# Environmental Authority No. MIN00401001 (mining activities) Section 228 Environmental Protection Act 1994 


#### Abstract

This envirommental authority is granted under the Environmental Protection Aef 1994 and includes conditions to minimise environmental harm caused, or likely to be caused, by the authonised mining activities. An environmenta authority (mining activities) may bo for mining actlvitles authotlsed (under the Minera/ Fesources Act 10n9) to occur under one of the following mining tenements; a prospecting permit, mining claim; exploration permit; mineral development licence; or mining lease: In general, a mining activity means: prospecting, exploring, mining; or processing minerals; remediation; rehabilitation; and includes facilitation and supporting activities and amy action taken to prevent environmental harm.


Under the provisions of the Environmental Protection Act 1994 this environmental authority is
Issuedto:
Roefiway Pty Litd
Level 22 Allendale Square
77 St Georges Temace
Savannah Resources Pty Ltd
Perth WA 6000
Level 22, Allendale Square
77 St Georges Terrace
Perth WA G000
In respect of carrying out activities as part of the following mining project:


The mining activities are authorized to the extent defined in Schedule 6. Saction 12(c) af the Envirommentaf
Protaction Regulation 1998.
This environmental authority is subject to the conditions set out in the attached schedules,
The anniversary date of this environmentai authority is 24 July each year.
This environmental euthority takes effect from 24 July 2006 for granted tenements and will take effect for ML 90168 , 90170 and 90169 upon date of grant of tenure.

$$
\text { s. } 49 \text { - Signature }
$$

Geoff Metcalfe
District Manager
Mt Isa District, Northern Region
Delegate of Administering Authorty Envinonmental Protection Act 1994

$$
24 / 2106
$$

This environmental authority incorporates the following schedules:

- Schedule A - General
- Schedule B - Air
- Schedule C - Water
- Schedule D - Noise and Vibration
- Schedule E - . Waste
- Schedule F - Land
- Schedule G - Community
- Schedule H - Definitions.
- Schedule I - Maps / Plans


## Schedule A-General

## Financial Assurance

(A1-1) Provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority.

NOTE: The calculation of financial assirance for condition (A1-1) must be in accordance with Guideline 17 and may indude a performance discount. The amount is defined as the maximum total rehabllitation cost for complete rehabilitation of all distubbed areas, which may vaiy on an annual basis due to progrossive rehabilitation. The amount required for the inancial assurance must be the highest Total Rehabijitation $\mathrm{C}_{\mathrm{f}}$ calculated for any year of the Plan of Operations and calculated using the fomula: (Financial Assurance Highost Total Anvual Rehabilitation Cost x Percentage Required).
(A1-2) The financial assurance is to remain in force until the administering authority is satisfied that no claim on the assurance is likely.

NOTE: Where progressive rehabilitation is completed and acceptable to the acministering authority, progressive rectuctions to the amoum of innancial assurance will be applicable where rehabiltation has been completed in accordance with the acceptance criteria defined within this envinnmental authorty.

## Maintenance of Measures, Plant and Equipment

(A2-1) - The environmental authority holder must ensure:

- that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installeds
- that such measures, plant and equipment are maintained in a proper condition; and
- that such measures, plant and equipment are operated in a proper manner.


## Monttoring

(A3-1) Record, compile and keep for a minimum of five years all monitoring results required by this environmen' authority and make available for inspection all or any of these records upon request by the adrimisteil). authority-
(A3-2) Where monitoring is a requirement of this envirommertal authority, ensure that a competent person(s) conduets all monitoring.

## Storage and Handing of Ftammatole, Combustible and Corrosive Liquids

(A4-1) Spillage of all flammable and combustible liquids must be contained within an on-site containmerit system and controlted in a manner that prevents environmental ham (other than trivial harm) and maintained in accordance With Section 5.8 of AS 1940 - Storage and Handling of Flammable and Combustible Liquids of 2004.
(A4-2) . The on-site storage of corrosive liquids must be in accordance with Section 5.7 of AS 3780 - Storage ana Handling of Corrosive Substances 1994

## Definitions

(A5-1) Words and phrases used throughout this environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authorlty, the definitions in the Envirommental Protection Act 1994, Its Regulations and Environmental Protection Policies must be used.

## END CONTIONS FOR SCHEDULE A

## Schedule B - Air

## Dust Nuisance

(B1-1) Subject to Conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nulisance at any sensitive or commercial place.
(B1-2) When requested by the administering authorty, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is nelther frivolous nor vexatious nor based on mistaken bellet in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to
the administering authority following completion of monitoring.
(B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not beling exceeded then the holder is not in breach of (B1-1):
a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordarice with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991.
( $B 1-4$ ) If monitoring indicates exceedence of the relevant limits in Condition ( $81-3$ ), then the environmental authority
a) address the complaint including the use of appropriate dispute resolution if required; or
inmediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

## Odour Nuisance

(B2-1) Subject to condition (B2-2), the release of noxious or offensive odour(s) or any other noxious or offensive airbome contaminant(s) resulting from the mining aetivity must not cause an environmental nuisarice at any sensitive or commerciat place.
(B2-2) When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the adminlstaring authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensithve or commercial place, and the results must be notified within 14 days to the
administering authority following completion of monitoring. administering authority following completion of monitoring.
(B2-3) If monitoring indicates Condition (B2-1) is not being met then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

END CONDITIONS FOR SCHEDULE B

## Schedule C - Water

## Release to Waters

(C1-1) Recelving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at the locations and frequencies defined in Schedule C - Table 1 and Schedule I-Map 1, and comply with the contaminant limits delined in Schedule C-Table 3.

Schedule C - Table 1 (Recefing Water Monitoring Locations and Frequency)

| 915 Whathon <br>  | $\text { E(Ahg Ess z zone } 54 \text { ) }$ | Hadrying (ANGX R Cone 54) |  |
| :---: | :---: | :---: | :---: |
| MKUS 1 - reference site * | 306625 | 7797450 | Each flow event |
| MKUS 2-reterence site* | TBD | TBD | Each flow event |
| MKOS 1-test site | 301160 | 7800135 | Each fiow event |
| MKDS 2 - test site: | 306366 | 7798666 | Each flow event |
| MKCDS 3 - test ste | 306370 | 7798363 | Each flow event |
| MKOS 4-test site | 301300 | 7797255 | Each flow event |

NOTE This doos not apply to clams containing hazardous wasto:
Reference sites must
a) be from the same biogeographical and climatic reglon;
b) brave shmilar geology, soll types and topography
c) contain a range of habitats siniliar to those at the test site
d) be of similar finut regime; and
e) not be so dose to the tipst sites that any disturbances at the test site also result fr a change at the reforence site.

TBD- to be detemined and provided to the QEPA prfor to commencement of mining.

C1-2 Subject to Condition (Ct-1), 估 the recelving water contaminant trigger levels defined in Sohedule C - Table 2 are exceeded then the environmental authority hoider mist complete an investigation into the potentlal for environmental harm and notily the administering authority within 3 montis of recoving the analysis results.

Schedule C - Table 2 (Recelving Water Trigger Levels)


2 Contaminant triggers imits are based on Table 3.3 .4 and 3.3 .5 of Aquatic. Ecosjstems ANZECC (2000).
${ }^{2}$ Contaminant trigger Himili are based on $50 \%$ of the contaminant linitts demped in the ANZECC (2000) Livestock Drinking Weiter and are to be analysed as total motals (unfittered).
${ }^{3}$ Contaminant trigger ilmits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) $95 \%$ and are to be analysed as
intered metals.

Schedule C - Table 3 (Receiving Water Contaminant Limits)

| A Parametar | Units | Dimmum | Maxtrum | Tigger Trpe |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}{ }^{4}$ | pH | 6.0 | 9:0 | Range |
| TDS ${ }^{\text {2 }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate ${ }^{7}$ | mgh | N/A | 1000 | Maximum |
| Aluminium ${ }^{\text {a }}$ | mgh | N/A | 5 | Maximum |
| Arsente? | mgh | N/A | 0.5 | Maximum |
| Boron ${ }^{2}$ | $m g h$ | N/A | 5 | Maximum |
| Cadmum ${ }^{\text {a }}$ | mgh | N/A | 0.01 | Maximum |
| Chiromum ${ }^{\text {a }}$ | mgh | N/A | 1 | Maximum |
| Cobalt ${ }^{\text {f }}$ | mgh | N/A | 1. | Maximum |
| Copper ${ }^{\text {F }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Fluoride ${ }^{1}$ | mgh | N/A | 2 | Maximum |
| Lead? | $m g h$ | N/A | 0.1. | Maximum |
| Manganese ${ }^{\text {a }}$ | mg h | N/A | 2.5 | Maxdinum |
| Mercury ${ }^{\text {a }}$ | mght | N/A | 0.002 | Maximum |
| Molybdenum ${ }^{\text {\% }}$ | $m g h$ | N/A | 0.15 | Maximum |
| Nicket ${ }^{\text {? }}$ | mgh | N/A | 1 | Maximum |
| Selentm ${ }^{1}$ | mglt | N/A | 0.02 | Maximum |
| Zinc ${ }^{\text {l }}$ | mgh | : N/A | 20 | Maximum |

Contaminant limts based on table 4.3:2 ANZECC (2000) Livestock drinking water qualíly and ape analysed as Total metals (unitilered)
${ }^{2}$ Comtaminant limits aro hased on Table 4.3 .1 Livostock drinking water quality and are anainsed as Total metats (unfltered)
${ }^{3}$ Contaninant limis bised on Tabloo 34, 1 of Aquatic Ecosystoms ANZECC ( 2000 ) $80 \%$ and are to be analysed as illtered metals.
${ }^{4}$ Contaminant limits based on Table 3.3.4 of Aquatic Ecosystems ANZECC (2000)

## End of Pipe Reloase

(C.1-3) End of pipe release limits for storm water contaminated by mining activities must benitored at the locations and frequengies detined In Sehedute C - Table 4 and Schedule I - Map 2 and 3 and comply with the contaminant innits defined in Schiectule C. Table 5.
anvionmentalilicences and permils
Reefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MINOO401001

Schedule C-Table 4 (End of pipe monitoring locations and frequency)


NOTE: This does not apply to dams containing hezardous waste.
Schodgle C - Table S (End of pipe contaminant reloasellimits)

| Paramefor | Unuts | Minimiun | Maximum | Tmit Tpe |
| :---: | :---: | :---: | :---: | :---: |
| plt | pH | 6 | 9 | Range |
| TDS | $m g / 2$ | N/A | 4000 | Range |
| Şulphate | $\mathrm{mg} / \mathrm{h}$ | N/A | 1000 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Cadmium | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.04 | Maximum |
| Chromiam | $\mathrm{mg} / \mathrm{L}$ | N/A. | 1 | Maximum |
| Cobalt | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Copper | $\mathrm{mg} / \mathrm{L}$ | N/A | $-\frac{1}{1}$ | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.1 | Maximum |
| Mercury | $\mathrm{mg} / \mathrm{L}$. | N/A | 0.002 | Maximum |
| Zinc | mgh | N/A | 20 | Maximum |

Contaminant imits basad on ANZFCC (2000) Lhestock dinkhg water quallhy and are anabsed as Total metals (unfitered) NOTE: This does not apply to dams containing hazardous waste.

## Dams Containing Hazardous Waste

(C1-4) Water stozages containing process water and storm water contaminated by mining activities must be monitored for the parameters defined in Schedule C - Table 7.

Schedule C - Table 6 Water Storage Monitoring Locations of Hazardous Dams)

| Honiloring point | $\begin{aligned} & \text { Exsung } \\ & \text { Rane } 54 \text { Anegal } \end{aligned}$ | None S4 Ang 84) | E Montoming trequency |
| :---: | :---: | :---: | :---: |
| Pls Ponds | 302000 | 7797450 | Annually, Match |
| 11.5 Pond | 301900 | 7797450 | Annually, March |
| Ratinate Pond Pre-Sellter | 301860 | 7797450 | Annually, Marcin |
| Frefinate Pond | 301800 | 7797450 | Armually, Maroh |
| Storm water Pond 1 | 301750 | 7797450 | Annually, March |
| Starm water Pond 2 | 301750 | 7797350 | Annually, March |

(Ct-5). In the event that the water quality within any dam containing hazardous waste does not comply with the contaminant limits defined in schedule C - Table 7, Implement measures to prevent access by all livestock and mininise access by fauma to the dam:

Schedule C - Table 7 Water Qually Limits for Dams Containing Hazardous Waste)

| Farameter | Units | Coritaminanilimet | Lint Type |
| :---: | :---: | :---: | :---: |
| ph | ph | 4.9 | Range |
| TDS | mgh | 5,000 | Maximum |
| Boron | mgh | 5 | Maximum |
| Sulphate | mgh | 1000 | Maximum |
| Aluminum | $\mathrm{mg} / \mathrm{h}$ | 5 | Maximum |
| Arsenic | mgh | 0.5 | Maximum |
| Coball | mgh | 1 | Maximum |
| Copprer | mgh | - 1 | Meximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | 0.1 | Maximum |
| Nickel | mgh | 1 | Maximum |
| Zine | mgl | $\cdots \quad 20$ | - Maximum |

Contaminant binits based on ANZECC (2000 Llvestock dinking water qually and are analysed as total metale (unfiltered).)
(Ct-6) The design storage allowance on 1 Novemiber of each year for any dam containing hazardous waste constructed or operated within the operational land must comply with Schedute C-Taible 8.

Schodule C - Table E. Stoxage Design tor Dams Gontaining Hazardous Waste)

| Stornge Type. | Design Storage Auto franee ${ }^{1 / 1}$ | $\begin{gathered} \text { Spilway } \\ \text { cifical Besion Stom } \\ \hline \end{gathered}$ | Wanditomy Reporting Level |
| :---: | :---: | :---: | :---: |
| Stormwater Pond 1 | 1: 100 Year ARII 2 monith wet season plus process inputs for the 2 month weit seaspon | 1. 1000 Year ARI | 1: 100 year ARI |
| Stornwater Pond 2 | 1: 100 Year AA1 2 month wet season plas process mputs for the 2 monith wet season | 1: 1000 Year ARI | t: 100 year ARF |

Notet: The design storago allowance on 1 November of each year for any dam containing hazardous waste constructed within the operational land must be equivalent to the nun-off from a 1 in 100 ARI 2 month wat season plus process inputs for the equivalent wet season. Process inputs refers to hazardous mineral process waste and water, which is being disposed of in the storage facilly.
Note (2). The crticeal design storm has a duration that produces the peak discharge for the catchments.
Note ${ }^{(3)}$ : The mandatory reporting fevel refers to the volume below the spllway crest, either the 1: 100 AR1 72 hour storm or the 1:100 AAl wave allowance, whichever is lower.
(C1-7) The spillway for any dam containing hazardous waste, constructed or operated within the operational land mustbe desligned and maintained to withstand the peak flow from the spillway critical design storm defined in Sohedule © - Table 8.
(C1-8) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule C Table 8 on the spillway of all dams containing hazardous waste within the operationial land.
(C1-9) The holder of the environmental autherity must notify the administering authorty when the pondage level of the dam containing hazardous waste, reaches the mandatory reporting level defined in Schedule C-Table 8

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintalned to minimise orosion and the release of sediment.
(C2-2) The bed of the recelving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the locations and frequencles defined in Schedule C - Table 9 and Schedule I-Map 5.

Schedule C - Table 9. (Hecelving Stream Sediment Monitoring Lecations and Frequency)

| Monitorng poinf | $\begin{gathered} \text { Easting } \\ \text { AGD } 84 \text { Zone.54) } \end{gathered}$ | $\begin{gathered} \text { Norking } \\ \text { (ACDis4zone } 54) \end{gathered}$ | Montoring Prequenty, |
| :---: | :---: | :---: | :---: |
| MKUS 1-reference site* | 305625 | 7797450 | May each yoar |
| MKUS 2 - reference site ${ }^{\text {a }}$ | TED | TBD | May each year: |
| MKDS 1-test site | 301160 | 7800135 | May each year |
| MKDS 2-test stte | . 308966 | 7798356 | May each year |
| MKDS 3 - test site | 306370 | 7798369 | May each year: |
| MKOS 4-test site | 301300 | 7797255 | May each year |

NOTE This doos not apply to dams contalning hazardous waste
Referonce sites must
a) be from the same biogeographical and cllmattc region;
b) have similar geology, soll types and topography
c) contah a range of habitats strillar to those at the test site
c) be of simllar fow regtme; and
e) not be so close to the tost shtes that any disturbances at the test site also result in change at the reference site. TBD- to be dotemined and provided to the QEPA prior to commencoment of mining.
(C2-3) Subject to Condition (C2-2), if the stream sediment contaminant trigger levels defined in Schedule C - Tabla 10 are exceeded then the envirommental authority holder must complete an investigation into the petentlal for environmental harm and notity the administering authority within 3 months of receiving the analysis results.

## Schedule C - Table to (Recelving Stream Sadiment Contaminant Tifgger Levels)

| Pasinutet | Units | Contambant ingegt levele | Triger type |
| :---: | :---: | :---: | :---: |
| Antimony ${ }^{1}$ | $\mathrm{mg} / \mathrm{kg} \cdot \mathrm{dry}$ wt | 2 | Maximum |
| Arsenic ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{kg}$ dry wit | 20 | Maximum |
| Cadmimm ${ }^{\text {a }}$ | mg/kg diy wt | 1.5 |  |
| Chromium ${ }^{+}$ | mg/kg diy wt | 80 | Maximum |
| Copper ${ }^{\text {? }}$ | mg/kg dry wt | 100 | Maxdmum. |
| Lead ${ }^{7}$ | mg/kg dry wt | 50 | Maximum |
| Nickel ${ }^{\dagger}$ | $\mathrm{mg} / \mathrm{kg}$ dry wt | 21 | Maximum |
| Silver ${ }^{7}$ | mg/kg dry wt | 1 | Maximum |
| Mercury ${ }^{3}$ | $\mathrm{mg} / \mathrm{kg} \mathrm{dry} \mathrm{wt}$ | 0.15 | Moximum |
| Zinc ${ }^{\text { }}$ | mg/kg dry wt | 200 | Maximu |

ANZECC (2000): ISQG Low trlgger values, Sediment Quallty Guldelines, Aquatlc Ecosystems, Table 3.5.1.
${ }^{2}$ Ste specific trigger value as calculated in section 3.5 of EM Pian January 2006
(C2-4) Subject to Condition (C2-2), stream sediment contaminant limits muat not exceed the contaminant limits defined

## Crizet/ob

Schedule C - Table 11 (Recelving Stream Sediment Contaminant Limits)

| Pamaneten | Unts | hmaut | Cinit type |
| :---: | :---: | :---: | :---: |
| Antimony ${ }^{7}$ | mg/kg diry wt | 25 | Maximum |
| Arsenic ${ }^{\text { }}$ | mg/kg ery wt | 70 | Maximum |
| Cadmilim ${ }^{1}$ | mg/kg diy wt | 10 | Maximum |
| Chromum ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{kg}$ dry wt | 370 | Maximum |
| Coppor ${ }^{2}$ | mg/kg dry wt | 120. | Maximum |
| Lead? | mg/kg dry wt | 220 | Maximum |
| Nickel ${ }^{1}$ | mg/kg dry wt | 52 | Maximum |
| Sliver ${ }^{1}$ | Ing/kg diry wt | 3.7 | Maximum |
| Mercury ${ }^{\text {\% }}$ | mg/kg diy wt | 1 | Maximum |
| Zine ${ }^{\text {t }}$ | mg/kg dry wt | 410 | Maximum |

ANZECC (2000): 1SQG High triger values, Sedimont Qually Guldelines, Aquatte Ecosystems, Table 3.5.7.
${ }^{2}$ Sitte specific thigger value as calcutated in section 3.5 of EM Plan Januany 2006
(C2:5) All stream sediment sampling must be undertaken in accordance with AS 5667.1 Guidance on Sampling of Bottom Sediments of 1998

## Sewage eilluent

(CO-1) Alleffluent released fom the treatment plant must be monitored at the frequency and for the parameters specified in Schedute C - Table 12
(C3-2) Sewage effluent used for chust suppression must not exceed sewage effiuent release limits defined in Schedule C. Table 12.
(C3-3) Sewage Effuent used for dust suppression must not cause spray drit or over spray to any sensitive or commerclal place, and must not be applied at a rate that causes pooling, ponding and/or runioff of any effluent irigated.
(C3-4) Subject to Conditions (C3-1) to (CO-3) inctusive, sewage efficent from sewage treatment facilites must be reused: or evaporated and must not be directly released from the sewage treatment plant to any water way or drainage line other than in aceordance wilh Schedule C - Table 12
Schedule C - Table 12 Sawage effiuent quality targets fordustsurpression).

| gh Quality charactipnistics. | Ralease Limit |  |  | Bontoring Vreatumey |
| :---: | :---: | :---: | :---: | :---: |
|  | Minimuma | Mectuan | Maminiou |  |
| (pH ( PH Units) | $6^{s}$ |  | $8.5{ }^{2}$ | Quatienty |
| Faecal Colforms (organisms/100mL) |  | $1000^{7}$ |  | Quarterly |

${ }^{T}$ A minhimum of five samples must be collected at not less than a weokly intenval for the quarterty sampling
${ }^{2} A$ minimum of ilve samples must be collected at not less than a weokly interval for the guartery sampling with four out of five samples must be less than the maximum.
${ }^{3}$ A minimum of tive samples must be collected at not loss than a weekty intoival for the guarferly sampling with four out of five samples must be higher than the minimum but lower than the maximum lint. Release limits sourced from Obteenstand Water Recyoling Guldellnes Docember 2005 Table 6.2b

Groundwater
(C4-1) Groundwater, affected by the mining activities must be monitored at the locations and frequencles defined In Schedule C - Table 13 and Schodule I Map 6.

Schedule C-Table 13 (Croundwater Monitoring Locations and Frequency)

| Ca Montaring poln <br>  | Easting (ACOH4zons | Northings | Manitorina frequeticy |
| :---: | :---: | :---: | :---: |
| LAMBDI (Process Plant)- reference site | 302484 | 7796800 |  |
| LAMB02 (Process Plant) - reference sife | 302891 | 7790800 | Monthly |
| LA MB03 (Process Plant) - reference site | 302 | 7797 | y |
| LA MB04 (Process Plant) | 30212 | 7797950 | Monthly |
| LAMB05 (Process Plant) | TBD | TBD | Monthly |
| LAMB06 (Process Plant) | TBD | TBD | Montuly |
| LAMB07 (Process Plant) | TBD | TBD | Montinly |
| LA MB08 (Process Plant) | TBD | TBD | Monthly |
| LAMB09 (Process Plant) | TE | TED | Monthly |
| LA MB010 (Process Plant) |  | TBD | Monthly |
| LA MB014 (Process Plant) | TBD | TBD | Monthly |
| LAMB012 (Process Plant) | TBD | TBD | Monthly |
| LAMB013 (Process Plant) | TBD | TBD | Montrily |
| LA MB014 (Process Plant) | TBD | TBD | Monthly |
| MKMBe1 (pitarea) | TBD | TBD | Monthly |
| MK PBOt (pit area) | $305360^{\circ}$ | 7799013 | Quarterly |
| MK Pbot (pit arga) | 305356 | 7799019 | Quarterly |

NOTE: This does not apply to dams containing hazardous waste
FBD To be detemined

## Reforonce sities must

a) be from the same biogeographical and clinatic region;
b) have simliar geology, soll types and topography
c) contain a range of habitats simflar to those at the test site
d) be of similar flow regime; and not be so close to the test sites that any disturbances at the test site afso result in a change at the reference site.
(C4-2) Subjeat to Condition (C4-1), iff the groundwater contaminant trigger levels defined in Schedule C-Table 14 are exceeded then the emvironmental authority holder must complete as investigation into the potential for environmental harm and notify the administering authorty within 3 months of recelving the analysis resuits.

Schedule C-Table 14 (Groundwater Contaminant Trigger Levels)

| Parameter 0 | Units | Qhmunt | thaxhmume | Thiger Gipe |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}{ }^{7}$ | pH | 6 | 8 | Piange |
| TDS ${ }^{\text {b }}$ | mg/ | N/A | 2000 | Maximum |
| Suphate ${ }^{2}$ | $m g h$ | N/A | 500 | Maximum |
| Alumintum ${ }^{2}$ | mgh | N/A | 2.5 | Maxdmum |
| Arsenic ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.25 | Maximum |
| Boron ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.37 | Maximum: |
| Cadmium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.005 | Maximum |
| Ohromum ${ }^{2}$ | $m g h$ | N/A | 0.6 | Maxdmum |
| Cobali ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Copper ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Miaximum |
| Fluoride ${ }^{2}$ | mgh . | N/A. | 1 | Maximum |
| Lead? | mgh | N/A | 0.05 | Maximum |
| Manganese ${ }^{\text {a }}$ | mgh | N/A | 1.9 | Maximum |
| Marcury ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.001 | Maxdmum |
| Molybdentm ${ }^{2}$ | mg 2 | N/A | 0.075 | Maximum |
| Nickel ${ }^{\text {p }}$ | mgh | N/A | 0.5 | - Maxinum |
| Solentum ${ }^{2}$ | mgh | N/A | 0.04 | Maximum |
| Zince ${ }^{\text {a }}$ | mgh | N/A | 10 | Maximum |

Contaminant triggers limits are basied on Table 3.3.4 and 3.3.5 of Aquatic Ecosystoms ANZECC (2000)
${ }^{2}$ Contaminant tigger limits are hased on 50\% of the contaminant linits doined in the ANZECC (2000) Livestook Drinking Wator and are to be analysed as totat metals (unfitiered).
${ }^{3}$ Contaminant trigger limits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) and are analised as Filtered Motals
(C4-3) Subjeat to Condition (C4-1), groundwater contaminant limits must not exceed the comaminant limits defined in Schertle C-Table t5.
environmontalifosinces and pormits
Reefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MiNoo 401001

Schedule C - Table 15 (Groundwater Contaminant Limits)

| P prabeneter | Untes | Dinmu | © (laximu | Lmily |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 | 9 |  |
| TDS ${ }^{\text { }}$ | mgh | N/A | $\frac{9}{4000}$ | Range |
| Sulphate ${ }^{\text { }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Aluminum ${ }^{1}$. | mgh | N/A | 1000 | Maximum |
| Arsente ${ }^{\text {a }}$ | $m g h$ | N/A | 5 | Maximum |
| Boron ${ }^{+}$ | mgh | N/A | 0.5 | Maximum |
| Cadmium ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Chremium ${ }^{\text {a }}$ | mg/ | $\mathrm{N} / \mathrm{A}$ | 0.01 | Maximum |
| Coball ${ }^{1}$ | mg/L | N/A | 1 | Maximum |
| Copper ${ }^{\text {r }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Fluorde ${ }^{1}$ | mg/L | N/A | 2 | Maximum |
| Lead ${ }^{\text {? }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2 | Maximum |
| Manganese ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.1 | Maximum |
| Mercuny? | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Molybdenam ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.002 | Maximum |
| Niokel ${ }^{7}$ | $m g / 2$ | N/A | 0.15 | Maximum |
| Solentuin ${ }^{\text {² }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| $\mathrm{Znc}{ }^{\text { }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0,02 | Maximum |
| ntamnant limh | On ANZE |  | 20 | Maximum |

(C4-4) The mothod of water sampling required by this environmental atithority must comply with that set out in the: latest edititon of the Environmental Protection Agency's Water Quallity Sampling Manual.

## Voids

(C5-1) Water quality in mining volds and final voids must be monitered at the locations and frequencles defined in Schedule C - Table 16 and for the parameters detalled in Sohedule C - Table 17.
(C5-2) In the event that water quallty within the mining volds or final volds does not comply with the contaminant llmits defined in Schedule C - Table 17, implement measures to prevent access by all livestock and minimise access
by fauna to the vold.

Shhedule C-Table 16: Noids Monitoring Lacations and Frequency).


Schedule C - Table 17 Noid Water Quality Limits)

|  |  |  | Wern, |
| :---: | :---: | :---: | :---: |
| pH | pH | 6-9 | Range |
| TDS | $\mathrm{mg} / \mathrm{L}$ | 4000 | Maximum |
| Sulphate | $m g h$. | 1000 | Maximum |
| - Arsenic | mgh | 0.5 | Maxinum |
| Cadmium | mgh | 0.01 | Maxdimum |
| Chromium | mgh | 1 | Maximum |
| Copper | mgh | 1 | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | 0.1 | Maximum |
| Mercury | $\mathrm{mg} / \mathrm{L}$ | 0.002 | Maximum |
| Zine | mgh | . 20 | Maximum |

Contaminant limits are based on ANZECC (2000 Lvestock diviking water qualliy and analysed for total metals (unfiltered))

## Acid Hock Drainage and Leachate Management

(C6-1) Subject to limits definedin Schedule $C$ all reasonable and practicable measures must be implemented to prevent. hazardous leachate being difrectify or indirectily released of likely to be relegsed as a result of the activity to any groundwater, waitercourse and waters.

END CONDITIONS FORISCHEDULEC

## Schedule D - Noise and Vibration

## Noise Nuisance

(D1-1) Subject to Conditions (D1-2) and (D1-3) nolse from the mining activity must not cause an environmental nulsance to an affected building.
(D1-2) When requested by the administering authority, noise monltoring must be undertaken within a reasonable and practicable timeframe nominated by the administaring authority to irvestigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nulsance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitering.
(D1-3) The method of measurement and reporting of noise levels must comply with the latest edilion of the Envirormental Protection Agency's Noise Measurement Manual.

## Vibration nuisance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining activity must not eause an environmental
nulsance to an affected bullding.
(D2-2) . When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the admintstering authority to investigate any complaint (which is neither trivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nulsanoe at any sensitive or commerclal place, and the results must be notfied within 14 days to the administering authority following completion of monitoring.

## END CONDITIONS FOR SCHEDULE D

## Schedule E - Waste

## Storage of Tyres

(E1-1) Tyres stored awalting disposal or transport for take-back and, recycling, or waste-to-energy options - should be stookpiled in volumes less. than 3 m in height and $200 \mathrm{~m}^{2}$ in area and at leest 10 m from any othertyre storage area.
(E1-2) All reasonable and practicable fire prevention measures must be implemented, hncluding removal of grass and other materials within a 10 m radius of the scrap tyre storage area.

## Disposal of Tyres

(E2-1) Disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.
(E2-2) Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

## Waste Management

(E3-1) A Waste Management Program, in accordance with the Environmental Protection (Waste Management) Policy
2000, must be Included in the Plan of Operations. 12-513

## Regulated Waste

(E 4-1) All regulated waste received and removed from the site, that is over 250 kg in weight, must be transported by a person who holds a current authority to transport such waste under the provisions of the Environmental Protection Act 1994.
(E4-2) Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the Environmental Protection Ant 1094:
(E4-3) Where regulated waste is removed from the Project (other than by a release as permitted under another schedule of this environmental authority, records must be kept of the following:
a) the cate, quantity and type of waste removed, and:
b) name of the waste transporter that removed the waste; and
c) the intended treatment/disposal destination of the waste.

Note: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 7994 or any other law for regulated waste will be deemed ito satisfy this condition.

## Waste Rook Characterisation

(E5-1) Al areas to be mined must undergo a waste rock characterisation survey (where waste rok is to be dispose of on the surface) and a report submitted to the administering authority prior to mining where this survey has in previously been carried out

## END CONDITIONS FOR SCHEDULE E

envionmental licenoas and pernitis
Reefway Pty Ltd \& Savannah Reseurces Pty Ltd
Environmental Autherty No MNN00401001


This environmental authority takes effect on 24 luly 2006 -

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onvironmentad IIcencoss and pernits
Reetway Pty Ltd \& Savannah Resources Piy Ltd
Environmiental Authority No MiN00401001


| Disturbance Categery | Max. <br> Area | , | 50ntwatas | $6{ }^{6} 823$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Process Plant <br> Drainage Diversions | 2.7 | LG | LGG or diversion | Class 4 - | C |  |  |
| Process Plant Sediment Ponds | 1 | LIG | LIG or ponds | Class 4-5 | Class 4-5 | TBD | TBD |
| Bulk Fill Stockplle | 2.6 | LG | LIG | Class 4-5 | Class 4-5 |  |  |
| Pipelines and Powerlines (on lease) | 1 | LG | Lig | Class 4 | Class 4 | TBD | TBD |
| Rubbish Dumps | 0.2 | LG |  | Cass 4.5 | Class 4-5 | TBD. | TBD |
| Conerete Batch Plant | 0.3 | LG | LIG | Class 4-5 | Class 4-5 | TBD | B0 |
| Fuel Storage Area | 0.3 | LG |  | Class 4 | Class 4 | TBD | TBD |
| Contractor Laydown | 4.3 | LIG | LIG | Class 4 | Class 4 | TBD | TBD |
| Area Exploration |  |  |  | Class 4 | Class 4 | TBD | B |
| Construction Accoss | 5 | LJG | LG/Habitat | Class 4-5 | Cass |  | TBD |
| Inet of specific areas) | 59.9 | LIG | LG/Habfat | Class 4 -5. | Class 4-5 | TBD | TBD |
| Total | 276.4 |  |  | - | Class 4-5 | TBD | TBD |

*falogue sites and dlsturbance description are to be ldentifed and the emvronmental authority holder must amend the envifonmental authorify to inolude analogue sites in
Schedule F-Table 1 by 30 June 2007 .
TBD- To be determined
LIG- Low Intensity Grazing
-
(F1-2) Progressive rehabilitation must commence when areas become avallable wit
Complate an investigation into .
outcomes in Schedule F . Table 1 and landform design criteria in Schedubmit a report to the administe
$(\mathrm{F} 1-2)$
$(\mathrm{F}-3)$


Reefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MiN00401001

Schedule F-Teble 2 (Landform Design)

| Wistubance fye | $\begin{aligned} & \text { Slopetange( } 0 \% \end{aligned}$ | Mrocifve surfice areat, (xty, |
| :---: | :---: | :---: |
| Waste Hock Dumps | $33 \%-76 \%$ ( 13 to angle of repose) | 49.7 |
| Heap Leach Pads | <33\% or 1:3 | 43.2 |
| ROM Pads | $33 \%-76 \%$ ( $1: 3$ to angle of repose) | 13.3 |

## Residual Void Outcome

(F2-1) Residjal voids must not cause any serious environmental harm to land, surface waters or any recognised groundwator aquifer, oliter than the environmental harm constituted by the existence of the residual void fiself and subject to any other condition within this environmental authority.

## Dams Containing Hazardous Waste

## Description of Dam

(F3-1) The construction or operation of any dam containing hezardous waste within the operational land must comply. with Schectule F-Table 3.

Schedule F-Table 3 (Sizeandipurpose of Dams Containing Hazardous Waste)

| $\qquad$ | Maminum surfare area of dationaj) C | Uoximum volime © (tap unt | Rapihum <br> depth of dam <br> $m)^{2}$. | Pumpose of damial |
| :---: | :---: | :---: | :---: | :---: |
| Process Water Ponds (Patifinate Pre Settler, Raffinate, LLS and PLS) | 3.4 | 51,100 | 4.5 | Storage of Process Solutions |
| Heap Leach Pads | 43.2 | N/A | N/A | Storage of Process Solutions |
| Stormwater Pond 1 <br> (Stage 1 oniy | 6.47 | 302,760 | 6.35 | Storage of storm water runoff trom processing area |
| Stormwater Pond I\& 2 (Stage 2) | 10.4 | 467,720 | 6.35 | Storage of storm watar funoff tromprocessing area |

Note ${ }^{\text {19. }}$ The name of the dam containing hazardous waste should refor to the name of the dam eg. process residte facliny and decant dam.
Note ${ }^{(2)}$ : For dams that do not require a dam wall. input the maxinium vold depth e.g. whene dams are formed by oxcavating betow the land surface or backtiling a resfotuat vold.
Note ${ }^{(9)}$ : Puppose of the dam shoukd outhine the designed function, eg. the permanent containment of tallings restiting from the extraction of nidkel, cobath and other metals at the XYZ Refinery'.

## Location of Dam

The location of any dam containing hazardous waste within the lioensed place must be located within the polygonal area defined by the co-ordinates defiried In Schedule C- Table 4-Map 4.

containing horardous of 3 control points is required to constrain the location of all acthittes assoclated with the dam apputenamt works conslsting of tallhgs duclure which forms put of any cam containing hazardous waste may include contahmont systems, pressure rollof wells, docant and recyole water systems;

## Standarcis and Criteria

(F3-3) The holder of the environmental authority must design, construct, repair, maintain, operate anid decommission the dams defined in Schedule F - Table 3 and 4 in accordance with an acknowledged design plan that must Dams Containling Hazardous Wamental conditions in the "Code of. Environmental Compllance for High Hazard
(F3-4) The holder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and nonihezardous dams in accordance with the criteria cuilined in Appendix B of

## Inspection of Dams

High hazard dams containing hazardous waste shall be inspécted by a Registered Professional Engineer Oueensland (RPEG) prior to 1 November each year or at any time if alarming, unusual or othervise

For each inspection, the engineer shall assess the condition of the dam and its foundations, determine the hydraulic adequacy of the dam and assess the adequacy of the works with respeat to dam safety.

For each inspection, two copies of the engineer's report and any recommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the inspection.
Decommissioning of Dam - Objective
Dams containing hazardous waste must not be abandoned and must be decommissioned to a stuation where water can no longer be stored in the dams. The dams and their contained waste(s) must be stable, whereafter the dams are no longer dams and they become landforms on the operational land and must comply with the rehabilitation requirements of this environmental authority.

## Decommissloning of Dam - Documentation and Compliance.

(F3-9) Decommisstoning activities for dams must be documented in detall th the plan of operations under which the activities are to occur. Where the detalled documentation is not already contained in the Design Plan for the dam, the detalied documentation is considered to be an amendment to the design plan and riust be submited
as an amendment to the design plan required by the "Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste".

## Infrastructure

(F4-1) All intrastructure, consitucted by or for the environmental authority holder during the mining activilies including water storage structures, must be removed from the stie prior to mining lease surrender, except where agreed in wiling by the post mining landowner / holder.

NOTE: This is not applicable where the landowner / holder is also the environmental authority holder:

## Contaminated Lancts

(F5-1) A register and map of all potentially contaminated sites and any remediation detalls, must be kept on site; updated regularly, and included in each Plan of Operations.
(F5-2) A Spiliage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.

## END CONDITIONS FOR SCHEDULEF

## Schedule © - Community

## Complaint Response

(G1-1) All complaints recelved must be recorded including detalls of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made avallable for inspection by the administering authority on request.

## END CONDITIONS FOR SCHEDULE G

## Schedule H-Definitions

"acceptance criteria" means the measures by which the actions implemented to rehabllitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have en signticantly been disturbed by the mining activities. Acceptance criteria may include information regarding:
vegetation establishment, survival and succession;

- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soll development and nutrient cyciling, and the recolonisation of speclfic fauna groups such as collembola, mites and termites which are involved in these processes;
- miorobiological studies including recolonisation by mycornhizal fungi, micrebial biomass and respiration
- effects of various establishment treatments such as deop ripping, topsoil handiling, seeding and fertillser application on vegetation growth and development
- resilience of vegetation to disease, insect attack, drought and fire;
" vegetation water use and effects on ground water levels and catchment yields."


## "affected bullding" ...

- for noise means any building or any part of a bullding, for example the building from which the noise is made; at which the noise can be heard.
- for vibration means any building or any part of a building, for example the activity from which the vibration
Is made, at which the vibration can be felt:
"ambient (or total) nolse" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.
"appropriately qualified person" means any person who conforms to the EPA operational policy for an "appropriately qualfied person (analyst)" in accordance with Section $490(7)$ of the Environmental Protection Act 1994 :
"ARD" means acid rock drainage and refers to the low pH , high heavy metal pollutant typical of sulphidic mine wastes, and most commonly associated witt the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.
"authority" means environmental authority (mining activities) under the Environmental Protection Act 1994.
"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.
"building" includes a structure of any type and part of a building or structure."
"commercial place" means a work place used as an office or for business or commercial purposes, whioh is not part of the mining activity and does not include employees accommodation or public roads.
"competent person" means a person with the demonstrated skll and knowledge required to carry out the task to a standard necessary for the reliance upon collected. data or protection of the environment.
"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Envirommental Compliance for High Hazard Dams Containing Hazardus Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms of procedures, works and outcomes at the end of dam life, The documents can include design and investigation reports, drawings, specifications and certifications.
"environmental authority hoider" means the holder of this environmental authority.
"flow event" means a flow event produoing sufficient water to permit a monitoring creek bed flow of 30 cm or more at the sampling station.
"flowable substance" means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a sltuation. It includes water, other liquids or a mixture that includes water or any other liquid or suispended solids.

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[^1] or the AEP wave allowance (AEP is the annual exceedence probability).
"mineral" means a substance which nommally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crest and includes a substance which may be exdracted from sucha subistance, and includes-
(a) clay if mined tot use for its ceramic properties, kaolin and bentonite;
(b) toundry sand;
(C) hydrocarbons and other substances or matter occuming in assoctation with shale or coal and necessarily mined; extracted, proctuced or released by or in connection with mining for shate or coal or for the purpose of onhancing the satety of current or fulure mining operations for coal or the extraction or proctuction of mineral e" therefiom;
(d) limestone If mined for use for its chemical properties;
(c) marble;
(6) mineral ofi or gas extracted or produtced from shale or coal by in situ processes;
(g) peat;
(b) sall inoluding brime;
(0) shate frem which mineral oll may be exdracted or produced;

0] sillca, inetuding silica sand, if mined for use for th chemical properties;
(k) rock mined in block or slab form for building or monumental purposes;
but does not include-
(0) living matter;
(m) petroleum within the meaning of the Petroleum Act 1923;
(n) soll, sand, gravel or rock (other than rock mined in block or slab form for bulding or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
(0) water.
"noxious" means harmful or injurious to health or physical well being, other than trivial harm.
"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.
$\angle \rightarrow z+17106$
Page 24 of 32 * 0902 This environmental authority takes effect on 24 July 2006 Environmental Protection Agency
"peak particle velocity (ppy)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second ( $\mathrm{mms}^{7}$ ).
"protected area" means - a protected area under the Nature Conservation Act 1992; or

- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.
"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as minng operations are ongoing.
"reference site" (or analogue site) may reflect the original location, adjacent area or another area where rehablitation success has been completed for a similar blodiversity. Detalls of the reference site may be as photographs, computer generated images and vegetation models etc.
"rehabilitation" the process of reshaping and revagetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
"representative" means a sample set which covers the variance in monitering or other data either due to natural changes or operational phases of the mining activites.
"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehablitation processes.
"self sustaining" means an area of land which has been refabllitated and has maintained the required acceptance criteria: without human intervention for a period nominated by the administering authority.
"senitive place" means;
- a dwelling, residential allotment, moblle home or caravan park, residential marina or other residential premises; or
- an educational instiutions or
- a medical center or hosplital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public park or gardens.
"significant disturbance" - includes land
(a) If it is contaminated land; or
(b) it has been disturbed and human intervention is needed to rehabilitate it.
i. to a state required under the relevant environmental authority; or
i. Ihe environmental authorliy does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation \& topsoli)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, watland or lake where mining activities occur;
- areas submerged by talings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, alrstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a sultability statement has not been issued.

