - b) on other land for the purpose of dust suppression and/or fire fighting.

#### **How do I comply?**

No further guidance provided to that outlined in the condition.

- G3** The application of treated effluent to land must be carried out in a manner such that:
- a) vegetation is not damaged
  - b) there is no surface ponding of effluent
  - c) there is no run-off of effluent.

#### **How do I comply?**

No further guidance provided to that outlined in the condition.

**G4** If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

#### **How do I comply?**

No further guidance provided to that outlined in the condition.

**G5** All sewage effluent released to land must be monitored at the frequency and for the parameters specified in **Table G1 - contaminant release limits to land**.

#### **How do I comply?**

No further guidance provided to that outlined in the condition.

**G6** The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

#### **How do I comply?**

No further guidance provided to that outlined in the condition.

**G7** When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

**How do I comply?**

No further guidance provided to that outlined in the condition.

**G8** A minimum area of <<insert area>> of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

**How do I comply?**

No further guidance provided to that outlined in the condition.

**G9** Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the Act whilst using the treated sewage effluent.

**How do I comply?**

The supply of treated wastewater for re-use is regulated under the *Water Supply (Safety and Reliability) Act 2008*.

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## **Schedule H – Land and rehabilitation**

**H1** Land disturbed by mining must be rehabilitated in accordance with **Table H1 - Rehabilitation requirements**.

**Table H1 - Rehabilitation requirements**

**How do I comply:**

In addition to the criteria listed above, holders should be aware that section 276 of the *Mineral Resources Act 1989* includes a requirement that it is a condition of mining leases that: ‘the holder, prior to the termination of the mining lease for whatever cause, shall remove any building or structure purported to be erected under the authority of the mining lease and all mining equipment and plant, on or in the area of the mining lease unless otherwise approved by the Minister.’

There are occasions when the post-mining landholder wishes to retain specified mine infrastructure, such as roads, clean water dams, amenities and the like. It is not unusual for the mining lease holder to submit a copy of a written agreement with the landholder about these issues for the consent of the Minister administering the *Mineral Resources Act 1989*.

**H2** Rehabilitation must commence progressively in accordance with the plan of operations.

**How do I comply:**

Rehabilitation must commence progressively as soon as areas become available and in accordance with the plan of operations. For more information, please refer to the most recent edition of the administering authority’s guideline rehabilitation requirements for mining projects (ESR/2016/1875<sup>5</sup>).

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<sup>5</sup> This is the publication number, which can be used as a search term to find the latest version of the publication at [www.des.qld.gov.au](http://www.des.qld.gov.au).

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### **Contaminated land**

**H3** Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.

**H4** Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.

#### **How do I comply?**

For more information, please refer to the most recent edition of the administering authority's guideline surrender applications and progressive rehabilitation.

**H5** Minimise the potential for contamination of land by hazardous contaminants.

#### **How do I comply?**

The following activities have a risk of releasing dust fallout which can accumulate and be a source of contamination if not managed adequately, so care should be taken to manage these accordingly:

- a) crusher
- b) concentrate handling, storage and transport
- c) dry tailings
- d) transport of ore.

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

Notwithstanding the requirements of any applicable Australian Standard, any liquids stored on licensed place that have the potential to cause environmental harm should be stored and 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. The following could be applied:

- a) storage tanks must be bunded such 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
- b) drum storages must be bunded such that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

All containment systems should be designed to minimise rainfall collection within the system.

Any spillage of hazardous contaminants should be cleaned up promptly. Dry methods of clean up are generally preferable to minimise the risk of release to land.

### Prescribed environmental matters

**H6** Significant residual impacts to prescribed environmental matters <<other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*>>, are not authorised under this environmental authority or the *Environmental Offsets Act 2014* <<unless the impact(s) is specified in Table H2 - Significant residual impacts to prescribed environmental matters>>.

#### How do I comply?

The EA holder will be required to self-assess the cumulative extent and duration of all proposed impacts to prescribed environmental matters well before any impacts occur. If it becomes apparent that the cumulative impacts to a prescribed environmental matter, after all reasonable avoidance and reasonable on-site mitigation measures have been factored in, will exceed a relevant significant residual impact threshold (i.e., as specified in the [Queensland Environmental Offsets Policy – Significant Residual Impact Guideline](#)), then EA amendment applications will be required to seek the authorisation for the impact. Similarly, where minimal ground-surveys have been conducted prior to the EA being applied for, ongoing amendments to the EA may be required as the project develops and further details of the expected impacts become available.

Compliance with condition H6 will require an EA holder to limit its significant residual impacts to prescribed environmental matters to what is specified in Table H2.

**H7** Records demonstrating that each impact to a prescribed environmental matter <<not listed in [Table H2 - Significant residual impacts to prescribed environmental matters](#)>> did not, or is not likely to, result in a significant residual impact to that matter must be:

- a) completed by an appropriately qualified person; and
- b) kept for the life of the environmental authority.

#### How do I comply?

The holder must, at its own cost, arrange for an appropriately qualified person to determine whether an impact to a prescribed environmental matter is likely to be significant, based on the [Queensland Environmental Offsets Policy](#), and the [Queensland Environmental Offsets Policy – Significant Residual Impact Guideline that is relevant to the \*Environmental Protection Act 1994\*](#). The EA holder must document this determination and retain documents. The appropriately qualified person may be employed by the EA holder, or may be a third party.

**H8** An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table H2 - Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition H11 [for staged offsets] OR condition H15 [for non-staged offsets].

#### How do I comply?

The procedure required to be followed when making an offset proposal is contained within the EO Act and the Queensland Environmental Offsets Policy.

**Staged impacts**

**H9** The significant residual impacts to a prescribed environmental matter authorised in condition H6 for which an environmental offset is required by condition H8 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.

**How do I comply?**

Compliance with condition H9 will require an EA holder to forward plan its project in stages, and to ensure that any environmental offsets required for a particular stage are recorded in an agreed delivery arrangement prior to the occurrence of any of the staged impacts.

**H10** Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority:

- a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and
- b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.

**H11** The report required by condition H10 must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.

**H12** A notice of election for the staged environmental offset referred to in condition H11, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.

**H13** Within six months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority:

- a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and
- b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

**How do I comply?**

Additional guidance on how to comply with conditions H10 to H13 is contained within the [Queensland Environmental Offsets Policy](#) and the [Queensland Environmental Offsets Policy – General guide](#).

**Non-staged impacts**

**H14** Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition H8, a report completed by an appropriately qualified person that contains an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority.

**H15** The report required by condition H14 must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority.

**H16** The notice of election for the environmental offset required by condition H15, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

**How do I comply?**

Additional guidance on how to comply with conditions H14 to H16 is contained within the [Queensland Environmental Offsets Policy](#) and the [Queensland Environmental Offsets Policy – General guide](#).

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**Schedule I- Watercourse diversions**

**How do I comply?**

For all watercourse diversions conditions (I1 to I6), refer to the Queensland Department of Natural Resources and Mines Guideline – *Works that interfere with water in a watercourse: watercourse diversions* for guidance. This guideline includes information for proponents and certifiers that includes technical information about the planning, design, operation and monitoring of watercourse diversions for resource related activities.