However, the following areas are not Included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achleved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- areas tinder permanent infrastructure. Permanent infrastructure includes any infrastructure froads, tracks, bridges, culvents, tams, bores, buildings, fixed machinery, hardstand areas, airstrips, hellpads etc) which ts to be left by agreement with the landowner. The agreament to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tanure unless those areas are disturbed during the term of the tonure.


Page 25 of $32 \cdot 0002$ This environmental authority takes effect on 24 July 2006 File D Part 2
"spillway" means passage or outlet from the dam through which surplus water fows.
"stable" means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideretion of geotectinical stablily, settlement and consolfdation allowances, bearing capacity (traffic ablity), erosion resistance and geochemical stability with respect to seepage and contaminant generation.
"suitably quallified and experienced person" means a person who is a Registered Professional Engineer of Queensland under the provisions of the Professional Engineers Act 1988 or a Corporate Member of the Institution of Engineers: Australla or holds equivalent professional quallititations and has the following:
(a) knowledge of engineering principles related to the struatures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
(b) at least a total of five years of sutable experience and demonstrated expertise in at least four of the following areas: investigation, design or construction of dams;

- operation and maintenance of dams;
- geomechanics with particular emphasis stability, geology and geochemistry;
- hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
- hydraillics with particular reference to sediment transport and deposition, erosion control, beach processes;
- . hydrogeology with particular reference to seepage, groundwater,
- solute transport processes and monitoring thereof; or
- daṃ safety.
"tolerable lmits" mieans that a range of values could be accepted to achieve an overall environmental management objective (eg a range of settement of a talling capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).
"trivial harm" means ervironmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of ans amount of, or amounts totalling more than $\$ 5,000$.
"watercourse" - Means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (naturai, artificial or artificially improved) with:
(a) continutous bed and banks;
(b) an extented period of flow for some months after rain ceases, and
(c) an adoquacy of flow that sustains basic ecologloal processes and maintains blodiverslity.
"waters" includes mer, stream, lake, lagoon, pend, swamp, wettand, unconfined surface water, bed and bank of any waters, dams, non-tidet or tidial waters (including the sea) or any part-thereof.

END CONDITIONS FOR SCHEDUREH

Schedule I-Maps / Plans



Schedule 1-Map 2 Location of End Plpe Refleases from Sediment Dams - Processing Area


Schedule I - Wap 3 Location of End Plpe Releases from Sediment Dams - Hining Area


Schredule 1-Map44 Location of Hazardous Dams


Schedule 1- Hap 5 Stream Sediments Honitoring Lications


Schedule 1-Map 6 Groundwater Monitoring Locations
END CONDITIONS FOR SCHEDULEI
END OF EVIRONMENTAL AUTHORITY


# Queensland Government 

Environmental Protection Agency
incorporating the
Queensland Parks and Wildufe Ser

Reefway Pty Lid
Level 22, Allendale Squate
77 St Georges Terrace
Perth WA 6000

CC/ Savannah Resources Pty Ltd
Level 22, Allendale Square
77 St Georges Terrace
Perth WA 6000

Dear Sir/Madam

## Re: Amendment of Environmental Authority MIN100401006.

I refer to the application for amendment of Environmental Authority (Mining Activities)
MIN100401006 received at the Brisbane EPA office on 2 October 2006.
Please find attached the amended Envirommental Authority (EA) MIN100401006. This EA takes effect from 30 April 2007 and the anniversary date of this authority is 24 July of each year.

If you have any inquiries in relation to the above details please contact Nell Maver on (07) 47447820.

Yours faithfully

$$
\text { s. } 49 \text { - Signature }
$$

Geoff Metcalfe
Distriet Manager
Environmental Operations
Mount Isa District, Northern Region
C/c Mining Registrar

# Environmental Authority No. MIN100401006 (mining activities) <br> Section 258 Environmental Protection Act 1994 

This environmental authority is granted under the Environmental Protection Act 1994 and includes conditions to minimise environmental harm caused, or likely to be caused, by the authorised mining activities. An environmental authority (mining activities) may be for mining activities authorised (under the Mineral Resources Aot 1989) to occur under one of the following mining tenements: a prospecting permit; mining claim; exploration permit; mineral development licence; or mining lease. In general, a mining activity means: prospecting, exploring, mining; or processing minerals; remediation; rehabilitation; and includes facilitation and supporting activities and any action taken to prevent environmental harm.

Under the provisions of the Environmental Protection Act 1994 this Environmental Authority is Issued to:

Reefway Pty Ltd
Level 22 Allendale Square
77 St Georges Terrace
Savannah Fesources Pty Ltd

Perth WA 6000 Leval 22, Allendale Square 77 St Georges Terrace Perth WA 6000
in respect of carrying out activities as part of the following mining project:

| Type of Environmental Authority (mining activities) | Authorised mining tenements | Location |
| :---: | :---: | :---: |
| Mining Leases | ML 5426,ML 5478, ML90168 | 100km north of Mount Isa |
|  | ML90169, ML90170, ML90178 |  |
|  | MLP0179, ML 5435, ML 5446 |  |
|  | ML 5447, ML 5448, ML 5474 |  |
|  | ML 5476. |  |

The mining activities are authorized to the extent defined in Schedule 6 Section 14(c) of the Environmental Protection Regulation 1998.

This Environmental Authority is subject to the conditions set out in the attached schedules.
The anniversary date of this Environmental Authority ls 24 July each year.
This Environmental Authority takes effect from 30 Avril 2007.

$$
\text { s. } 49 \text { - Signature }
$$

*)
District Manager
Mount Isa District, Northern Region
Delegate of Administering Authority
Environmental Protection Act 1994

This Environmental Authority incorporates the following schedules:

- Schedule A - General
- Schedule B - Air
- Schedule C - Water
- Sohedule D - Noise and Vibration
- Schedule E - Waste
- Schedule F - Land
- Schedule G - Community
- Schedule H - Definitions
- Schedule I - Maps / Plans


## Schedule A - General

Financlal Assurance
(A1-1) Provide a financial assurance in the amount and form required by the administering authority prior, the commencement of activilies proposed under thls environmental authority.

NOTE: The calculation of finanolad assurance for condition (A1-1) must be in accordance with Guideline 17 and may inctude a performance discount. The amount is deffned as the maximum total rehabiltation cost for complete rehabilitation of all disturbed aroas, which may vary on an annual basis due to progressive rehabilltation. The amount required for the financial assurance must be the highest Totel Rehabiltation Cost calculated for any year of the Plan of Operations and calculated using the formuta: (Financial Assurance = Highest Total Annual Rehablltation Cost x Percentage Required).
(A1-2) The financial assurance is to remain in force untl the administering auitivrity is satisfied that no claim on the
assurance is llkely. assurance is llkely.

NOTE: Where progressive rehablitation is completed and accoptable to the administering authorly, progressive reductions to the amount of fnnancial assurance will be applicable where rehabilitation has been completed In accordance with the accoptance criteria defined within thls environmental authority.

## Maintenance of Measures, Plant and Equipment

(AE-1) The environmental authority holder must ensure:

- that all measures, plant and equipment necessary to ensure compllance with the conditions of this environmental authority are installed;
- that such measures, plant and equipment are maintained in a proper condition; and
- that such measures, plant and equipment are operated in a proper manner.


## Monitoring

(A3-1) Record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for Inspection all or any of these records upon request by the adminlstering
authority.
(A3-2) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.

## Storage and Handling of Flammable, Combustible and Corrosive Liquids

(A4-1) Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents cnvfronmental harm iother than trivial farm) and maintained in accordance with Section 5.8 of AS 1940 - Storage and Handing of Flammable and Combustible Llquids of 2004.
(A4-2) The on-site storage of corrosive liquids must be in accordarice with Section 5.7 of AS 3780 - Storage and Handiling of Corrosive Substances 1994.


## Deffintions

(A5-1) Words and phrases used throughout this environmental authority are defined in Schedule $H$ - Deffilitions. Where a definition for a term used in this envirenmental authority is sought and the term is not defined within this environmental authority, the definitions in the Envionmental Proteotion Aet 1994, its Regulatlons and Environmental Protection Polleles must be used.

## END CONTIONS FOR SCHEDULEA

## Schedule B - Atr

## Dust Nuisance

(B1-1) Subject to Conditions (B1-2) and (B1-9) the release of dust or particulate matter or both resulting from the mining activity must not cause an envirormental nulsence at any sensitive or oommercial place.
(B1-2) When requested by the administering authority, dust and partoulate monitoring must be undertaken within a reasonable and practicable timetrame nominated by the administering authority to tivestigate any complaint - (Which is nelther fivelous nor vexatious nor based on mistaken bellef in the opinion of the authorised efficer) of : envirenmental nulsance at any sensitive or commerclal place, and the results must be notified within 14 days to 4. the administering autherity following completion of monitoring.
(B1-3) It the emvironmental authority holder oan provide evidence through monitoring that the following llimits are not beling exceeded then the holder is not in breach of (1-1):
a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordanee with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991.
(B1-4) If monitoring indicates exceedence of the relevant llmits in Condifion (B1-3), then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; of
b) immediately implement dust abatement measures so that emissions of dust from the activity do not result In futher environmental nulsance.

## Odour Nulsance

(B2-1) Subfect to condilion (B2-2); the release of noxious or offensive odour(s) or any other noxious or offensive aliborne contaminant(s) resulting from the mining aetivity must not cause an environmental nuisance at any sensitive or commerclal place.
(B2-2) When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practioable timeframe nominated by the adminlstering authority to Investigate any complaint (which is nelther frvolous nor vexatious nor based on mistaken bellot In the opinion of the authorised officer) of environmental nulsance at any sensilive or commercial place, and the results must be notifled within 14 days to the administering authority following completion of monitoring.
(B2-3) If monitoring Indicates Condition (B2-1) is not being met then the environmental authority hoider must:
a) address the complaint Including the use of appropriate diapute resolution If required; or
b) Immediately implement odour abatement measures se that emissions of odour from the activity do not result in further environmental nulsance.

## END CONDITIONS FOR SCHEDULE B

Page 3 of 38 - 0902 This Environmental Authorly takes offeot 30 Aprll 2007

## Schedule C-Water

## Release to Waters

(C1-1) Reeelving waters affected by the release of process water or stom water contaminated by the mining activities or both must be monitored at the locations and frequencles defined in Schedule C - Table 1 and Schodule I - Map 1 \& 2 , and the results of the test sites comply with the contaminant linits defined in Schedule C - Table 3.

Schedule C. Table 1 (Recelving Water Monitoring Locations and Frequency)

| Montoring molint | Eastitg (Anconema) | $\begin{gathered} \text { Narthing } \\ \text { (ang chzone } 54) \end{gathered}$ | Whantarigi frequeney |
| :---: | :---: | :---: | :---: |
| MKUS 1 - veforonce site* | 305625 | 7797450 | Each flow event |
| MKUS 2 - reference sitt* | TBD | TBD | Each flow event |
| MKDS 1 - tost site | 301160 | 7800135 | Each flow event |
| MKDS 2 -testsite | 306366 | 7798356 | Each flow event |
| MKDS 3-test site | 306670 | 7798363 | Each flow event |
| MKDS 4-test site | 301300 | 7797265 | Each flow event |
| LA-US1-reference sitte* | 295150 | 7812680 | Each flow event |
| LA- US2- reference site* | 295750 | 7812480 | Each flow event |
| LA-DS1-test site | 294000 | 7810100 | Each flow ovent |
| LA-DS2-testsite | 295500 | 7810400 | Each flow event |

NOTE: This doos not apply to dams contalning hazardous waste
*Reference sites must
a) be from the same blogeographloal and clmatic reglon:
b) have simillar geology, soll types and topography
c) contain a range of habitats shimlar to those at the test site
d) be of similar flow regima; and
o) not be so close to the fest sltos that any disturbances at the test sto also result in a change at the reforence site. TBD- to be determined and provided to the QEPA prior to commencement of minirg.

C1-2 Subject to Condition (C1-1), it the recelving water contaminant tutgger levels defined in schedule © - Table 2 are exceeded then the envionmental authority holder must complete an Investigation into the potential for environmental harm and notty the administering authority within 3 months of recelving the analysis results.

Schedule C - Table 2 (Recoiving Water Trigger Limits)


1 Contanhnant tifgers inhts are bessed on Tablo 3.3.4 and 3.3.6 of Aqualic Ecosystems ANZECC (2000)
${ }^{2}$ Contaninant tilgger Itmits are based on $50 \%$ of the contaminanillinits dofined in the ANZECC (2000) Lvostock Drinking Water and are to be anallysed as total metals (unilitored).
${ }^{s}$ Contaminant trigger ilmits based on ANZECC (2000) Ifgger levels for aquathe ecosystems of sillghty - moderatoly distuibed systems - table 3.4.1 level of proteetion $9 \sigma \%$ / Table 3.3.4/3.3.5 - Tropical Australla tipland tivers.
${ }^{4}$ Contaminant tigger limits are based on $50 \%$ of the contaminani llmits detined in the ANZECC (2000) Lwestook Dinking Water and are to be analysed as total metals (unflitered). These llmits are set for the Mount Kelly Leases only (ML 5426 ML 5478, ML90168, ML90160, ML90170, ML90178, ML 5435, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476 )
${ }^{6}$ Contamiaant tigger limits are based on site specifle background data and are to be analysed as total metals (uniltered), These trigger llnits are sef for the Lady Annio Lease only (ML90179).

Schedule C-Table3 (Receiving Water Contaminant Limits)

| Lerse Parameter | Luts | T. Tumimum | Phaxtmum | Theger type |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 | 9 | Range |
| TBS | mgh | N/A | 4000 | Maximum |
| Sulphate ${ }^{1}$ | mgh | N/A | 1000 | Maximum |
| Aluminitum | met | NA | 5 | Maximum |
| Aluminium ${ }^{\text {d }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 23 | Maximum |
| Arsenlc ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Boron ${ }^{\text {² }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Meximum |
| Cadmitum ${ }^{1}$ | mg/ | N/A | 0.01 | Maximum |
| Chromium ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Cobalt ${ }^{\text {f }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Copper ${ }^{5}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Copper ${ }^{6}$ | mg L | N/A | 1.66 | Maximum |
| Fluaride ${ }^{\text {a }}$ | mgfL | N/A | 2 | Maximum |
| Lead ${ }^{6}$ | mgh | N/A | 0.1 | Maximum |
| Lead ${ }^{6}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.13 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maximum |
| Mercury ${ }^{\text {I }}$ | mgl | N/A | 0.002 | Maximum |
| Malybdenum ${ }^{\text {² }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.15 | Maximum |
| Nicke! ${ }^{\text {! }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Selentum | mgh | N/A | 0.02 | Maximum |
| Zinc ${ }^{\text {S }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 20 | Maximum |

Contaminant Iimits based on table 4.3 .2 ANZECC (2000) Livastock dithling water qually and are analysed as Total motals (unifiterad)
Contaninanithmits are based on Table $4,3.1$ Luvistock oifinking wator qualty and are analysed as Total metals (uniftereo)
${ }^{3}$ Contanhuait linits based on Table 3.4.1 of Aquatic Ecosystems ANZECC ( 2000 ) $80 \%$ and are to be anialysed as fllered metals.
${ }^{4}$ Contaminant llmilts based on Table 3.3.4 of Aquattc Ecosystoms ANZECC (2000)
${ }^{5}$ Contaminant limits are based on table 4.3.2. ANZECC (2000) Livestook diniding water quality and are analysed as Total metals (unflitored). This llmit is set for the Mount Kelly Laases only (ML 5426, ML. 5478, ML90168, ML.90169, MLso170, ML90178, ML 6495, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476.)
"Contaminant thinits are based on site specifle background data and are to be analysed as total metals (untitered). These trigger limits ara set for the Lady Annle Lease only (ML90179).

## End of Plpe Release

(C1-3) . End of plpe release limits for sterm water contarninated by mining activites must be monitored at the fooations and frequencles defined in Schedule © - Table 4 and Schedule $1-$ Map 3, 4 and 5 and comply with the contaminant limits defined in Schedule C. Table 5.

Schedule C - Table 4 (End of pipe monitoring locations and trequency)

|  | $\text { Eastmg } \operatorname{lathe} \sin$ | Northy $\mu$ angeg Zoness | Monterig Weguer Cy |
| :---: | :---: | :---: | :---: |
| Mount Claike ROM Area Sediment Dam | 303834 | 789496 | Each flow event |
| Mount Clarke Pit Area Sediment Dam | 305636 | 7798592 | Each flow event |
| Mount Clarkehlying Horse Sediment Dam | 306887 | 7798726 | Each flow event |
| Procese Plant RoM Pad Sedimont Dam 1 | 303040 | 7798656 | Edeh flow event |
| Process Plant ROM Pad Sodiment Dam 2 | 302906 | 7798900 | Each flow event |
| Process Plant ROM Pad Sediment Dam3 | 302771 | 7799010 | Each flow event |
| Lady Annie Sediment Dam | 295307 | 7811464 | Each flow event |

NOFE Tilt doos not apily to dams contalning hazardous waste.
Schedule C. Table 5 (End of pipe contaminant release Imitts)

| Parampter | Unfts | Whпимия | Buxdrum, | Limityep |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 | 9 | Range |
| Tbs | mgt | N/A | 4000 | Maximum |
| Sulphate | $\mathrm{mg} /$ | N/A | 1000 | Maximum |
| $\therefore$ Arsente | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Cadrinum | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Chromum | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Cobait | mg/ | NA | 1 | Maximum |
| Copper | $\mathrm{mg} / \mathrm{L}$ | NA | 1 | Maximum |
| Lead | mgl | N/A | 0.1 | Maximum |
| Mercury | mg/L | N/A | 0.002 | Maximum |
| Zinc | mgh | N/A | 20 | Maxinuim |

Coritaninant limits based on ANZEGC (2000) LMostock drinkhg water qualty and are analysed as Total motals (unifitored) NOTE: This does not apply to dams containing hezandous waste.

## Dams Containing Hazardous Waste

(C1-4) Water storages containing process water and storm water contaminated by mining aotivites musi be monitored at the locations and frequeneies defined in Schedule C - Table 6 and Schedule 1-Map 6 and samplas analysed for the parameters defined in Schedule C - Table 7.

Sohedule C - Table 6 (Water Storage Moniforing Lecations of Hazardous Dams)

| Monltoring poln | Yqumest Ame 84) | (Zontamaticesu) | Whontorigitequinoy, |
| :---: | :---: | :---: | :---: |
| PLS Ponds | 302000 | 7797450 | Annually, March |
| ILS Pond | 301900 | 7797450 | Anrually, March |
| Raffinate Pond Pre-Setter | 301850 | 7797450 | Annually March |
| Praffinate Pond | 301800 | 7797450 | Amuaily, March |
| Storn water Pond 1 | 301750 | 7797450 | Annually, March |
| Storm water Pond 2 | 301750 | 7797350 | Annually, March |

(01-5) In the event that the water quality within any dam containing hazardous waste does not comply with the contaminant limits defined in schedule C - Table 7, implement measures to prevent access by all livesto nd minimise access by fauna to the dam.

Sohedule C-Table 7 (Water Ouality Limits for Dams Containing Hazardous Waste)

| Parameter | Units | Contaminant LImit | Lint Type |
| :---: | :---: | :---: | :---: |
| pH | pH | 4.9 | Range |
| TDS | mgh | 5,000 | Maximum |
| Boron | mgh | 5 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Aluminum | $\mathrm{mg} / \mathrm{L}$ | 5 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cobait | mgh | 1 | Maximum |
| Copper | mgh | 1 | Maximum |
| Lead | mgh | 0.1 | Maximum |
| Niokel | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Zne | $\mathrm{mg} /$ | 20 | Maximum |

Contaminant llimits based on ANZECC (2000 Livestook dinking water qually and are analysed as total metals fintiliere
(C1-6) The design storage allowance on 1 November of each year for any dam contaling hazarefous waste constructed or operated within the operational land must comply with Schedule C Table 8.

Schedule C - Table 8 (Storage Deslon for Dams Containing Hazardous Waste)

| Storage Type | Design Storage Allowanne ${ }^{\text {a }}$ ( | Crtical Design Storma | Mandatory Pieporting Level ${ }^{\text {P/ }}$ |
| :---: | :---: | :---: | :---: |
| Stomwater Pond 1 | fitoo Year Afll 2 month wet season plus process inputs for the 2 month wet season | 1:1000 Year ARI | 1: 100 year ARI |
| Stormwater Pond 2 | 1. 100 Year ARI 2 montri wet season plus process timputs for the 2 month wet season. | 1:1000 Year ARI | 1.100 year ARI |

Note (0): The design storage allowance on 1 November of each year for any dam contahing hezardous wasto construoted with the operational land must be equivalent to the tunteff from a 1 In 100 Anl 2 month wot season plus process inputs for the equlvalont wet season: Frocess inputs refers to hazardous mineral process waste and water, wheh is beling disposed of in the storage facilty.
Note (a). The critical desion stiomhas a duration that produces the peak discharge for the catchments.
Note w. The mandafory reporting tevel refers to the volume below the spllway crest, elther the 1100 An 72 hour storm or the 11100 ARt waverallowanne, whichevar ts lower:
(C1-7) The spiliway for asyelam contalning hazardous waste, constructed or operated within the operational land must be designed and maintained to wilhstand the peak flow from the spllway ertical design storm defined in Schedule C - Table 0.
(C1-8) The holder of the environmental authorty must mark the mandatery reperting level defined in schedule C. Table 8 on the spllway of all dame contalining hazardous wasto within the operational land.
(C1-9) The holder of tie onvironmental authorty must notify the administering authorty when the pondage level of the * dam containing hazardous waste, reaches the mandatory reporting level deflined in schedule C - Table e.

## Stroam Sediment Contaminant Levels

(C2-1) All reasonable and practicable eroslon protection measures and sediment control measures must be - implemented and maintalned to minimise erosion and the release of sediment.
(C2-2) The bed of the recoling waters, affected by the release of process water and storm water contaminated by the Sining activites must be monitored at the locations and frequencies defined In Schedule C-Table 9 and Schedule 1-Map 7\&B.

Schedule C-Table9 (Recelving Stream Sediment Monitoring Locations and Frequency)

| MKus Montiorting polns | Kacp eat zones 5a | Nacprithing | Montioning lrequency |
| :---: | :---: | :---: | :---: |
| MKUS 1- reference site* | 305625 | 7797450 | May each year |
| MKUS 2 - Jefernice site* | TBD | TBD | May each year |
| MKOS 1-test site | 301160 | 7800135 | May each year |
| MKDS 2-test site MKDS 3-test site | 306366 | 7798356 | May each year |
| MKOS 3-test site | 306370 | 7798363 | May each year |
| MKDS 4 \% fest stite | 301300 | 7797255 | May each year |
| LA USI-reference stie* | 295160 | 7812680 | Each fow event |
| LA- US2 reference site* | 295750 | 7812480 | Each flow event |
| LA- DS1-test site | 294000 | 7810100 | Each flow event |
| LA- DS2- test site | 295500 | 7810400 | Each flow event |

## NOTE This does not apply to dams containing hazardous waste

## *feference sites must

a) be from the same blogeographical and climatic region;
b) have similar geology, soll types and topography
c) contain a range of habitats sinillar to those at the test site
d) be of stmillar fow regine; and
e) not be so close to the test siltes that any disturbances at the test site also result In a change at the reference site. TBD- to be dotermined and provided to the QEPA pror to commencement of mining.
(C2-3) Sublect to Condition (C2-2), if the stream sediment contaminant trigger levels defined in Schedule C-Table 10 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within 3 months of recelving the analysis results.

Schedule C-Table to (Recefilig Stream Sediment Contaminant Trigger Levels)


ANZECC (2000):ISQG Low trigger values, Sodiment Quality Guldelines, Aquatic Ecosystoms, Tabla 3.5.1.
${ }^{2}$ Site spocfic tioger valuo as oalculafed In section 3.7 of EM Plan Soptember 2006 is for the Mount Kelly Leases only. (ML 5426, ML 5478, ML90168, ML90169, ML90170, MLPOt78, ML 5435, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476.)
${ }^{5}$ This llinit is set for the Lady Anrite Lease only (MLS0179).
(C2-4) Subject to Condition (C2-2), struam sediment contaminant llmits must not exceed the gontaminant fimits defined in Sohiedule C-Table 11.

Schadule C - Table 11 (Recelving Stream Sediment Contaminant Limits)

| Parameler | Unito, | Contaminantimity | Limitive |
| :---: | :---: | :---: | :---: |
| Antimony ${ }^{\text {a }}$ | mg/kg dry wt | 25 | Maximum |
| Arsenti ${ }^{1}$ | mg/kg dry wt | 70 | Maximum |
| Cadmum | malkg dry wt | 10 | Maximum |
| Chromilum ${ }^{1}$ | mg/kg dry wt | 370 | Maximum |
| Copper ${ }^{\text {? }}$ | mghkg dry wit | 120 | Maxdmum |
| Copper ${ }^{3}$ | mg/kg diy wt | 600 | Maximum |
| Lead ${ }^{\text {a }}$ | mg/kg diy wi | 220 | Maximum |
| Niokel ${ }^{1}$ | mg/kg dry wt | 52 | Maxinum |
| Sllver ${ }^{\text {a }}$ | mg/kg diy wt | 37 | Maximum |
| Mercuri ${ }^{1}$ | mg/kg dry wt | 1 | Maximum |
| Z $\mathrm{Zha}^{7}$ | mg/kgidy wt | 410 | Maximum |

ANZECC (2000) ISGG High tigger values, Sedmeni Qualty Guldellies, Aquato Ecosystoms, Table 3.5.1.
${ }^{2}$ Ste specifle thlgger value as calculated In sectlon 3:6 of EMPlan JHly 2006 is for the Mount Kolly Leases only (MLL 5426,
ML 5478, ML90168, ML90469, ML90170, ML90178, ML 6435, ML 5446, MLL 5447, ML 5448; ML 5474 and ML 5476 .)
${ }^{3}$ This lmitts set for the Liedy Anile Lease only (Mi90170).
(C2-5) All stream sediment sampling must be underaken In accordance wht AS 5667.1 Gutdarice on Sampling of Bottom Sediments of 1998

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## Sewage effluent

(C3-1) All efluent released from the treatment plant must be montored at the frequency and for the parameters specified
(C3-2) Sewage effluent used for dust suppression must not excoed sewage effluent releasellimits defined lin Schedule C. Table 12.
(C3-9) Sowage Effluent used for dust suppression must not cause spray diff or over spray to any sensitive or commerclal place, and must not be applied at a rate that causes pooling, ponding and/or runoff of any effluent inigatied.
(C3-4) Subject to Condifions (C3-1) to (C33) Inolusive, sewage effluent from sewage troatment facilities must be reused or evaporated and must not be directly roleased from the sewage treatment plant to any water way or drainage line other than in accordanco with Schedule C. Table 12.
Schectule C - Tabje 12 (Sewage effiuent givality targets for dust suppression)


A minimum of five samples must be oollocted at not less than a weoldy interval for the quianterly sampling
${ }^{2}$ A minimum of flie siamples must be collected at not less than a weokly interval for the quartelfy samplling with four out of fve samples must bo loss than the maximum
${ }^{3}$ A mintmum of the samples must be collocted at not less than a weokly Intervil for the quarterly sampling with four out of the samplos must be higher than the minimum but lower than the maximum ilmit.
Releaise linits sourced from Queensland Water Recycing Guidelines Docember 2005 Tablo 6:2b
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Reefway Pty Ltd \& Savannah Resources Pty Lid Environmental Authority No MIN100401006

## Groundwater

(C4-1) Groundwater, affected by the mining activities must be monitored at the locations and frequencles defined in Schedule C - Table 13 and Sohedule 1-Map 9 \& 10.

Schedule C - Table 13 (Groundwater Monitoring Looations and Frequency)

| $\square$ |  (Asty ${ }^{2}$ Zöne 59) | Noxdines Gefp 64 Zone 54 : | sturaceloL |  |
| :---: | :---: | :---: | :---: | :---: |
| LA MB01 (Process Plant)-reference stte | 302484 | 7796800 | TBD | Manthly |
| LAMB02 (Process Plant)-reference site | 302891 | 7797385 | TBD | Monthly |
| LA ME03 (Process Plant) - reforence stie | 302128 | 7797950 | TBD | Monthly |
| LAME04 (Process Flant) | TBD | TBD | TBD | Monthly |
| LAMe05 (Procoss Pliant) | 760 | TBD | TBD | Monthily |
| LA MB06 (Process Plant) | TBD | TBD | TBD | Montily |
| LA MB07 (Process Plant) | TED | TBO | TBD | Monthly |
| LAMBOB (Process Plant) | TBD | TBD | TBD | Monttily |
| LAMB09 (Process Plant) | TBD | TBD | TED | Monithly |
| LA MB010 (Process Plant) | TB6 | TBD | TBD | Monthly |
| LA ME011 (Process Plant) | TBE | TBD | TBD | Monthly |
| LA MB012 (Process Plant) | TBD | TBD | TBD | Mentuly |
| LA MB013 (Process Plant) | TBD | TBD | TBD | Monthly |
| LA MB014 (Process Plant) | TBE | TBD | TBD | Montrily |
| MK MB01 (Mount Kelly pit area) | 305360 | 7789013 | 315,467 | Quarterly |
| MK PB01 (Mount Kelly pit area) | 305356 | 7799019 | 315.424 | Quarterly |
| LA-TH07 (Lady Annie pitarea) | 295790 | 7812280 | TBD | Quaiterly |
| LATB08 (Lady Aninie plit area) | 295856 | 7812247 | TBD | Quarterly |
| LA-TB09 (Lady Anmle pltarea) | 296770 | 7812179 | TBD | Quartilly |
| LA-TB010 (Lady Annle pitarea) | 295194 | 7812022 | TBD | Quarterily |
| LA-TB011 (Lady Annle plitarea) | 295205 | 7811904 | TBD | Quarterly |
| LATTB012 (Lady Annie pil area) | 295124 | 7811983 | TBD | Quaiterly |

NOTE This doos not apply fo dams contalihng hazardous wasto

## TBD To be detemined

Reforenae sitos must:
a) be from the same blogeographioal and ollmatic reglon;
b) have stinllar goology, soll types and topography
o) contahn a range of habitiats similar to those at the test site
d) be of sinilar flow regime; and not be se close to the test sites that any olsturbances at the test site also result in a change at the reference stie.
(C4-2) Subject to Condition (C4-1), it the groundwater contaminant titger levels defined in Schedule C-Table 14 are exceeded then the environmental authority holder must complete an investigation into the potentiel for onvifonmental ham and notfy the administering authority within 3 monthis of tecelving the analysis results.

Sehedule C - Table 14 (Groundwater Contaminant Trigger Levels)

1

| Patameter | Unte | Mint | Rax | Trigerty |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}{ }^{1}$ | pH | 6 | 8 | Fange |
| TDS ${ }^{\text {a }}$ | mgh | N/A | 2000 | Maximum |
| Sulphate ${ }^{2}$ | mgh | N/A | 600 | Maximum |
| Aluminhim ${ }^{\text {a }}$ | mgh | N/A | 2.5 | Maximium |
| Arsenici ${ }^{2}$ | mgh | N/A | 0.25 | Meximum |
| Boran ${ }^{2}$ | $m g / 2$ | N/A | 0.37 | Maximum |
| Cadmium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.005 | Maxdmum |
| Chromium ${ }^{2}$. | ingh | N/A | 0.5 | Maximum |
| Cobath ${ }^{\text {2 }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Copper ${ }^{2}$ | mgh | N/A | 0.5 | Maximum |
| Fheride' | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Lead ${ }^{\text {², }}$ | mgh | N/A | 0.05 | Maximum |
| Manganese ${ }^{3}$ | mgh | N/A | 1.9 | Maximum |
| Mercuiy ${ }^{2}$ | mgh | N/A | 0.001 | Maximum |
| Molybodentum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.075 | Mexinum |
| Nickel ${ }^{2}$ | mgh | N/A | 0.5 | Maximum |
| Selentum ${ }^{2}$ | mgh | N/A | 0.01 | Maximum |
| ZTha ${ }^{2}$ | mgil | N/A | 10 | Maximum |

${ }^{1}$ Contaminant tiggors limits are based on Table 3.3.4 and 3.35 of Aquatc Ecosystems ANZECC (2000)
${ }^{2}$ Contaminant trgger limits are based on $50 \%$ of the contaminant IImits detined in the ANZECC (2000) Livestock Drinking Water and are to be analysed as total metals (unfitered).
Contaminent trigger Hinik based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) and aro analysedias Filtered
Metals
(C4-3) Subject to Condifion (C4-1), groundwater contaminant limits must not exceed the contaminant limits defined in
rombermathildeonecsandpermis

Feefway Pty Litd \& Gavannah Resources Ply Ltd Environmental Authority No MiN100401006

Schedule C -Table 15 (Groundwater Contaminant Limits)


Contaminant linith based on ANZECC (2000) LWestock drinking water qually and are analysed as Total Motals (unillered)
${ }^{2}$ Contaminant limits based on Table 3.4.1 of Aqualfo Ecosystems ANZECC (2000) and are anelysed as Fhthered Metals.
(C4-4) The method of water sampling required by this environmental authorty must comply with that set outin the latest edifion of the Environmental Protection Agency's Water Quality Sampling Manual.

## Voids

(C5-1) Water qualty in mining volds and final volds must be monitored at the locations and frequencles defined in Sehedule C - Table 16 and for the parameters detailed in Schedule C - Table 17.

In the event that water quality within the mining voide or flnal volds does not comply with the contaninant limits (C5-2) In the event that wate Chitable I7, implement measures to prevent access by allivestock and minimise access defined in Schedule C Thable d7, implement measures to preventaccess by allivestod by fauna to the void.

Schedule C. Table 16 Nolds Monitoring Locations and Frequency)


Schedule C-Table 17 (Vold Water Cually Limits)

|  | Cr, Untter | WW Whiler |  |
| :---: | :---: | :---: | :---: |
| pH | pH | 69 | Range |
| TES | $\mathrm{mg} / \mathrm{L}$ | 4000 | Maxdnum |
| Sulphate: | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Arsenic. | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cadmilum | mgh | 0.01 | Maximum |
| Chromlim | mgh . | 1 | Maximum |
| Copper | mgh | 1 | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | 0.1 | Maximum |
| Mercury | $\mathrm{mg} / \mathrm{L}$ | 0.002 | Maxinum |
| - Zine | mgh | 20 | Maximum |

Contaminani limits aro based on ANZECC (2000 Livestook dinking water quality and analysed for total metals (unfiltered))

## Acid Rock Drainage and Leaohate Management

(C6-1) Subject tollmits detined in Sehedule C all reasenable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater, watercourse and waters.

## END CONDITIONS FOR SCHEDULEC

## Sohedule D-Noise amd Mibration

## Noise Nulsance

(D1-1) Subject to Conditions (D1-2) and (D1-3) noise from the mining aetivizy must not cause an environmental nulsance te anaffected building.
(D1-2) When requested by the adminitering authority, noise monitoring musi be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complatint (which is neither frivolous nor vexatious ner based on mistaken bellof in the opinion of the authorised officer) of environmental nuisance at any sensltive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
(D1-3) The method of measurement and reperting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

## Vibration nulsance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining activity must not cause an environmental nuisance to an affected bullding.
(D2-2) When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeftrame nominated by the administerng authority to investigate any complaint (which is nether fifvolous nor vexatious hor based on mistaken belief ha the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

## END CONDITIONS FOR SCHEDULE D

## Schedule E-Waste

## Storage of Tyres

(E1-1) Tyros stored awaliting disposal or transport for take-back and, recycling, or waste-to-energy options - should be stoekpiled in volumes less than 3 m in height and $200 \mathrm{~m}^{2}$ in area and at least 10 m from any other tyre ste ve area.
(E1-2) All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 m radius of the scrap tyre storage area.

## Disposall of Tyres

(E2-1) Disposing of scrap tyres resuiting from the mining activites in spoll emplacements is acceptable, provided tyres. w are placed as deep in the spoll as reasonably practicable.
(E2-2) Scrap tyres resulting from the mining actwittes disposed within the eperational land must not impede saturated aquifers or compromise the stabilly of the consolidated landform.

## Waste Management

(E3-1) A Waste Management Program, in accordance with the Environmental Protection Waste Management) Rollicy 2000, must be fncluded in the Plan of Operations.

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## ecoaccess

## Regulated Waste

(E 4-1) All regulated waste received and removed from the stte, that is over 250 kg in weight, must be transported by a person who holds a current authority to transport such waste under the provislons of the Environmental Protoction Act 1994.
(E4-2) Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken sto a faclity that is lawfully allowed to accept such waste under the provisions of the Envionmental Protection Act 1994.
(E4-3) Where regulated waste is removed from the Project (other than by a release as permitted under another schedule of this environmental authority), records must be kept of the following:
a) the date, quantity and type of waste removed, and
b) name of the waste transporter that removed the waste; and
c) the intended treatment/disposal destination of the waste.

Note: Records of documents maintained in compllance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.

## Waste Rock Characterisation

(E5-1) All ereas to be mined must undergo a waste rock oharacterisation survey (where waste rock is to be disposed 4, of on the surface) and a report submitted to the administering authority prior to mining where this survey has no previously been carried out.
a
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(1) oueensland Govemiment Queensland Parks and Whitife service
Schedule F-Land
Reetway Phy Lid \& Savannah Resources Ply Ltd
Environmental Authority No Milisi00401006
Ren
(F1-1) All areas significantly disturbed by mining activities must be rehabiltated to a stable landform with a self-sustaining vegetation cover in accordance with Schedule $F$ -

## Rehabilitation Landform Criteria

 Table 1 and 2.Schedule F - Table 1 (Final Land Use and Rehabiltation Approval Sehedule)


[^2]Environmental Protection Agency
Www epa-qId.gov:au ABN BF 221158786
ecoaccess
Reefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authorlity No MIN100401006
Reefway Pty Lid \& Savannah Resources Pty Ltd
Environmental Authority No MIN100401006

Schedule F-Table 1 by 30 June 2007 .
IBD- To be deternined.
Classes are derived from the Department of Minerals and Energy's Land Sultability Assesement Te
(F1-2) Progressive rehabiltation must commence when areas become availsble wis)
Progressive rehabiltation must commence when areas become available within the operational land,
Complete an investigation into rehabilitation of disturbed areas and submit a report to the admin
outcomes in Schecule F - Table 1 and landform design criteria in Schedule F. Table 2 by 30 dune 2007 ang authority proposing acceptence oriteria to meet the
The holder of this environmental authority must reheblittote all exising land distur 2007
cated within the boundary leases of ML90179 (Lady Annie) as identified this authority, are rehabilitated to the final land descriptiens identified in Tables 1 and 2 .
$(F 1-2)$
$(F 1-3)$
(F1-4)

Meefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MINt00401006

Schedule $F$, irable 2 (Landfom Design)


## Resldual Vold Outcome

(F2-1) Residual volds must not cause any serious envifonmental ham to land, surface waters or any lecognised groundwater aquifer, ether than the onvifonmental harm constitued by the existence of the residual vold itself and subjoct to any other condition within this environmental authority.

## Dams Containing Hezardous Waste

## Desertption of Dam

(F3-1) The construetion or operation of any dam containing hazardous waste within the operational land must comply with Schadule F-Table 3.

Schedule.F - Table 3 (Size and Purpose of Dams Containine Hazardous Waste)

|  | Mavtinum suifacesenan of dampha) | Haxthumioluind of danm $\mathrm{m}^{2}$ ) | Sophing theng |  |
| :---: | :---: | :---: | :---: | :---: |
| Proceses Water Ponds (Raffinate Pre-Sottler, Rafinate, ILS and PLS) | 3.4 | 63,475 | 4.5 | Storage of Process Solutions |
| Heap Leach Pads | 43.2 | N/A | N/A | Storage of Process Solutions |
| Stormwater Pond 1 (Stage 1 only) | 6.47 | 303,625 | 6.85 | Storage of stom water runoff from processing area |
| $\begin{gathered} \text { Stormwater Pond } 182 \\ \text { (Stage 2) } \end{gathered}$ | 10.4 | 467.720 | 6.35 | Storage of storm water hunoff from processing area |

Note: . The name of the dam containing hazardous waste should rofer to the name of the dam e.g. process resldue facllty and decant dam.
Note For dams that do not require a dam wall mput the maximum vold depth e.g. where dams are formed hy excavating below the land surface or backifing a restctual vold.
Note ${ }^{39)}$. Putpose of the dam should outlie the deslgned finotion, e.g. the permanent contalmment of tallings resumig from the extraction of nickel colait and other metals at the XVZ Reffieny".

## Location of Dam

(F3-2) The location of any dam containing hazardous waste within the licensed place must be locatod withlin the polygonal area deflined by the co-ordinetes defined in Schedule C-Table 4 -Niap 4.

## Schadule F - Table 4 (Location of Dams Containing Llazardous Waste)

| Alpme of dant containing hazordous warte | Easting(a)ter 84, Zons 549 ${ }^{\circ}$ | Northing (AmGea, zone sa) (0) |
| :---: | :---: | :---: |
| PLS Ponds, ILS, Raffinate Pre-settier and Raffinate Pond | $\begin{aligned} & 301760 \\ & 302065 \\ & 302085 \\ & 301760 \\ & \hline \end{aligned}$ | $\begin{aligned} & 7797640 \\ & 7797640 \\ & 7797310 \\ & 7797310 \\ & \hline \end{aligned}$ |
| Stormwater Pond 1 and 2 | $\begin{aligned} & 301470 \\ & 301760 \\ & 301760 \\ & 301470 \\ & \hline \end{aligned}$ | $\begin{aligned} & 7797640 \\ & 7797640 \\ & 7797110 \\ & 7797110 \end{aligned}$ |
| $\begin{aligned} & \text { Héap Leach Pads } \\ & \end{aligned}$ | $\begin{aligned} & 302066 \\ & 302720 \\ & 302720 \\ & 302035 \end{aligned}$ | 7797945 7797945 7796826 7796825 |

Note: : A minimum of 3 cointrol points is required to constrath the location of all activiles assoctated with the dam containing hizzardous waste. Adolitonal infrasthicture which forms pait of any dam contalning hazardous waste may includo appurtenant works consisthg of taillngs discharge pipellnos, seepage collectlon systems, minoff diversion bunds; contaliment systems, pressure rellef wells, decant and recycle water systems.

## Standards and Criteria

(F3-3) The holder of the environmental authoity must design, construct, repair, maintain, operate and decommission the dams defined in Schodule $F$ - Table 3 and 4 in aceordance with an acknowledged design plan that must comply with the standard environmental conditions in the "Code of Environniental Compliance for High Hazard Dams Containing Hazardous Waste",
(F3-4) The holder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardous dams in accordance with the criterla outined in Appendix B of the Code of Environmental Compllance for Mining Activities.

## Inspection of Dams

(F3-5) High hazard dams containing hazardous waste shall be inspected by a Reglstered Professional Engineer Queensland (RPED) pror to i November each year or at any time if alarming, unusual or otherwise unsatisfactory condlitions are observed.
(F3-6) For each inspection, the engineer shall assess the condition of the dam and its foundations, determine the hydirulle adequacy of the dam and assess the adequacy of the works with respect to dam safety.
(F3-7) For each inspection, two coples of the englineer's report and any recommendations as to measures to be taken to ensure the Integrity of the dam shatl be furished to the administeing autharity within 28 days of the Inspection.

## Decommissioning of Dam -Objective

(F3-8) Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where watar can no longer be stored in the dams. The dams and their contained waste(s) must be stable, whereafter the dams are no longer dame and they become landforms on the operational land and must comply with the rehabilitation requitements of this environmental authority.

## - Decommissioning of Dam-Documentation and Compliance

(F3-9) Decommissloning activities for dams must be documented in detail in the plan of operations under which the activitios are to ocour. Where the detailed documentation is not already contained In the Dosign Plan for the
$\qquad$
wo dam, the detailed documentation is considered to be an amendment to the design plan and must be submitted as an amendment to the design plan required by the "Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste".

## infrastructure

(F4-1) All infrastructure, constructed by or for the environmental authority holder during the mining activities including man water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in withing by the post mining landowner / holder.

NOTE: This is not applicable where the landowner / holder is also the environmental authority holder.

## Contaminated Lands

(F5-1) A register and map of all potentially contaminated sites and any remediation details; must be kept on site, updated regularly and included in each Plan of Operations.
(F5-2) A Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.

END CONDITIONS FOR SCHEDULE F

## Schedule G - Community

## Complaint Response

(G1-1) All complaints received must be recorded induding details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

## Schedule H-Dofinitions

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

- vegetation establishment, survival and sucoession;
*. vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development,
*. ecosystem processes such as soll development and nutrient oyoling, and the recolonisation of specific fauna groups such as collembola, mittes and termites which are involved in these procasses;
- microbiological studies including recolonisation by mycortizal fungl, microbial biomasse and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack; drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.


## "affected bullding"

- for noise means any building or any part of a bullding, for example the building from which the noise is made, at which the noise can be heard.
- for vibration means any bullding or any part of a building, for example the activity from which the vibration is made, at which the vilbration can be fell.
"amblent (or total) nolse" at a place, means the level of nolse at the place from all sources (near and far), measured as the Leq for an appropriate time interval.
"appropriately qualified person" means any person who conforms to the EPA operational pollcy for an "appropriately quallifed person (analyst)" in accordance with Section $490(7)$ of the Environmental Protection Act 1994 ,
"ARD" means acld rock drainage and refers to the low $\mathrm{pH}_{2}$, high heavy metal pollutant typical of sutphidic mine wastes, and most commonly assoclated with the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.
"authority" means environmental authority (mining activites) under the Environmental Protection Act 1994.
"blasting" means the use of explosive materiais to fracture*
(a) rock, coal and other minerals for later recovery; or
(b) structural components or other litems to facilitate removal from a site or for reuse,
"bullding" includes a structure of any type and part of a building or structure.
"commercial place" means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or publle roads.
"competent person" means a person with the demonstrated skill and knowledge required to cary out the task to a standard necessary for the reliance upen colleoted data or protection of the environment.
"dam" means a contaliment or proposed containment whether permanent or temporary, which is deaigned to contain, divert or control fiowable substances. However this does not inelude a fabricated or manufactured tank or container designed to a recognised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hiazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materlals and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissloning and rehabilitation objectives in terms of procedures, works and dutcomes at the end of dam life, The documents can include design and investigation reports, drawings, specifioations and cortifications.
"environmental authorlty holder" means the holder of this environmental authortly.
"flow event" means a flow event producing sufficient water to permit a monitoring creek bed flow of 30 cm or more at the sampling station.
"flowable substance" means matter or mixture of materials which can be forced to or otherwise flow under any condifions possible In a situation. It ineludes water, other liquilds or a mixture that includes water or any other liquid or suspended solids.

[^3]"La to, sulf, wantin" means the A-weighted sound pressure level, (adjusted for tonal character and mpulsiveness of the sound) exceeded for $10 \%$ of any 10 minute measurement period, using Fast respense.
"La1, edh tomins" means the A-weighted sound pressure leval, (adjusted for tonal character and impulsiveness of the sound). exceeded for $1 \%$ of any 10 -minute measurement period, using Fast response.
"L $A_{2}$ max adj, $T^{\prime}$ means the average moximum A-weighted sound, pressure lovel, adjusted for nolse character and measured over any 10 minute period, using Fast response.
"land" in the "land schedule" of this document means land excluding waters and the atmosphere.
"Iand capability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.
"land suftability" as defined lin the DME 1995 Technical Guidelines for the Emvironmental Management of Exploration and Mining in Queensland.
"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
"leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the sald material.
"mandatory reporting level" means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP Is the annual exceedence probability).
"mineral" means a substance which normally oceurs naturally as part of the earth's onst or is clissolved or suspended in water within or upon the earth's erust and lnoludes a substance which may be extraoted from such a substance, and includes-
(a). clay if mined for use for its ceramie properties, kadin and bentonite;
(b) foundry sand:
(c) : hydrocarbons and other substances or matter oocurring in association with shafecor coal and necessarily minad, extracted, produced or released by or In comnection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;
(d) Ilimestone if mined for use for its chemical properties;
(e) marble;
(i) mineral oll or gas extracted or produced from shale or coal by in situ processes;
(g) peat;
(h) salt including brine;
(1) shale from which mineral oll may be extracted or produced;
(i) sillca, induding siltea sand, if mined for use for its chemical properties;
(1) rock mined in blook or slat form for bulleding or monumental purposes;
buitdoes notindude-
(0) living matter:
(m) petroloum withith the meaning of the Petroleum Act 1923;
(n) soll, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such; whether intact or in broken form:
(o) water.
"noxious" means hamful or injuifous te health or physical well being, other than trivial harm.
"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

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[^4]"significant disturbance" - includes lanid
(a) If it is contaminated land; or
(b) It has been disturbed and human intervention is needed to rehabilitate it.

1. to a state required under the relevant environmental authority; or
ii. If the envifonmental authority does not require the land to be rehablitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soll has heen compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation \& topsoll)
- areas where land use suitability or capability has been dliminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occuri.
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure inoludes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, alrstrips, hellpads etc) which is to be removed after mining activities have coased; or
- areas where land has been contaminated and a suitablity statement has not been issued.

However, the following areas are not inoluded:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to cifcumstances beyond the control of the mine eperator (such as climatic conditions);
- areas under permanent infrastincture. Permanent infrastructure inoludes any infrastructure froads, tracks, bridges; oulverts, darns, bores, buildings, fixed machinery, hardstand areas, airstrips, hellpads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbanses that pre-existed the grant of the tenure unless those areas are disturbed during the torm of the tonurc.

This Environmental Authorty takes effect 30 Aprll 2007

ATs enviramentailicences ahdpormits
**spillway" means passage or outletfrom the dam through whith surplus water flows.
"stable" means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future, Stability Indudes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), eroston resistanee and geochemlcal stability with respect to seepage and contaminant generation.
"suitably quaHiled and experlenced person" means a person who is a Registered Protessional Engineer of Queensland under the provisions of the Professlonal Engheers Aot 1988 or a CorporataMember of the Institution of Engineers Australlia or holds equivalemt professional quallfications and has the following:
(a) Knowledge of engineering pindples related to the structures; geomechanics, hydrology, hydraulics, chemistry and environmental Impact of dams; and
(b) at least a total of five years of sultable experience and demonstrated expertise in at least four of the following areas: investigation, design or constrution of dams;

- operation and maintenance of dams;
- geomechanics with partloular emphasis stability, geology and geochemistry,
- $\quad$-... hydrology with particulanseference to fooding, estimation of extreme storms, water management or meteorol
- . hydraulics with particular reference to sediment transport and deposition; erosion control, beach processes;
- hydrogeilogy with particular reference to seepage, groundwater,
- solute transport processes and monitaring thereot; or
- dam safety.
"tolerable limits" means that a range of values could be accepted to achieve an overall environmental management objeotive (eg a range of settiement of a talifing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).
"trivial harm" means environmental harm which is not material or serious environmental harm and will not cause actual or potentlal loss or damage to property of an amount of, or amounts totalling more than $\$ 5,000$.
"watercourse" - Means a iver, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or antificially improved) with:
(a) continuous bed and banks;
(b) an extended period of flow for some months after rain ceases, and
(c) an adequacy of flow that sustains basic ecological processes and maintains blodiversily.
"waters" Inoludes tiver, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, bed and bank of any waters, dams, non-tidel or fidal waters (including the sea) or any patt-thereot.


## END CONDITIONS FOR SCHEDULEH



## Schedule I - Maps / Pians



Schedule 1 - Map 1 Recolving Water Montoring Locations (Mount Kelly Leases).
envinomontatilounces ant pemits
Reefway Pty Ltd \& Savannah Resoturces Pty Ltd Emvironmental Authority No MINH00401006


Schedule I- Map 2 Recelving Water Monitoring Locations (Lady Annle)


Schedule I - Map 3 Location of End Plpe Releases from Sedinent Dams - Processing Area


Schedule 1 - Map 4 Location of End Pipe Releases from Sediment Dams - Mining Area


Schedule 1 - Map 5 Location of End Pipe Feleases from Sediment Dams - Lady Annie.


Schedule I- Map 6 Location of Hazardous Dams


Schedule I - Map 7 Stream Sedimenta Moniforing Locations (Mount Kelly)


Schedule - Map 8 Stream Sediments Monitoring Looations (Lady Annie)

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Schedule I - Map 9 Groundwater Monitoring Locations (Mount Kelly)


## Schedule I - Map 10 Groundwater Monitoring Locations (Lady Annie)

## END CONDITIONS FOR SCHEDULEI

END OF EVIRONMENTAL AUTHORITY

| Enquiries | Neil Maven |
| :--- | :--- |
| Telephone | (OD) 47447820 |
| Your reference | MIN100401006 |
| Our reference | ISA658. |

30 March 2006

Environmental Protection Agee
Incorporating the
Queensland Parks and Midlife

Reefway Ply Ltd Level 22, Allendale Square
77 St Georges Terrace
Perth WA 6000.

CC/ Savamah Resources Pty.Ltd<br>Level 22, Allendale Square<br>77 St Georges Terrace<br>Perth WA 6000

## Dear Sir/Madam

Re: Amendment of Environmental Authority MIN100401006.
I refer to the application for amendment of Environmental Authority (Mining Activities) MIN100401006 received at the Brisbane EPA office on 14 September 2006.

Please find attached the amended Environmental Authority (EA) MIN100401006. This EA takes effect from 30 March 2007 and the anniversary date of this authority is 24 July of each
year.

If you have any inquiries in relation to the above details please contact Neil Mayer on (07) 47447820.

Yours faithfully
s. 49 - Signature
feoff Metcalfe
District Manager
Environmental Operations
Mount Is a District, Northern Region
C/c Mining Registrar

Natural Resources, Wines and Water
31066
10 APR 2007
MOUNT IA
RECEIVED

## Defintitions

(A5-1) Words and phrases used throughout this environmental authority are defined in Schedule H-Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the Environmental Protection Act 1994, its Regulations and Environmental Protection Policies must be used.

## END CONTIONS FOR SCHEDULE A

## Schedule B - Air

## Dust Nuisance

(B1-1) Subject to Conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nulsance at any sensitive or commercial place.
(B1-2) When requested by the administering authority, dust and particulate monitoring must be undentaken within a reasonable and practlcable timeframe nominated by the administering authority to investigate any complaint (which is nelther fivelous nor vexatious nor based on mistaken belfef In the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notifled within 14 days to the administering authority following completion of monitoring.
(B1-3) - If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):
a) Dust deposition of 120 milligrams por square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Grevimetric method of 1991.
(B1-4) If monltoring indleates exceedence of the relevant limits in Condifion (B1-3), then the environmental authority holder must:
a) address the complaint inoluding the use of approptiate dispute resolution if required; or
b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in futher environmental nulsance.

## Odour Nulsance

(B2-1) Subject to condition (B2-2), the release of noxious or offensive odour(s) or any other noxious or offensive airbome contaminant(s) resulting from the mining actlvity must not cause an environmental nuisance at any sensitive or commerclal place.
(B2-2) When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is nether frivolous nor vexatious nor based on mistaken bellef in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notfied within 14 days to the administering authority following completion of monitoring.
(B2-3) If monitoring indicates Condition (B2-1) is not being met then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immedlately implement odour abatement measures so that emissions of odour from the activity do not
result in further environmental nuisance.

Schedule C - Table 2 (Receiving Water Trigger Levels)


[^5]Reetway Pty Ltd \& Savannah Rosources Pty Ltd Environmental Authority No MIN100A01006

Schedule e - Table 4 (End of pipe monitoring locations and frequency)

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| Mount Clarke ROM Area Sediment Dam | 300834 | 7799496 | Each flow event |
| Mount Glarke PitArea Sediment Dam | 305336 | 7799692 | Each flowevent |
| Mount Clarke/Fying Horse Sediment Dam | 3058887 | 7798726 | Fach flow event |
| Process Plan HoM Pad Sedment Dam 1 | 303040 | 7798656 | Each flow event |
| Process Plant ROM Pad Sediment Dam 2 | 302905 | 7798900 | Each flow event |
| Process Plant ROM Pad Sediment Dam 3 | 302771 | 7799010 | Each fow event |

NOTE This does not apply to dams contahling hazardous wasto.
Schedule C Table 5 (End of plpe contaminant release limits)

| Rorgatangeryd |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| - pH\%. | pH | 6 | 9 | Pange: |
| TDS. | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate | mgh | N/A | 1000 | Maximum |
| Arsente | mgh | N/A | 5 | Maximum |
| Cadinum | mgh | N/A | 0.01 | Maximum |
| Chromium: | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Cobalt | mgh | N/A | 1 | Maximum |
| Capper | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Lead | mgh | NA | 0.1 | Maxinum |
| Mercury | mgh | N/A | 0.002 | Maximum |
| Żne | mght | N/A | 20 | Maxdmum |

Contaminamilmits based on ANZECC (2000) Lyostoot offiking water quality and are analysed as 7otel metals (onititered) NOTE: This does not apply to dams containing hazardous waste.

## Dams Containing Hazardous Waste

(C1-4) Water storages containing process water and stom water contaminated by mining acivities must be monitored at the locrations and frequencles deflned in Schedule C - Table 6 and Schedule I-Map 4 and samples analysed for the parameters defined in Schodule C - Table 7.

(C1-8) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule $C$ Table 8 on the spillway of all dams containing hazardous waste within the operational land.
(C1-9). The holder of the environmental authority must notify the administering authority when the pondage level of the dam containing hazardous waste, reaches the mandatory reporting level defined in Schedule C - Table 8 .

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.
(C2-2) The bed of the receiving waters, affected by the release of process water and storm water contaminated by the mining activities must be mentored at the locations and frequencies defined in Schedule C - Table 9 and Schedule I - Map 5.

## Schedule C Table 9 (Receiving Strearn Sediment Monitoring Locations and Frequency)



NOTE: This does not apply to dams containing hazardous waste
Reference sties must
a) be from the same blogeographloal and climetle region,
b) have similar geology, soil types and topography
c) contain a range of habitats similar to those at the test site.
d) be of similar flow regime; and
e) not be so close to the test shies that any disturbances at the test ste also result in a change at the reference site.

TBD- to be determined and provided to the QEPA prior to commencement of mining.
(C2-3) Subject to Conelfion (C2-2), If the stream sediment contaminant trigger levels defined in Schedule C - Table 10 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the adininistering authority within 3 months of receiving the analysis results.
Schedule C-Table 10 (Receiving Stream Sediment Contaminant Trigger Levels)


ANZECC (2000):1SQG Low tiger values, Sediment Quality Guldelhes, Aquatic Ecosystems, Table 3.5.1.
'Site speeffe trigger value as calculated in section 3.6 of EM Plan cully 2006
(C2-4) Subject to Condition (C2-2) stream sediment contaminant limits must not exceed the contaminant limits defined In Schedule C Table 11.

Groundwater
(C4-1) Groundwater, affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 13 and Schedule I - Map 6.
Schedule C. Table 13 (Groundwater Monitoring Locations and Frequency)


NOTE This does not apply to dams containing hazardous waste

## TBD- To be determhed

## Reference sties must:

a) be from the same biogeographical and clmatle region;
b) have similar geology sell types and topography:
c) contain a range of habitats similar to those at the test ste
c) be of similar flow regime; and not be so close to the test sites that any disturbances at the test site also result in a change at the reference site.
(C4-2) Subject to Condition (C4-1), if the groundwater contaminant trigger levels defined in Schedule C - Table 14 are exceeded then the environmental authority holder must complete an investigation Into the potential for environmental harm and notify the administering authority within 3 months of receiving the analysis results.

Schedule C - Table 15 (Groundwater Contaminanit Limits)


Contaminant miths based on ANZECC (2000) Luvestock drinking wator quality and are analjsed as Total Motals (unfitered)
${ }^{2}$ Contarminain llmits based on Table 3.4.1 of Aquatio Ecosystems ANZECC (2000) and are analysed as Fittered Motals.
(C4-4) The method of water sempling requifed by thle environmental authonty must comply wh that set out In the latest edition of the Environmental Protection Ageney's Water Qually Sampling Manual.

## Volds

(C5-1)
(C5-2)
Water qually in mining voids and final volds must be monitored at the locations and frequeneles defined in Schedule C - Table 16 and for the parameters detalled in Schedule C - Table 17.

In the event that water qually within the mining volds or final volds does not comply with the eontaminant limits defined in Schedule C-Table 17, implement measures to prevent access by all livestock and minimise acoess by fauna to the void.

Schedule C - Table 16 Nolds Monttoring Locations and Frequency)


## Schedule D - Noise and Vibration

## Noise Nulsance

(D1-1) Subject to Conditions (D1-2) and (D1-3) noise from the mining activity must not cause an environmental nulsance to an affected bullding.
(D1-2) When requested by the administering authority, nolse monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigato any complaint (which is nefther frivolous nor vexatious nor based on mistaken bellef in the opinion of the authorised officer) of emvironmental nulsance at any sensitive or commerolal place, and the results must be nottiled within 14 days to the administering authority following completion of monltoring.
(D1-3) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

## Vibration nuilsance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining activity must not cause an environmental
nuisance to an affected bullifing.
(D2-2) : When requested by the administoring authority, vibration monitoring must be undertaken within a reasonable . and practicable timetrame nominated by the administering authority to investigate any complaint (which is nelther fivolous nor vexatious nor based on mistaken bellef lin the opinlon of the authorised officer) of environmental nulsance at any sensifive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

## END GONDITIONS FOR SCHEDULE D

## Schedule E - Waste

## Storage of Tyres

(E1-1) Tyres stored awalting disposal or transport for tako-back and, recycing, or wasto-to-energy optlons - should be stockpiled in volumes less than 3 m in height and $200 \mathrm{~m}^{2}$ in area and at least 10 m from any other tyre storage area.
(E1-2) All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 m radius of the scrap tyre storage area.

## Disposal of Tyres

(E2-1) Disposing of scrap tyres resulting from the mining activites in spoil emplacements is acceptable, provided tyres are placed as deep in the spoll as reasonably practicable.
(E2-2) Sorap tyres resulting from the mining activties disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

## Waste Management

(E3-1) A Waste Management Program, in accordance with the Environmental Protection (Waste Management) Pollcy 2000, must be included in the Plan of Operations.



Environmental Protection Agency



[^6]
## Location of Dam

(F3-2) The location of any dam containing hazardous waste within the lloensed place must be located within the polygonal area defined by the co-ordinates defined in schedule C- Table 4 -Map 4.
Schedule F-Table 4 (Location of Dams Containing Hazardous Waste)

|  |  |  |
| :---: | :---: | :---: |
| PLS Ponds, ILS, Raffinate Pre-settler and Raffinate Pond | $\begin{aligned} & 301760 \\ & 302605 \\ & 302035 \\ & 301760 \\ & \hline \end{aligned}$ | $\begin{aligned} & 7797640 \\ & 7797640 \\ & 7797310 \\ & 7797310 \\ & \hline \end{aligned}$ |
| Stormwater Pond 1 and 2 | 301470 301760 301760 301470 |  |
| "Heap Leach Pads | $\begin{aligned} & 302065 \\ & 302720 \\ & 302720 \\ & 302035 \\ & \hline \end{aligned}$ |  |

Noter. A minhum of 3 control points is requifred to constrain the focation of all activites associated with the dam containing hazardous waste. Additional Infrastructure which forms part of any dam containing hazardous wasto may holude appurtenant works consisting of tallings discharge plpellhes, seapage colleation systems, minoff diverslon bunds, containment systems, pressure rellef wells, decant and recyclo water systoms.

## Standards and Criteria

(F3-8) The holder of the environmental authority must deslgn, construct, repair, maintain, operate and decommission the dams defined in Schedule F - Table 3 and 4 in accordance with an acknowledged design plan that must comply with the standard environmental conditions in the "Code of Environmental Compllance for High Hazard Dams Containing Hazardous Wasten:
(F3-4) The holder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardeus dams in accordance with the cifteria oullined in Appendix B of the Code of Environmental Compllance for Mining Activifies.

## Inspection of Dams

(F3-5) High hazard dams containing hazardous waste shall be inspocted by a Registered Professional Engineer Queensiand (RPEQ) prior to 1 November each yoar or at any time if alarming, unusual or otherwise unsatisfactery conditions are observed.
(F3:6) For each inspection, the engineer shall assess the condfion of the dam and ts foundations, determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.
(F3-7) For each inspection, two coples of the engineer's report and any recommendations as to measures to be taken to ensure the integrity of the dam shail be furnished to the administering authority within 28 days of the inspection.
Decommissioning of Dam - Objective
(F3-8) Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where water can no longer be stored in the dams. The dams and their contained waste(s) must be stable, whereatter the dams are no longer dams and they become landforms on the operational land and must comply with the rehabilitation requirementis of this environmental authority.

## Decommissioning of Dam - Documentation and Compliance

(F3-9) Decommissioning activittes for dams must be documented in detall in the plan of operatiens under whieh the actioties are to occur. Where the detalled documentation is not already contained in the Design Plan for the dam, the detalled documentation ls considered to be an amendment to the design plan and must be submitted


## Schedule H - Definitions

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

- vegotation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil dovelopment and nutrient cycling, and the recolonisation of speciflo fauna groups such as collombola, mitos and termites which are Involved in these processes;
- microblological studies including recolonisation by mycomhizal fungi, miorobial blomase and respiration;
- effects of various establishment treatments such as deep ripping, topsoll haindiling, seeding and fertiliser application on vegetation growth and developments
- resilience of vegetation to disease, insent attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.


## "affected bullding"

- for neise means any building or any part of a building, for example the bulliding from which the nolse is made, at whleh the noise can be heard.
- for vibration means any building or any part of a building, for example the activity from whioh the vibration is made, at which the vibration can be felt.
"ambient (or total) nolse" at a place, means the level of nolse at the place from all sources (near and far), measured as the Leq for an appropilate time interval.
"approprlately quallified person" means any person who conforms to the EPA operational pollcy for an "appropriately qualified person (analyst)" in accordance with Seotion $490(7)$ of the Environmental Protection Act 1994.
"ARD" means acid rock drainage and refers to the low pH , high heavy metal pollutant typlcal of sulphidic mine wastes, and most commonly assoclated with the production of ferrous fron and sulphuric acid through the oxidation of sulphide minerals.
"authority" means environmental authority (mining acivities) under the Envionmental Protoction Act 1994.
"blasting" means the use of exploslve matenfals 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.
"building" Includes a structure of any type and part of a bullding or structure.
"commercial plece" means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.
"competent person" means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the rellance upon collected data or protection of the enviroment.
"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tark or container designed to a recognised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Environmental Compllance for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construetion of the dam, the procedures and crtherla to be used for operating the dam and the decommissioning and rehabilitation objoctives in terms of procedures, works and outcomes at the end of dam life, The documents can Include design and investigation reports, drawings, spectications and certifications.
"environmental authority holder" means the holder of this environmental authority.
"flow event" means a flow event producing sufficient water to permit a mionitoring creek bed flow of 30 cm or more at the sampling station.
"fiowable substance" means matter or mixture of materials which can be forced to or otherwise flow under any condlitons possible in a situation. It includes water, other ligulds or a mixture that holudes water or any other liquid or suspended solids.

Pagetasof32:0902
"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 ( $\mathrm{mms}^{-1}$ ).
"protected area" means - a protected area under the Nature Conservation Act 1992; or a marine park under the Marthe Parks Act 1992; or

- a World Hertage Area.
"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rohabiltation as mining operations are ongoing.
"referience site" (or analegue site) may reflect the original location, adjacent area or another area where rehabliftation success has been completed for a similar blodiversity. Details of the reference sitte may be as photographs, computer generated images and vegetation models etc.
"rehabilltation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.
"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activitios and completion of rehabilitation processes.
"self sustaining" means an area of land which has boen rehabiltated and has maintained the required acceptance criteria without human fitervention for a perlod nominated by the administering authorty.


## "sensitive place" means;

- a dwelling, residential allotiment, moble home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational Institution; or
- a medical center or hospitalf or
- a protected area under the Nature Conservation Act 1992; the Marine Parks Act 1992 or a World Hertage Area; or
- a public park or gardens.
"significant disturbance" - Includes land
(a) if it is contaminated land; or
(b) it has been dlsturbed and human intervention is noeded to rehablitite it.
i. to a state required under the rolevant environmental authority, or
il. If the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soll has been compacted, removed, covered, exposed or stockplled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to eresion; (vegetation \& topsoll)
- areas where land use sultability or capabllity has been diminished,
- areas within a watercourse, waterway, wetland or lako where mining activities occur:
- areas submerged by tallings or hazardous contaminant storage and dain walls in all cases;
- areas under temporary infrastructure. Temporany infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, airstrips, hellpads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a sultabilly statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly dlsturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas prevlously signifloantly disturbed which have not achleved the rehabilttation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions):
- areas under permanent intrastructure. Permanent infrastructure includies any infrastructure (roads, tracks, bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, alrstrips, hellpads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA:
disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.
Page 25-6il32.0902

Schedule 1-Maps / Pians


Schedule I - Map 1 Recelting Water Monitoring Locations

Page 2705 (99-0902

Reefway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MIN100401006



Schedule I - Map 5 Stream Sediments Monitoring Locations

Page 3 205 ${ }^{2} 93.0902$

## Decision to realise or claim on financial assurance

This statutory notice is issued by the administering authonty pursuant to section 367 of the Environmental Protection Act 1994, to advise you of a decislon to realise or clalm on financial assurance for your licence.

Savannah Resources Pty Ltd (ACN 096358735)
Lady Annie Operations Pty Ltd (ACNO76289097)
Attentlon Messrs Gary Peter Doran and David John Frank Lomb
Recelver Managers for Savannah Resources Pty Ltd, Lady Anni
Operations Pty Ltd
Deloitte Touche Tohmatsu
Woodside Plaza Level 14
240 St George Terrace
PERTH WA 6000
Your reference: MIN100401006
Our reference : ISA658

Attention: Gary Doran,
Re: Decision to reallse financial assurance for a llcence held by Lady Annie Operations Pty Ltd (ACN 076289097) and Savannah Resources Pty Ltd (ACN 096358735).

I refer you to the notice dated 30 June 2009 proposing to reallse financial assurance in the amount of $\$ 41,998$ from Lady Annie Operations Pty Ltd (ACN 076289097) and Savannah Resources Pty Ltd (ACN 096358735).
The notice detailed that you may provide written representations to show why this financial assurance should not be realised by 30 July 2009. No written representation has been made to the Department of Environment and Resource Management.

The administering authority has decided to realise the above mentioned financial assurance as it has incurred costs in the amount of $\$ 41,998$ as a result of taking the following action to investigate the discharge of contaminated waters from Lady Annie mine site to Saga and Inca Creeks on 20 January 2009 and 7 February 2009:

Undertaking the service of external environmental consultants to assess and report on;

- Water management on the mine site,
- Integrity of Stormwater Pond 2 walls,
- Downstream Impacts resuling from the release of contaminants from the minesite;

4 August 2009

Lady Annie Operations Pty Ltd and Savannah Resources Pty Ltd Attention Messrs Gary Peter Doran and David John Frank Lombe Receiver Managers for Lady Annie Operations Pty Ltd
Deloitte Touche Tohmatsu
Woodside Plaza Level 14
240 St George Terrace
PERTH WA 6000

Dear Sirs,
I refer you to the letter and notice dated 30 June 2009 detailing the Department of Environment and Resource Management's (DERM) intent to realise part of the Financial Assurance held against Lady Annie Operations Pty Ltd and Savannah Resources Pty Ltd in relation to activities on Lady Annie Mine Site.

The notice of proposal to realise or claim financial assurance dated 30 June 2009 detailed that written representation objecting to the proposal to realise financial assurance was required by 30 June 2009. No submissions were received by DERM.

Please find attached a notice of decision to realise or claim financial assurance. DERM will realise $\$ 41,998$ of financial assurance.

If you have any queries with regards to the content of this letter please contact Warwick Fegan on (07) 40466724.

Yours sincerelv

$$
\text { s. } 49 \text { - Signature }
$$

Kob Lawrence
Regional Manager
North Region
Regional Services
Department of Environment and Resource Management

|  |  | $\begin{gathered} \text { RECEIVED } \\ 250 \\ 10 \mathrm{AUG} 2009 \end{gathered}$ |
| :---: | :---: | :---: |
| Enquiries <br> Telephone <br> Your reference | Warwick Fegan <br> (07) 40466724 <br> Lady Annie Mine Site | DEPARTMENT OF MINES AND ENERGY MOUNT ISA |

4 August 2009

Enquiries Telephone Our reference
(07) 40466724

Lady Annie Mine Site ISA658


Lady Annie Operations Pty Ltd and Savannah Resources Pty Ltd Attention Messrs Gary Peter Doran and David John Frank Lombe Receiver Managers for Lady Annie Operations Pty Ltd
Deloitte Touche Tohmatsu
Woodside Plaza Level 14
240 St George Terrace
PERTH WA 6000

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Yours sincerelv

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\text { s. } 49 \text { - Signature }
$$

Rob Lawrence
Regional Manager
North Region
Regional Services
Department of Environment and Resource Management


## Decision to realise or claim on financial assurance

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Savannah Resources Pty Ltd (ACN 096358735)
Lady Annie Operations Pty Ltd (ACNO76289097)
Attention Messrs Gary Peter Doran and David John Frank Lomb
Recelver Managers for Savannah Resources Pty Ltd, Lady Anni
Operations Pty Ltd
Deloitte Touche Tohmatsu
Woodslde Plaza Level 14
240 St George Terrace
PERTH WA 6000
Your reference : MIN100401006
Our reference : ISA658

Attention: Gary Doran,
Re: Decision to realise financlal assurance for a licence held by Lady Annle Operations Pty Ltd (ACN 076289097) and Savannah Resources Pty Ltd (ACN 096358735).

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Undertaking the service of external environmental consultants to assess and report on;

- Water management on the mine site,
- Integrity of Stormwater Pond 2 wallls,
- Downstream impacts resulting from the release of contaminants from the minestte;

[^7]| Enquiries | Nell Mavis |
| :--- | :--- |
| Telephone | (O7) 4046 6731 |
| Your reference | MIN 100401006 |
| Our reference | ISA658 |

17 July 2007

Environmental Protection Agency
Incorporating the
Queensland Parks and Whidilfe Service

Mining Registrar
Department of Mines \& Energy PO Box 334
MOUNT SSA OLD 4825

Department of Mines and Energy
31605
19 JUL 2007

## Dear Sir / Madam

## Re: Application submitted by Lady Annie Operations Pry Ltd \& Savannah Resources Ply Lid to amend Environmental Authority MIN100401006

I refer to the application to amend Environmental Authority MIN100401006, received at this office on 14 May 2007.

Please find attached the draft amended Environmental Authority MIN100401006 for the Mount Kelly / Lady Annie Project. The amendment application involves the addition of MLA90184 to the project for water \& power infrastructure.

Please note that the Environmental Authority holder is now required under $\mathbf{S 2 5 4}$ of the Environmental protection Act 1994 to give notice of their application to amend the Environmental Authority to each effected person for each mining lease and publish the notice at least once in a newspaper circulating in the locality of the land to which the mining lease applies.

Should you have any questions please contact Neil Maver on (07) 40466731.
Yours sincerely

$$
\text { s. } 49 \text { - Signature }
$$

Ralph Rise<br>District Manager<br>Environmental Operations<br>North West District, Northern region

# (mining activities) Section 258 Environmental Protection Act 1994 

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4
$$

This envirom minimise environmental harm caused, or likely to Environmental Protection Act 1994 and includes conditions to authority (mining activities) may be for mining aotive caused, by the authorised mining activities. An environment develonment the following mining tenements: a prospecting prised (undier the Mineral hesources, An environmental processing micence; or mining lease. In general a ming permit, mining claim; exploration permit mineral to occur taken to provent - prevent environmental harm. . . and includes facilitation and supperting activitios anding; or action

Under the provisions of the Environmen issued to:

Lady Annie Operations Ply Lid
Lever 22 Allendale Square
77 St Georges Terrace
Perth WA 6000
in respect of carrying out activities as pait of the following mining proth WA 6000
Type of Environmental Authority (mining activities)
Mining Leases

Authorised mining tenements
Location

$$
\begin{aligned}
& \text { ML5426, ML5495, ML5446, } \\
& \text { ML5447, ML6448, ML5474; } \\
& \text { ML5476, ML5478, ML90168 } \\
& \text { ML90169, ML90170, ML90178, } \\
& \text { ML90179, ML90184 }
\end{aligned}
$$

The mining activities are authorized to the extent .
Protection Regulation 1998
This Environmental Authority is subject to the conditions set out in
The anniversary date of this Environmentai A
This Encronmenta Auth
This Environmental Authority takes effect from $\times \times \times 2007$.

## Geoth Metcalfe

District Mariager
Hount Isa Bistrict, Northern Region
Delegate of Administering Authority
Environmental Protection Act 1994

This Environmental Autherify incorporates the following schedules:

- Schedule A

General

- Schedule B

Air

- Schedule C - Water
- Schedule D - Nolse and Vibration
- Schedule E - Waste
- Schedule F - Land
- ScheduleG - Conmiunity
- Schedule H - Definitions
- Schedute I - Maps / Plans


## Schedule A - General

## Financlal Assurance

(A1-1) Provide a financial assurance in the amount and form required by the administeling authority prior to the commencement of activities proposed under this environmental authority.
NOTE: The calculation of financial assurance for condition (A1-1) must be in accordance with Guldeline 17 and may fincuade a perfomance discount. The amount is defined as the maximum fotal rehabilitation cost for complete rehabiltation of all disturbed areas, which may vany on an annual basits due to progressive rehabilitation. The amount required for the financial assurance must be the highest Total Rehabilltation Cost calculated for any year of the Plan of Operatons and calculated using the fomula: (Financlal Assurance = Highest Total Annual Rehabllitation cost $\times$ Percentage Required.
The innancial assurance is to remain in force until the administering authority is satisied that no claim on the assurance is ilkely.
NOTE Where progressive rehabiltation is completed and acceptable to the adiministering authorty; progressive reductions to the amount of financlal assurance will be applicable where rehabilttation has been completed in accerdance with the acceptance criteria defined within this environmental authority.

## Maintenance of Meapures, Phant and Equipment

(A2-1) The onviromental authorijy holder must ensure:

- that all measures, plant and equipment necessary to ensure compliance with the conditions of this emirennerital authority are installed;
- that stuph measuites, plant and equipment are maintained in a proper condition; and
- that such measures, plant and equipment are operated in a proper manner.


## Montioring

(A3-1) Record; complle and keep for a minimum. of five years all monitoring resuth required by this environmertal auntorivy and make avallable for inspection all or any of these records upon recquest by the administering authority-
A3-2) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts

## Storage and Handiling of Flammable, Combusitible and Corrosive Liquids

(A4-1) Spillage of all fiammable and combustible liquids must be contained within an onsite containment system and controlled in a manner that prevents environmental harm (other than tivial harm) and maintained in accordanee with Sector 5.8 of AS 1940 - Storage and Handing of Flammable and Combustible Lquids of 2084.
(A4-2) The on-site storage of corrosive liquids must be in accordance with Section 57 of AS 3780 - Storage and Handling of Corroslve Substances 1994.

## Definitions

(A5-1)
Words and phrases used throughout this environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within Environmental Protection Policies must be used.

## END CONTIONS FOR SCHEDULEA

## Schedule B - Air

Dust Muisance
Subject to Condition
mining aetlvity must not casse an ( $(1-3$ ) the release of dust or partlculate matter or both resulting from the
(B1-2) When recuested by the adminion
reasonable and practicable timeframe nominty dust and particulate monitoring must be:undertaken within a (which is neither frivolous nor vexatious nominated by the administering autherity to investigate any complaint environmental nuisance at any sensitive or commercial mistaken belier in the opinion of the authonised officer) of the administering authorify following completion of monttoring.
If the environmental authority holder can provid
being exceeded then the holder is not in breach of (B1-1):
a) Bust deposition
accordance with $1 \mathbf{2}$ milligrams per square metre per day, averaged over one month, when montored in

- Deposited matter - Gravimetric method of 1991.
if monitoring indicates exceedence of the relevant limits in Condition holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immedlately implement dust abatement measures so that ous incon required; or in further environmental nuisance.


## Odour Nulsance

Subject to condition (B2-2), the release of noxious or offensive ous airbome contaminant(s) resulting from the mining activity must odour(s) or any other noxious or offensive sensitive or commercial place. practicable timeframe nominated by the administering monitoring must be undertaken within a reasonable and frivolous nor vexatifous nor based on mistaken berfiet in the opity to investigate any complaint which is neither nuisance at any sensitive or commercial place, and the results must be notified officer) of environmental administering authority following completion of monitoring.
If monitoring indicates Condition (B2-1) is not being met then the envifonmental authority holder must
a) address the complaint including the use of appropriate dispute resolution If required; or
b) immediately impiement odour abatement measures so that a result in further environmental nuisance.

## END CONDITIONS FOR SCHEDULE B

## Schedule C - Water

## Release to Waters

(C1-1) Recelving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at the locations and frequencies defined in Schedule C - Table 1 and Schedule 1 - Map 1 \& 2, and the results of the test sites comply with the contaminant limits defined in schedule $\mathbf{C}$ - Table 3 .
Schedule C - Table 1 (Beceiving Water Honltoning Locations and Frequency)

| Hontioning peint | Easting | anderiting, | Wontioring trequency |
| :---: | :---: | :---: | :---: |
| MKUS 1-reference site* | 305625 | 7797450 | Each flow event |
| MKUS 2 - reference site* | 300451 | 7798920 | Each flow event |
| MKCD 1 -test site | 301160 | 7800135 | Each flow event |
| MKDS 2 -test site | 306046 | 7800375 | Each tlow event |
| MKDS 3 -tast site | 306370 | 779896 | Each flow event |
| MKDS 4-test site | 301300 | 7797255 | Each flow event |
| LA- USt-reference stid* | 295150 | 7812680 | Each flow event |
| LA- US2-reference site* | 296750 | 7812480 | Each flow event |
| LA-DS1-test site | 294000 | 7810100 | Each flow event |
| LA- DS2-test site | 295500 | 7810400 | Each flow event |

NOTE: This does not apply to dams contaning hazardous waste
*Reforence sttes must
a) be from the same blogeographioal and climatic region;
b) have simitar geology, soll bpos and topography
c) contain a range of habitats stimliar to those at the test stte
d) be of simitar flow regine; and
e) not be so close to the test stips that ami disturbances at the test site also restlit m a change at the reference stio.

C1-2 .. Sublect to Contition (C1-1), If the recelving water contaminant trigger levels defined in Schedule C - Table 2 are exceeded then the environmental authorty holder must complete an investigatton inte the potential for envirorimental harm ard notify the adrinistering authority within 3 months of receiving the analysis results.

Schedule C - Table 2 (Recelving Water Trigger Limits)


Contaminant ithger linits are based on Table $30 \%$.3.4 and 3.3 .5 of Aquatic Ecosystems ANZECC (2000).
Wator and are to be anatysed as total metals (anilitered).
Contaminant tigger linils based on Altals (unflitered)
disturbed systems - table 3.4 .1 level of protection 900 ) trisger levels for aquatic ecosystems of slightily - moderately
Contaminant tigger tlmits are baved on $50 \%$ of $95 \% /$ Table 3.3.4/3.3.5 - Tropical Australla upland rivers.
Water and are to be analysed as total metals (unfliteredt 7 . ML 5478, ML90168, ML90169, ML90170, ML90178, ML Gt05, Mmits are set for the Mount Kolly Leases only (ML 5426,
${ }^{5}$ Contamintant trigger limits are based on ste spectic backgroun 5446, ML 5447; ML 5448, ML 5474 and ML 5476. .
These trigger linits are set for the Lady Annte Lease only (MLOo179).

Schedule C - Table 3 (Beceiving Water Centeminant Limits)

| $\square$ Parameter | Inits | Vininum | Paximum | Thgger Type |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 | 9 | Range |
| - TDS | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| - Sulphate ${ }^{\text { }}$ | mgh | N/A | 1000 | Maximum |
| Aluminium ${ }^{6}$ | mgh | N/A | 5 | Maximum |
| Aluminium ${ }^{\text {a }}$ | migh | NA | 23 | Maximum |
| Arsenic ${ }^{\text {a }}$ | mgh | NA | 0.5 | Maximum |
| Boron ${ }^{7}$ | mgh | N/A | 5 | Maximum |
| . Cadmium ${ }^{7}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Chromium ${ }^{\text {² }}$ | mgh | N/A | 1 | Maximum |
| Cobatl ${ }^{\text {T }}$ | mgh | N/A | 1 | Maximum |
| Copper ${ }^{5}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Copper ${ }^{\text {8 }}$ | mgil | N/A | 4.66 | Maximum |
| Fluaride ${ }^{\text {3 }}$ | mg/L | N/A | 2 | Maximum |
| Lead ${ }^{\text {S }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A. | 0.1 | Maximum |
| Lead ${ }^{6}$ | mgh | N/A | 0.18 | Maximum |
| Manganese ${ }^{3}$ | mgh | N/A | 2.5 | Maximum |
| Mercunj ${ }^{\text {7 }}$ | mgh . | N/A | 0.002 | Maximum |
| Molybdenum ${ }^{\text {+ }}$ | ingh | N/A | 0.15 | Maximum |
| Nickel ${ }^{\text {T}}$ | mgh | N/A | 1 | Maximum |
| Selentum ${ }^{\text {a }}$ | mgh | N/A | 0.02 | Maximum |
| - Zinc ${ }^{\text {a }}$ | mgh | N/A | 20 | Maximum |

Contaminanillmits basedion table 4.3 .2 ANVZECC (2000) Livestock drinking water quality and are analysed as Total motals (unifliered)
${ }_{3}^{2}$ Contaminant limits are based on Table 43,1 Livestock dinhing wator qualty and are analysed as Total metals (uniffered) 3 Contaminant limits based on Table 3.4. of Aquatic Ecosystoms ANZECC (2000) $80 \%$ and are to be analysed as filtered netals.
${ }^{4}$ Contaminant limits based on Tadete 3.3 .4 of Aquatic Ecosysitams ANZECC (2000)
${ }^{6}$ Contaminant lints are based on table 4.32 ANCIECC (2000) Lhestock drinking water qualihy and are analysed as Total metals (unflitered). This Imit is set for the Mount Kety Leases only (ML 5426, ML. 5476 , ML90168, ML90169, ML90170, MLOO178, ML 5435, ML 5446, ML 5447, ML 5448, MLL 5474 and ML 5476.)
${ }^{6}$ Contaminant limits are based on site speeffc tuakground data and are to be analysed as totail metals (unithered). These infoger Imits are set for the Lady Anvie Lease only (MLloo179).

## End of Pipe Rolease.

(C1-3) End of pipe release limits for storm water contaminated by mining activities must be monitored at the locations and frequencles defined in Schedule C. Table 4 and Schedule 1-Map 3, 4 and 5 and cemply with the contaminant limits defined in Schedule C. Table.5.

Schedule C - Table 4 (End of pipe monitoring focations and frequency)


Schedule C - Table 5 (End of plpe contaminaint release limits)

| Parkmeter | Units | Unimum | Maxtinum | Thill Tpp |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 |  |  |
| - TDS | mgit | N/A | 4000 | Farige |
| Sulphite | mgh | N/A | 4000 | Maximum |
| Arsenic | mgh | N/A | 5 | Maximum |
| Cadmium | mgh | N/A | 0.01 . | Maximum |
| Chromlum | mgh | N/A | $\frac{0.01}{1}$ | Maximum |
| Cobalt | mg/t: | N/A | 1 | Maximum |
| Copper | $\mathrm{mg} / \mathrm{h}$ | N/A | 1 | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.1 | Maximum |
| Mercury | mgh | N/A | 0.1 | Maximum |
| zine | mg/L | N/A | 0.002 | Maximum |
|  |  |  | 20 | Maximum |

NOTE ThIS doos not apply to dams containing harard drinking water qually and are analysed as Total metals (unilitred)

## Dams Containing Hazardous Waste

(C1-4) Water storages containing process water and storm water contanithated by mining ectivities must be montiored at the locatlons and frequencies defined in Schedule C. Table' 6 and Schedule 1 - Map 6 and samples analysed for the parameters defined in Schedule C. Table 7.

Schedule C - Table 6 Water Storage Monitoring Locations of Hazardous Dams)

| Wontoring point |  | Renesta, AMc, Bat | Whontering trequency |
| :---: | :---: | :---: | :---: |
| PLS Ponds | 302000 | 7797450 | Anmually, March |
| 1 LS Pond | 301900 | 7797450 | Annually, March |
| Raffinate Pond Pres-setter | 301850 | 7797450 | Annually, Maroh |
| Ratfinate Porid | 301800 | 7797450 | Annually, March |
| Storm water Pond 1 | 301750 | 7797450 | Annually, March |
| Storm water Pond 2 | 301750 | $7797350{ }^{\circ}$ | Annually, March |

(01-5) In the ovent that the water quality within any dam containing hazardous waste does not comply with the contaminant-limits defined in Schedule C - Table 7, implement measures to prevent access by all livestock and minimise access by fauna to the dam.

Schedule C-Table 7 Water Quality Limits for Dams Containing Hazardous Waste)

| Pamanter | Unites: | Contaminant tent | Ethit Trye |
| :---: | :---: | :---: | :---: |
| pH | pH | 49 | Range |
| TDS | mgh | 5,000 | Maximum |
| Boron | mgh | 5 | Maximum |
| Sulphate | $\mathrm{mg} /$ | 1000 | Maximum |
| Aluminum | $\mathrm{mg} / \mathrm{L}$ | 5 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cobalt | mght. | 1 | Maxdmum |
| Capper | mgh | 1 | Maximum |
| Lead | mght | 0.1. | Maximum |
| Nickel | mgil | 1 | Maximum |
| Zinc | mghl | 20 | Maximum |

Contaminant limits besed en ANZECC (2000 Livestock drining water qualty and are anatysed as total metals (unilitered))
(C1-6) The destgn storage atlowance on 1 November of each year for axy dam containing hazardous waste constructed or operated within the operational land must comply with Schecule C-Table 8.

Schedule C-Table 8 (Storate Design for Dams Combaning Hararclous Waste)

| Storage Type | Destyn Stornge Allowance ${ }^{(0)}$ | $\text { Citicil Dositing Storm } 9$ | Mantatory Feporting Level |
| :---: | :---: | :---: | :---: |
| Stormwater Pond 1 | I: 100 Year Afil 2 month wel season plus process inputs for the 2 month wet season | 1: 1000 Year ARI | 1: 100 year ARI |
| Starmwater Pond 2 | t 100 Year Afl 2 month wel season plus process inputs for the 2 month wet season | 1: 1000 Year ARI | 1: 100 year ARI |

Note ${ }^{10}$ : The design storage allowance on 1 Novembor of each year for any ctam containhg hazardous waste constructed within the operational land must be equivalent to the run-off from a 1 in 100 ARI 2 month wot season plus process mputs for the equivalont wet season. Rroeoss inputs rofers to hazardous mineral process waste and water, which is boing dlisposed of in the storage facilly.
Note (2). The critical destign stom has a duration that produces the peak discharge for the catchments.
Note (3). The mandatory reporting level refers to the volume below the spillway crest, elther the I: 100 Afl 72 hour storm or the 1.100 ARI wave allowance, whichever is lower.
(C1-7) The spillway for any dam contalning hazardous waste, constructed or operated within the operational land must be designed and maintained to withstand the peak flow from the spilway critical design storm defined in Schedule C - Table 8.
(C1-8) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule $C$ Table 8 on the spillway of all dams containing hazardous waste within the operational land.
(C1-9) The holder of the environmental authority must notify the administering authorty when the pondage level of the dam containing hezardous waste, reaches the mandatory reperting level defned in Schedule C-Table 8 .

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and praoticable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.
(C2-2) The bed of the receiving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the locations and froquencies defined in Schedule $\mathbf{C}$ - Table 9 and Schedile1-Map 7 \& 8.

| Mrestantiong point | $\begin{gathered} \text { Easting } \\ \text { (AGDis, zone:54) } \end{gathered}$ | $\begin{aligned} & \text { hiorthige } \\ & \text { (Acbugzone } 59 \text { ) } \end{aligned}$ | Montiothg trequency |
| :---: | :---: | :---: | :---: |
| MKUS 1-reference site* | 305625 | 7797450 | May each year |
| MKUS 2-reference site* | 300451. | 7798920 | May each year |
| HKCDS 1-test site | 301160 | 7800135 | Mayieach year |
| MKDS 2 - test site | 306046 | 7800375 | May each year |
| MKDS 3-test site | 306370 | 7798363 | May each year |
| MKDS 4 -test site | 301300 | 7797255 | May each ye |
| LA- UST- reference stie* | 295150 | 7612680 | May each yoar |
| LA- US2-reference site* | 295750 | 7812480 | May each year |
| LA-DS1-testsite | 294000 | 781248 | May each year |
| LA- DS2-test site |  | 7810100 | May each year |
| VOTE This does | 295500 | 7810400 | May each year |

NOTE This does not apply to dams contalihig hazardous waste
*Ribforence sites must:
a) be from the same blogeggraphical and cllmatlo region;
b) have similar geology, soll types and topography
a) contain a range of habitats similar to those at the test site
d) be of similar flow regime; and
e) not be so close to the test sites that any olisturbances at the test site also result th a change at the reference sito.

Subject to Condition (C2-2), 在 the stream sediment contaminant rigger levels defined in Schedule C-Table to are exceeded then the environmental authority holder mustiomplete an investigation into the potential for environmentai harm and notify the administering autherity within 3 months of receiving the analysis results.

Schedule C-Table to (Receiving Stream Sediment Contaminant Trigger Levels)

| Y Farameter. | Dhis, | Contaminant ingerer levels | - Mrigger tupe |
| :---: | :---: | :---: | :---: |
| Antimory ${ }^{\text { }}$ | $\mathrm{mg} / \mathrm{kg}$ diy wt | 2. | Maximum |
| Arsenic! | mg/kg dy wt | 20 | Maximum |
| Cadmlum ${ }^{\text {d }}$ | $\mathrm{mg} / \mathrm{kg}$ dy wt | 1.5 | Maximum |
| Chromium ${ }^{\text {² }}$ | mg/kg dry wt | 80 | Maximum |
| Copper ${ }^{2}$ | mghkg dry wt | 100 | Maximum |
| Copper ${ }^{3}$ | mg/kg dry wh | 400 | Maximum |
| $\therefore \therefore \quad \therefore \quad$ Lead $^{7}$ | B. migkg dy wi: | 50 | Maximum |
| $\cdots$ Niokel ${ }^{1}$ | mglkg dry wt | 21 | Maximum |
| Siver ${ }^{1}$ | mg/kg dy wt | 1 | Maximum |
| Mercury ${ }^{7}$ | mg/kg dy wt | 0.15 | Maximum |
| $\cdots$ Zine ${ }^{\text {a }}$ | - mighg dy wt | 200 | Maxdimum |

ANZECC (2000): SOG Low it gger values, Sediment Quaility Guldelines, Aquatic Ecosystemis, Table 35. 1.
${ }^{2}$ Site specific trigger value as calculated in seetion 3.7 of EM Plan Saptember 2006 is for the Mount Kelly Leases only. ML. 6426, ML 5478, MOOt68, ML90169, ML90t70, ML90178, ML 5435, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476.)
3 This Imit is set for the Lady Annle Lease only (NLi90179).
(C2-4) . Subject to Condtion (C2-2), streami sediment contaminant limits must not exceed the contaminaint limits defined in Schedule © Table 11.

Schedule C-Table 11 (Geceiving Stream Setiment Contaminam Limits)


ANZECC (2000): ISQG Ifligh tifgger values, Sediment Ouality Guidolinos, Aquatic Ecosystems, Table 3.5. 1.
${ }^{2}$ Site speofic trigger value as calculated in section 3.6 of EM Plan July 2006 is for the Mount Kelly Leases only. (ML) 5426, AL 5478, MLO0168, MLOD169, ML90170, ML90178, ML 5435, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476.)
${ }^{3}$ This Ilmit is set for the Lady Annie Lease only (MLOO179).
(C2-5) . All stream sediment sampling must be undertaken in accordance with AS 5667.1 Guidance on Sampling of Bottom Sediments of 1998

## Sewage eflluent

(C3-1) Al effuent released from the treatment plant must be menitored at the frequincy and for the parameters specified
(Cs-2) Sewage effluent used for dust suppresslon must not exceed sewage effluent releaseflimits defined in Schedule.C. Tablert2
(C3-3) Sewage fffluent used for dust suppression must not cause spray diff or over spray to any sensitive or commercial place, and must not be applied at a rate that causes pooling, ponding and/or runoff of any effluent inigated.
(C3-4) Subject to Conditions (C3-1) to (O3-3) Inclusive, sewage effluent from sewage treatment facilities must be reused or evaporated and must not be directy released from the sewage treatment ptant to any water way or crainage line other than in accordance with Sehedule C. Table 12.
Schedule C Tabie t2 (Sewiage effuent quality targeta for dust suppreselon)


A minimum of fue samples must be collected at not less than a weeliy interval tor the quartorty sampling
A minimum or tive samples must be collected at nof less than a weekly hterval for the quaterly sampling with four out of five sampless must be less than the maximum
A minmum of five samples must be collected at not less than a weekly intorval tor the guarterly sampling with four out of five samples must be higher than the minimum but lower than the maximum limt. Rolease Imits sourcad from Queenshand Water Fecycing Guldelines December 2005 Table 6.26

## Groundwater

(C4-1) Groundwater, affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table t3 and Schedule 1-Map 9 \& 10.

Schedule C-Table t3 (Groundwater Monitoring Locations and Frequency)

| Honitoutrag print | Easing ACD 64 zane 5al | $\begin{aligned} & \text { Morthings } \\ & \text { hen e4, } \\ & \text { Zone } 54 \text {. } \end{aligned}$ | Sumame RL | Monflofing trequency |
| :---: | :---: | :---: | :---: | :---: |
| LA MB01 (Process Plant) -reference site | 302484 | 7796800 | TBD | Monthly |
| LA MB02 (Process Plant) - reference site | 302891 | 7797385 | TBD | Monthly |
| LAMB09 (Process Plant) - reference site $\cdots$ \% | 302128 - | 7797950. | -TBD | $\therefore$ Monthly |
| LAMB04 (Process Plant) | TED | TBD | TBD | Monthly |
| LAMB05 (Process Plant) | TBD | Tep | TBD | Monthly |
| LAME06 (Process Plant) | TBD | TBD | TBD | Monthly |
| LA MB07 (Process Plant) | TBD | TBD | TBD | Montily |
| LAMB08 (Provass Plant) | TBD | TBD | TBD | Monthly |
| LAMB09 (Process Plart) | TBD | TBD | TBD | Monthly |
| LA MB010 (Process Pland) | TBD | TBD: | TBD | Monthly |
| LAMB011 (Process Plant) | TBD | TBD | TBD | Montaly |
| LA MB012 (Process Flant) | TBD | TBD | TBD | Monthly |
| LA MB013 (Process Plant) | TBD | TBD | TBD | Monthly |
| LAMB014 (Process Plant) | TBD | TBD | TBD | Monthly |
| MK MB0t (Mount Kelly pit area) | 305360 | 7799013 | 315.467 | Quarterly |
| MK PB01. Mount Kelly pit area) | 305956 | 7799019 | 315,424 | Quarterly |
| LA - TE07 (Lady Anmie pit area) | 295790 | 7812280 | \% TBD | Quarterly |
| LA - TB08 (Lady Anule pit area) | 295855 | 7812247 | TBD | Quarterly |
| LA - TB09 (Lady Arnie pit area) | 295770 | 7812179 | TBD | Quarterly |
| LA-TBOIO (Lady Annie pit area) | 295194 | 7812029 | TBD | Quarterly |
| LA - TB011 (Lady Amnie pit area) | 295205 | 7811904 | TBD | Quarterly |
| LA - TBot2 (Lady Annie pit area) | 295124. | 7814933 | TBD | Quarterly |

NOTE This does not apply to dans containing hazardous waste
TBD- To be doterminet
Roference sttes must
a). be from the same biogoograpihical and cimetic reglon;
b) have similar.geofogy, soll types and topography
c) contain a range of habitats similar to those at the test site
d) be of simila flow regime; and not be so ctose to the test sites that any cisturbances at the test site also result in a change at the reference site
(C4-2) Subject to Condition (C4-1), if the groundwater contaminant trigger levels defined in Schedule C. Table 14 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental ham and notify the administering authority within 3 months of recelving the analysis results.

Schedule C. Table 14 (Groundwater Contaminant Trigger Levels)

| Prameten | Unis | Minimum | Mextimum | Thesertyp |
| :---: | :---: | :---: | :---: | :---: |
| pH' | pH | 6 |  |  |
| TDs ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 800 | Range |
| Sulphate ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2000 | Maximum |
| Aluminium ${ }^{\text {2 }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maximum |
| Arsenic ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.25 | Maxmum |
| Boron ${ }^{2}$ | $\mathrm{mg} / \mathrm{h}$ | N/A | 0.37 | Maximum |
| Cadmilum | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.005 | Maximum |
| Chromium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$. | N/A | 0.5 | Maximum |
| Cobalt ${ }^{2}$ | mg h | NA | 0.5 | Maximum |
| Coppier ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Fluaride? | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Lead ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.05 | Maximum |
| Manganese ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | $\frac{0.05}{1.9}$ | Maximum |
| Mercury ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.001 | Maximum |
| Molybdenum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.075 | Maximum |
| Nickel ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | NA | 0.5 | Maximum |
| Selenium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| $2 \mathrm{ln} 9^{\text {2 }}$ | mgh | N/A | 10 | Maximum |

Contaminant triggers llmits are based on Table 3.3 .4 and 3.3 .5 of Aquatlc Ecosystems ANZECC (2000)
Water and are to be analysed as total metals (unfittered).
${ }^{3}$ Gantaminant triger
Gontaminant trigger limits based on Table 3.4.1 of Aquallc Ecosystems ANZECC (2000) and are analysed as Filtered
Metals
(C4-3) Subject to Condition (C4-1), groundwater contaminant limits must not exceed the contaminant limits defined in
Schedule C-Table 15.

Schedule C - Table 15 (Groundvater Contaminant LImits)


Contaminant llmits based on ANZECC (2000) Livestock dinking water quality and are analysed as Total Metals (unfiltered)
${ }^{2}$ Contanimant Ilintits based on Table 3.4:1 of Aquatic Ecosystems ANZECC (2000) and aro analysed as Filtered MOtals.
(C4-4) The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the Envirormental Protection Agency's Water Quality Sampling Manual.

## Voids

(C5-1) Water qually in mining voids and final volds must be monitored at the focations and frequencies defined in Schedule C - Table 16 and for the parameters detalied in Schechle C-Table 17.
(C5-2) In the event that water quallty within the mining volids of final votus does not comply with the contaminant limits ( defined in Schedule C-Table 17, mplement measures to provent access by all livestook and minimise access by tauna to the void.

Schedule C - Table 16 Noids Montoring Locations and Frequency)

| Nontionting polnt | Monitoring trequenoy |
| :---: | :---: |
| Mount KellyFlying Horse Pit | Annually |
| Mount Clarke Pit | Annually |
| Lady Annle Pit | Annually |

Schedule C - Table 17 (Vold Water Quaily Limits)

| Parameter | Units | UImilf | Limiliyper |
| :---: | :---: | :---: | :---: |
| pH | pH | $6-9$ | Ranges: |
| TDS | mgh | 4000 | Maximum |
| Sulphate: | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Arsenio | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cadmium | $\mathrm{mg} / \mathrm{L}$ | 0.01 | Maximum |
| Chromium | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Copper | mgh | 1 | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | 0.1 | Maximum |
| Mercury | $\mathrm{mgh}{ }^{\text {c }}$ | $0.002^{\text {i }}$ | Maximum |
| Zinc | mg/L | 20 | Maximum |

[^8]
## Schedule D - Noise and Vibration

## Noise Nulsance

(D1-1) Subject to Conditions (Dt-2) and (Dt-3) nọise from the mining aotivity must not cause an environmental nulisance to an affected bultding.
(D1-2) When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timetrame nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken bellief in.the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
(D1-3) . Themethod of measurbment and reporting of noise levels must comply with the latestedition of the Environmental Protection Agency's Noise Measurement Manual.

## Vibration nulsance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining activity must not cause an environimental nulsance to an affected building.
(D2-2) When requested by the adrainistering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe neminated by the administering authorty to investigate any complaint (which is neither fitvolous nor voxatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at ary sensitive or commercial place, and the results must be notified within 14 days to the administering authovity following completion of montoring.

## END CONDTIONS FOR SCHEDULE D

## Schedule E-Waste

## Storage of Tyres

(E1-t) Tyres stored awaiting disposal or transport for take-back and, recycling, or waste-to-energy options - should be stockpiled in volumes less than 3 m in height and $200 \mathrm{~m}^{2}$ in area and at least 10 m from any other tyre storage area.
(E1-2): All reasonable and practicable fire prevention measures nust be implemented, including removal of grass and other materials within a 10 m radius of the scrap tyre storage area.

## Disposal of Tyres

(E2-1) . Disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reascnably practicable.
(E2-2) Scrap tyres resulting from the mining activites disposed within the operational land must not impede saturated aquffers or compromise the stablity of the consolidated landiorm.

## Waste Management

(E3-1) A Waste Management Program, in accordance with the Environmental Protection Waste Management) Pollcy 2000, must be included in the Plan of Operations.

## Regulated Waste

(E 4-1) All regulated waste recelved and removed from the site that is over 250 kg in weight, must be transported by a person who holds a current authority to transport such waste under the provisions of the Envionmental
(E4-2) Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken Act 1994.
Af that
As lawfully allowed to accept such waste under the provisions of the Environmental Protection

Where regulated waste is removed from the Project (other than by a release as permitted under another schedule of this environmental authority), records must be kept of the following:
a) the date, quantity and type of waste removed, and
b) name of the waste transporter that removed the waste; and
c) the intended treatment/disposal destination of the waste.

Note: Records of documents maintained in compllance wh a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to. satisif this condition.

## Wàste Rock Characterisation

(E5-1) All areas to be mined must undergo a waste rock characterisation survey (where waste rock is to be disposed of on the surface) and a report submitted to the administering authority prior to mining where this survey has not

END CONDITIONS FOR SCHEDULE E
(1) Queensland Government
Lady Annie Operations Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No. MIN100401006
(F1-1) All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaling vegetation cover in accordance with Schedule F -

Page. 18 of $38 \cdot 0902 \quad$ This environmental authority lakes effect on $\times 2006$
Page. 18 of $38 \cdot 0902 \quad$ This environmental authority lakes effect on $\times 2006$
Schedule F-Land
Rehabilltation Landform Criteria Table 1 and 2.
Environmental Protection Agency
wwwiepagqldigoviau AaN 87221158786


. Environmental Authority No. MiN100401006


Schedule F - Table 2 (Landform Design)

| Distumanoce type | Slope range (a) | Projetfve suiface area (be) |
| :---: | :---: | :---: |
| Waste Rock Dumps | $33 \%-76 \%$ (1:3 to angle of repose) | 121 |
| Heap Leach Pads | < $33 \%$ or 1.3 | 43.2 |
| ROM Pads | $33 \%-76 \%$ (1:3 to angle of repose) | 14.8 |

## Residual Void Outcome

(F2-1) Residual voids must nat cause any serious envirormental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental herm constituted by the existence of the residual vold itself and subject to any. other condition wịhin this environmental authority.

## Dams Containing Hazardous. Waste

## Description of Dam

(F3-1) . The construction or operation of any dam containing hazardous waste within the operational land must comply ${ }^{\prime}$ with Schedule F - Table 3.

Schedule F-Table 3 (Size and Purpose of Dams Containfing Mazardous Waste)

|  | $\qquad$ | $\begin{aligned} & \text { Haxpmem voline } \\ & \text { ovenim (ihl } \end{aligned}$ | Maximume Whathan | Pupose ol can ${ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: |
| Process Water Porchs (Raffinate Pre-Seltier, Raffinate, ILS and PLS | 3.4 | 53,475 | 4.5 | Storage of Process Solutions |
| Heap Leach Pads | 43.2 | N/A | N/A | Storage of Process Solutions |
| Stormwater Pond t <br> (Stage $t$ only) | 6.47 | 303,625 | 6.95 | Storage of storm water runoff from procossing area |
| $\begin{gathered} \text { Stormwater Pond } 182 \\ \text { (Stage 2) } \end{gathered}$ | 10.4 | 467,720 | 6.35 | Sterage of storn water rurioff from processing area |

Note ${ }^{0 \prime}$ : The name of the dam contaning hazardous waste should refer to the name of the dam e.g. process residue facllty and ctecant dam.
Note ${ }^{(2)}$ : For dams that do not require a dam wall, input the maximum vold dopth e.g. where dams are formed by excavating below the land surface or backifiling a residual vold.
Note ${ }^{(3)}$ : Purpose of the dam should outhe the designed tumetion, e.g. the permanent contahment of tallings resulthg from the extraction of nickel, cobalt and other metals at the XVZ Refineny"

## Location of Bam

(F3-2) The location of any dam containing hazardous waste within the licensed place must be located within the polygenal area defined by the co-proinates defined in Schedule © Table4-Map4.

Schedule F - Table 4 (Location of Dams Containing Wazardous Waste)


Note $1 /$ A minimum of 3 control points is required to constrain the location of all aetivilles assuclated with the dam contaling hizzardous wasto. Additional infrastructure which forms part of any dam contilining hazardous waste may inchude appurtenant works consising of tallings discharge pipellnes, seepage collection systems, runoff diversion bunds, containment systems, pressure rellet wolls, docant and recycle water syistems.

## Standards and Criteria

(F3-3) The holder of the environmental authority must destgn, construct, repair, maintain, operate and decommission the damis defined in Schedule F - Table 3 and 4 in accordance with an acknowledged design plan that must comply with the standard onvironmental conditions in the "Code of Environmental Compllance for High Hazard Dams Containing Hazardous Waste".
(F3-4) The holder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardous dams in.accordance with the criteria outlined in Appendix B of ; the Code of Environmental Compllance for Mining Activities.

## Inspertion ol Dams

(F3-5) High hazard dams containing hazardous waste shall be Inspocted by a Registered Professlonal Englineer Queensland (PPEQ) prior to: 1. November each year or at any time If alarming, unusual or otherwise unseitisfactory condifions are observed.
(F3-6) For each inspection, the engineer shall assess the condition of the dam and its foundations, detemine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.
(F3-7) For each inspection, two coples of the engineer's repert and any recommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authoity within 28 days of the
inspection.

## Decommissioning of Dam -Objective

(F3-8) Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where water oan no longer be stored in the dams. The dams and their contained waste(s) must be stable; whereafter the dams are no longer dams and they become landforms on the operationalisand and must comply with the rehabilltation requirements of this environmental autherity

## Decommissioning of Dam-Documentationaind Compliance

(F3-9) Decommissioning activities for dams must be documented in detail in the plan ef operations under which the activities are to cocur Where the dotalled documentation is not atready contained in the Design Plan for the
dam, the detailed documentation ts considered to be an amendment to the design plan and must be submitted as an amendment to the design plan required by the "Code of Environmental Compllance for High Hazard Dams'Containing Hazardous Waste".

## Intrastructure

(F4-1) All infrastructure, constructed by or for the environmental authority halder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining landowner/holder.

NOTE This is not applicable where the tandowner / holder is also the environmental authority holder.

## Contaminated Lanids

(F5-1) A register and map of ell potentially contaminated sites and any remediation details, must be kept on site, updated regularly, and included In each Plan of Operations.
(F5-2) A Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.

END CONDITIONS FOR SCHEDULE F

## Schedule G-Commumity

## Complaint Response

(G1-1) All complaints recelved must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made avallable for inspection by the administering authority on request.

## END CONDITIONS FOR SCHEDULE G

## Schedule H - Defintions

"acceptanoe criterla" means the measures by which the actions implemented to rehabilltate the land are deemed to be complete. The acceptance criteria indieate the success of the rehabilitation outeome or remediation of areas which have. been significantly been disturbed by the mining activities. Acceptance criterla may include infomation regarding:

- vegetation establishment survival and successiony
*. vegetation produchuty, sustained growth and structure development :-
- fauna colonisation and habitat developments
- ecosystem processes such as soil development and nutrient cyoling, and the recolonisation of specifc fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies Ineluding recolonisation by mycorrhizal fungi, microbial blomass and respiration;
- effects of various establishment treatments such as deep rippingi topsoll handing, seedingrand fertiliser applieation
: on vegetation growth and development
- resilfence of vegetation to disease, insect attack, drought and fire;
- vegétation water use end effects on ground water levels and catchment yields.
"affected bullding":
- for noise means any bullding or any part of a bullding, for example the building. from which the noise is made, at which the nolse can be heard.
- for vibration means any building or any part of a bullding, for example the activity from which the vibration is made, at which the vibration can be felt.
"ambient (or total) nolse" at a place, means the level of nolse at the place from all sources (near and far), measured as the Leq for an appropriate time Interval.
"appropriately qualified person" means any person who conforms to the EPA operational policy for an "appropriately qualfied person (analyst)" in accordance with Section $490(7)$ of the Envionmental Protection Act 1994.
"ARD" means acid rock drainage and refers to the low pH, high heavy metal pollutant typical of sulphialic mine wastes, and most commonly associated with the production of terrous iron and sulphuric acid through the oxidation of sulphide minerals.
"authority" means environmental authority (mining acitities) under the Environmental Protection Act 1994.
"blasting" means the use of explosive materials to tracture- .
(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.
"bullding" includes a structure of any type and part of a building or structire.
"commercial place" means a work place used as an office or for business or commercial purposes; which is not part of the mining activity and does not include employees accommodation or public roads.
"competent person" means a person with the demonstrated skill and knowledge requifed to carry out the task to a standard necessary for the reliance apon coltected data or proteotion of the environment.

[^9][^10]"peak particle velocity (ppy)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms ${ }^{-1}$,
"protected area" means - a profected area under the Nature Consenvation Act 1992; or

- . a marine park under the Marihe Parks Act 1992; or
- a World Hertage Area.
"progressive rehabilitation" means rehabiltation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongeing.
"reterence site" (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success hers been completed for a similar blodiversity. Detals of the reference site may be as photographs, computer generated images and vegetation models etc.
""rehabiltation" the process of reshaping and revegetating tandito restore it to a stable:landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
"representative" means a sample set which covers the variance in monitoring or otherdata eitherdue to natural changes or operational phases of the mining activities.
"residual void" means an open pit resulting from the removal of ore and/or waste rook which will remain following the cessation of all mining activities and completion of rehabilitation processes.
self sustaining" means an area of land which has been rehabiltated and has maintained the required acceptance criteria . without human intervention for a period nominated by the administering authority:
"sensitive place" means;
- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medical center or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public park or gardens.
"significant disturbance" - includes land
(a) If It is contaminated tand; or
(b) It has been disturbed and human intervention is needed to rehabilltate it.
i. to a state required under the relevant environmental authority; or
ii. if the environmental authority does not require the land to be rehablitated to a particular state-to its state immediately before the disturbance.

Some examples of disturbed tand include:

- areas where sell has been compacted, remeved, covered, exposed or stockpiledy:
- areas where vegetation has been removed of destroyed to an extent where the land has been made susceptible to orasion; (vegetation \& topsoll)
- areas where land use suitablity or capabllity has been diminishedr.
- areas within a watercourse, watenway, wetland or take where mining activities occur;
- areas submerged by tallings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks; bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, airstrips, hellpads etc) which is to be removed after mining activities have ceased; or
- areas where land has beencontaminated and a sultability statement has not been issued.

However, the following areas are not included:

- areas otf lease (e.g roads or tracks which provide acoess to the mining lease)t .
- areas previously significantly disturbed which have achieved the rehabilliation outcomes;
- by agreement wilh the EPA, areas previously significantly disturbed whioh havernot achieved the rehabilitation objective(s) due to circunstances beyond the control of the mine operator (such as climatic conditions);
- areas uifder permanent infrastructure. Permanent infastruoture ineludes any infrastructure (roads, tracks, bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, airstrips, hellipadsetc) which is to be left by": agreement with the landowner. The agreement to feave permanent infrastructure must be recerded in the :Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.
"spillway" means passage or outlet from the dam through which surplus water flows.
"stable" means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, sottloment and consolidation allowancos, bearing capacity (traffic ability), erosion resistance and geochemical stabllity with respect to seepage and contaminant generation.
"sultably qualified and experienced person" means a person who is a Registered Professional Engineer of Queensland under the provisions of the Professional Engineers Act 1988 or a Corporate Member of the Institution of Engineers Australla or holds equivalent professional quallifications and has the following:
(a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hycraulics, chemistry and ervironmental impact of dams; and
(b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:
- investigation, design or construction of dams;
- . operation and maintenance of dams;
- $\quad$ goomechianics with pariticular emphasis stability, geology and geochemistry;
- . . hydrology with particular reference to flooding, estimation of extreme stoms, water management or meteorology;
- . hydraullcs with particular reference to sediment transport and deposition; erosion control, beach processes;
- hydrogeologiy with paiticular reference to seepage, groundwater,
- solute transport processes and menitoring thereot; or
- dam safety.
"tolerable limits" means that a range of values could be accepted to achieve an overall environmental management objective (eg a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting Infiftration and percolation).
"trivial harm" means environmental harm wilch is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $\$ 5,000$.
${ }^{\text {is }}$ watercourse ${ }^{\text {" }}$ - Means a river, creek or stream in which water flows permanently or intermitently in a visibly defined channel (natural, artificial or artificially improved) with:
(a) continuous bed and banks;
(b) an extended period of flow for some months after rain ceases, and
(c) an adequacy of flow that sustains besic ecological processes and maintains blodiversify.
"waters" includes river, stream; lake, lagoon, pond, swamp, wetland, unconfined surface water, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea) or any part-thereof.


## END CONDITIONS FOR SCHEDULEH

## Schedulet- Maps 1 Plans



Schedule I - Map 1 Receiving Water Monitoring Locations (Mount Kelly Leases)


Schedule I - Map 2 Receiving Water Monitoring Locations (Lady Amife)


Schedule 1- Map 3 Location of End Pipe Releases from Sediment Dams - Processing Area


Schedule I - Map 4 Location of End Pipe Releases from Sediment Dams - Mining Area


[^11]

Schedule I - Map 6 Location of Hazardous Bams


Schedulel-Map 7 Stream Sediments Monitoring Locations (Moum Kelyy),


Schedule I - Wap 8 Stream Sediments Monitoring Locations (Lady Annie)
1)


Schedule Is Map 9.GroundwaterMonitoring Locatione (Mount Kelly)


Schedule I- Map 10 Groundiwater Monitoring Locations (Lady Annie)

END CONDITIONS FOR SCHEDULE:
END OF EVIRONMENTAL AUTHORITY

| Enquinies | Jodie Marlow |
| :--- | :--- |
| Telephone | (O7) 47447820 |
| Your reference | MIN100401006 |
| Our reference | ISA658 |

Environmental Protection Agency
26 September 2006

Incorporating the
Queenstand Parks and Widdife Servic

Wayne Frampton
Mining Registrar
Department of Natural Resources Mines and Water
PO BOX 334
Mount Isa Old 4825

## Dear Wayne

## Re: Mount Kelly Amendment Application- EA MIN100401006 Reefway Pty Ltd and Savannah Resources Pty Lid

The Environmental Protection Agency (EPA) received an amendment application on 14 September 2006.

A draft environmental authority (MIN100401006) for this application has been prepared by this agency and is attached. The environmental authority holder is now required under section 254 of the Environmental Protection Act 1994 to give notice of their application to amend the environmental authority to each affected person for each mining lease and publish the notice at least once in a newspaper circulating in the locality of the land to which the mining lease is subject.

This amendment application includes the addition of mining lease application 90178 to the Mount Kelly Project which consists of the following mining leases: ML 5426, ML 5435, ML 5446, ML 5447 ML 5448, ML 5474, ML 5476, ML 5478, ML90168, ML90169, and ML90170. The attached environmental authority is also the draft environmental authority for this mining lease application.

Should you have any further enquiries please do not hesitate to contact Jodie Marlow on 0747447820.

Yours sincerelv.

$$
\text { s. } 49 \text { - Signature }
$$

ueom mercaire
District Manager
Environmental Operations Division North West District
Enc

## Natural Resources, Mines and Water



27 SEP 2006
MOUNT ISA RECEIVED


# Environmental Authority No. MIN100401006 (mining activities) 

## Section 228 Environmental Protection Act 1994

This environmental authority is granted under the Emvionmental Protection Act 1994 and includes conditions to minimise environmental harm caused, or likely to be caused, by the authorised mining activilies. An environmental authority (mining activites) may be for mining activities authorised (under the Mineral Resourcous Act 1089) to oecur under one of the following mining tenements: a prospecting permit, mining ofaim; exploration permit; mineral development fleence; or mining lease. In general, a mining activity means; prospecting, explating, mining; or processing minerals; remedlation; rehabilltation; and includes facilitation and supporting aetvities and any action taken to pravent environmental harm.

Under the provisions of the Environmental Protection Act 1994 this environmental authority is issued to:

Reetway Pty Ltd
Level 22 Allendale Square
77 St Georges Terrace
Perth WA 6000

Sevannah Resources Pty Ltd Level 22, Allendale Square 77 St Georges Terrace Perth WA 6000

In respect of carrying out activitles as part of the following mining project:

| Type of environmental authority (mining activitles) | Auth | Location |
| :---: | :---: | :---: |
| Mining Leases | ML 5426 | 100 km north of Mount lsa |
|  | ML 6436 |  |
|  | ML5446 |  |
|  | ML 5447 | - |
|  | ML 5448 |  |
|  | ML 5474 |  |
|  | ML 5476 |  |
|  | ML 6478 |  |
|  | ML90168 |  |
|  | MLgolag |  |
|  | ML90170 |  |
|  | ML90178 |  |

The mining activities are authorized to the extent defined in Schedule 6 Section 14 (c) of the Environmental Protection Regulation 1998.

This environmental authority is subject to the conditions set out in the attached schedules,
The anniversary date of this envirommental authority is 24 July each year.
This environmental authority takes effect from $\times 2096$ for granted tenements and will take effect for ML 90168 , 90170,90169 and MLO0178 upon date of grant of tenure.

## Ceoff Metcalfe

Dletrict Manager
Mt isa District, Northern Region
Delegate of Administering Authority
Environmental Protection Act 1094

This environmental authority incorporates the following schedules:

- Schedule A - General
- Schedule B - Alr
- Schedule C - Water
- Schedule D - Noise and Vibration
- Schedule E - Waste
- Schedule F - Land
- Schedule G - Community
- Schedule H - Definitions
- Schedule 1 - Maps / Plans


## Schedule A-General

## Financlal Assurance

(A1-1) Provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority:

NOTE: The calculation of financiat assurance for condifien (A1-1) mist be in accordance with Outieline 17 anu may include a perfomance discount. The amount is defined as the maximum total rehabllition cost for complete rehabiltation of all disturbed aroas, which may vary on an annual basis due to progressive rehabllitation. The amount required for the financial assurance must be the highest Total Rehabllitotion Cost calculated for any year of the Plan of Operations and calculated using the formula: (Financlat Assurances = HIghest Total Annual Rehablltation Cost $x$ Percentage Required).
(A1-2) The financial assurance is to remain in force until the administering authority is satistied that no claim on the assurance is likely.

NOTE: Where progressive rehabiltation is completed and scceptable to the administering authonk, progressive reductions to the amount of financial assurance will be applicable where rehablitation has been completed in accordance with the acceptance criteria defined within this environmental authority,

## Maintenance of Measures, Plant and Equipment

(A2-1) The environmental authonty hoider must ensure:

* that all measures, plant and equipment necessary to ensure compliance with the condfions of this environmental authority are Instalied;
- that such measures, plant and equipment are maintained in a proper concition; and
- that such measures, plant and equipment are operated in a proper manner.


## Monitoring

(A3-1) Record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering
(A3-2) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts
all monitoring. Storage and Handing of Flammable, Combustible and Corrosive Liquids
(A4-1) Spillage of all flammable and combustble liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm (other than trivial harm) and maintained in accordance with Section 5.6 of AS 1940-Storage and Handling of Flammable and Combustible Liquids of 2004.
(A4-2) The on-stte storage of corrosive llquids must be in accordance with Seetion 5.7 of AS 3780 - Sterage and Handling of Corrostive Substances 1094.

## Definitions

(A5-1) Words and phrases used throughout this environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in this environmental autherity is sought and the term is not defined within this environmental authority, the definitions in the Envlrommental Protectlon Act 1994, fte Regulations and Environmental Protection Polloles must be used.

END CONTIONS FOR SCHEDULEA

## Schedule B - Air

## Dust Nulsance

(B1-1) Subjeot to Conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining aotivity must not cause an environmental nuisance at any senslitive or commercial place.
(B1-2) When requested by the administering autherity, dust and particulate monitering must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to livestigate any complaint (which is neither fivelous nor vexatious nor based on mistaken bellef in the opinion of the authorised officer) of environmental nulsance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
(B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not beling exceeded then the holder is not in breach of ( $\mathrm{B}, 1-1$ )
a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10 .1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991.
(B1-4) If montoring indicates exceedence of the relevant limits in Condition (B1-3), then the environmental authority holder must:
a) adidess the complaint including the use of appropriate dispute resolution if required; or
b) immediately implement dust abatement messures so that emissions of dust from the activity do not result in further environmental nulsarice.

## Odour Nuisance

(B2-1) Sublect to condition (B2-2), the release of noxious or offensive odour(s) or any ather noxious or offonsive alrbome contaminant(s) resulting from the mining activity must not cause an onvironmental nuisance af any sensittue or commerclal place.
(B2-2) When requested by the administering authorty, odour monitoring must bo undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken bellef in the apinion of the authorised officer) of environmental nufsance at any sensitive or commercial place, and the results must be notifed within 14 days to the administering authority following completion of monitoring.
(B2-3) If monitoring indlicates Condition (B2-1) is not being met then the environmental authority holder must:
a) address the complaint fincluding the use of appropriate dispute resolution if required; or
b) Inmediately implement odour abatement measures $s 0$ that emisslons of odour from the activity do not result in further environmental nulsance.

## Schedule C - Water

## Release to Waters

(C1-1) Receiving waters affected by the release of process water or sterm watercontaminated by the mining activities or both must be monitored at the locations and frequencles defined in Schedule C-Table 1 and Schedule I-Map 1, and comply with the contaminant limits defined In Schedule C - Table 3 .

Schedule C - Table 1 (Recielving Water Monitoring Locations and Frequency)

| Monltorting polyt | Encesting | $\begin{gathered} \text { Northing } \\ \text { (AMGB4 Zone 54) } \end{gathered}$ | Montorfightoquency |
| :---: | :---: | :---: | :---: |
| MKUS 1-referenee ste** | 305625 | 7797450 | Each flow event |
| MKUS 2 reference site* | TBD | TBD | Each flow event |
| MKDS 1-test site | 301160 | 7800135 | Each flow event |
| MKDS 2 - test site | 306366 | 7798356 | Each flow event |
| MKDS 3 test site | 306370 | 7798363 | Each flow event |
| MKDS 4 - test stte | 301300 | 7797255 | Each flow event |

NOTE: This does not apply to dams containing hazardous wasto

## Reference sities must

a) be from the same blogeographioal and cllmatic region;
b) have similar geology, soll types and topography
o) contain a range of habitats similar to those at the test ste
d) be of shmiltar flow regime; and:
e) not be so olose to the test sties that any disturbances at the test site also result in a change at the reference site. TBD- to be deternined and provided to the QEPA prior to commencement of mining.

C1-2 Subject to Condifion (C1-1), if the receiving water contaminant trigger levels defined in Schedule C - Table 2 are exceeded then the environmental authority holder must complete an Investigation into the potential for environmental harm and notify the administering authority within 3 months of recelving the analysis results.

Schedule C Table 2 (Recelving Water Trigger Levels)

| Parameter | ville | Minimum | Maxipum | Itreger ype |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{1}$ | pH | 6.0 | 8.0 | Range |
| EC ${ }^{1}$ | $\mu \mathrm{s} / \mathrm{cm}$ | NAA | 250 | Maximum |
| Sutphate ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 500 | Maximum |
| Aluminium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maxdmum |
| Arsenie ${ }^{2}$ | mgh | N/A | 0.25 | Maximum |
| Boron ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.37 | Maximum |
| Cadmium ${ }^{\text {2 }}$ | mgh | N/A | 0.005 | Maximum |
| Chromlum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Gobalf ${ }^{2}$ | mgit | N/A | 0.5 | Maximum |
| Copper ${ }^{2}$ | mgl | N/A | 0.5 | Maximum |
| Fluaride ${ }^{\text {a }}$ | mgh | N/A | 1 | Maximum |
| Lead ${ }^{2}$ | mgh | N/A | 0.05 | Maximum |
| Manganese ${ }^{3}$ | mg/ | N/A | 1.9 | Maximum |
| Mercury ${ }^{2}$ | mgh | N/A | 0.001 | Maximum |
| Molybdenum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.076 | Maximum |
| Nickel ${ }^{2}$ | mgh | N/A | 0.5 | Maximum |
| Selenium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Zinc ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 10 | Maximum |

Contaminant thlogers inits aro based on Table 3.3.4 and 3.3.5 of Aquatic Ecosystems ANZEOC (2000).
Containinant trigger limits are based on $50 \%$ of the contaminant limits defned in the ANZECC (2000) Livestock Drinking Water and are to be analissed as total motals (unfitered).
Contaminant rifger llmits based on Table 3.4. 1 of Aquatic Ecosystems ANZECC (2000) $95 \%$ and are to be anahised as fitered motals.

Schedule C - Table 3 (Recelving Water Contaminant Limits)

| Pagameter | Units | Mintmum | Maxthum | Trigger Type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{4}$ | pH | 6.0 | 9.0 | Range |
| TDS ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1000 , | Maximum |
| Aluminium ${ }^{\text {1 }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Arsenic ${ }^{\text {a }}$ | $m g /$ | N/A | 0.5 | Maximum |
| Boron ${ }^{\text {a }}$ | mgh | N/A | 5 | Maximum |
| Cadmium ${ }^{\text {r }}$ | mgh | N/A | 0.01 | Maximum |
| Chromium ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Cobalt ${ }^{1}$ | mgh | N/A | 1 | Maximum |
| Copper ${ }^{\text {r }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Fluoride' | $\mathrm{mg} / \mathrm{L}$ | N/A | 2 | Maximum |
| Lead ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.1 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Meximum |
| Mercury ${ }^{7}$ | mgh | N/A | 0.002 | Maximum |
| Malybdenum ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.15 | Maxdmum |
| Nickel ${ }^{1}$ | $\mathrm{mg} /$ | N/A | 1 | Maximum |
| Selenlum ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.02 | Maximum |
| Zinc ${ }^{\text {² }}$ | mgh | N/A | 20 | Maximum |

Contaminant limits based on fabie 4.3:2 ANZECC (2000) Lvestock dinking water quallty and are analysed as Total motals (unfifered)
${ }_{3}$ Contaminant limits are based on Table 4.3.1 Lvestock drinking water quality and are analysed as Total metals (unfiltered)
${ }^{3}$ Contamiriant llmits based on Table 3.4:1 of Aquatic Ecosystems ANZECC (2000) BO\% and are to be analysed as filtered motels.
${ }^{4}$ Contaminant IInits based on Table 3.3.4 of Aquatic Ecosystems ANZECC (2000)

## End of Plpe Release

(C1-3) End of pipe release limits for storm water contaminated by mining activities must be monitored at the locations and frequencles defined in Schedule C - Table 4 and Schedule I-Map 2 and 3 and comply with the contaminant limits defined in Schedule C. Table 5.

Sohedule C-Table 4 (End of plpe monitoring locations and frequency)

| Montoring polnt | Easthg (anme 84, Zone 64 Zone 64 | Norting (adye 84 Zone 64 | Monthoringtrequency |
| :---: | :---: | :---: | :---: |
| Mount Clarke ROM Area Sediment Dam | 3038834 | 7799496 | Each flow event |
| Mount Clarke Pit Area Sediment Dam | 305336 | 7799692 | Each flow event |
| Mount Clarke/Flying Horse Sediment Dam | 305887 | 7798726 | Each flow event |
| Process Plant ROM Pad Sediment Dam 1 | 303040 | 7798656 | Each flow event |
| Process Plant ROM Pad Sediment Dam 2 | 302905 | 7798900 | Each flow event |
| Process Plant ROM Pad Sediment Dam 3 | 302771 | 7799010 | Each flow event |

NOTE: This does not apply to dams contaling hazardous waste.
Schedule C - Table 5 (End of pipe contaminant release limits)

| Porameter | Unfas | Tilfitum | Haxtumm | Homipy |
| :---: | :---: | :---: | :---: | :---: |
| pH | pH | 6 | 9 | Range |
| TOS | $\mathrm{mg} / \mathrm{L}$ | NA | 4000 | Maximum |
| Sulphate | mgh | N/A | 1000 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Cadmium | mgh | N/A | 0.01 | Maximum |
| Chromlum | $\mathrm{mg} / \mathrm{L}$ | NA | 1 | Maximum |
| Cobalt | mght | N/A | 1 | Maxirnum |
| Copper | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maxdirium |
| Lead | $m g h$ | N/A | 0.1 | Maximum |
| Mercury | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.002 | Maximum |
| Zinc | mg L | N/A | 20 | Maximum |

Contaminant limits besed on ANZECC (2000) Lwestock drinking water qualtyy and are analysed as Total metals (unifitered) NOTE: This does not apply to dams contalning hazardous waste.

## Dams Containing Hazardous Waste

(C1-4) Water storages containing process water and storm water contaminated by mining aiotivities must be monitored at the locations and frequencles defined in Schedule C. Table 6 and Schedule 1-Map 4 and samples analysed for the parameters defined in Schedule C . Table 7.

Schedule C - Table 6 (Water Storage Monitoring Locatlons of Hazardous Dams)

| Monhtortre polnt | $\text { Zone ESHing } 8 \text {, } 84$ | Norkhing (ZOROM, AMC84) | Montorthg trequency |
| :---: | :---: | :---: | :---: |
| PLS Ponds | 302000 | 7797450 | Annually, March |
| ILS Pond | 301800 | 7797450 | Annually, Mareh |
| Raffinate Pond Pre-Settler $\cdots$ | 301850 | 7797450 | Annually, March: |
| Plaffinate Pond | 301800 | 7797450 | Annually, March |
| Storm water Pond 1 | 301750 | 7797450 | Annually, Maroh |
| Storm water Pond 2 | 301760 | 7797350 | Annually, March |

(C1-5) In the event that the water qually within any dam containing hazardous waste does net comply with the contaminant limits defined in Sohedule C - Table 7 , implement measures to prevent access by all livestock and minimise access by fauna to the dam.

Schedule C - Table 7 (Water Quallty Limits tor Dams Containing Hazardous Wasto)

| Parapeter | Units | ContamhaptLhnit | Limilupe |
| :---: | :---: | :---: | :---: |
| pH | pH | 49 | Range |
| TDS | mgh | 5,000 | Maximum |
| Boron | $\mathrm{mg} / \mathrm{L}$ | 5 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Aluminum | $\mathrm{mg} / \mathrm{L}$ | 5 | Maximum |
| Arsente | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cobalt | $\mathrm{mg} / \mathrm{L}$ | 1 | Maxdmum |
| Copper | migh | 1 | Maximum |
| Lead | mgh | 0.1 | Maximum |
| Nickel | mgh | 1 | Maximum |
| Zinc | $\mathrm{mg} / 2$ | 20 | Maximum |

Contaminanillmits based on ANZECC (2000 Luestock drinking water qually and are analised as total metals (unilitered).)
(C1-6) The design storage allowance on 1 November of each yoar for any dam containing hazardeus was: construted or operated within the operational land must comply with Schedule $C$ - Table $B$.
Schedule C - Table 8 (Storage Design for Dams Containing Hazardous Waste)

| storage ${ }^{\text {diy }}$ | Desionstorage Allowance | $16$ | Mandatony Reporting Leyed |
| :---: | :---: | :---: | :---: |
| Stormwater Pond 1 | 1. 100 Year ARI 2 month wet season plus process inputs for the 2 manth wet season | 1:1000 Year ARI | 1:100 yearAml |
| Stormwater Pond 2 | 1. 100 Year AR1 2 monith wet seaso plus process inputs for the 2 month wet season | 1: 1000 Year ARI | 100 year ARI |
| The dosign storage allowance on 1 November of each yoar for any dam oontaining hazardous waste constructed within the operational fand must be equivalent to the run-off from a 1 in 100 ARI 2 month wol season plus process inputs for the equivalent wet season. Process inputs rofers to hazardous minoral procoss wasto and water, whith is being dispesed of in the storage faclity: <br> The citical design stom has a duration that produces the peak discharge for the catchments. <br> The mandatory reporting level refors to the volume below the splliway orest elther the 1:100 AR1 72 hour storm or the 1:100 ARl wave allowance, whlchever is tower. |  |  |  |
|  |  |  |  |
| The spillway for any dam contalning hazardous waste, constructed or operated within the operational land must be designed and maintalned to withstand the peak flow from the spllway cittical design stom definedin Schedule C - Table 8. |  |  |  |

(C1.B) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule $\mathbf{C}$. Table 8 on the spillway of all dams containing hazardous waste within the operationail land.
(C1-9) The holder of the environmental authority must notify the administering authority when the pondage level of the dam containing hazardous waste, reaches the mandatory reporting level defined in Schedule C - Table 8.

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise eroslon and the release of sediment,
(C2-2) The bed of the receiving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the looations and frequencles defined in Schedule $\mathbf{C}$ - Table 9 and Schedule 1 - Map 5.

Schedule C-Table 9 (Recelving Stream Sediment Monitoring Locations and Frequency)


NOTE This does not apply to dams containing hazardous waste

## Reference sites must:

a) be from the same blogeographloal and olimatic region;
b) have similar geology, solltypes and topography
c) contain a range of habitats similar to those at the test site
d) be of similar flow regho; and
e) not be so close to the test sftes that any disturbanoes at the test site also result in a change at the reference site. TBD- to be determined and provided to the QEPA prior to commencement of mining.
(C2-9) Subject to Condition (C2-2), the stream sediment contaminant trigger levels defined in Sohedule C - Table 10 are exceeded then the environmental authorlty holder must complete an investigation into the potential for environmental harm and notify the administering authority within 3 months of recelving the analysis results.

Schedule C - Table 10 (Receluing Stream Sedment Contaminant Trigger Levels)

| Faramekt | UTILS | Contaminantrguerlevols | Wifgger iype |
| :---: | :---: | :---: | :---: |
| Antimony ${ }^{4}$ | mg/kg dry wt | 2 | Maximum |
| Arsenic ${ }^{\text {a }}$ | mg/kg dry wt | 20 | Maximum |
| Gadmium ${ }^{\text { }}$ | mghkg dry wt | 1.5 | Maximum |
| Chromium | mg/kg dry wt | 80 | Maximum |
| Copper ${ }^{2}$ | mg/kg dry wt | 100 | Maximum |
| Lead ${ }^{\text {? }}$ | mg/kg diry wt | 60 | Maximum |
| Nokel ${ }^{1}$ | $\mathrm{mg} / \mathrm{kg}$ dry wt | 21 | Maximum |
| Silver ${ }^{\text {a }}$ | m@/kg div wt | 1 | Maximum |
| Mercury ${ }^{7}$ | mg/kg dry wt | 0.15 | Maximum |
| Z $71 \mathrm{c}^{7}$ | mg/kg dry wt | 200 | Meximum |

ANZECC (2000): ISQG Low trigger values, Sediment Qualdy Guidelines, Aguatle Ecosystems, Table 3.5.1.
${ }^{2}$ Site specific trloger value as calculated in section 3,6 of EM Plan Juil 2006
(C2-4) Subject to Condition (C2-2), stream sediment contaminant llmils must not exceed the contaminant limits defined in Schodule C Table 11.

Schedule C - Table 11 (Gecelving Stream Sediment Contaminant LImits)

| Parameter \% | Unils | Contanmiantilintss* | Limat Type |
| :---: | :---: | :---: | :---: |
| Antimany ${ }^{\dagger}$ | mg/kg dry wt | 25 | Maximum |
| Arsenle ${ }^{1}$ | mg/kg dry wi | 70 | Maximum |
| Cadmium ${ }^{1}$ | mg/kg dry wt | 10 | Maximum |
| Chromlum ${ }^{1}$ | $\mathrm{mg} / \mathrm{kg}$ diy wi | 370 | Maximum |
| Copper ${ }^{2}$ | mg/kg dry wit | 120 | Maximum |
| Lead | mg/kg dry wt | 220 | Maximum |
| Nickel ${ }^{7}$ | mg/kg dny wt | 52 | Maximum |
| Sliver ${ }^{\text {a }}$ | mg/kg dry wt. | 3.7 | Maximum |
| Mercury ${ }^{7}$ | $\mathrm{mg} / \mathrm{kg}$ dry wt | 1 | Maximum |
| Zind ${ }^{\text {d }}$ | mg/kg dry wt | 410 | Maximum |

ANZECC (2000): BGG High triggor values, Sedmont Qualty Gulidellnes, Aquatlc Ecosystoms, Tablo 3.6.1.
${ }^{2}$ She spooffic triggor value as oalculated in section 3.6 of EM Plan July 2006
(C2-5) Al stream sediment sampling must be undertaken in accordance with As 5667.1 Guidance on Sampling of Bottom Sediments of 1998

## Sewage effluent

(C3-1) All effluent released from the treatment plant must be monitored at the frequency and for the parameters specified in Schedule C. Table 12
(03-2) Sewage effluent used for dust suppression must not exceed sewage effluent release limits defined in Schedule $C$. Table 12.
(C3-3) Sewage Effuent used for dust suppression must not cause spray dift or over spray to any sensitive or commerclal place, and must not be applied at a rate that causes pooling; poniding and/or runoff of any effiuent irrigated.
(C3-4) Subject to Conditions (CS-1) to (C3-3) inclusive; sewage effiuent from sewage treatment facilites must be reused or evaporated and must not be directly released from the sewage treatment plant to any water way or drainage line other than in aceordance with Sohedule C - Table 12.
Schedule C - Table 12 (Sewage effluent quality targets for dust suppression)

|  | Roleaselimit, |  |  | Hontrofing froquiency |
| :---: | :---: | :---: | :---: | :---: |
| Quathy charactertsios. | Mhateren. | Median | Maximalm |  |
| PH ( PH Units) | $6^{3}$ |  | $8.5^{2}$ | Quarterly |
| Frasal Colfoms (organisms/100mu) |  | $1000^{1}$ |  | Quarterly |

A minhmum of five samples must be collected at not less than a weokly hterval for the quarterly sampling
${ }^{2}$ A minimum of five samples must be collocted at not less than a wookly interval for the quariferiy sampling with four out of势e samples must be loss than the maximum
${ }^{3}$ A minimum of five samples must be collocted at not loss than a woekly interval for the quanterly samplling with four out of IVe samples must be higher that the minimum but lower than the maxinum limit.
Belease llifis sourced from Queensland Wator Recyoling Guidolines December 2005 Trable 6:2b

## Groundwater

(C4-1) Graundwater, affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 13 and Schedule I - Map 6.

Schedule C - Table 13 (Croundwater Monitoring Locations and Frequency)

| Honitoring point | Eastang (ACDSA Zone 54) | Nonthings (AGDG4 Zone 54 ) | Montoring Trequency |
| :---: | :---: | :---: | :---: |
| LA MB01 (Process Plant)- reference site | 302484 | 7796800 | Menthly |
| LA MB02 (Process Plant) - reference sitie | 302891 | 7797385 | Monthly |
| LAMB03 (Process Planit) - reference site | 302128 | 7797950 | Monthily |
| LA MB04 (Process Plant) | TBD | TED | Montrily |
| LA MB05 (Process Plant) | TBD | TBD | Monthly |
| LA MB06 (Process Flant) | TBD | TBD | Monthily |
| LA MB07 (Process Plant) | TBD | TBD | Monthly |
| LA MB08 (Process Plant) | TBD | TBD | Monthly |
| LA MB09 (Procest Plant) | TBD | TBD | Monthly |
| LA MB010 (Process Plant) | TBD | TBD | Monthly |
| LA MB011 (Process Plant) | TBD | TBD | Monthly |
| LA MB012 (Procoss Plant) | TBD | TBD | Montily |
| LA MB013 (Process Plant) | TBD | TBD | Monthly |
| LAMB014 (Process Plant) | TBD | TBD | Monthly |
| MKMB01 (pit area) | 305860 | 7799013 | Quarterly |
| MK PB01 (pli area) | 305356 | 7799019 | Quarterly |

NOTE: This does not apply to dans contaling hazardous waste
TBD- To be determined
Refornhee stites must:
a) be from the same blogeographical and olimatle reglon;
b) have slinilar geology, soll types and topography
c) contain a range of habitats similar to those at the test stte
d) be of simillar fow regime; and net be so olose to the test shes that any disturbances at the test site also result in a change at the reference site.
(C4-2) Subject to Condition (C4-1), iff the groundwater contaminant trigger levels defined in Schedule C - Table 14 are exceeded then the environmental authofity holder must complete an investigation into the potential for environmental harm and notify the administering authority within 3 months of receiving the analysis results.

Schedule e - Table 14 (Croundwater Contaminant Trigger Levels):

| Parameter: | Ulits | Minimum | Maximum | Tiligertype |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{1}$ | pH | 6 | 8 | Range |
| TDS ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2000 | Maximum |
| Sulphate ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 500 | Maximum |
| Aluminium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maximum |
| Arsenic ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.25 | Maximum |
| Boron ${ }^{2}$ | mgh | N/A | 0.37 | Maximum |
| Cadmitm ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.005 | Maximum |
| Chromlum ${ }^{2}$ | $\mathrm{mg} / \mathrm{h}$ | N/A. | 0.5 | Maxdmum |
| Coball ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Y. Copper ${ }^{2}$ | mgh | N/A | 0.5 | Maximum |
| Fluoride ${ }^{2}$ | mgh | N/A | 1 | Maximum |
| Lead ${ }^{2}$ | $\mathrm{mg} / \mathrm{h}$ | N/A | 0.05 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1.9 | Maximum |
| Mercury ${ }^{2}$ | mgh | N/A | 0.001 | Maxdmum |
| Molybdenum ${ }^{2}$ | mg/ | N/A | 0.075 | Maximum |
| Nicke ${ }^{\text {2 }}$ | mgh | N/A | 0.5 | Maximum |
| Selentum ${ }^{2}$ | mgh | N/A | 0.01 | Maximum |
| Zinc ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 10 | Maximum |

Contamihant triggers linits are based on Table 3.3.4 and 3.3.5 of Aquatic Ecosystems ANZECC (2000)
${ }^{2}$ Contaninaint trigger llmits are based on $50 \%$ of the contaminant limits delined the ANZECC (2000) Livestook Ditiking Water and are to be anatysed as total motals (unfitered).
Contaminant trigger limits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) and aro analysed as Filtored Motals
(C4-3) Subject to Condition (C4-1), groundwater contaminant limits must not exceed the contaminant limits defined In Schedule C-Table 15.

Schedule C - Table 15 (Groundwater Contaminiant Limits)

| Parameter | Units | Hinmum | Maxdinum | LImPType |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{1}$ | pH | 6 | 9 | Range |
| TDS ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate ${ }^{1}$ | mg/L | N/A | 1000 | Maximum |
| Aluminum ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Arsenic ${ }^{\text {a }}$ | mgh | N/A | 0.5 | Maximum |
| Boron ${ }^{1}$ | mg/ | N/A | 5 | Maximum |
| Cadmium ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Chromium ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Cobalt ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maxdmum |
| Copper ${ }^{\text {r }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Fhuoride ${ }^{1}$ | mgh | N/A | 2 | Maximum |
| Lead ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.1 | Maximum |
| Manganese ${ }^{2}$ | mgh | N/A | 2.5 | Maximum |
| Mercury ${ }^{\text {? }}$ | $\mathrm{mg} / \mathrm{L}$ | NA | 0.002 | Maximum |
| Molybdenum ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.15 | Maximum |
| Nickel ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Selenium ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.02 | Maximum |
| Zinc! | mgh | N/A | 20 | Maximum |

Gontaminant Imits based on ANZECC (2000) Livestock dinking water qually and are analysed as Total Metals (unfitered)
${ }^{2}$ Contaminant llmits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) and are analysed as Filtered Metals.
(C4-4) The method of water sampling requifed by thls environmental authority must comply with that set out in the latest edition of the Environmental Protection Agency's Water Quality Sampling Manual.

## Volds

(C5-1) Water qually in mining voids and final volds must be monitored at the locations and frequencles defined in Schedule C-Table 16 and for the parameters detalled in Schedule C - Table 17.
(C5-2) In the event that water quality within the mining voids or final voids does not comply with the contaminant limits: defined in Scheduie C - Table 17, Implement measures to prevent access by all livestock and minimise access by fauna to the vold.

Schedule C - Table 16 Volds Monitoring Locations and Frequency)

| Montoring polint | Wonilorheftrequency |
| :---: | :---: |
| Mount Kelly/Flying Horse Pit | Annually |
| Mount Clarke Pit | Annually |

Schedule C - Table 17 (Void Water Quallty Litmits)

| Parameter | Units | Lmit | Unuximpere |
| :---: | :---: | :---: | :---: |
| pH | pH | 6-9 | Range |
| TDS | $\mathrm{mg} / \mathrm{L}$ | 4000 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maxdmum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cadmium | mgh . | 0.01 | Maximum |
| Chromium | $\mathrm{mg} / \mathrm{L}$. | 1 | Maximum: |
| Copper | mghu: | 1. | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$. | 0.1 | Maximum |
| Mercury | $\mathrm{mg} / \mathrm{L}$ | 0.002 | Maximum - |
| Zinc | $\mathrm{mg} / \mathrm{L}$ | 20 | Maximum |

Contaminant llmits axe based on ANZECC (2000 Livestock drinking water qually and analysed for total metals (unflitered))

## Acid Rock Brainage and Leachate Management

(C6-1) Subject to limits defined in Schedule C all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater, watercourse and waters.

## END CONDITIONS FOR SCHEDULEC

## Schedule D - Noise and VIbration

## Noise Nuisance

(D1-1) Subject to Condifions (D1-2) and (D1-3) noise from the mining activity must not cause an environmental nuisance to an affected butlding.
(D1-2) When requested by the administering authorty, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to Investigate any complaint (which is neither frivolous nor vexaticus nor based on mistaken bellef in the opinlon of the authorised officer) of environmental nuisance at any sensittve or commercial place, and the results must be notified within 14 days to the administering authority following completion of montoring.
(D1-3) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Nolse Measurement Manual.

## Vlbration nuisance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining aotivity must not cause an environmental nuisance to an affected building.
(D2-2) When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timetrame nominated by the administering authorty to investigate any complaint (which is neither frivolous nor vexatious ner based on mistaken belief in the opinion of the authorised offlcer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

## END CONDITIONS FOR SCHEDULE D

## Schedule E-Waste

## Storage of Tyres

(E1-1) Tyros stored awaiting disposal or transport for take-back and, recyeling, or waste-to-energy options - should be stockpiled in volumes less than 3 m in helght and $200 \mathrm{~m}^{2}$ In area and at least 10 m from any other tyre storage area.
(E1-2) Al reasonable and practicable fire prevention measures must be implemented, Including removal of grass and other materials within a 10 m radlus of the scrap tyre storage area.

## Disposal of Tyres

(E2-1) Disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.
(E2-2) Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolldated landform.

## Waste Management.

(E3-1) A Wasto Management Program, in accordance with the Environmental Protection (Waste Management) Policy 2000, must be included in the Plan of Operations.

## Regulated Waste

(E4-1) All regulated waste recelved and removed from the site, that is over 250 kg lin weight must be transported by a person who holds a current authorty to transport such waste under the provisions of the Envionmental Protection Act 1994.
(E4-2) Except as otherwise provided by the conditions of this autherly, all waste removed from the site must be taken to a facilly that is lawrully allowed to accept such waste under the provisions of the Envionmental Protoction Aot 1994.
(E4-3) Where regulated waste is removed from the Project (other than by a release as permitted under another schedule of this environmental quthority), records must be kept of the following:
a) the date, quantty and type of waste removed, and
b) name of the waste transporter that remioved the waste; and
c) the intended treatment/dlsposal destination of the waste.

Note: Records of documents maintained in compllance with a waste tracking system established under the Environmental Protection Act 1994 or any other faw for regulated waste will be deemed to satisfy this condition

## Waste Rock Characterisation

(E5-1) All areas to be mined must underge a waste rock characterisation survey (where waste rook is to be disposed of on the surface) and a report submitted to the administering authority prior to mining where this survey has not provlously been carried out.

## END CONDTIONS FOR SCHEDULE E

Reefway Pty Ltd \& Savannah Resources Pty Ltd
Environmental Authority No MIN100401006
Schedule F - Land
(F1-1) All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a seff-sustaining vegetation cover in accordance with Scheduie $F$ Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule)

## Rehabilitation Landform Criteria

Schedile F - Table 1 Final Land Usid Schedul

| DTuFbatce Categoty. | $\begin{aligned} & \text { Hax. } \\ & \text { Araa. } \end{aligned}$ | Land leser |  | Exicteapaixty |  | Andogue stie |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (ha) | nisyupenver | POUTOECHCREANE | PREDITUTEMMC | POST DTSTEFBANGE | Longlade | Latitude |
| Mount Kelly/flying Horse Pit | 13.2 | Habitat | Water Storage | Class 5 | Water Storage |  |  |
| Mount Kelly/Flying Horse Waste Rock Dump | 28 | Habitat | Habitat | Class 5 | Class 5 | TBD | TBD |
| Mount Kelly/Fiying Horse Topsoil Stockpile | 1.1 | Habilat | Habitat | Class 5 | Class 5 | TBD | TBD |
| Mount Kelly/flying Horse Sediment Dams | 1.3 | Habitat | Water Storage | Class 5 | Water Storage |  |  |
| Mount Kelly/Flying Horse Diversion Drains | 1.3 | Habitat | LIG or diversion Habitat | Class 5 | Class 5 | TBD | TBD |
| Mount Clarke Pit | 9.5 | Habitat | Water Storage | Class 5 | Water Storage |  |  |
| Mount Clarke Waste Rock Dump | 16.3 | Habltat/LG | Habitaticig | Class 4-5 | Class 4-5 | TBD | TBD |
| Mount Clarke Low Grade Stockpile | 5.4 | Habitat/ic | HabitatMG | Class 4-5 | Class 4-5 | TBD | TBD |
| Meunt Clarke/Flying Horse/Mount Kelly ROM Storage \& Live Rehandle | 5.5 | Habitat | Habitaflac | Class 4-5 | Class 4-5 | TBD | TBD |

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| Btiditre Cationge, | HAME |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mount Clarke Topsoil Stockpile | 4.5 | Habitat/LIG | HabitatilG | Class 4-5 | Class 4-5 | TBD | TBD |
| Mount Clarke Pit Area Sediment Dan | 0.6 | Habitat | Water Storage | Class 4-5 | Water Storage |  | 10 |
| Mount Clarke ROM Area Sediment Dam | 0.4 | Habitat | Water Storage | Class 4 - 5 | Water Storage |  |  |
| Nount Clarke Diversion/Interception /Sediment Dam Drains | 3.2 | Habitat | LIG or diversion Habitat | Class.4-5 | Class 4-5 | TBD | TBD |
| Roads/tracks | 18.8 | Existing tracks or LIG | Tracks for grazier or LIG | Class 4-5 | Class 4-5 | TBD | TBD |
| Accommodation <br> Camp and Facillies <br>  | 5 | LIG | LIG | Class 4 | Class 4 | TED | TBD |
| Sewage Plant and Pond | 0.2 78 | LIG. | LIG | Class 4 | Class 4 | TBD | TBD |
| ROM Pad-at process plant | $\begin{array}{r}78 \\ \\ \hline\end{array}$ | LIG | LG | Class 4-5 | Class 4-6 | TBD | TBD |
| Process plant and assaciated buildings <br> Overland Conveyor | 33 18 | LIG | L/G | Class 4 | Class 4 | TBD: | TBD |
| Overlana Conveyor | 1.8 |  |  |  |  |  |  |
| Workshop/Office Access Circuit Area | 2.9 | LIG | LIG | Class 4 | Class 4 | $\frac{\text { TBD }}{\text { TBD }}$ | $\frac{\text { TBD }}{\text { TBD }}$ |
| Heap Leach Pads - <br> Stage 1 and 2 | 43.2 | LIG | - Habitafllig | Class 4 | Class 4.5 | TBD | TBD |
| Procoss Water Ponds - PLS, ILS and Rafinate: | 3.4 | LIG | Water storages | Class 4 | Water storages |  |  |
| Stormwater Ponds 1 and 2 | 11.4 | LG | Water storages | Class 4 | Water storages |  |  |
| Stormwater Pond spillway channe! | 0.7 | LIG | LIG or tiversion | Class 4 | Class $4-5$ | TBD | TBD |
| Raw Water Fond | 0.6 | LIG | LICNAter storage | Class 4 |  |  |  |
| Process Area Topsoil Stockpiles | 9.7 | LIG | LIG | Class 4 | Class 4 Or water storage | TBD | TBD |

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Schedule F -Table 2 (Landform Deslgn)

| Disturbance type | Slope range (\%) | Profectivastrice aroant <br> (ha) |
| :---: | :---: | :---: |
| Heap Leach Pads | $33 \%-76 \%$ ( $1: 3$ to angle of repose) | 49.7 |
| Heap Leach Pads | <33\% or $1: 3$ | 43.2 |
| ROM/ Padi | $38 \%-76 \%$ ( $1: 3$ to angle of repose) | 13.3 |

## Residual Vold Outcome

(F2-1) Residual volds must not cause any sorlous environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm censtituted by the existence of the residual vold fiself and subject to any other condition within this environmental authority.

## Dams Containing Hezardous Waste:

## Description of Dam

(F3-1) The construetion or operation of any dam containing hazardous waste within the operational land must comply with Schedule F - Table 3.

Schedule F - Table 3 (Size and Purpose of Dams Containing Hazardous Waste)

| Contame frligham, | Maxdmumisurface aroa of dath (he) | Maximumy vilime of dam (wh) | $\begin{aligned} & \text { Maximum } \\ & \text { ceptheghidan } \\ & (m i p) \end{aligned}$ | Puppeseor ${ }^{\text {a }}$ (am |
| :---: | :---: | :---: | :---: | :---: |
| Process Water Ponds RRiffinate Pre-Settler, Raffinate, ILS and PLS) | 3.4 | 51,100 | 4.5 | Storage of Process Solutions |
| Heap Leach Pads | 43.2 | N/A | N/A |  |
| Stormwater Pond 1 | 6.47 | 302,760 | NA | Storage of Process Solutions |
| Stormwateor Pond 1 \& 2. (Stage 2) |  |  | 6.35 | from processting area |
| Note (1). The name of the dam containing hazardous waste should refer to the name of the dam e.g. procass residue <br> Note te. facllly and decant dam. <br> For dams that do not requitre a dam wall, input the maximum void depth e.g. where dams are formed bv <br> Note ${ }^{\text {en }}$. Excavating below the land suiface or backilling a residual vold. <br> fromose of the dam should outline the dosigned tunction, e.g. "the permanent contiliment of tallings resulting from the extration of nickel, coball and other metals at the XYZ Refinery". |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## Location of Dam

(F3-2) The location of any dam containing hazardous waste within the licensed place must be located within the polygonal area defined by the co-ordinates defined in Schedule C- Table 4 -Map 4.

Schedule F - Table 4 (Location of Dams Containing Häzardous Waste)

| Name of dam eontainhig hazardous waste | Casting(Ame 84, Zone 54) ${ }^{\text {t }}$ | Northing (AMG:84, Zpne 54$)^{(14)}$ |
| :---: | :---: | :---: |
| PLS Ponds, ILS, <br> Raffinate Pre-settler and Raffinate Pond | 301760 | 7797640 |
|  | 302065 | 7797640 |
|  | 302035 | 7797310 |
|  | 301760 | 7797310 |
| Stormwater Pond 1 and 2 | 301470 | 7797640 |
|  | 301760 | 7797640 |
|  | 301760 | 7797110 |
|  | 301470 | 7797110 |
| Heap Leach Pads | 302065 | 7797946 |
|  | 302720 | 7797945 |
|  | 302720 | 7796825 |
|  | 302035 | 7796825 |

Note MA minimum of 3 control points is required to constraln the location of all activilos assoclated with the dam containing hazardous waste. Addiftonat infrastructure which forms part of any dam containing hazardous waste may include appuntenant works consisting of tallings discharge plpellines, seepage collection systems, runoff diversion bunds, contalment systems, pressure rollef wells, decant and recycle wator systems.

## Standards and Criteria

(F3-3) The holder of the environmental authority must design, construct, repair, maintain, operate and decommission the dams deflned in Schedule F - Table 3 and 4 In accordance with an acknowledged destign plan that must comply with the standard environmental conditions in the "Code of Environmental Complianoe for High Hazard Dams Containing Hazardous Wasto".
(F3-4) The holder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardous dams in acoordance with the criteria outlined in Appendix B of the Code of Environmental Compliance for Mining Activities.

## Inspection of Dams

(FS-6) High hazard dams containing hazardous waste shall be inspeoted by a Registered Professional Engineer Queensland (APEQ) prior to 1 November each year or at any time if alarming, unusual or otherwise unsatisfactory condifions are observed.
(F3-6) For each inspection, the enginear shall assess the condition of the dam and its foundations, determine the hydraullo adequacy of the dam and assess the adequacy of the works with respect to dam safoty.
(F3-7) For each inspection, two coples of the engineer's report and any rocommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the inspection.
Decommissioning of Dam - Objective
(F3-8) Dams containing hazardous waste must not be abandoned and must be decommissioned to a sthation where water can no longer be stored in the dams. The dams and their contained waste(s) must be stable, whereafter the dams are no longer dams and they become landforms on the operational land and must comply with the rehablitation requirements of this environmental authority.

## Decommissioning of Dam - Documentation and Complance

(F3-9) Decommissioning activitles for dams must be documented in detall in the plan of operations under which the activities are to occur. Where the detailed documentation is not already contained in the Design Plan for the dam, the detalled dooumentation is considered to be an amendment to the design plan and must be submilted
as an amendment to the design plan required by the "Code of Environmental Complanee for High Hazard Dams Containing Hazardous Waste?:

## Infrastructure

(F4-1) Al infrastructure, consiructed by or for the onvironmental authority holder during the mining activities inoluding water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining landowner/holder.

NOTE: This is not applicable where the landowmer/holder is also the environmental authority holder,

## Contaminated Lands

(F5-1) A register and map of afl potentially contaminated sites and any remediation detalls; must be kept on site, updated regulaily, and inoluded in each Plan of Operations.
(F5-2) : A Spillage Management Plan and an Emergency Planfor all hazardous materials stored on-site, together with a description of sultable equipment and training must be updated and heluded with each Plan of Operations.

END CONDTIONS FOR SCHEDULE F

## Schedule G - Communtty

## Complaint Response

(G1-1) All complaints recelved must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conolusions formed and actions taken. This information must be made avallable for Inspection by the administering authorify on request.

## END CONDITIONS FOR SCHEDULE G

## Schedule H - Definitions

"acteptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acoeptance criteria Indicate the success of the rehabilitation outcome or remedlation of areas which have been significantiy been disturbed by the mining acilvities. Acceptance criteria may include information regarding:

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habltat devolopments
- ecosystem processes quch as soil develepment and nutrient cyeling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- mioroblologioal studies ficluding recolonisation by mycorrhizal fungi, microbial blomass and respiration;
- effects of various establishment troatments such as deep ripping, topsoll handling, seeding and fertiser application on vegetation growth and development;
- resillence of vegetation to disease, Insect attack, drought and fire;
- vegetation water use and effects on ground water levelis and catchment yelds.


## "affected building"

- for noise means any building or any part of a bullding, for example the bullding from which the nolse is made, at which the nolse can be heard.
- for vibration means any building or any part of a bullding, for oxample the activity from which the vibration is made, at which the vibration can be foli.
"amblent (or total) nolse" at a place, means the lovel of noise at the place from all sources (near and far), measured as the Leq for an appropriate time intervel.
* 

"appropritaty quallfed person" means any person who conforms to the EPA operational pollicy for an "appropriately qualified person (analyst)" in accordance with Section $490(7)$ of the Environmental Protection Act 1994.
"ARD" means acid rock drainage and refers to the low pH , high heavy metel pollutant typloal of sulphidic mine wastes, and . most commonly asseciated with the production of ferrous tron and sulphuric acid through the oxidation of sulphide minerals.
"authority" means environmental authority (mining activitles) under the Environmental Protection Act 1994.
"blasting" means the use of explosive materials to fracture
(a) rock, coal and other minerals for later recquery; or
(b) structural components or other items to facilitate removal from a site or for reuse.
"bullding" includes a structure of any type and part of a building or structure.
"commercial place" means a work place used as an office or for business or commerclal purposes, which is not part of the mining activity and does not include employees accommodation or public roads.
"competent person" means a person with the demonstrated skll and knowledge required to carry out the task to a standard necessary for the rellance upon collected data or protection of the environment.
"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control fiowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste to describe the physloal dimensions of the dam, the materials and standards to be used for constructlon of the dam, the procedures and criterla to be used for operating the dam and the decommiesioning and rehabilitation objectives in terms of procedures, works and outcomes at the end of dam life, The documents can inelude design and investigation reports, drawings, speciflcations and centifications;
"environmental authority holder" means the holder of this environmental authority.
"flow event" means a flow event produeing sufficient water to permit a monitoring creek bed flow of 30 m or more at the sampling station.
"fiowable substance" means matter or mixture of materials which oan be forced to or chenvise flow under any conditions possible in a situation. It Includes water, other liquids or a mbdure that inoludes water or any other liquid or suspended soilds.
"hazardous waste" means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger healthw:
"infrastructure" means water storage dams, roads and tracks, bullings and other structures buit for the purpose of mining activites but does not include facilitios required for the long tem management of mining impacts or the protection of potenilal resources. Such faillites include dams centaining hazardous waste, waste rook dumps, voids, or ore steckplles and buildings or other structures whose ownershlp can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land ewnier.
"Lato, adi, yo mins" means the A-welghted sound pressurelevel, (adjusted for tonal character and impulsiveness of the sound) exceeded for $10 \%$ of any 10 -minute measurement period, using Fast vesponse:
"LA 1, adj, 70 muns" means the A-weighted sound pressure level, (adjusted for tonat character and impulsiveness of the sound) exceeded for $1 \%$ of any 10 -minute measurement period, using Fast response.
"La, max adil $T^{\prime}$ " means the average maximum A-weighted sound pressure level, adjusted for nolse character and measured over any 10 minute pariod, using Fast tespense.
"land" in the "land schedule" of thls decument means land excluding waters and the atmosphere.
"Iand capablity" as defined in the DME 1995 Teohnical Culdelines for the Environmental Management of Exploration and Mining in Queensland.
"Iand suitability" as defined in the DME 1995 Technical Guldelines for the Environmental Management of Exploration and Mining in Queensland.
"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
"leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from; a material stored, processed or disposed of at the operational land which contains soluble, suspended or misctible contaminants likely to have been derived from the said material.
"mandatory reporting level" means the volume below the spiliway orest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedence probability).
"mineral" means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and Includes a substance which may be extracted from such a substance, and includes-
(a) olay if mined for use for its ceramic propertles, kaolin and bentonito;
(b) foundry sand;
(c) hydrocarbons and other substances or matter oocuring in assoclation with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oll therefrom;
(d) limestone if mined for use for its chemical properties;
(e) marble
(f) mineral oll or gas extracted or produced from shale or coal by in stu processes;
(g) peat;
(h) salt inicluding brine;

0 shale from which mineral oll may be extracted or produced;
0) silloa, including silica sand, if mined for use for ite chemical properties;
(k) rook mined in block or slab form for bullding or monumental purposes;
but does not include-
(i) living matter;
(m) petroleum within the meaning of the Petroleum Act 1923;
(n) soll, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for cise as such, whether intact or in broken form;
(0) water.
"noxious" means harmful or injurlous to health or physical well being, other than trivial harm.
"offensive" means causing reasonable offence or displeasure; Is disagreeable to the sense, disgusting, nauseous or repuislive, other than trivial harm.
"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 (mins ${ }^{\circ}$ ).
"protected area" means - a protected area under the Nature Consenvation Act 1992; or

* a marine park under the Marine Parks Act 1992; or
- a World Hertage Area.
"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabiltation as mining operations are ongoing.
"reference site" (or analogue site) may reflect the original focation, adjacent area or another area where rehabilitation success has been completed for a similar blediversity. Detalls of the reference site may be as photographs, computer generated images and vegetation models etc.
"rehabilitation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
"representative" means a sample set which covers the variance in monttoring or other data either due to natural changes or operational phases of the mining activitios.
"residual void" means an open pit resulting from the removal of ore and/or waste rock whioh will remain following the cessation of all mining activities and completion of rehabilitation processes.
"self sustaining" means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.
"sensitive place" means;
- a dwelling, residential allotment, mobile home or caravan park, residential maifna or other residential premises; or
- a motel, hotel or hostel; or
- an educational insthution; or
- a medical center or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public park or gardens.
"signilicant disturbance" - includes land
(a) if it is contaminated land; or
(B) it has been dfisturbed and human intervention is needed to rehablitate it.

1. to a state required under the relevant environmenital authority; or
2. If the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land inctude:

- areas where soll has been compacted, removed, covered, exposed or stockplled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptble to erosion; (vegetation \& topsoil)
- areas where land use suftability or capablity has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activitios ocour;
- areas submerged by tallings or hazardous contaminant storage and dam walls în all cases;
- areas under temporary infrastruature. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, airstrips, helipads ete) whloh is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas prevlously significantly dlaturbed which have achieved the rehabilitation outeomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achleved the rehabilltation objective(s) due to circumstances beyond the control of the mine operator (such as climatio conditions);
- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, beres, bulldings, fixed machinery, hardstand areas, alristrips, hellpads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that preexisted the grant of the tenure uniese those areas are disturbed during the term of the tenure.
"spillway" means passage or outlet from the dam through which surplus water flows.
"stable" means land form climensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, wearing capacity (traffic ability) erosion resistance and geochemical stability with respect to seepage and contaminant generation.
"suhtably quallifed and experlenced person" means a person who is a Registered Professional Englneer of Queensland" under the provisions of the Professional Engineers Act 1988 or a Corporate Member of the Institution of Engineers Australla or holds equivalent professional qualifications and has the following:
(a) knowledge of engineering;principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and.
(b) at least a total of five years of suftable experience and demonstrated expertise in at least four of the following areas:s,
- investigation, desigin or construction of dams;
- operation and maintenance of dams;
- geomechanics with particular emphasis stabilly, geology and geochemistry
- hydrology with partcular reference to flooding, estimation of extreme storms, water management or meteorelogy;
- hydraullcs with particular reference to sediment transport and deposition, erosion control, beach processes;
- hydrogeology with partoular reference to seepage, groundwater.
- solute transpor processes and monitoring thereof; or
- dam safety.
"tolerable limits" means that a range of values could be accepted to achleve an overall environmental management objective (eg a range of settlement of a talling cappling could stlil meet the objeotive of draining the cap cquickly, preventing pondage and limiting Infiltration and percolation).
"trivial harm" means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totaling more than $\$ 5 ; 000$.
"watercourse" - Means a river, creek or stream In which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:
(a) continuous bed and banks;
(b) an extended period of flow for some months after rain ceases, and
(c) an adequacy of flow that sustains basic ecological processes and maintains blodiversity.
"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea) or any part-thereof.


## END CONDITIONS FOR SCHEDULEH

Schedule 1 - Maps / Plans


Schedule I - Map 1 Recelving Water Monitoring Locations


Schedule I - Map 2 Location of End Pipe Releases from Sediment Daims - Procossing Area


Schedule I Map 3 Location of End Pipe Releases from Sediment Dams - Mining Area


Schedule I - Map 4 Location of Hazardous Dams


Schedule I - Map 5 Stream Sediments Monitoring Locations


Schedule I - Map 6 Groundwater Monitoring Locations:
END CONDITIONS FOR SCHEDULEI
END OF EVIRONMENTAL AUTHORITY

| Enquiries | Neil Maver |
| :--- | :--- |
| Telephone | (07) 4744 7820 |
| Your reference | MIN100401006 |
| Our reference | ISA658 |

31 January 2007

Environmental Protection Agency
Incorporating the
Queensland Parks and Widdife Service

Wayne Frampton
Mining Registrar
Department of Mines \& Energy
PO BOX 334
MOUNT ISA QLD 4825

Natural Rosources, Mines and Water


1 FEB 2007
MOUNT ISA
RECETVED

Dear Wayne
Re: Application submitted by Reefway Pty Ltd and Savannah Resources Pty Ltd to amend Environmental Authority MIN100401006 (Mount Kelly Project)

The Environmental Protection Agency (EPA) received the application to amend Enviroamental Authority MIN100401006 on 2 October 2006.

Attached is a draft amended Environmental Authority MIN100401006 prepared by this agency. The Environmental Authority holder is now required under Section 254 of the Environmental Protection Act 1994 to give notice of their application to amend the Environmental Authority to each affected person for each mining lease and publish the notice at least once in a newspaper circulating in the locality of the land to which the mining lease is subject.

This amendment application includes the addition of mining lease application 90179 to the Mount Kelly Project which consists of the following mining leases: ML5426, ML5435, ML5446, ML5447 ML5448, ML5474, ML5476, ML5478, ML90168, ML90169, ML90170 \& ML90178. The attached Environmental Authority is also the draft Environmental Authority for this mining lease application.

Should you have any further enquiries please do not hesitate to contact Neil Maver on (07) 47447820.

Yours sincerely
s. 49 - Signature

Ueonl Metcalte

## $-$

## District Manager <br> Environmental Operations <br> North West District

# Notice of specified objection period for application for amendment of environmental authority (mining lease) 

# Section 255 Environmental Protection Act 1994 

This notice is lssued by the administening authoity pursuant to section 255 of the Environmental Protection Act 1094, to advise you of the objection period for an application for an amendment to an environmental authority (mining lease).

## Enquires to :- : Nell Maver

Telephone : (07) 47447820
Your reference: MIN100401006
Our reference : ISA658

Reefway Pty Ltd
Level 22 Allendale Square
77 St Georges Terrace
Perth WA 6000

Attention: Phillip Hartog,
Re: Application to amend environmental authority (mining lease) number MIN100401006, in relation to the Mount Kelly Project.

Thank you for the above mentioned application received by this office on 2 October 2006.
A draft environmental authority has been prepared by this agency and is attached.
Please note that section 254 of the Environmental Protection Act 1994 requires that within 10 business days of your receipt of the draft environmental authority, you must give notice of your application to amend the environmental authority to each affected person for each mining lease and publish the notice at least once in a newspaper circulating in the locality of the land to which the mining lease is subject. The definition of "affected person", as prescribed by the Act, is attached.
You are advised that any person/entity may make an objection to the administering authority about the application, the draft environmental authority for the application or a condition included in the draft environmental authority.
The objection period for this application, during which objections may be given, concludes on date prescribed under the Mineral Resources Act 1989.

During this time you are required to make application documents available for inspection by interested and or affected persons and to provide copies of application documents upon request.

An application notice template, titled "Public Notice of application for amendment of environmental authority (mining lease), Section 254", is available from all Environmental Protection Agency (EPA) offices or via the EPA web site, and should be used to produce the application notice.

## s. 49 - Signature

Signed
$-\quad 3) / 1 / \infty$

## Geeff Metcalfe

District Manager
Delegate of Administering Authority
Environmental Protection Act 1994

## Definitions of "affected person" and "interested person", as prescribed by the Act

## Who is an "affected person" for a project

38.(1) A person is an "affected person" for a project if the person is -
(a) a person mentioned in subsection (2) for the operational land or any land joining it; or
(b) any of the following under the Native Title Act 1993 (Cwith) for the operational land or for
an area that includes any of the land -
(i) a registered native title body corporate;
(ii) a registered native tifte claimant;
(iii) a representative Aboriginal/Torres Strait Islander body; or
(c) a relevant local government for the operational land.
(2) For subsection (1)(a), the persons are as follows -
(a) for freehold land - a registered proprietor;
(b) for land that is held from the State for an estate or interest less than fee simple and for which the interest is recorded in a register mentioned in the Land Act 1994 ("Land Act"), section 276 - a person recorded in the register as the registered holder of the interest; (c) for land subject to a mining claim, mineral development licence or mining lease - a holder of, or an applicant for; the tenement;
(d) for land subject to an authority to prospect or a lease or licence under the Petrofeum Act 1923-
(i) a holder of the authority; or
(ii) a lessee under the lease; or
(iii) a licensee under the licence;
(e) for land under the Land Act or the Nature Consenvation Act 1992 ("NCA") for which there are trustees - a trustee of the land;
(f) for Aboriginal land under the Aboriginal Land Act 1991 ("ALA") that is taken to be a reserve because of section $87(2)$ or $87(4)$ (b) of that Act - a grantee of the land;
(g) for DOGIT land under the ALA or the Torres Strall Islander Land Act 1991 - a trustee for the land;
(h) for land held under a lease under the Local Govemment (Aboriginal Lands) Act 1978, section 6 - a relevant local government;
(i) for Torres Strait Islander land under the Torres Strait Islander Land Act 1991 that is taken to be a reserve because of section 84(2) or 84(4)(b) of that Act - a grantee of the land;
(j) for land under a lease from the State under the Aborigines and Torres Strait Islanders (Land Holding) Act 1985 that has been excised from land granted in trust for Aboriginal or Torres Strait islander purposes under the Land Act - a trustee of the land;
(k) for land that is any of the following, the State -
(i) unallocated State land;
(ii) a reserve under the Land Act for which there is no trustee;
(iii) a national park, national park (Aboriginal land), national park (scientific), national park (Torres Strait Islander land), national park (recovery) or forest reserive under the
NCA;
(iv) a conservation park under the NCA for which there are no trustees;
(v) a State forest or timber reserve under the Forestry Act 1959;
(vi) a State controlled road under the Transport Infrastructure Act 1994;
(vii) a fish habitat area under the Fisheries Act 1994.
(1) another person prescribed under a regulation.
"interested person" means an interested person proposed by the proponent under section 41 (3)(b).

## Statutory declaration for public notice requirements


#### Abstract

A statutony declaration is a witten statement of facts that is swom or declared under the Oathis Act 1667. This statutory doclaratlon should be completed and fonvarded to the administering authority within 5 business days aftor the objootion perlod; in accordenoe with seotion 214 of the Environmental Protection Act 1994, You must attach a copy of the application notice to thle statutory declaration.


OATHSACT 1867
QUEENSLAND
TOWIT

Re: Public notice prepared for the application for:
(please tick one of the following)environmental authority (mining laase); orenvironmental authorlty (mining claim); oramendment of environmental authority (mining lease)
Described as:
On land described as: $\square$

I $\square$
Insert the name of the person making this deckaration
of $\square$
Insent the street address of the person making this declaration
In the State of Queensland do solemnly and sincerely deciare that in accordance with section 214 of the Environimental Protection Aot 4994, in relation to the above mentioned application:

Have (please tick only one of the following):
$\square$ fully complied with the public notice requirements of elther: sections 211 and 212 of the Environmental Protection Act 1994, in the case of an applioation for an environmental autherity (mining lease or mining claim); or sections 254 and 212 of the Envirommental Protection Act 1994; In the case of an application to amend an environmental authority (mining lease).

## OR

$\square$ not fully complied with the public notification requirements of sections 211 and 212 or sections 254 and 212 of the Environmental Protection Act 1994 and the details of non compllance are as follows:

The application notice (attached) was published in the following media:
1.
2. $\square$

Insert publication date

And the application notice has been given to the following persons
$\square$
Insert name, address and dates


## Public Notice

## PUBLIC NOTICE OF APPLICATION FOR AMENDMENT OF ENVIRONMENTAL AUTHORITY (MINING LEASE)

Page 2 of this document contans the form and format to be used for a PUBLIC NOTICE OF APPLICATION FOR
AMENDMENT OF ENVIRONMENTAL AUTHOAITY (MINING LEASE). All version informatlon for thls notloe Is contained on this page only


Page 1 of $2 \cdot 050510$

# Environmental Authority No. MIN100401006 (mining activities) <br> Section 258 Environmental Protection Act 1994 

This environmental authority is granted under the Environmental Protection Acf 1994 and includes condifions to minimise environmental harm caused, or llkely to be caused, by the authorised mining activities. An environmental authority (mining activities) may be for mining activitles authorised (under the Mineral Resources Acr 1989) to occur: under one of the following mining tenements: a prospecting permit; mining clalm; exploration permit; mineral development licence; or mining lease. in general, a mining activity means; prospeoting, exploring, mining; or processing minerals; remediation; rehabllitation; and includes faciltation and supporting activities and any action taken to prevent environmental herm.

Under the provisions of the Environmental Protection Act 1994 this Environmental Authority is issued to:

Reefway Pty Ltd . Savannah Resources Pty Lid
Level 22 Allendale Square Level 22, Allendale Square
77 St Georges Terrace
77 St Georges Terrace
Perth WA 6006 Perth WA 6000

In respect of carrying out activities as part of the following mining project:
Type of Environmental
Authority (mining activities)
Mining Leases $\quad \dot{M L} 5426$, ML 5478, ML90168 $\quad 100 \mathrm{~km}$ north of Mount Isa
ML90169, MLP0170, ML80178
ML00179; ML 5435, ML 6446
ML 5447, ML 5448, ML 5474
ML 5476.

The mining activities are authorized to the extent defined in Schedule 6 Section $14(\rho)$ of the Environmental Protection Regulation 1998.

This Environmental Authority is subject to the conditions set out in the attached schedules.
The anniversary date of this Environmental Authority is 24 July each year.
This Environmental Authonty takes effect from X 2007 for granted tenements and will take effect for ML00178 and ML90179 upon date of grant of tenure.

Geoff Metcalfe<br>District Manager<br>Mt Isa District, Northern Region<br>Delegate of Administering Autharity<br>Environmontal Protection Att 1994

## Definitions

(A5-1) Words and phrases used throughout this environmental authorty are defined in Schedule $\mathbf{H}$ - Definitions. Where a defintion for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the Envionmental Protection Act 1994, its Regulations and Environmental Protection Pollcies must be used.

## END CONTIONS FOR SCHEDULE A

## Schedule B - Air

## Dust Nulsance

(B1-1) Subject to Conditions (B1-2) and $(B 1-3)$ the release of dust or partioulate matter or both resulting from the mining activity must not cause an environmental nulsance at any senstitive or commercial place.
(B1-2) When requested by the administering authorty, dust and particulate monitoring must be undertaken within a reasonable and practicable timetrame nominated by the administering authority to investigate any complaint - (which is neither fivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of : - environmental nuisanoe at any sensitive or commerclal place, and the results must be notified within 14 days to - : the administering authorty following completion of monitoring.
(B1-3) It the environmential authonity holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of ( $\mathrm{BI}-1$ ):
a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580,10.1 Methods for sampling and analysis of ambient air - Determination of particulatos - Deposited matter - Gravimetric method of 1991.
(B1-4) If monitoring Indicates exceedence of the relevant limits in Condition (B1-3), then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immedieitely implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nulsance.

## Odour Nulsance

(B2-1) Subject to condition (B2-2), the release of noxious or offensive odour(s) or any ether hoxious or offensive airbome contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commerclal place.
(B2-2) When requested by the administering authorty, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to Investigate any complaint (which is nelther frivolous nor vexatious nor based on mistaken bellef in the opinion of the authorised officer) of environmental nulsance at any sensitive or commercial place, and the results must be notfied within 14 days to the administering authority following completion of monitoring.
(B2-3) If monitoring indicates Condition (B2-1) is not being met then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nulsance.

Schedule C - Table 2 (Recelving Water Trigger Limits)

| Parameter | Units | Minimum | Maximum | Tigger Type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{1}$ | pH | 6 | 8.5 | Range |
| EC ${ }^{1}$ | $\mu \mathrm{S} / \mathrm{cm}$ | N/A | 250 | Maximum |
| Sulphate ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 500 | Maximum |
| Aluminium ${ }^{4}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maximum |
| Aluminium $^{5}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 11.5 | Maximum |
| Arsenic ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.25 : | Maximum |
| Boron ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$. | N/A | 0.37 | Maximum |
| Cadmium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.005 | Maximum |
| Chromiuma ${ }^{2}$ | mg 1 | N/A | 0.5 | Maximum |
| Cobat ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Copper ${ }^{4}$ | mgh | N/A | 0.5 | Maximum |
| Copper ${ }^{5}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.83 | Maximum |
| Fluoride ${ }^{\text {a }}$ | mgh | N/A | 1 | Maxdmum |
| Lead ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.05 | Maximum |
| Lead ${ }^{\text {g }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.065 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1.9 | Maximum: |
| Mercuif ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.001 | Maximum |
| Molybdenum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.075 | Maximum |
| Nickel ${ }^{2}$ | mgh | N/A | 0.5 | Maximum |
| Selenium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Z $\mathrm{Inc}^{2}$ | mg L | N/A | 10 | Maximum |

${ }^{1}$ Contaminant triggers llmits are based on Table 3.3.4 and 3.3 .5 of Aquatic Eoosystoms ANZECC (2000).
${ }^{2}$ Contaminant trigger limits are based on $50 \%$ of the contaminant limits detined in the ANzECC (2000) Livestock Drinking Water and are to bo analysed as total metals (untiltored).
${ }^{3}$ Contaminant tulger limits based on ANZECC (2000) tigger levels for aquatic ecosystems of silghtly - moderately disturbed systoms - table 3.4 .1 tevel of proteotton $35 \%$ / Table $3.3 .4 / 3.3 .5$ - Troplcal Australla upland ivers.
${ }^{4}$ Contaminant tifgger Imits are based on $50 \%$ of the contaminant ltmits deflied in the ANZECC (2000) Livestock Drinking Water and are to be analysed as total metals (unflitered). These llmits are set for the Mount Kolly Leases only (ML 5426; ML 5478, ML90168, MLOO169, ML90170, ML90178, ML 5435, ML 5446, ML 5447, ML 5448, ML 5474 and ML 5476. .)
${ }^{5}$ Contaminant irigger Ilinits axe based on site spacifte baokground data and are to be analysed as total metals (unflitered).
These trigger llants are set for the Lady Annle Lease only (ML90179).

Schedule C - Table 4 (End of plpe monitering locations and frequency)

| Montitring point | Easting (AMC B4 Zone 54 | Northtigy (ANTS 84, Zone 54 | Montoring trequency |
| :---: | :---: | :---: | :---: |
| Mount Clarke ROM Area Sediment Dam | 303834 | 7799496 | Each flow event |
| Mount Clarko Plt Area Sediment Dam | 305386 | 7799592 | Each flow event |
| Mount Clarko/Flying Horse Sediment Dam | 305887 | 7798726 | Each flow event |
| Process Plant hom Pad Sediment Dam 1 | 308040 | 7798656 | Eachflow event |
| Proeess Plant ROM Pad Sedment Dam 2 | 302905 | 7798900 | Each flow event |
| Process Plant ROM Pad Sediment Dam3 | 302771 | 7789010 | Each flow event |
| Ledy Annie Sediment Dam | 295307 | 7811464 | Each flow event |

NOTE This does not apply to dams containing hazardous wasta.
4
Schedule G Table 5 (End of plpe contaminant release limits)

| Parameten | Unitus | Mintmum | Maximum | Umithye |
| :---: | :---: | :---: | :---: | :---: |
| pHi | pH | 6 | 9 | Range |
| TOS | $\operatorname{mg} / 2$ | N/A | 4000 | Maximum |
| Sulphate | mgh L | N/A | 1000 | Maxdimum |
| Arsentic | mgh | NVA | 5 | Maximum |
| Cadimium | mgh | N/A | 0.01 | Maximum |
| Chromium | mgh | N/A | 1 | Maximum |
| Cobatt | mgh | NAA | 1 | Maximum |
| Copper | mgl | N/A | 1 | Maximum |
| Lead | mgh | N/A | 0.1 | Maximum |
| Mercury | migh | N/A | 0.002 | Maximum: |
| Zinc | mg/ | N/A | 20 | Maxdmum |

Contaminantlmits based on ANZEGC (200G) Livestodk difikho water qualty and are enatysed as Total metall (unflutered) NOFE Thit does not apply to dams ciontaining hazardous waste:

## Dams Containing Hazardous Waste

(C1-4) Water storages containing prooess water and stom water contaminated by mining activitios must be monitored at the locations and frequencles defined in Schedule 6 - Table 6 and Schedute 1 - Map 6 and samples analysed for the parameters defined in Schedute C - Table 7.
(C1-8) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule C. Table 8 on the spillway of all daris containing hazardous waste within the operational land.
(C1-9) The holder of the environmental authority must notfy the adininistering authority when the pondage level of the " dam containing hezardous waste, reaches the mandatory reporting level defined in Schedule C - Table 8.

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise eroston and the release of sediment.
(C2-2) The bed of the recelving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the locations and frequencles defined In Schedule C. Table 9 and Schedule I-Map 7\& 8.

Schedule C-Table 9 (Receiving Stream Sediment Monitoring Locations and Frequency)

| Monttoring point | $\begin{gathered} \text { Easting } \\ \text { (aco84 Zone 54) } \end{gathered}$ | $\begin{aligned} & \text { Northing } \\ & \text { (AGP } 84 \text { Zone } 64) \end{aligned}$ | Monitoring frequency |
| :---: | :---: | :---: | :---: |
| MKUS 1 -reference site* | 305625 | 7797460 | May each year |
| MKUS 2-reference site* | TBD | TBD | May each year |
| MKOS 1-test inte | 301160 | 7800135 | May each year |
| MKOS 2 texst site | 306366 | 7798856 | May each year |
| MKDS 3-test site | 306370 | 7798363 | May each year |
| MKDS 4 - test site | 301300 | 7797255 | May each year |
| LA-US1-reference site* | 295150 | 7812680 | Each flow event |
| LA- US2 reference site* | 295750 | 7812480 | Each flow event |
| LA- DS1- test site | 294000 | 7810100 | Each flow event |
| LA DS2-test site | 295500 | 7810400 | Each flow event |

NOTE This does not apply to dams contaling hazardous waste
*Reference sties must:
a) be from the same blogeographicaland cllmatic region;
b) have similar geofogy, soll types and topography
o) contain a range of habitats simllar to those at the test ste
d) be of similar fow roghne; and
e) not be so close to the test sttos that any disturbances at the test site also result in a change at the reference sife. TBD- to be detemined and provided to the QEPA prior to commencement of mining.
(C2-3) Subject to Condition (C2-2), if the stream sediment contaminant trigger levels defined in Schedule C - Table 10 are exceeded then the environmental authority hoidier must complete an investigation into the potential for environmental harm and notity the administering authorty within 3 months of recelving the analysis results.

## Sewage effluent

(C3-1) All effluent released from the treatment plant must be monfored at the frequency and for the parameters speoffied in Schodule © - Table 12.
(C3-2) Sewage effluent used for dust suppression must not exceed sewage effluent release limits defined in Schedule © Table 12.
(C3-8) Sewage Effurent used for dust suppression must not oause spray drift or over spray to any sensitive or commercial place, and must not be applled at a rate that causes pooling, ponding and/or runoff of any offluent irrigated.
(C0-4) Subject to Conditions (C3-1) to (C3-3) inclusive, sowage effluent from sewage treatment faclities must be reused or evaporated and must not be directly released trom the sewage treatment plant to any water way or drainage line other than in accordance with Schedule C - Table 12.

Schedule C - Table 12 (Sewage effuent qualitytargets for dust suppresslon)

|  | Retarse Limit |  |  | Monitoring Frequenoy |
| :---: | :---: | :---: | :---: | :---: |
| Cualy charactorstics | Mininum. | Metfan | Maximum |  |
| PH ( pH Units) | 6 |  | $8.5{ }^{2}$ | Quarterly |
| Faecal Coliforms (organisms/100mL) |  | $1000^{7}$ |  | Quarterly |

${ }^{A}$ A minimum of five samples must bo collected af not loss than a weolic intenval for the quartery sampling
${ }^{2}$ A minlmum of five samples must be collected at not less than a woekly interval for the quarterly sampling with four out of five samples musi be less than the maximum
${ }^{3}$ A minimum of tive samples must be collected at not loss than a wookly hiterval for the quarterily sampling with four out of Hve samples must be hlgher than the minimum but lower than the maximum Imit.
Release llinits sourced from Queensland Water Recycilhg Guldellnes December 2005 Table 6:2b

Schedule C - Table 14 (Groundwater Contaminant Trigger Levels)

| Parameter | Units | Minimum | Maximum | Thiger type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{\text {² }}$ | pH | 6 | 8 | Riange |
| TDS ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2000 | Maximum |
| Sulphate ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 500 | Maximum |
| Aluminium ${ }^{2}$ | mg/L | N/A | 2.5 | Maximum |
| Arsenic ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.25 | Maximum |
| Boron ${ }^{2}$ | $m g h$ | N/A | 0.37 | Maximum |
| Cadmam ${ }^{2}$ | mgh. | N/A | 0.005 | Maximum |
| Chromium ${ }^{2}$ | mg / | N/A | 0.5 | Maximum |
| Coball ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Copper ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.5 | Maximum |
| Fiuoride ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| . Lead ${ }^{2}$ | $\mathrm{mg} / \mathrm{h}$ | N/A | 0.06 | Maximum |
| Manganese ${ }^{\text {B }}$ | mg ¢ | N/A | 1.9 | Maximum |
| Mercury ${ }^{2}$. | $m \mathrm{mg}$ | N/A | 0.001 | Maximum |
| Molybdenum ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.075 | Maximum |
| Nlcke? ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{h}$ | N/A | 0.5 | Maximum |
| Selenlum ${ }^{2}$ | mgh | N/A | 0.01 | Maximum |
| Z $\mathrm{Inc}^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 10 | Maximum |

Contaminant thiggers limits are based on Table 3.3 .4 and 3.3 .5 of Aquatic Ecosystems ANZECC (2000)
${ }^{2}$ Contaminant trgger tintts are based on 50\% of the contaminant limits defined in the ANZECC (2000) Livestook Drinking Water and are to be analysed as total metals (unfitered):
${ }^{3}$ Contaminant trigger llmits based on Table 3.4.1 of Aquatle Ecosystems ANZECC (2000) and are analysed as Flitered Metals
(C43)
Subject to Condition (C4-1), groundwater contaminant limits must not exceed the contaminant limits defined in Schedule C-Table 15.

Schedule C - Table 17 (Vold Water Quality Limits)

| Parameter | Units | Lmilt | Limit Type |
| :---: | :---: | :---: | :---: |
| pH | pH | $6-9$ | Range |
| TDS | $\mathrm{mg} / \mathrm{L}$ | 4000 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cadmlum | $\mathrm{mg} / \mathrm{L}$ | 0.01 | Maximum |
| Chromilum | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Copper | mgh | 1 | Maximum |
| Lead | $\mathrm{mg} / \mathrm{L}$ | 0.1 | Maximum |
| Mercury | mg L | 0.002 | Maximum |
| Zinc | $\mathrm{mg} / \mathrm{L}$ | 20 | Maximum |

Contaminant limitis are based on ANZECC (2000 Livestook drinking water quallty and analysed for total metals (onfiltered))

## Acld Rock Bralnage and Leachate Management

(C6-1) Subject to limits defined in Sehedule C all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the acthlty to any groundwater, watercourse and waters.

END CONDITIONS FOR SCHEDULE C

## ecoaccess

## Regulated Waste

(E4) All regulated waste received and removed from the site, that is over 250 kg in weight, must be transported by a person who holds a current authority to transport such waste under the provisions of the Environmental Protection Act 1994.
(E4-2) Except as otherwise provided by the conditions of thits authority, all waste removed from the site must be taken ito a facilliy that is lawilly allowed to accept such waste under the provisions of the Environmental Protection Act 1994.
(E4-3) Where regulated waste is removed from the Project (other than by a release as permitted under another schedule of this environmental authority), records must be kept of the following:
a) the date, quantity and type of waste removed, and
b) name of the waste transporter that removed the waste; and
c) the intended treetment/disposal destination of the waste.

Note: Records of documents maintained in compllance with a waste tracking system established under the Environmental Protectlon Act 1994 or any other faw for regulated waste will be deemed to satisfy this condiltion.

## Waste Rock Charactorlisation

(E5-1) All areas to be mined must undergo a waste rock characterisation survey (where waste rock is to be disposed of on the surface) and a report submitted to the administering authority prior to mining where this survey has not previously been carried out.

END CONDITIONS FOR SCHEDULE E

| Misturbance Categery | Max. Area | Land Use |  | Land capabily |  | Antogue Sfe |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mount Clarke Topsoil Stockpile | 4.5 | Habitai/lG | Habitat/LC | Class 4-5 | Class 4-5 | TBD | TED |
| Mount Clarke Pit Area Sediment Dam | 0.6 | Hablat | Water Storage | Class 4-5 | Water Storage |  |  |
| Mount Clarke ROM Area Sediment Dam | 0.4 | Hablitat | Water Storage | Class 4-5 | Water Storage |  |  |
| Mount Clarke Diversion/Interception Sediment Dam Drains: | 3.2 | Habitat | LiG or diversion Habitat | Class 4-5 | Class $4-5$ | TBD | TBD |
| Roads/Tracks | 18.8 | Existing tracks or LIG | Tracks far grazler or LIG | Class 4-5 | Class 4-5 | TED | TBD |
| Accommodation Camprand Facilitios | 5 | LIG | LG | Class 4 | Class 4 | TED | TBD |
| Sewage Plant and Pond | 0.2 | EG | LIG | Class 4 | Class 4 | TBD | TBD |
| ROM Pad-at process plant | 7.8 | LIC | LG | Clase $4-5$ | Class 4 - 5 | TBD | TBD |
| Process plant and associated bullitings | 3.3 | LG | LIG | Class 4 | Class 4 | TBD | TBD |
| Overtand Conveyor | 1.8 |  |  |  |  | TBD | TBE |
| Workshop/Office Access Circuit Area | 2.9 | LG | LIG | Class 4 | Class 4 | TBD | TE6 |
| Heap Leach PadsStage 1 and 2 | 43.2 | T/G | Habitathla | Class 4 | Class 45 | TBD | TED |
| Procass Water Ponds -PLS, ILS and Raffinate. | 3.4 | LIG | Water storages | Class 4 | Water storages |  |  |
| Stormwater Ponds 1 and 2 | 11.4 | LJG | Water storages | Class 4 | Water storages |  |  |
| Stermwater Pond spillway channel | 0.7 | LIG | LG or diversion | Class 4 | Class 4-5 | TBD | TBD |
| Raw Water Pond | 0.6 | LIG | LGWater storage | Class 4 | Class 4 or water storage | TBD | TBD |
| Process Area Topsoil Stockpiles | 9.7 | LIG | LG | Class 4 | Class 4 | TBD | TED |


*Analogue sites and disturbance description are to be dentified and the emvironmental authorty holder must amend the environmental authority to include anatogue sites in Schedule F - Table tby 30 dune 2007.
LIG- Low Intensify Grazing
Classes are derved from the Deparment of Ninerals and Energy's Land Suitability Assessment Techniques (1995)
(F1-2) Progressive rehabiltation must commence when areas become avallable within the operational land.
Complete an linvestigation into rehabilitation of dlsturbed areas and submit a report to the administering authonty proposing acceptance criteria to meet the outcomes in Schedule F-Table 1 and landform design criteria in Schedule F - Table 2 by 30 June 2007
The holder of this environmental authonity must rehabilitate all existing land disturbances located within the boundary leases of MLgot79 (Lady Annie) as identified. in Table 1. The holder of this ervironmental authority must ensure these areas of existing land disturtbance, where not otherwise disturbed and rehabilitated under this authority, are rehabiltated to the final land descriptions identfied in Tables 1 and 2 .

## Location of Dam

(F3-2) The location of any dam containing hazardous waste within the licensed place must be located within the polygonal aree defined by the ce-ordinates defined in Schedule C-Table:4-Map 4.

## Schedule F-Table 4 (Location ot Dams Containing Hazardous Waste)

| Name of dam contalning hazardous waste | Easting(ANG 04, Zone 54) ${ }^{\text {(1) }}$ | Northing (Aluc 84, Zone S4) ${ }^{\text {(14) }}$ |
| :---: | :---: | :---: |
| PLS Ponds, LLS; <br> -Raffinate Pre-settler and Raffinate Pond | $\begin{aligned} & 301760 \\ & 302065 \\ & 302035 \\ & 301760 \end{aligned}$ | $\begin{aligned} & 7797640 \\ & 7797640 \\ & 7797310 \\ & 7797310 \\ & \hline \end{aligned}$ |
| Stormwater Pond 1 and 2 | $\begin{aligned} & 301470 \\ & 301760 \\ & 301760 \\ & 301470 \end{aligned}$ | $\begin{aligned} & 7797640 \\ & 7797640 \\ & 7797110 \\ & 7797110 \\ & \hline \end{aligned}$ |
| Heap Leach Pads | 302065 302720 302720 302035 | 7797945 7797945 7796825 7796825 |

Note ${ }^{\text {IT: A minimum of } 3 \text { control points is required to constrain the location of all aothitles assoclatod with the diam }}$ containing hazardous waste. Additional infrastructure which forms part of any dam containing hazardous waste may inchude appurtenant works consisting of tallings discharge ploelines, seapage collection systoms, runoff diversion bunds, containment systems, pressure rellef wells, decant and recyole water systems.

## Standards and Criteria

(F3.3) The holder of the envirenmental authority must design, construct, repair, maintain, operate and decommission the dams defined in Schedule F - Table 3 and 4 in accordance with an acknowledged design plan that must comply with the standard envirenmental conditions in the "Code of Envirenmentel Compliance for High Hazard Dams Contalining Hazardous Waste".
(F3-4). The holder of the environmental authorlty must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardous dams in accordance with the criteria outlined in Appendix B of the Code of Environmental Compllance for Mining Activites:

## Inspection of Dams

(F3-5) High hazard dams oontaining hazardous waste shall be inspeoted by a Reglistered Professional Engineer Queensland (RPEQ) prior to 1 November each year or at any time If alarming, unusual or otherwise unsatisfactory condifions are observed.
(F3-6) For each Inspection, the engineer shall assess the condition of the dam and its foundations, determine the hydraulic adequacy of the dam and assess the adequacy of. the works wth respect to dam safety.
(F--7) For each inspeotion, two copies of the engineer's report and any recommendations as to measures to be taken to ensure the integrity of the dam shall be fumished to the administering authority withln 28 days of the inspection.

## Decommissioning of Dam-Objective

(F3-8) Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where water can no longer be stored in the dams. The dams and thelr contained waste(s) must be stable, whereafter the dams are no longer dams and they become landforms on the operational land and must comply with the rehabilttation requirements of this environmental authority.

## Decommissioning of Dam - Documentation and Compliance

(F3-9) Decommissioning activties for dams must be documented in detall in the plan of operations under which the activities are to occur. Where the detalled documeritation is not already contained in the Design Plan for the

## Schedule H - Definitions

"acceptance criteria" means the measures by which the actions impiemented to rehabilitate the land are deomed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been slgnifioantly been disturbed by the mining activites. Acceptance criteria may inclucte information regarding:

- vegetation establishment, survival and succession;
- vegetation productivity, sustalned growth and structure development;
- fauna colonisation and habitat development,
- ocosystem processes such as soll development and nutrient cycing, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbielogical studies including recolonisatlon by mycomhizal fungl, microbial blomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoll handing, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.


## "affected building"

- for nolse means any bullding or any part of a building, for example the building from which the nolse is made, at whioh the nolse can be heard.
- for vibration means any building or any part of a building, for example the activity from which the vibration is made, at which the vibration can be felt.
"ambient (or total) nolse" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.
"appropriately qualified person" means any persen who conforms to the EPA operational policy for an "appropriately qualified person (analyst)" in accordance with Section $490(7)$ of the Environmental Protection Act 1904.
"ARD" means acid rock drainage and refers to the low pH , high heavy metal pollutant typical of sulphidic mine wastes, and most commonly associated with the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.
"authortiy" means environmental authority (mining activities) under the Environmental Protection Act 1994.
"blasting" means the use of explosive materials to fracture-
(a) rook, coal and other minerals for later recoveny; or
(b) structural components or other items to facilitate removal from a site or for reuse.
"building" includes a structure of any type and part of a building or structure.
"commercial place" means a work place used as an office or for business or commercial purposes; which is not part of the mining activity and does not inolude employees accommodation or public roads.
"competent person" means a person with the demonstrated skill and knowiedge required to cariy out the task to a standard necessary for the reliance upen collected data or protection of the envlronment.
"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control fiowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Environmental Complifance for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criterla to be used for operating the dam and the decommissioning and rehabilitation objectives in terms of procedures, works and outcomes at the end of dam life, The documente can Inolude design and investigation reports, drawings, specifications and certifications.
"environmental authorlty holder" means the holder of thls environmental authorthy.
"flow event" means a flow event producing sufficient water to permit a monitoring creek bed flow of 30 cm or more at the sampling station.
"flowable substance" means matter or mixture of materlals which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liguid or suspended solids.
"peak particle velocity (ppy)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mims ${ }^{-1}$ ).
"protected area" means - a protected area under the Nature Conservation Act 1992; or a marine park under the Marine Parks Act 1992; or
$\therefore \quad$ a World Heritage Area.
"progressive rehabilitation" means rehabilitation (defined below) undertaken progresslvely or astaged approach to rehabilitation as mining operations are ongoing.
t
"reference site" (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar blodiversity. Detalls of the reference site may be as photographs, computer generated images and vegetation models etc.
"rehabilitation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, inoludes remediation of contaminated land.
"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.
"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.
"self sustaining" means an area of land which has been rehabllitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.
"sensitive place" mears;
- a dwelling, residential aillotment, moblie home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medioal center or hespital; or
-a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Hertage Area; or
- a publle park or gardens.
"significant disturbance" - Includes land
(a) If it is contaminated land; or
(b) it has been disturbed and human intervention is needed to rehabilitate it.
. 1. to a state required under the relevant environmental authority; or
II. If the environmental authority does not require the land to be rehabilltated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soll has been compacted, removed, covered, exposed or stockpilied;
- areas where vegetation has been removed or dostroyed to an extent where the land has been made susceptible to erosion; (vegetation \& topsoli)
- areas where land use sultability or capability has boen diminished;
- areas within a waterocurse, waterway, wetland or lake where mining activities occur,
- areas submerged by tallings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure froads, tracks, bifdges, culverts, dams, bores, buildinge, fixed machinery, hardstand areas, airstrips, helipads ete) which is to be removed after mining activitles have ceased; or
- areas where land has been contaminated and a sultability statement has not been lssued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;'
- by agreement with the EPA, areas prevlously significantly disturbed which have not achieved the rehabiltation - objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure lroads, tracks, bridges, culverts, dams, bores, bulldings, fixed machinery, hardstand areas, airstrips, hellpads etc) whioh is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

Schedule 1-Maps / Plans.


Sohedule I - Map 1 Recelving Water Monitoring Locations (Mount Kelly Leases)


Schedule I - Map 3 Location of End Pipe Releases from Sediment Dams - Processing Area


Schedule I - Map 5 Location of End Pipe Releases from Sediment Dams - Lady Annie


Schedule I-Map 7 Stream Sediments Monitoring Locations (Mount Kelly)


Schedule I - Map 9 Croundwater Monitoring Locations (Mount Kelly)

| Enquiries | Jodie Marlow |
| :--- | :--- |
| Telephone | (O7) 4744 7820 |
| Your reference | MNN00401001 |
| Our reference | ISA658 |

31 May 2006

Environmental Protection Agency
Incorporating the
Queensland Parks and Wildilfe Service

Wayne Frampton<br>Mining Registrar<br>Department of Natural Resources Mines and Water PO BOX 334<br>Mount Isa Old 4825

## Dear Wayne

RE: Mount Kelly Project EA MIN00401001 Reefway Pty Ltd and Savannah Resources Pty Ltd
The Environmental Protection Agency (EPA) received an amendment application on the 25 January 2006.

A draft environmental authority (MIN00401001) for this application has been prepared by this agency and is attached. The environmental authority holder is now required under section 254 of the Environmental Protection Act 1994 to give notice of their application to amend the environmental. authority to each affected person for each mining lease and publish the notice at least once in a newspaper circulating in the locality of the land to which the mining lease is subject.

This amendment application also included the addition of three mining lease applications: 90168, 90169 and 90170 . The attached environmental authority is also the draft environmental authority for these mining lease applications.

Should you have any further enquiries please do not hesitate to contact Jodie Marlow on 0747447820.

Yours sincerely
s. 49 - Signature

Geoff Metcalfe
District Manager
Environmental Operations Division
North West District
Enc

| Natural Resources, Mines and Water |
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Onr Camooweal \& Mary Strants Mount lis Queensiand 4825 Australia
PO Box 2316 Mount Isa Quaenstand 4395 Australia
Tolephone (07) 47447886 Faosimite (07) 47447800 Webslite www.eparitd.gov.au ABN 87221158786

# Environmental Authority No. MIN00401001 (mining activities) 

## Section 228 Environmental Protection Act 1994

This environmental authority is granted under the Environmental Protection Act 1994 and includes conditions to minimise environmental harm caused, or likely to be caused, by the authorised mining activities. An environmental authority (mining activities) may be for mining activtles authorised (under the Mineral Resources Act 1989) to occur under one of the following mining tenements; a prospecting permit; mining siaim; exploration permit; mineral development lioence; or mining lease. In general, a mining activity means: prospecting, exploring, mining; or processing minerals; remediation; rehabilitation; and inoludes facilitation and supporting activities and any action taken to prevent environmental harm.

Under the provisions of the Environmental Protection Act 1994 this environmental authority is
issued to:

| Reefway Ply Lid | Savannah Resources Pty Ltd |
| :--- | :--- |
| Level 22 Allendale Square | Level 22, Allendale Square |
| 77 St Georges Terrace | 77 St Georges Terrace |
| Perth WA 6000 | Perth WA 6000 |

in respect of carrying out activities as part of the following mining project:


The mining activities are authorized to the extent defined in Schedule 6 Section 12(c) of the Environmental Protection Regutation 1998.

This environmental authorty is subject to the conditions set out in the attached schedules.
The anniversary date of this environmental authority is $X$ each year.
This environmentalauthority takes effect from X for granted tenements and will take effect for ML, 90168, 90170 and 90169 upon date of grant of tenure.

## Geoff Metcalfe

District Manager
Millsa District, Northern Region
Delegate of Administering Authority
Environmental Protection Act 1994

This environmental authority incorporates the following schedules:

- Schedule A - General
- Schedule B $\quad$ Alr
- Schedule C - Water
- Schedule D - Noise and Vibration
- Schedule E - Waste
- Schedule F - Land
- Schedule G - Community
- Schedule H - Definitions
- Schedule I - Maps / Plans


## Schedule A-General

## Finanoial Assurance

(A1-1) Provide a financlal assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under thls environmental authority.

NOTE The ealculation of manelal assuramae for condfion (At-1) must be in accordance with Guidelloe 17 and may inctude a perfomance dlscount. The amount is defned as the maximum total rehablltatlon cost for comploto rehabilttation of all distubed areas, which may wary on an annual bask due to progressive rehabiltation. The amount required for the financial assurence must be the highest Totai Rohabilitation Cost calculted for any year of the Plan of Operations and calculated using the formula: (Financial Assurance = Highost Total Annual Rehablitation Cost x Percentage Flequired).
(At-2) The financtal assurance is to remain in force unth the administering authorty is satisfied that no claim on the assurance is likely.

NOIE: Where progresshe rehabiltatton Is completed and acceptable to the administeing authoithy, progresshe reductions to the amount of financtal assurance will be applicable whore rehabiltation has been completed in accordance with the acceptance criteria defined within this environmental authority.

## Maintenance of Mieasures, Plant and Equipment

(A2-1) The environmental authority bolder must ensure:

- that all measures, plant and equpment necessary to ensure compliance wht the conditions of this environmental autherity are installed;
- that such measures, plant and equipment are maintained in a proper condition; and
- that such meastures plant and equipment are operated in a proper manner.


## Monitoring

(As-1) Record, compilie and keep for a minimum of five years all monitoing resuls required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
(A3-2) : Where montioring is a requirement of this envivormental authority, ensure that a competent person(s) conducts all monitoring.

## Storage and Handing of Flammable, Combustible and Corrostve Liquids

(A4-1) Spillage of all flammable and combustible liquids must be contaned within an on-site containment system and controlled in a manner that prevents environmental ham (other than trivial ham) and maintained in accordance with Section 5.8 of AS 1940 - Storage and Handing of Flammable and Combusitible Liquids of 2004.
(A4-2) The on-site storage of corrosive liquits nust be in acoordance with Sention 5.7 of AS 3780 - Storage and Handing of Corrosive Substances 1094

## Definitions

(A5-1) Words and phrases used throughout this environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the Environmental Rroteotion Act 1994, its Regulations and Environmental Protection Pollcles must be used.

## END CONTIONS FOR SCHEDULE A

## Schedule B - Air

## Dust Nulsance

(B1-1) Subject to Conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
(B1-2) When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the auministering authosity to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
(B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):
a) Dust depasition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of amblent air - Determination of particulates - Deposited matter - Gravimetric method of 1991.
(E1-4) If monitoring indicates exceedence of the relevant limits in Condition (B1-3), then the environmental authority holder must
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nulsance.

## Odour Nulsance

(B2-1) Subject to condition (B2-2), the release of noxious or offenisive odour(s) or any other noxious or offensive alrborne contaminant(s) resulting from the mining actilly must not cause an environmental nuisance at any sensitive or commerclal place.
(B2-2) When requested by the adminlstering authority, odour monitoring must be undertaken within a reasonable and praoticable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken bellief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be nottied within 14 days to the administering authority following completion of monitoring.
(B2-3) If monitoting indicates Condition (B2-1) is not being met then the environmental authority holder must:
a) address the complaint including the use of appropriate dispute resolution if required; or
b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nulsance.

## END CONDITIONS FOR SCHEDULEB

## Schedule C - Water

## Release to Waters

(C1-1) Recelving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at thelocations and frequencles defined in Schedule C - Table 1 and Schedule 1-Map 1, and comply with the contaminant limits defined in Schedule C-Table 3.

Schedule C - Table 1 (Recelving Water Monitoring Locations and Frequency)

|  | (AMGEa4 Zonat 54) | (Amarizonety | Mentloring trequency |
| :---: | :---: | :---: | :---: |
| MKUS 1-reference stte* | 305625 | 7797450 | Each flow event |
| MKUS 2-reference site* | TBD | TBD | Each flow event |
| MKDS 1-test site | 301160 | 7800135 | Each fow event |
| MKDS 2-test site | 306366 | 7708366 | Each fiow event |
| MKDS 3 -test site | 306370 | 7798363 | Each flow event |
| MKOS 4-test site | 301300 | 7797255 | Each flow event |

NOTE: This does not apply to dams containing hazardous wasto
Reference sties must:
a) be from the same blogeographical and climatic region:
b) have similar geology, soll typos and topography.
c) contain a range of habitats shmillar to those at the tost site
c) be of smitlar flow rogime and
e) not be so close to the test sites that any disturbanoes at the test site also result in a change at the reference site. TBD- to be determined and provided to the OEPA prior to commencement of mining:

C1-2 Subjeot to Condifion (C1-1), if the rocelving water contaminant trigger levels detined in Schedule $\mathbf{C}$ - Table 2 are excieeded then the envirommental authority holder must complete an investigation into the potential for envirohmental harm and notify the administering authouty within 3 monthe of recolving the analysie results.

Schedule C - Table 2 (Recelving Water Trigger Levels)


[^12]Sohedule C - Table 3 (Recelving Water Contaminant Limits)

| HSE Prameter | Units | Minimint | Maximum | Trigger Type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{4}$ | pH | 6.0 | 9,0 | Range |
| TDS ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate ${ }^{\text {1 }}$ | mgh | N/A | 1000 | Maximum |
| Aluminlum ${ }^{1}$ | mgh | N/A | 5 | Maximum |
| Arsenie ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.6 | Maximum |
| Boron ${ }^{\text {f }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 5 | Maximum |
| Cadmium ${ }^{1}$ | mgh | N/A | 0.01 | Maximum |
| Chromium ${ }^{1}$ | mg L | N/A | 1 | Maximum |
| Cobatt ${ }^{1}$ | mgh. | N/A | 1 | Maximum |
| Copper ${ }^{\text { }}$ | mgh | N/A | 1 | Maximum |
| Fluoride ${ }^{\text {² }}$ | mgh | N/A | 2 | Maximum |
| Lead ${ }^{1}$ | mgh | N/A | 0.1 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 2.5 | Maximum |
| Mercury ${ }^{\text {f }}$ | mgh | N/A | 0.002 | Maximum |
| Molybdenum ${ }^{\text {f }}$ | ngh | N/A | 0.15 | Maximum |
| Nickel | mgh | N/A | 1 | Maximum |
| Selentum | mght | N/A | 0.02 | Meximum |
| Z7nc ${ }^{\text { }}$ | mint | N/A | 20 | Maxinum |

Contaminant linits based on tablo 4.3 .2 ANZECC (2000) Livestock dinking water quality and ave analysed as Total metals (untiftered)
${ }^{2}$ Contaminant limits are based on Table 4.3 .1 Livestock dinining wator qualily and are analysed as Total metals (unflitered)
${ }^{3}$ Contaminurn IImits based on Table $3.4,7$ of Aquatic Ecosystems ANZECC (2000) $80 \%$ and are to be anabysed as illered metals.
${ }^{4}$ Confaminant llmits tiased on Taible 33.4 of Aquatic Ecosystens ANZECC (2000)

## End of Pipe Release

(C1-3) End of pipe release limits for storn water contaminated by mining activites must be monitored at the locations and Trequencles detined in Schedule C - Table 4 and Schedule I - Map 2 and 3 and comply with the contamhant limits defined in Schedule C - Table 5.

Schedule C - Table 4 (End ot plpe monitoring locations and frequency)

| Monitoring piolnt | Easting (Aucic 84, Zone 54) | Northing JANG 84 , Zone 54) | Bondoring trequeney |
| :---: | :---: | :---: | :---: |
| Mount Clarke ROM Area Sediment Dam | 303834 | 77.9796 | Each flow event |
| Mount Clarke Pit Area Sediment Dam | 305336 | 7799592 | Each flow event |
| Meunt Clarke/Fving Horse Sediment Dam | 306807 | 7798726 | Each flow ovent |
| Process Plant ROM Pad Seciment Dam 1 | 303040 | $7798656^{\circ}$ | Eaoh flow ovent |
| Process Plaht ROM Pad Sediment Dam 2 | 302905 | 7796900 | Each flow event |
| Process Plant ROM Pad Sedment Dam 3 | 302771 | 7799010 | Each flow event |

NOTE: This doos not apply to dams containing hazardous waste.
Schedule C - Table 5 (End of plpe contaminant release fimits)

| Pararaetor | Untts | Mipmunt | daxinum | Limit Type |
| :---: | :---: | :---: | :---: | :---: |
| ph | pH | 6 | 9 | Rainge |
| TDS | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | N/A | 1000 | Maximum |
| Arsenic | mgh | N/A | 5. | Maximum |
| Cadmium | mgh | N/A | 0.01 | Maximum |
| Chromilum | mgh | N/A | 1 | Maximum |
| Cobait | mgh. | N/A | 1 | Maximum |
| Copper | mgh L | N/A. | 1 | Maximum |
| Lead | mgh | N/A | 0.1 | Maximum |
| Mercury | mgh | N/A | 0.002 | Maxdmum |
| Znc | $\mathrm{mg} /$ | N/A | 20 | Maximum |

Contaminant limits based on ANZEOC (2000) Lvestock orinkithy water quality and are analysed as Total motals (unifitered) NOTE: This does not apply to dams containing hazardous waste.

## Dams Containing Piezardous Wasto

(C1-4) Water storages containing process water and storm water contaminated by mining activites must be monitored at the locations and frequencies defined in Schedule $C$ - Table 6 and Schectule I-Map 4 and samplas analysed for the parameters defined In Schedule C - Table 7.

Reetway Pty Ltd \& Savannah Resources Pty Ltd Environmental Authority No MiN00401001

Schedule C-Table 6 (Nater Storage Monitoring Lceations of Hazardous Dams)

| Honttortug point | $\begin{aligned} & \text { Easwing } \\ & \text { (ZoneS4 AItG ea) } \end{aligned}$ | Rormitg | Monitoring frequency |
| :---: | :---: | :---: | :---: |
| PLS Ponds | 302000 | 7797450 | Annually, March |
| 1LS Pend | 301900 | 7797450 | Annually, March |
| Ratinate Pond Pre-Settler | 301850 | 7797450 | Annually, March |
| Raffinate Pond | 301800 | 7797450 | Annuailly, March |
| Storm water Pond 1 | 301750 | 7797450 | Annually, March |
| Storm water Pond 2 | 301750 | 7797350 | Annually, March |

(C1-5) In the event that the water quality within any dam containing hazardots waste does not comply with the contaminant limits defined in Schedule C - Table 7, implement measures to prevent access by all livestock and minimise access by fauna to the dam.

Schedule C-Table 7 (Water Quality Limits tor Dams Containing Hazardious Waste)

| Parameter | Units | Contaminant Limit | Limatype |
| :---: | :---: | :---: | :---: |
| PH | pH | 49. | hange |
| TES | $\mathrm{mg} / 2$ | 5,000 | Maximum |
| Boran | $\operatorname{mgh}$ | 5 | Maximum |
| Suliphate | mgh | 1000 | Maximum |
| Atuminum | mgh | 5 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cobalt | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Copper | mgh | + | Maximum |
| Lead | mght | 0.1 | Maximum |
| Nickol | mgh | 1 | Maximumi |
| Zinc | mg/L | 20 | Maximum |

Contaminant Imis based on ANEECC (2000 LWestock dinking water quality ant are anatysed as total motals (unfiltered).
(C1-6) The design storage alfowance on 1 November of each year for any dam containing hazardous wasd constructed or operated within the operational land must comply with Schedule C-Table B.

Schedile C - Table 8 (Storage Desion for Dams Containing Hazardous Waste)

| Storage type $\qquad$ | Design Storage Allavance. | $\begin{gathered} \text { Spiliway } \\ \text { Contical pasion Storm } \end{gathered}$ | Mandatory Reporting Level |
| :---: | :---: | :---: | :---: |
| Stormwater Pond 1 | 1. 100 Year ARI 2 month wet season plus process liputs for the 2 month wet season | 1: 1000 Year AR | 1: 100 year ARI |
| Stormwater Pond 2 | 1. 100 Year ARII 2 month wet season plus process inputs for the 2 month wet samson | 1: 1000 Year ARI | 1: 100 year ARI |

Note:- The design storage allowance on 1 November of oach year for any dam containing hazardous waste constructed within the oporationat land must be equivalent to the nom-off from a 1 h 100 ARl 2 month wet sauson plus process inputs for the equivalent wet season. Process inputs rofors to hazardous mineral process waste and water, which is boing dilsposed of th the storage facility.
Note (2). The critcal design stom has a duration that produces the peak discharge for the catchments.
Note vi: The maidatory reporting fevol refors to the volume bolow hhe spllhay crest, ether the $1: 100$ ARl 72 hour stom or the 1:100 ARI wave allowance, whichever le lower.
(C1-7) The spillway for any dam containing hezardous waste, constructed or operated within the operational land must be designed and maintained to withstand the peak flow from the spillway ciffical design storm defined in Schedule C-Table 8.
(C1-8) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule C. Table 8 on the spillway of all dams containing hazardous waste within the operatlonal land.
(C1-9) The holder of the environmental authority must notify the administering authorty when the pendage level of the dam containing hazardous waste, reaches the mandatory reporting level defined in Sohedule C - Table 8.

## Stream Sediment Contaminant Levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.
(C2-2) The bed of the recelving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the locations and frequencles defined in Schedule c - Table 9 and Scheduie I-Map 5.

Schedule C - Table 9 (Recelving Stream Sediment Monlioring Locations and Frequency)

| Momitoring point | $\begin{gathered} \text { Easting } \\ \text { (AGD 04ZOne 54) } \end{gathered}$ | $\begin{aligned} & \text { Northing } \\ & \text { (AQDGa Zone 54) } \end{aligned}$ | Monttoring lrequency |
| :---: | :---: | :---: | :---: |
| MKUS 1 - reference stte* | 305625 | 7797450 | May each year |
| MKUS 2-referenice site* | TBD | TBD | May each year |
| MIGDS 1- test site. | 301160 | 7800135 | May each year |
| MKDS 2-test sife | 306366 | 7798356 | May each year |
| MKDS 3 - test site | 306370 | 7798363 | May each year |
| MKDS 4 - test site | 301300 | 7797255 | May each year |

NOTE: This dows not apply to dams contahing hazardous waste
Reforence'sites must
a) be from the same blogeographical and cilmatic region;
b) have simllar geology, soll byes and topography
c) contain a range of habitats slmilar to those at the tost site
d) be of stmilar flow regime; and
e) not be so close to the test sttes that any disturbances at the test site also resutt in a change at the reference site. TBD to be determined and provided to the QEPA prior to commencement of mining.
(C2-3) Subject to Condition (C2-2), if the stream sediment contaminant trigger levels defined in Schedule C - Table 10 are exceeded then the environmental authority holder must complete an invostigation into the potential for environmental harm and notffy the administering authoity within 3 months of receiving the anailysis results.

Schedule C - Table 10 (Recelving Stream Sediment Contaminant Trigger Levels)


ANZECC (2000); ISQG Low inggor vahues; Sediment Qualiy Guidelinos, Agtuatic Ecosystoms, Table 3.5.1.
${ }^{2}$ Site spooiffe trigger value as calculated in section 3.5 of EM Plan January 2006
(C2-4) Subject to Condition (C2-2), stream sediment contaminant limits must not exceed the contaminant limits defined in Schedule C-Table 11.

Schedule C - Table 11 (Receiving Stream Sediment Contaminant. Imits)

| * Parameter | Untts | Contamhamt lints | Limitype |
| :---: | :---: | :---: | :---: |
| Antimony ${ }^{1}$ | $\mathrm{mg} / \mathrm{kg}$ dry wt | 25 | Maximum |
| Arsenic ${ }^{7}$ | mg/kg dry wt | 70 | Maximum |
| Cadmium ${ }^{\text { }}$ | mg/kg dry wt | 10 | Maximum |
| Chromium ${ }^{1}$ | mg/kg dry wt | 370 | Maximum |
| Copper ${ }^{2}$ | mg/kg dry wt | 120 | Maximum |
| Lead ${ }^{\text {d }}$ | mgikg dry wt | 220 | Maximum |
| Niekel ${ }^{\text {² }}$ | mgikg dry wt | 52 | Maximum |
| Silver ${ }^{\text {t }}$ | mg/kg dry wt | 3.7 | Maximum |
| Mercury ${ }^{1}$ | mg/kg div wt | 1 | Maximum |
| Zinc ${ }^{+}$ | mgikg dry wt | 410 | Maximum |

ANZEGC (2000): ISOG Hilh tigger values, Sediment Quality Guldellines, Aquatic Ecosjstems, Table 3:5.1.
${ }^{2}$ Stte spocific trigger value as calculated in section 3.5 of EM Plan lanuary 2006
(C2-5) All stream sediment sampling must be undentaken in accordance with AS 5667.t Guidance on Sampling of Bottom Sediments of 1998

## Sewage effiuent

(C3-1) All effuent released from the treatment plant must be montored at the frequency and for the parameters specified in Schedule C - Table 12.
(C3-2) Sewage effient used for dust suppression must not exceed sowage effiuent release linis defined in Schedule CTable 12.
(C3-3) Sewage Effluent used for dust suppression must not cause spray drit or over spray te any sensitive or commercial place, and must not be applied at a rate that causes pooling; ponding and/or nunoff af any efliuent Irrigated
(C3-4) Subject to Conditions (C3-1) to (C33) inclusive, sewage effuent from sewage treatment facilities must be reused or evaporated and must not be directly released from the sowage treatment plant to any water way or drainage line other than in accordance with Schertule C - Table 12.

Schedule C - Table 12 (Sewage effluent equalify targets tor chust suppression)

${ }^{3}$ A minmum of the samples must be collected at not less than a weeky mterval for the quartory sampling
${ }^{2}$ A minhmum of five samples must be collected at not less than a weoldy htenvil for the quartorly samping with four out of tive samples must be less than the maximum
${ }^{3}$ A mininuin of five samples must be collected at not less than a weekdy interval for the quarterly sampling with four out of flve samples must be higher than the minhum but lower than the maxtmum limit
Release linits sourced from Queonstand Water Recyoling Gutdelines December 2005 Table 6:2b
enviommentallocrices apd permit

Groundwater
(C4-1) Groundwater, affeeted by the mining activiles must be monitored at the locations and frequencies defined in Schedule C - Table 13 and Schedule I-Map 6.

Schedule C - Table 13 (Groundwater Monltoring Looations and Frequency)

| - Monlloring print | $\begin{aligned} & \text { Easting } \\ & \text { (AcD } 34 \text { Zone 54) } \end{aligned}$ | Norturngs (AGDO4 Zone 54) | Mionitoring frecpuency |
| :---: | :---: | :---: | :---: |
| LA ME01 (Process Plant)- reference site | 302484 | 7796600 | Monthly |
| LAMB02 (Process Plant) - referenice site | 302891 | 7797386 | Monthly |
| LAMB03 (Process Plant)/reference site | 302128 | 7797950 | Montily |
| LA MB04 (Process Plant) | TBD | TBD | Monthly |
| LAMB05 (Process Plant) | TBD | TBD | Monthly |
| LAMB06 (Process Plant) | TBD | TBD | Monthly |
| LA MB07 (Process Plant) | TBD | TBD | Monthly |
| LAMB08 (Process Plant) | TBD | TBD | Monthly |
| LA MB09 (Process Plant) | TBD | TBD | Monthly |
| LAMB010 (Process Plant) | TBD | TBD | Monthly |
| LA MB011 (Process Plant) | TBD | TBD | Monthly |
| LA MBO12 (Process Plant) | TBD | 180 | Montrily |
| LA MB013 (Process Plant) | TBD | TBD | Monthly |
| LA MB014 (Process Plant) | TBD | TBD | Monthly |
| MKK MB01 (pht area) | 305360 | 7799013 | Quarterly |
| MK PBOI (pit area) | 305356 | 7799019 | Quarterly |

NOTE: This dows not apply to dams contalinig hazartous waste

## TBD To be dotemined

## Reforence sttos must

a) be from the same biogeographical and ollmatic reglon;
b) have similiar geology, solitypes and topography
c) contaln a range of habitats similar to throse at the test site
d) be of similar flow regime and not be se close to the test sites that any disturbances at the tost site also result in a change at the reference stte.
(C4-2) Sublect to Eondition (C4-1), If the groundwater contaminant trigger levels defined in Sthedule C - Table 14 are exceeded then the environmental authority holder must complete an investigation inte the potential for environmental harm and notify the administering authority within 3 months of receiving the analysis results.

Schedule C-Table 14 (Groundwater Contaminant Trigger Levels)

| Parameter | Untas | Amimum | Haximu | Trigeer type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{\mathrm{T}}$ | pH | 6 | 8 | Range |
| TDS ${ }^{\text {² }}$ | mg/ | N/A | 2000 | Maximum |
| Sulphate ${ }^{\text {a }}$ | mgh | N/A | 500 | Maximum |
| Atuminium ${ }^{\text {2 }}$ | mgh | N/A | 2.5 | Maximum |
| Arsenic ${ }^{2}$ | mgh | N/A | 0.25 | Meximum |
| Boron ${ }^{2}$ | mgh | N/A | 0.37 | Maximum |
| Cadmium ${ }^{2}$ | mg/ | N/A | 0.005 | Maximum |
| Chromlum ${ }^{2}$ | mg/ | N/A | 0.5 | Maximum |
| Cobat ${ }^{2}$ | mght | N/A | 0.5 | Maximum |
| Copper ${ }^{2}$ | mg L | N/A | 0.5 | Maximum |
| Fluonde ${ }^{2}$ | mgl | N/A | 1 | Maximum |
| Lead ${ }^{2}$ | mg h | N/A | 0.06 | Maximum |
| Manganese ${ }^{3}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1.9 | Maximum |
| Mercury ${ }^{2}$ | $\mathrm{mg} /$ | N/A | 0.001 | Maximum |
| Molybdenum ${ }^{\text {a }}$ | mg / | N/A | 0.075 | Maximum |
| Nickel ${ }^{\text {2 }}$ | mgh | N/A | 0.5 | Maximum |
| Selenium ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 0.01 | Maximum |
| Zinc ${ }^{2}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 10 | Maximum |

Contaminant triggens limits are based on Table 3.3 .4 and 3.3 .5 of Aquatle Ecosystems ANZECC (2000)
${ }^{2}$ Contaminant thigger hinits are based on $50 \%$ of the contaminant limits defined hi the ANZECC (2000) Lvestock Drinking Wator and are to be analysed as totai metals funfitorod).
${ }^{3}$ Contaminanit trigger imitis based on Table 3.4.t of Aquatic Ecosystems ANZECC (2000) and are analysed as Fltered Motals:
(C43) Subject to Condtion (C4-1), groundwater contaminarit limits must not exceed the contaminant limits defined in Schedula C-Table 15.

Schedule C - Table 15 (Groundwater Contaminant Limits)

| Parameter | Units | Ontimum | Haximum | Emit Type |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{pH}^{1}$ | pH | 6 | 9 | Range |
| TDS ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 4000 | Maximum |
| Sulphate ${ }^{1}$ | mgh | N/A | 1000 | Maximum |
| Aluminum ${ }^{1}$ | mgh | N/A | 5 | Meximum |
| Arsenic ${ }^{\text {P }}$ | mgh | N/A | 0.5 | Maximum |
| Boron ${ }^{1}$ | mgh | N/A | 5 | Maximum |
| Cadmlum? | mgh | N/A | 0.01 | Maximum |
| Chromlum ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$. | NA | 1 | Maximum |
| Cobatt ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Copper ${ }^{1}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 1 | Maximum |
| Fluaride? | mgh | N/A | 2 | Maximum |
| Lead ${ }^{1}$ | mg L | N/A | 0.1 | Maximum |
| Manganese ${ }^{\text {a }}$ | mgh | N/A | 2.5 | Maximum |
| Mercury ${ }^{1}$ | mgh | N/A | 0.002 | Maximum |
| Molybdenum ${ }^{1}$ | mgh | N/A | 0.15 | Maximum |
| Nickel ${ }^{1}$ | mgh | N/A | 1 | Maximum |
| Selenlum | mght | N/A | 0.02 | Maximum |
| Zinc ${ }^{\text {a }}$ | $\mathrm{mg} / \mathrm{L}$ | N/A | 20 | Maximum |

Contaminant limils based on ANZECC (2000) Lhestock drinking water quallity and are analysed as Total Metals (unfifered)
${ }^{2}$ Contaminant linits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) and are analysed as Filtered Metals .
(C4-4) The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the Environmental Protection Agency's Water Qually Sampling Manual,

## Voids

(C5-1) Water quality in mining volds and final volds must be monitored at the locations and frequencies defined in Sctiedule C - Table 16 and for the parameters detailed in Schedule C-Table 17.
(C5-2) In the event that water quality within the mining voids or final voids does not comply with the contaminant limits defined in Schedule C - Table 17, implement measuires to prevent access by all IVestack and minimise access by fauna to the vold.

Schedule C-Table 16 (Voids Monitoring Lociations and Frequency)


Schedule C Table 17 (Vold Water Cuallity Limits)

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| pH | pH | $6-9$ | Renge |
| TDS | $\mathrm{mg} / \mathrm{L}$ | 4000 | Maximum |
| Sulphate | $\mathrm{mg} / \mathrm{L}$ | 1000 | Maximum |
| Arsenic | $\mathrm{mg} / \mathrm{L}$ | 0.5 | Maximum |
| Cadmium | mgh | 0.01 | Maximum |
| Chromium | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Copper | $\mathrm{mg} / \mathrm{L}$ | 1 | Maximum |
| Lead | mgh | 0.1 | Maximum |
| Mercury | mgh | 00002 | Maximum |
| Zinc | $\mathrm{mg} / \mathrm{L}$ | 20 | Maximum |

Contaminant imits are based on ANZECC (RODO Livestock dimking wator qually and analysed for total metall (unllfered)),

## Acid Fiock Drainage and Leachata Management

(06-1) Sublect to limits defined in Schedule Call reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirecty released or likely to be released as a result of the activity to any groundwater, watercourse and waters.

## Schedule D - Noise and Vibration

## Noise Nuisance

(D1-1) Subject to Conditions (D1-2) and (D1-3) noise from the mining aotivity must not cause an environmental nuisance to an affected building.
(Q1-2) When requested by the administering authority, nolse monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is nelther frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance al any eensitive or commercial place, and the results must be notifled within 14 days to the administering authority following completion of monitoring.
(D1-3) The method of measurement and reporting of nolse levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

## Vibration nuisance

(D2-1) Subject to Conditions (D2-2) and (D2-3) vibration from the mining activity must not cause an environmental nuisance to an affected bullding.
(D2-2) When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is nelther frivolous nor vexatious nor based on mistaken bellef in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notiffed within 14 days to the administering authority following completion of monitoring.

## END CONDITIONS FOR SCHEDULE D

## Schedule E - Waste

## Storage of Tyres

(E1-1) Tyres stored awaiting disposal or transport for take-back and, recycling, or waste-to-energy options - should be stockplled in volumes less than 3 m in helght and $200 \mathrm{~m}^{2}$ in area and at least 10 m from any other tyre storage area.
(E1-2) All reasonable and practicable fire provention measures must be implemented, including removal of grass and other materials within a 10 m radius of the sorap tyre storage area.

## Disposal of Tyres

(E2-1) Disposing of scrap tyres resulting from the mining activities in spoll emplacements is acceptable, provided tyres are placed as deep in the spoll as reasonably practicable.
(E2-2) Scrap tyres resufting from the mining activities dlsposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

## Waste Management

(E3-1) A Waste Management Program, in accordance with the Environmental Protection (Waste Management) Policy 2000, must be included in the Plan of Operations.

## Regulated Waste

(E 4-1) All regulated waste recolved and removed from the stte, that is over 250 kg in weight, must be transported by a person who holds a current authorty to transport such waste under the provisions of the Environmental Protection Act 1994.
(E4-2). Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawifuly allowed to accept such waste under the provisions of the Environmental Protection Act 1994.
(E4-3) Where regulated waste is removed from the Project fother than by a release as permitted under another schedule of this environmental authority), records must be kept of the following:
a) the date, quanitity and type of waste removed, and
b) name of the waste transporter that removed the waste; and
c) the intended treatment/disposel destination of the waste.

Note: Records of documents maintained in compllance with a waste tracking system establishod under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.

## Waste Rock Characterisation

(E5-1) All areas to be mined must undergo a waste rock characterisation survey (where waste rock is to be disposed of on the surface) and a report submitted to the administering authority prior to mining where this survey has not previously been carried out.

END CONDITIONS FOR SGHEDULE E
Schedule F - Land

Pohebilttaton Lan
F-1-1) All areas significantly disturbed by mining activities must be rehabilliated to a stable landform with a self-sustaining vegetation cover in accordance wit Sce F -

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This environmental authority takes effect on $\mathbf{X}$
Envifonmental Protectlon Agency
www.epa.gid.govau ABN 87221168786

| Byaturures | 有路, Area |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mount Clarke Topsoll Stockpile | 4.5 | Habitatlig | Habitat/la | Class $4-5$ | $\text { Class } 4.5$ | TBD | TBD |
| Mount Clarke Pit Area Sediment Dam | 0.6 | Habitat | Water Storage | Class 4-5 | Water Storage |  |  |
| Mount Clarke ROM Area Sediment Darn | 0.4 | Habitat | Water Storage | Class 4-5 | Water Storage |  |  |
| Meunt Clarke Diversion/nterception Sediment Dam Drains | 3.2 | Habltat | Lic or dversion Habitat | Class 4-5 | Class 4-5 | TBD | TBD |
| Roads/Tracks | 18.8 | Exlsting tracks or LIG | Tracks for grazier or LIG | Class 4-5 | Class 4-5 | TBD | T8D |
| Accommodation Camp and Facilities | 5 | LIG | LG | Class 4 | Class 4 | TBD | TBD |
| Sewage Plant and Pond | 0.2 | LIG | 16 | Class 4 | Class 4 | TBD | TBD |
| ROM Pad-at process plant | 7.8 | - LG | WG | Class 4 -5 | Class 4 -5 | TBD | TBD |
| Process plantand assocfated butidings | 3.3 | LG: | LG | Class 4 | Class 4 | 7BD | TBD |
| Overiand Comveyor | 1.8 |  |  |  |  | TBD | TBD |
| Workshapintica Access Circult Area | 2.8 | LIG | LG | Class 4 | Class 4 | TBD | $\frac{T B D}{}$ |
| Heap Leach Pads Stage 1 and ? | 43,2 | LIE | Fabitatle | Class 4 | Class 4.5 | TBD | TBD |
| Process Water Ponds <br> - PLS, ILS and <br> Raffinate | 3.4 | LIG | Watar storages | Class 4 | Water storages |  |  |
| Stormwater Ponds 1 and 2 | 11.4 | LIG | Water storages | Class 4 | Water storages |  |  |
| Stormwater Pond spillway channel | 0.7 | LIe | LIG or olversion | Class 4 | Class 4-5 | TBD | TBD |
| Faw Water Fond | 0.6 | LIG | LGWater sforage | Class 4 | Class 4 or water storage | TBD | TBD |
| Process Area Topsoil Stockplles | 9.7 | LIG | LIG | Class 4 | Class 4 | TBD | TBD |


*Analogue shtes and disturbance description are to be identified and the environmental authority holder must amend the onvironmental authority to include analogue sites in TBE- To be determined 30 June 2007 . $\cdot$.
LIG-Low Intensity Grazing
Classes are derived from the Deparment of Minerals and Energy's Land Suitablity Assessment Teciniques (1995)
(F1-2) Progressive rehabilitation must commence when areas become available within the operational land.
outcomes in Schedule F - Table 1 and landform design criteria in Schedule F - Table 2 by 30 June 2007 .

Queenstand Parks and Wildilfe Service
Reofway Pty Ltd $\&$ Savannah Resources Pty Ltd Environmental Authority No MIN00401001

Schedule F - Table 2 (Landiorm Design)


## Residual Void Outcome

(F2-1) Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm consthuted by the existence of the residual void fiself and subject to any other condition within this environmental authority.

## Dams Containing Hazardous Waste

## Description of Dam

(F3-1) The construction or operation of any dam containing hazardous waste within the operational land must comply with Sohedule F-Table 3.

Schedule F - Table 3 (Size and Purpose of Dams Containing Hazardous Waste)

| Name of dim containing hazartous waste P) | Moximum surface area of dam (hai) | Wapimum velume of dam $\left(\mathrm{m}^{3}\right)$ | Raximum copth of dam <br> (m) ${ }^{1}$ | Pimpose of dam ${ }^{(3)}$ |
| :---: | :---: | :---: | :---: | :---: |
| Process Water Ponds (Rafinate Pre-Settler, Raffinate, MS and PLS) | 3.4 | 51,100 | 4.5 | Storage of Process Solutions |
| Heap Leach Pads | 43.2 | N/A | N/A | Storage of Procoss Solutions |
| Stormwater Pond 1 (Stage 1 bnly) | 6.47 | 302,760 | 6.35 | Storage of storm water nuinoff from processing area |
| $\begin{gathered} \text { Stomwater Pond } 182 \\ \text { (Stage 2) } \end{gathered}$ | 10.4 | 467,720 | 6.35 | Storage of storm water nunoff hom processing area. |

Note "I. The name of the dam containing hazardous waste should refor to the name of the dam e.g. process residue faclily and decant dam.
Note ${ }^{(2)}$ : For dams that do not requirs a dam wall, mptt the maximum vold depth eg. where dems are formed by excavating below the land surface or backfiling a residual void.
Note ${ }^{(3)}$ : Purpose of the dam should outithe the desighed function, eg. The permanent containment of talings resulting from the extraction of nickel, cobalt and otior metals at the XYZ heminery.

## Location of Dam

(FS-2)
The location of any dam containing hazardous waste within the licensed place must be located within the polygonal area defined by the co-ordinatea defined in Schedule C - Table 4-Map 4.
Schedule F - Table 4 (Location ot Dams Containing Hazardous Waste)
 contalhing hazardous waste. Additonalintrastructure which forms part of any of all activtles associatod with the dam appurtenant works consisting of tallhgs difcciarge pioolloos per any dam contating hezarobus waste may Include containment systems, pressure rellef wells, decant and recycle water systems collection systems, runoff diversion bunds,

## Standards and Criteria

(F3-3) The holder of the envifonmental authority must design, construct, repair, maintain, operate and decommission the dams defined in Schedule F-Table 3 and 4 in accocdance with an adknowledged design plan that must Dame Containing Hazardous Waste".

The hodder of the environmental authority must design, construct, and operate all low hazardous dams containing hazardous waste and non-hazardous dams in accordance with the criteria outlined in Appendlx B of

## Inspection of Dams

(F3-5) High hazard dams containing hazardous waste shall be inspected by a Registered Professional Engineer Queensland (RPEQ) prior to 1 November each year or at any time if alarming, unusual or otherwise unsatisfactory conditions are observed.
. For each inspection, the engheor shall assess the condition of the dam and its foundations, determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.
(F3-7) For each inspection, two copies of the engineer's report and any recommendations as to measures to be laken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the
Decommissioning of Dam - Objective
Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where Water can no longer be stored in the dams. The dams and their contained waste(s) must be stable, whereafter rehabilitation requirements of this environmental authortys.

## Docommissioning of Dam - Documentation and Compliance

(F3-9) Decommissioning aetivitios for dams must be documented in detall in the plan of operations under which the activites are to occur. Where the detalled dooumentation is not already contained in the Design Plan for the dam, the detalled documentation is considered to be an arriendment to the design plan and must be submitted

## ecoaccess

as an amendment to the design plan required by the "Code of Environmental Compliance for High Hazard Dams Containing Hazardous Wasto".

## Intrastructure

(F4-1) All infrastructure, constructed by or for the environmental authority holder duting the mining activites including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining landowner / holder.

NOTE: This is not applicable where the landowner / holder is also the environmental autherity holder.

## Contaminated Lands

(F5-1) A register and map of all potentially contaminated sltes and any remediation detalls, must be kept on site, updatect regutarly, and inctuded theach Plan of Operations.
(F5-2) A Spllage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of sultable equipment and training must be updated and included with each Plan of Operations.

END CONDITIONS FOR SCHEDULE F

## Schedule G - Community

## Complaint Response

(G1-i) All complaints received must be secorded including detalls of complanant, reasons for the complaint, investigattons undertaken, conclusions formed and actions taken. This information must be made avallable for inspection by the aciministoring authortity on request.

## END CONDTIONS FOR SGHEDULEG

## Schedule H - Definitions

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

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisatlon and habitat development;
- ecosystem processes such as soil development and nutrient cyoling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies heluding recolonisation by mycomhizal fungi, microblai biomass and respiration;
- effects of various establishment treatmente such as doep ripping topsoil handing soind respiration; on vegetation growth and development;
- resllience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground wator levels and catchment yields.


## "affected building"

- for nolse means any building or any part of a bullding, for example the bullding from which the nolse is made, at which the noise can be heard.
- for vibration means any building or any patt of a building, for example the activity from which the vibration
is made, at which the vibration can be felt:
"ambient (or fotal) noise", at a place, means the level of nolse at the place from all sources (near and far), measured as the Leq for an appropriate time interval.
"appropriately quallifed person" means any person who conforms to the EPA operational policy for an "appropriately qualified person (analyst) in accordance with Section $490(7)$ of the Environmental Protection Act 1994.
"ARD" means acid rock drainage and refers to the low pH , high heavy metal pollutant typicall of sulphidic mine wastes, and most commonly associated with the production of ferrous ron and sulphuric acid through the oxidation of suiphide minerals.
"authority" means environmental authority (mining activities) under the Environmental Proteotion Aos 1994.
"blasting" means the use of explosive materials to fracture-
(a) rock, coal and other minerals for later recovery; or
(b) strictural components or other Items to faciltate removal from a site or for reuse.
"building" includes a structure of any type and part of a building or structure.
"commercial place" means a wark place used as an office or for business or commercial pupposes, which is not part of the mining activity and does not include employees accommodation or public roads.
"competent person" means a person with the demonstrated skill and knowledge required to carry out the task to a staindard necessary for the rellance upon collected data or protection of the environment.
"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, dhert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recagnised standard.
"design plan" in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste to describe the physlcal dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissloning and rehabilitation objectives in terms of procedures, works and outcomes at the end of dam life, The documents can include design and investigation reports; drawings, specifications and certifications.
"environmental authority holder" means the holder of this environmental authority.
"flow event" meanis a flow event producing sufficient water to permit a monitoring creek bed flow of 30 cm or more at the sampling station.
"flowable substance" means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a miture that includes water or any other liquild or suspended
solids.
"hazardous waste" means ary substance, whether liquid, solid or gaseous, derived by or resulting from; the processing of minerals that tends to destroy life or impair or endanger health.
"Intrastructure" means water storage dams, roads and tracks; bullings and other structures built for the purpese of mining activities but does not inchude facilities requited for the long term management of mining Impacts or the protection of potential resources. Such facilties inolude dams containing hazardous waste, waste rock dumps, voidis, or ore stockpiles and buildings or other structures whose ownership can be transterred and which have a residual beneficial use for the hext owner of the operational land or the background land owner.
"Lata, adj, to mims" means the A-welghted sound pressure level, (adjusted for tonal character and impuisiveness of the sound) exceeded for $10 \%$ of any 10 -minute measurement period, using Fast response.
"LA1, adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and Impulsiveness of the sound) exceeded for $1 \%$ of any 10 -minute measurement perlod, using Fast response.
"LA, max ad, $T^{n}$ means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.
"fand" in the "tand schedule" of thls document means land excluding waters and the atmosphere.
"land capability" as defined in the DME 1995 Technical Guidelines for the Envifonmental Management of Exploration and Mining in Queensland.
"Land suitability" as defined in the DME 1996 Technical Guidelines tor the Environmenfal Mianagement of Exploration and Mining in Queensland.
"land use" term to describe the selected post mining use of the land, which fis planned to ceaur after the cessation of mining operations.
"Ieachate", means a liquid that has passed through or emerged from, ar is likely to have passed through or emerged from, a material stored, procossed or disposed of at the operational land which contains soluble, suspended or miselble contarninants tikely to have been derived from the said material
"mandatory reporting level" means the volume below the splliway crest, equivalent to the lower of the AEP, 72 hour stom or the AEP wave allowance (AEP is the annual exceedonce probabllity).
"mineral" means a substanoe which nomally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earti's crust and includes a substance which may be extracted from such a stibstance, and inductes-
(a) clay if mined for use tor its ceramic properties, kelolin and bentonite;
(b) toundry sand,
(c) hydrocarbons and other substances or matter occurning in asspciation with shale or coal and necessarily mined, extracted, produced of released by or in comection with mining for shate or coal or for the purpose of enhanoing the safety of current or future mining operations for coal or the extraction or production of mineral oll therefiom;
(d) limestone if mined for use for is chamical properties;
(e) marble;
(i) mineral oll or gas extracted or produced from shate or coal by in situ processes;
(g) peat;
(h) salt inchuding brine;
(0) shale from which mineral oil may be exdracted or produced;

0. sillica, including sillca sand, if mined for ise for its chemicad propertios;
(k) rock mined in block or slab form for building or monumental pupposes;
but does not include-
(i) living matter;
(m) petroleum within the meaning of the Potrolowm Act 1929;
(n) soil, sand, gravel or yock (other than rock mined in block or slab form for building or monumental pupposes) to be used or to be supplled for use as such, whether intact or ha broken form;
(0) water.
"noxious" means harmitu or injurious to health or physical well being, other than trivial harm.
"oftensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or ropulsive, other than trivial harm.
"peak particle velocity (ppv)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms ${ }^{-1}$ ).
"protected area" means - a protected area under the Nature Conservation Act 1992; or

- a marine park under the Marine Parks Act 1992; or
- a World Hertage Area.
"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.
"reference site" (or analogue site) may reflect the ofiginal location; adjacent area or another area where rehabilitation success has been completed for a slmilar blodiversity. Detalls of the reference site may be as photographs, computer generated images and vegetation models etc.
"rehabilitation" the process of reshaping and revegetating land to restore it to a stable landform and in acocrdance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activites.
"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activitios and completion of rehabilitation processes.
"self sustaining" means an area of land which has been rehabiltated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.
"sensitive place" means;
- a dwelling, residential allotment, moblle home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hestel; or
- an educational institution; or
- a medical center or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marlhe Parks Act 1992 or a World Heritage Area; or
- a public park or gardens.
"signtificaint disturbance" - includes land
(a) It it is contaminated fand; or
(b) It has been disturbed and human intervention is needed to rehabilitate it.
i. to a state required under the relevant environmental authorityr, or

1i. If the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

## Some examples of disturbed land include:

- afeas where soll has been compacted, removed, covered, exposed or stockpilled
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation \& topsoil)
- areas where land use suitability or capability has been diminished;
- areas whthin a watercourse, waterway, wetland or lake where mining activities occurs
- areas submerged by tallings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastruoture includes any infrastructure froads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, hellpads etc) which is to be removed atter mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.


## However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide accoss to the mining lease);
- areas previously slgnificantly disturbed which have achleved the rehabilitation outcomes; by agrooment with the EPA, areas previously significantly disturbed which have not achieved the rehabilitatiun objecilve(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
aroas under permanent infrestructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges; culverts, dams, bores, bulldings, fixed machinery, hardstand areas, alistrips, holipads etc) which is to la left by agreement with the landowner. The agreement to leave permanent intrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-exlsted the grant of the tenure uniess those areas are disturbed during the term of the tenure.
"spillway" means passage or outlet from the dam through which surplus water flows.
"stable" means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability Includes consideration of geotechnical stabillty, settlement and consolidation allowances, bearing capacity (traffle ability), erosion reslstance and gecohemioal stability with respect to seepage and contaminant generation.
"sultatly qualified and experlenced person" means a person who is a Registered Professional Engineer of Queensland under the provisions of the Protesslonal Engheers Act 1988 or a Corporate Member of the Institution of Engineers Australia or holds equivalent professlonal quallications and has the following:
(a) knowlodgo of engineering pinolples related to the structures, gumeutheitis, hydrolegy, hydraulios, chemistry and environmental impact of dams; and
(b) at least a total of five years of sultable experience and demonstrated expertise in at least four of the following areas: investigation, design or construction of dams;
- operation and maintenance of elams;
- geomechanles with partcular emphasis stability, geology and geochemistry;
- hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
- iydraullics with particular reference to sediment transport and deposition, erosion control, beach processes;
- hydrogeology with partioular reference to seepage, groundwater,
- solute transport processes and monitoring thereof; or
- dam safety.
"tolerable limits" means that a range of values could be accepted to achieve an overall environmental management objeotive (eg a range of settiement of a talling capping could sill meet the objective of draining the cap quickly, preventing pondage and limiting inflitration and percolation).
"trivial harm" means environmentat harm whith is not materfal or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $\$ 5,000$.
"watercourse" - Means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artifitial or artificlally improved) with:
(a) continuous bed and banks;
(6) an extendeci period of flow for some months after rain ceases, and
(c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.
"waters" includes river, stream, lake, lagoon, pond, swamp, wettand, unconfined surface water, bed and bank of any waters, dams, non-idal or tidal waters (ficluding the seax or any part-thereof.

END CONDITIONS FOR SCHEDULEH

## Schedulet - Maps / Plans



Schedule 1 - Map 1 Recelvitg Water Monftoning Locations


Schedule 1- Wap2 Location of End Plpe Releases From Sediment Dams - Processing Area:


Schedula I - Map 3 Location of End Pipe Releases from Sediment Dams - Bining Area


Schédute I - Map 4 Location of Hazardous Dams


Schedule I - Map 5 Stream Sediments Montiontig Looations


Sehedule 1- Map 6 Groundwater Montoping Locations

END CONDITIONSFOR SCHEDULEI
END OF EVIRONMENTAL AUTHORITY

## Lady Annie Off Lease Discharge

Note: Statewide Services have had no direct involvement in this issue and all the information has been sourced from S\&H and EPA staff members. The relevant S\&H staff members involved have recorded details of their involvement in their notebooks and a mine record of the S\&H site inspection has been recorded on the CopperCo mine record book at Lady Annie mine site.

The actual mining operations (copper heap leach) site is Mount Kelly and involves primarily ML 90169 (Savannah Resources Pty Ltd 100\%) and ML90170 (Lady Annie Operations Pty Ltd 100\%).

EPA is the lead agency for managing mine discharges via the Environmental Management Plan, Environmental Authority No MIN100401006 and Plan of Operations expiring on 1 January 2009 under the Environmental Protection Act 1994. The current status of the Plan of Operations has not been advised to DME as at 27 February 2009.

Safety and Health have a responsibility for safety on the mine site under the Mining and Quarrying Safety and Health Act 1999.

Statewide Services manages the project financial assurance for the EPA and could provide information on the boundaries of the mining lease/s granted under the Mineral Resources Act 1989 if required to determine if the issue was on or off the mining lease/s. There does not appear to be an immediate concern with the boundaries as the affected Saga and Inca Creeks are predominantly off lease

- 9 January 2008 - EPA advise Plan of Operations for the Lady Annie project approved to expire on 1 January 2009. Revised Financial Assurance of $\$ 7,677,713.00$ required for the project.
- 23 January 2008 - Macquarie Bank bond for the revised Financial Assurance lodged with the DME Mount Isa office.
- 26 November 2008 - Administrators appointed to CopperCo Limited and its associated companies Copperco Queensland Operations Pty Ltd, Lady Annie Operations Pty Ltd, Lady Annie Pty Ltd and Savannah Resources Pty Ltd (CopperCo). The administrators subsequently appointed Ferrier Hodgson as receivers and managers of CopperCo.
- 6 February 2009 - ASX listed resource company Cape Lambert Iron Ore Limited (Cape Lambert) assigned the securities of Macquarie Bank Limited in CopperCo. Cape Lambert subsequently appointed Deloitte as new receivers and managers and expressions of interest advertised for the sale of all or part of the project closing on 10 March 2009. .
- District Inspector of Mines Hermann Fasching (DIO) was notified at approximately 7.30am on Saturday 21 February 2009 by Member for Mount Isa Mrs Betty Kiernan MP of landholder complaints about possible contaminated discharge from Lady Annie mine site into Saga and Inca Creeks.
- DIO then notified EPA District Manager Cairns, Ingrid Fomiatti Minnesma (EPA DM), of the issue at approximately 8.15 am on the same day.
- DIO then contacted Mrs Kiernan MP to advise of his referral and also gave her the mobile number of the EPA Northern region Director of Environmental Operations, Rob Lawrence.
- EPA Environmental Operations Mount Isa staff attended the site on Monday 23 February 2009 and the investigation is continuing. (pers comms EPA Mount Isa 23-27/2/09)
- Inspector of Mines - Chemical, Damien Lee (IMC) drove to the site on Tuesday 24 February 2009 accompanied by District Workers Representative, Desmond Laffin, to inspect the site from a S\&H perspective. His findings and recommendations are recorded in the mine record book.
- The issue appeared in the North West Star, Townsville Bulletin and Courier Mail newspapers that circulate in the district.
- The off lease discharge resulted from the failure of Storm Water Pond 2 at the Mount Kelly mine site due to abnormally high rainfall over the past 2 months. The low pH discharge flowed into Saga Creek, then into Inca Creek which flows into the Buckley River. (pers comms EPA DM 27/2/09)
- Deloitte posted a media release on the Copperco website on Friday 27 February 2009 about the incident and their present and future involvement as receivers and managers.
- The Buckley River crosses Northern Territory border about 50 kilometres south south west of Camoweal and flows into the Georgina River system that empties into Lake Eyre.(Merlin and internet)
- The Copperco Lady Annie mine site on ML90179 is located 15 kilometres north west of Mount Kelly and is in the catchment for Gunpowder Creek that flows into the Leichardt River.
- Cape Lambert are presently in the process of replacing the Macquarie Bank EPA Financial Assurance bond for the CopperCo Mount Kelly project PJ 90084 of $\$ 7,677,713$ with a National Australia Bank bond for the same amount. It is expected this bond will be lodged during the week commencing 2 March 2009.
- There is no security held under section 277 of the Mineral Resources Act 1989.

Mount Gordon mine site had nowhere to store process water due to all storages being full and were considering utilising their underground workings. (pers comms IMC 26/2/09) The mine was shut down on or about 25 February 2009 as reported in the North West Star on 26 February 2009.

There have reportedly been off lease discharges from other mine sites but these haven't been reported to Statewide services.

IMC Damien Lee inspected the Great Australia mine discharge adjacent to Cloncurry township and recorded his findings in the mine record book.

Mine closures are always reported to EPA and the Inspectorate due to the environmental and safety impacts.

Briefing Note
The Honourable Geoff Wilson MP
Minister for Mines and Energy

Requested by: Regional Director, Northern Date Requested: 27 February 2009 For action by: 3 March 2009

| For action and return to department | For retention by Minister's office |
| :--- | :--- |
| $\square$ For approval | $\square$ For information |
| $\square$ For meeting | $\square$ Wth correspondence |$\square$ Speaking points $\square$ Ministerial Statement

SUBJECT Lady Annie copper mine discharge into Saga and Inca Creeks

## Purpose

To advise the Minister of background and issues relating to the discharge of contaminated water from Copperco Limited heap leach copper mining operation known as the Lady Annie Mine.

## Urgency

1. If urgent, please provide details including -

- The Minister proposes to visit the site on Tuesday 3 March 2009
- The issue was known on Saturday 21 February 2009.
- The situation is still under investigation by EPA
- The briefing note needs to be actioned by Monday 2 March 2009


## Background

- 9 January 2008 - Environmental Protection Agency (EPA) advise the Plan of Operations for the Lady Annie project approved to expire on 1 January 2009. Revised Financial Assurance of $\$ 7,677,713.00$ required for the project.
- 23 January 2008 - Macquarie Bank bond for the revised Financial Assurance lodged with the Department of Mines and Energy (DME) Mount Isa office.
- 26 November 2008 - Administrators appointed to CopperCo Limited and its associated companies Copperco Queensland Operations Pty Ltd, Lady Annie Operations Pty Ltd, Lady Annie Pty Ltd and Savannah Resources Pty Ltd (CopperCo). The administrators subsequently appointed Ferrier Hodgson as receivers and managers of CopperCo.
- 6 February 2009 - ASX listed resource company Cape Lambert Iron Ore Limited (Cape Lambert) assigned the securities of Macquarie Bank Limited in CopperCo. Cape Lambert subsequently appointed Deloitte as new receivers and managers and expressions of interest advertised for the sale of all or part of the project closing on 10 March 2009. (CopperCo web site http://www.copperco.com.au/ )
- District Inspector of Mines Hermann Fasching (DIO) was notified at approximately 7.30am on Saturday 21 February 2009 by Member for Mount Isa Mrs Betty Kiernan MP of landholder complaints about possible contaminated discharge from Lady Annie mine site into Saga and Inca Creeks. (pers comms DIO)
- DIO then notified EPA District Manager Cairns, Ingrid Fomiatti Minnesma (EPA DM), of the issue at approximately 8.15 am on the same day. (pers comms DIO)
- DIO then contacted Mrs Kiernan MP to advise of his referral and also gave her the mobile number of the EPA Northern region Director of Environmental Operations, Rob Lawrence. (pers comms DIO)
- EPA Environmental Operations Mount Isa staff attended the site on Monday 23 February 2009 and the investigation is continuing. (pers comms EPA Mount Isa 2327/2/09)
- Inspector of Mines - Chemical, Damien Lee (IMC) drove to the site on Tuesday 24 February 2009 accompanied by District Workers Representative, Desmond Laffin, to

| Minister's Office File Ref: | Insert number |
| :--- | :--- |
| Department File Ref: | B200902006 |

inspect the site from a S\&H perspective. His findings and recommendations are recorded in the mine record book. (pers comms IMC)

- The issue appeared in the North West Star, Townsville Bulletin and Courier Mail newspapers that circulate in the district.
- The off lease discharge resulted from the failure of Storm Water Pond 2 at the Mount Kelly mine site due to abnormally high rainfall over the past 2 months. The low pH discharge flowed into Saga Creek, then into Inca Creek which flows into the Buckley River. (pers comms EPA DM 27/2/09)
- Deloitte posted a media release on the Copperco website on Friday 27 February 2009 about the incident and their present and future involvement as receivers and managers. (CopperCo website http://www.copperco.com.au/)
- The Buckley River crosses Northern Territory border about 50 kilometres south south west of Camooweal and flows into the Georgina River system that empties into Lake Eyre.(Merlin and internet)
- The Copperco Lady Annie mine site on ML90179 is located 15 kilometres north west of Mount Kelly and is in the catchment for Gunpowder Creek that flows into the Leichhardt River.
- Cape Lambert are presently in the process of replacing the Macquarie Bank EPA Financial Assurance bond for the CopperCo Mount Kelly project PJ 90084 of \$7, 677, 713 with a National Australia Bank bond for the same amount. It is expected this bond will be lodged during the week commencing 2 March 2009.


## Issues

- The EPA is the lead agency for mine site discharges via the Environmental Management Plan, Environmental Authority No MIN100401006 and Plan of Operations expiring on 1 January 20092009 under the Environmental Protection Act 1994. The current status of the Plan of Operations has not been advised to DME as at 27 February 2009.
- The Mount Isa office of the Mines Inspectorate is responsible for ensuring that acceptable safety and health standards are established and practised on the mine site. They will continue to monitor the situation on the mining lease following their initial inspection.
- The Mount Isa office of Statewide Service manages the unconditional financial assurance bond for the Lady Annie project for the EPA. This bond can be called up if requested by the EPA. There is no security held under section 277 of the Mineral Resources Act 1989.

2. Analysis of the issues and assessment of alternative actions or options is the responsibility of the EPA as a result of their ongoing monitoring and investigations.
3. No policy initiatives involved due to ongoing monitoring and investigations.

## Media Implications

4. Not Applicable.

## Consultation

5. Not Applicable as only background information obtained.

Financial Implications
6. Not Applicable. Financial Assurance of \$7, 677, 713.00 unconditional bank bond held.

## Elected Representatives

7. Mount Isa City Council - Mayor John Maloney; State electorate of Mount Isa - Mrs Betty Kiernan MP; Federal electorate of Kennedy - Mr Bob Katter MLA

## Remedial Action

8. Not Applicable as EPA investigation ongoing.

## Attachments

9. Alphabetically list each attachment to the briefing note by title.

| Minister's Office File Ref: | Insert number |
| :--- | :--- |
| Department File Ref: | B200902006 |

## RECOMMENDATION/S

1) The recommendation should be clearly expressed. Briefing notes on policy issues should contain a firm recommendation about the preferred option being proposed together with the pros and cons involved.
2) If brief is related to community infrastructure designation/mail merge correspondence, please ensure that the Minister's approval for use of his electronic signature is sought in this section and include in attachments, the draft letter and recipients list.

NOTED / APPROVED / NOT APPROVED
NOTED / RECOMMENDED/ NOT RECOMMENDED

GEOFF WILSON MP Minister for Mines and Energy

Senior Policy Advisor

I $12008 \quad 1 \quad 12008$
COMMENTS
$\square$

## Notes:

1. All paragraphs should be numbered.
2. Font type and style should be Arial 11 pt in the body of the briefing note, as shown in this template.
3. The brief should not exceed two (2) pages, excluding the recommendatlons and signing page.
4. The 'endorsement' section indicates the brief has been read and supported by each signee.
5. No headings should be removed. Enter 'Not applicable' where appropriate.

| Action Officer: | Endorsed by: | Endorsed by: | Endorsed by: |
| :---: | :---: | :---: | :---: |
| [Name] | [Director's Name] | [Name] | Dan Hunt |
| [Position] | [Position] | Deputy Director-General | Director-General |
| [Division] | [Division] | [Division] | Department of Mines and Energy |
| Tel: | Tel: Mob: | Tel: Mob: | Tel: 32242684 <br> Mob: 0418736803 |
| Date: (INSERT,513 ILE PATH) | Date ........ | Date: $\qquad$ <br> File D Part 2 | Date: $\qquad$ <br> Page 230 of 250 |

## From:

## Sent:

To:
Cc: Subject:

Kadletz Oskar<br>Tuesday, 17 March 2009 10:23 AM<br>Croton Luke; Frampton Wayne<br>Fasching Hermann; Lawrence Rob; Cooper Warren<br>NOTES FROM MINISTER'S MEETING RE MINE FLOODING WITH LANDHOLDERS IN<br>MOUNT ISA 16 MARCH 2009

## Luke, Wayne,

Present were Rob Lawrence and Hamish Butler from the EPA, myself and Hermann Fasching from DME, Colin Saltmere as a Traditional Owner, Doug Coventry chair of Southern Gulf Catchments, as well as landholders from stations downstream of Lady Annie, Mount Gordon, and Mount Oxide Mines including stations Koolamara, Bonyapadinga??, Flora downs, Yelvertoft, Chidna, Stanbroke, Fort Constantine, Lorraine Station, Camilleroy, Augustus, and Carlton Hills. Betty took a contact list which Hermann Fasching will get a copy of.

Notes from yesterday's meeting between the Minister, Betty Kiernan, and landholders:

- Meeting discussed issues relating to discharges from Lady Annie, Birla Mount Gordon, and Mount Oxide
- Rob Lawrence gave updates on activities for Lady Annie and Mount Gordon, including discussions with the mining companies
- I and the Minister discussed the situation at Mount Oxide as an abandoned mine site; Minster asked that issues be addressed directly to DME for this site
- Betty Kiernan's intent to have most of the graziers in the same room so all could be given the same information
- Landholders downstream of Lady Annie Mine dissatisfied with the level of discharge notification by the mine site
- All wanted more information on water impacts and water safety for stock and potable uses
- There was discussion on stream fencing,
- Concern over media impact on the clean green and organic" nature of their product, but determination to have contamination issues addressed
- Although not specifically said by EPA or Minister, the landholders will need to address immediate response stock management themselves in the first instance. At least one landholder asked this question directly.
- Minister/Agencies will investigate flooding disaster relief options as another form of assistance
- At least one landholder has sent a legal letter of claim to Lady Annie. Minister and Betty supported landholders seeking concurrent legal assistance from Glen Martin on 46872934 (set up by DME previously?)
- Brussy Spreadborough from Chidna gave photos of Mount Oxide to the NW Star - front page article 16 March 2008
- Financial assurance - Minister was asked whether assurance could be used to address downstream issues.
- Discussion on protection of incomes of impacted landholders, strengthening landholder compensation arrangements, immediate response impacts on landholder finances and property saleability


## Minister's 7-point action plan:

1. EPA will continue with environmental protection orders for Lady Annie Mine
2. EPA will review need for supplementary orders
3. People at the meeting to provide round table comment to the above before they go out
4. Buckley and Gunpowder/Leichhardt Rivers to be tested for impacts further downstream ASAP - landholder concern waters are clearer than they should be???
5. DPI to assist with stock testing to check for impacts
6. The meeting re-convene next week and on a roughly fortnightly basis to address the issues
7. DPI to provide guidance and advice. Also role for Biosecurity Queensland?

## Mt Oxide Action Points

1. DME to liaise directly with landholder of Chidna Station (Vernon "Brussie" Spreadborough)
2. DME to investigate ways to "neutralise" the precipitate downstream of Mount Oxide and if possible
3. DME to work with EPA on downstream river sampling to provide information for landholder's queries on safety of water for stock and potable uses
4. DME to review fencing and exclusion options for affected areas around Mt Oxide Mine (control of cattle access to potentially contaminating areas)
5. DME review site risks and remediation requirements with a view to a new funding submission

## Mount Gordon Action

1. EPA to bring dam safety expert to site to inspect tailings dam, and report on potential failure risks and their mitigation

## Cheers,

## Oskar

## Oskar Kadletz

Manager, MInIng Industry Liaison Unit, Northem Region
Department of Mines \& Energy
First Floor, State Government Building, Corner Walker and Stanley Streets, PO Box 1752 Townsville Queensland 4810
Telephone: (07) 4760 7409; QNET 97409
Facsimile: (07) 47607400
Mobile:
s. 49

E-mall: Oskar.Kadlet_@dme:qldigov.au

From: Frampton Wayne
Sent: Thursday, 12 March 2009 1:48 PM
To: Cooper Warren; Kadletz Oskar
Subject:
FW: Lady Annie Mine
Attachments:
Lady Annie (Sites).pdf; sample summary_allIFM.XLS

FYl

Wayne Frampton
Acting Regional Director
Northern Region
Telephone 47472038, Qnet 32038
Mobile s. $49 \quad$ Facsimile 0747437165
Email: wayne.frampton@dme.gld.gov.au
www.dme.ald.gov,au
Department of Mines and Energy
13 Isa Street, Mount Isa Q 4825
PO Box 334, Mount Isa Q 4825

From: Rob Lawrence [mailto:Rob,Lawrence@epa,gld.gov,au]
Sent: Thursday, 12 March 2009 12:21 PM
To: Frampton Wayne
Cc: Crystal Whittaker; Hollie Wakefield
Subject: Lady Annie Mine
Hi Wayne
FYI the attached spreadsheet provided results of the sampling downstream of the Lady Annie Mine. Map attached shows samples sites.

Let me know if you have any questions

Regards

Rob

## Rob Lawrence

Director,
Environmental Protection Agency
Level 2, 5B Sheridan St,
Cairns. QLD. 4870.
Ph 0740466638
Fax 07404666771
Email: rob.lawrence@epa.qld.gov.au


| All soll data |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Reference | Units | PQL | Method | 62900 | 62900 | 62900 | 62900 | 62900 | 62900 | 62900 | 62900 | 62900 |  | ANZECC |  |
| Sample |  |  |  | inca Ck DS1 | Inca Ck DS2 | Yeilow Peol | Reference Site | Saga Ck DS1 | Saga Ck DS2 | Discharge 02 | Fish Kill 03 | Dip hole Soil | Inca Creek Soll | ISQG low | Fuatigh |
| map refermce |  |  |  |  |  |  |  |  |  |  |  |  | 40. |  |  |
| Sample |  |  |  | 6 | 9 | 11 | 13 | 16 | 18 | 20 | 26 | 41 |  |  |  |
| Date Sampled |  |  |  | 25/02/2009 | 25/02/2009 | 25/02/2009 | 25/02/2009 | 25/02/2009 | 25/02/2009 | 25/02/2009 | 25/0212009 | 23/02/2009 | 23/0212009 |  |  |
| Date Extracted |  |  |  | 3/03/2009 | 3/03/2009 | 3/03/2009 | 3/0332009 | 3/03/2009 | 3/03/2009 | 3/0312009 | 3103/2009 | 3/03/2009 | 3/03/2009 |  |  |
| Date Analysed |  |  |  | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/03/2009 | 5/0312009 | 5/03/2009 |  |  |
| Antimony, $\mathrm{Sb} \#$ | mg/kg | < | AN304 CEI-201 | $<5$ |  |  | $\leq 5$ |  | < 5 |  | <5 | 45 | 4 | 2 |  |
| Arsenic, As | $\mathrm{mg} / \mathrm{kg}$ | $<5$ | AN304CEF-201 | <5 | 28 | 26 | 15 | 22 | $\square 7$ | 15 | 45 | $<5$ | 5 | 20 |  |
| Cadmium, Cod | mg/kg | $<0.5$ | AN300 CEF-200 | <0.5 | $<0.5$ | $<0.5$ | $<0.5$ | $<0.5$ | $<0.5$ | <0.5 | <0.5 | $<0.5$ | <0.5 | 1.5 |  |
| Chromium, Cr | $\mathrm{mg} / \mathrm{kg}$ | $<5$ | AN300 CE1-200 | 33 | 160 | 56 | 62 | 84 | 37 | 120 | 64 | 46 | 48 | 80 |  |
| Copper, Cu | mg/kg | $\stackrel{3}{4}$ | AN300 CEF-200 | $\cdots$ | 120 | 92 |  |  | 260 | 210 | 92 | 240 | 120 | 65 | - |
| Lead, Pb | $\mathrm{mg} / \mathrm{kg}$ | $<3$ | AN300 CEI-200 | 14 | 31 | 20 | 17 | 30 | 15 | 62 | 8 | 14 | 14 | 50 |  |
| Nickel, Ni | mg/kg | $<3$ | AN300 CEE-200 | 18 | 18 | 20 | - 4 | 19 | 18 | 21 | 6 | 14 | 12 | 21 |  |
| Mercury, Hg | mg/kg | $<0.05$ | AN312 CE1-202 | <0.05 | $<0.05$ | <0.05 | $<0.05$ | $<0.05$ | $<0.05$ | $<0.05$ | $<0.05$ | $<0.05$ | $<0.05$ | 0.15 |  |
| Silver, Ag | mg/kg | $<0.5$ | AN300 CEI-200 | $<0.5$ | <0.5 | <0.5 | <0.5 | $<0.5$ | <0.5 | $<0.5$ | $<0.5$ | $<0.5$ | $<0.5$ |  | eif |
| Zinc, Zn | mg/kg | $<3$ | AN300 CEI-200 | 31 | 41 | 51 | 11 | 32 | 24 | 26 | 7 | 28 | 18 |  |  |




| From: | Moussie Jodie |  |  |
| :--- | :--- | :--- | :--- |
| Sent: | Monday, 29 June 2009 12:19 PM |  |  |
| To: | Jason.Alexander@copperco.com.au' |  |  |
| Cc: | Bell Tara; Wilson Peter (Mt. Isa) |  |  |
| Subject: | Southern Drain Design \& Extra Lease area |  |  |
|  |  | Recipient | Delivery |
| Tracking: | 'Jason.Alexander@copperco.com.s |  |  |
|  | Bell Tara | Delivered: 29/06/2009 12:19 PM | Read: 29/06/2009 12:22 PM |
|  | Wilson Peter (Mt. Isa) | Delivered: 29/06/2009 12:19 PM |  |

## Good Afternoon Jason

I refer you to your email regarding the extra area required to accommodation drainage requirements.
The option we would recommend would be to apply for a Mining Lease because the proposed development is consistent with the existing Mining Lease and operations, also this will give you security of tenure over the land, and will not affect the sale of the abutting Mining Lease 90169.

Consideration of the following would be required:

- The term applied for would need to be compatible with the abutting Mining Lease 90169. This Mining Lease expires on 31 December 2027.
- Consent will be required from the holder of Exploration Permit 14384. No consent is required if the holder of the ML and EPM are identical.
- As the Mining Lease will take some time to be granted we would recommend getting consent and or compensation with the landholder and traditional owners to undertake construction of the drain. This was done previously with the power/water/road Mining Lease s 90178 and 90184. However this Mining Lease application would not be for infrastructure and would be required to go through a Right To Negotiate process. For more information on the RTN process, please contact Georgie Lucas on (07) 47997676.
- Cultural Heritage clearances by the traditional owners would be required before undertaking any construction. For Cultural Heritage enquires, please contact John Richter on (07) 47997303.

Please do not hesitate to contact me if you have any queries.
Regards,

## Jodie Moussie

District Tenures Officer
Queensland Mines and Energy
Department of Employment, Economic Development and Innovation
Telephone: 0747472095 (Ext 32095)
Facsimile: 0747437165
Email: Jodie.Moussie@deedi.gld.gov.au
www.dme.qld.gov.au
13 Isa Street, Mount Isa Qld 4825
PO Box 334, Mount Isa Qid 4825

[^13]
# Cc: Adam Norton <br> Subject: Southern Drain Design \& Extra Lease area <br> Importance: High 

Hi Jodie,
As discussed on the phone, here are two representations of the area we need to look at to accommodate the DERM's drainage requirements.

I am not sure the ML shown is correct, my information is that we would have to place an extension onto ML90170, Mount Kelly Extension (dark brown on the left).

If you could tell me the options available to us in placing either an agreement, lease or easement on this area to secure it for the life of the mine, that would be appreciated.

Also, if you know of any other departments we will need to approach, that would be very helpful.
Thanks for your time, I look forward to hearing from you.
Regards,
Jason.



From:
Sent:
To:
Cc:
Subject:
Tracking:

Moussie Jodie
Monday, 29 June 2009 12:19 PM
'Jason.Alexander@copperco.com.au'
Bell Tara; Wilson Peter (Mt. Isa)
Southern Drain Design \& Extra Lease area

| Reciplent | Delivery | Read |
| :--- | :--- | :--- |
| 'Jason.Alexander@copperco.com.c |  |  |
| Bell Tara | Delivered: 29/06/2009 12:19 PM | Read: 29/06/2009 12:22 PM |
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Regards,

Jodie Moussie<br>District Tenures Officer<br>Queensland Mines and Energy<br>Department of Employment, Economic Development and Innovation<br>Telephone: 0747472095 (Ext 32095)<br>Facsimile: 0747437165<br>Email: Jodie.Moussie@deedi.ald.gov.au<br>www.dme.qld.gov.au

13 Isa Street, Mount Isa Qld 4825
PO Box 334, Mount Isa Qld 4825

[^14]Cc: Adam Norton
Subject: Southern Drain Design \& Extra Lease area
Importance: High
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Also, if you know of any other departments we will need to approach, that would be very helpful.
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Regards, Jason.



From: Moussie Jodie
Sent: Monday, 29 June 2009 12:19 PM
To: 'Jason.Alexander@copperco.com.au'
Cc: Bell Tara; Wilson Peter (Mt. Isa)
Subject: Southern Drain Design \& Extra Lease area
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Please do not hesitate to contact me if you have any queries.
Regards,

## Jodie Mousste

District Tenures Officer
Queensland Mines and Energy
Department of Employment, Economic Development and Innovation
Telephone: 0747472095 (Ext 32096)
Facsimile: 07.47437165
Emaill: Jodie.Moussio@deedl.ald.gov,au
www.dme.gld.gov,au
13. lsa Street, Mount lsa Qld 4825

PO Box 334, Mount Isa Qld 4825

From: Jason Alexander [mailto:Jason.Alexander@copperco.com.au]
Sent: Friday, 26 June 2009 1:35 PM
To: Mousste Jodie
Cci Adam Norton
Subject: Southern Drain Design \& Exira Lease area
Importance: High
Hi Jodie,
As discussed on the phone, here are two representations of the area we need to look at to accommodate the DERM's drainage requirements.
I am not sure the ML shown is correct, my information is that we would have to place an extension onto ML-90170, Mount Kelly Extension (dark brown on the left).
If you could tell me the options available to us in placing either an agreement, lease or easement on this area to secure it for the life of the mine, that would be appreciated.

Also, If you know of any other departments we will need to approach, that would be very helpful.
Thanks for your time, I look forward to hearing from you.
Regards,
Jason.


From:
Sent:
To:
Cc:
Subject:
Importance:

> Jason Alexander [Jason.Alexander@copperco.com.au](mailto:Jason.Alexander@copperco.com.au) Friday, 26 June 2009 1:35 PM
> Moussie Jodie
> Adam Norton
> Southern Drain Design \& Extra Lease area
> High

Hi Jodie,
As discussed on the phone, here are two represe drainage requirements. Mount Kelly Extension (dark brown on the left).

If you could tell me the options available to us in placing either an agreement, lease or easement on this area to secure it for the life of the mine, that would be appreciated

Also, if you know of any other departments we will need to approach, that would be very helpful. Thanks for your time, I look forward to hearing from you.
Regards,
Jason.




[^0]:    Environmental Protection Agency
    www.epagldgoviau ABN B7 221158786

[^1]:    "hazardous waste" means any substance, whether liquid, selid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.
    "Infrastructure" means water storage dams, roads and tracks, buildings and other structures buil for the purpose of mining activities but does not molude facilities required for the long term management of mining impacts or the protection of potential resources. Such facllties include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.
    "LA 10; adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for $10 \%$ of any 10 -minute measurement period, using Fast response.
    "La.t, odj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for $1 \%$ of any 10 -mlnute measurement period; using Fast response.
    ${ }^{4} L_{A, \text { maxedl }} T$ " means the average maximum A-weighted sound pressure level, adjusted for nolse character ánd measured over any 10 minute period, using Fast response.
    "land" in the "land schedule" of this document means land excluding waters and the atmosphere.
    "land capability" as defined in the DME 1995 Technical Guldelines for the Environmental Management of Exploration and Mining in Queensland.
    "land suitability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Oueensland.
    "land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
    "leachate" means a liquid that has passed through or emerged trom; 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 misoible contaminants llkely to have been derived from the said material.
    "mandatory reporting level" means the volume below the spllway crest, equivalent to the lower of the AEP, 72 hour storm

[^2]:    This environmental authorthy inkes effect on X 20006

    Page 18 of $38 \cdot 0902$

[^3]:    Whazardous waste" means any substance, whether liguld, solid or gaseous, derived by or resulting from, the processing of miherals that tends to destroy life or impair or endanger health.

    - Minfrastructuro" means water storage dams, roads and traeks, buildings and other struotures built for the purpose of mining activites but does not include faclities requifed for the long torm management of mining impacts or the protaction of potential rescurcess: Such facilites hiclude dams containing hazavdous waste, waste reck dumps, voids, or ore stockplles and buifdings or other structures whose ownership can be transferred and which have a residual beneficial use forthe next owner of the operational land or the backgroand land owner.

[^4]:    "peak particle velocity (ppy)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mans ${ }^{-1}$ ).
    "protected area" means - a protected area under the Nature Conservation Act 1992; of

    - a mauline park under the Marline Parks Aot 1992; or
    - a World Heritage Area.
    "progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.
    "reference site" (or analogue site) may reflect the original location, adjacent area or anoither area where rehabilitation surcess has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.
    "rehabllfation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
    "representative" means a sample set which covers the variance in monitoring or other data eilther due to natural changes or operational phases of the mining activities.
    "residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mifing activitios and completion of rehabiltation processes.
    "solf sustalining" means an area of land which has boen rehabilitated and has maintained the required acceptance eriteria without human intervention for a period nominated by the administering authority.
    "sensitive place" means;
    - a dwelling, residential allotment, moble home or caravari park, residential marina or other residential premises; or
    - a motel hotel or hostel; or
    - an educational institutioni; or
    - a medical center or hosplíali or
    - a protected area under the Nature Consenvation Act 1992. the Marine Parks Act 1992 or a World Heritage Area; or
    - a public park or gardens.

[^5]:    Contaminant diggers limits are based on Table 3.3.4 and 3.3.5 of Aquatic Ecosystems ANZECC (2000).
    Contaminant trigger lImits are based on $50 \%$ of the contaminant lImits defined in the ANZECC (2000) Livestock Drinking Water and are to be analysed as total metals (unfiltered).
    ${ }^{9}$ Contaminant trigger limits based on Table 3.4.1 of Aquatic Ecosystems ANZECC (2000) $95 \%$ and are to be analysed as filtered metals:

[^6]:    Sonecule F-Table 1 by 30 June 2007.
    TBD. To be detemined
    LiG-Low Intensity Graing
    
    Classes are derved from th
    (F1-2) Progressive rehabilitation must commence when areas bepartment of Wherals and Energy's Land Sutabity Assessment Technigues (1995)
    (F1-3) Complete an investigation into commence When areas become avallable within the operational land.
    outcomes in Schedule F - Table 1 and landform design criterla in Schedule F- Taport to the administering authority proposing acceptance criteria to meet the

[^7]:    Page 1 of $2 \cdot 080104$

[^8]:    Contaminant limits are based on ANZECC (2000 Lwestock drinking water qually and analysed for total metals (unifltered)

    ## Acid Fock Drainage and Leachate Management

    (C6-1) Subject to limits defined in Schedule $C$ all reasonable and practicable measures must be implemented to prevent hazardous teachate being directly or indirectly releaised or likely to be released as a result of the activity to any groundwater, watercourse and waters.

[^9]:    "dam" means a containment or proposed containment whether permanent or temporany, which is designed to contain, divedtor control fowable substanees. However this does not inelude afabricatedior manufactured tank or container designed to a recognised standard:
    "design plan" in the context of a dam design is the documentation required under the Code of Environmental Compliance: for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criterla to be used for operating the dam and the decommissioning and rehabilitation oblectives in terms of procedures, works and outcomesat the end of damilfe, The doouments can inciude design and investigation reports, drawings, specifications and certications.?
    "environmental authority holder" means the holder of this environmental authority.
    "flow event" means catiow event produching sufficient water to permit a monitoring creek bed flow of 30em or nore at the sampling station.
    "flowable substance't means matter or mixture of materlals whioh can beforeed to or otherwise flow under any conditiens posible: in a sifuation. It includes water"other ligulds or a mixture that includes water or any other liquid or suspended. solids.

[^10]:    "hazardous waste" means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.
    "Intrastructure" means water storage daris, roads and tracks; buildings and other structures built for the purpose of mining activities but does not inclucte facilities required for the long term management of mining impacts or the protection of potential resources. Such facilites include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transterred and which have a residual beneficial use for the next owner of the operational land or the background land owner.
    "La 10, edj, 10 mins" means the Aweighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for $10 \%$ of any 10 -minute measursment period, using fast response.
    "LA 1, adif, to mins" means the A weighted sound pressure level, (adjusted for tonal charapter and impulsiveness of the sound). exceeded for $4 \%$ of any 10 -minute measurement period, using Fast response.
    "La, max ed, $T$ " means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any to minute period, usting Fast response.
    "land" In the "land schedule" of this document means land excluding waters and the atmosphere.
    "land capability" as detined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.
    "fand sultability" as defined in the DME 1995 Tectnical Guidelines for the Environmental Management of Exploration and Mining in Queensland.
    "land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
    "leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been dorived from the sald material.
    "mandatory reporting lever" means the volume below the spiliway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedence probability).
    "mineral" means a substance which normally ocours naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes-
    (a) clay if mined for use for its ceramic properties, kaolin and bentonite;
    (b) foundry sand;
    (c) hydrocarbons and other substances or matter occurning in association with shale or coal and necessarily mined, extracted, proctuced or released by or in coninection with mining for shale or coal or for the purpose of enhancing the safoty of current or future mining operations for coal or the extraction or procuction of mineral oil therefrom:
    (d) limestone if mined for use for its chemical properties;
    (e) marble;
    (f) mineral ail or gas extracted or produced from shale or coal by in situ processes;
    (g) peat;
    (h) salt inoluding brine;
    (i) shale from which mineral oll may be extracted or produced;
    (1) silica, including sillca sand, if mined for use for its chemical properties;
    (k) rock mined in blook or slab form for building or monumental purposes;
    but does not inciute-
    (1) living matter
    (mi) petroleum within the meaning of the Petroleum Act 1928;
    (n) soil, sand, gravel or rock (other than rock mined in block or slab form for bulding or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
    (o) water:
    "noxious" means harmitul or injurious to health or physical well being, other than trivial harm.
    "offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting; nauseous or repulsive, other than trivial harm.

[^11]:    Schedule 1-Map 5 Location of End Pipe Releases from Sediment Dams - Lady Annie

[^12]:    Contaminaint tiggers llmits are based on Table 3.3.4 and 3.3.5 of Acuatic Ecosystoms ANZECC (2000).
    ${ }^{2}$ Contaminant trigger limits are based on $50 \%$ of the contaminant limits defined in the ANZECC (2000) Livestock Drinking Water and are to be analysed as total metals (untitered).
    ${ }^{3}$ Conitaminant trigger llints based on Table 3.4. 1 of Aquatic Ecosystems ANZECC (2000) $95 \%$ and are to be analysed as filtered metals.

[^13]:    From: Jason Alexander [mailto:Jason.Alexander@copperco.com.au]
    Sent: Friday, 26 June 2009 1:35 PM
    To: Moussie Jodie

[^14]:    From: Jason Alexander [mailto:Jason.Alexander@copperco.com.au]
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