NSW EPA

ENVIRONMENT PROTECTION AUTHORITY

Our reference: FIL10/14253; DOC13/7730
Contact: Brad Tanswell 02 6883 5367

Mr Howard Reed
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

COPY

Attention: Stephen O'Donoghue

Dear Mr Reed,

Thank you for the opportunity to comment on the Response to Submission Report (RtS) associated with the proposed Cobbora Coal Mine (ref 10_0001) received by the Environment Protection Authority (EPA) on 13 February 2013.

Additionally I refer to the EPA's submission of the exhibited Environmental Assessment (EA) dated 16 November 2012.

The EPA has determined that it is still able to support the proposal, subject to the Department of Planning and Infrastructure (DoPI) seeking and the proponent addressing the information requirements outlined below and in **Attachment A**, amendments to the draft Statement of Commitments outlined in **Attachment A**, and subject to the adoption of the proposed conditions of approval outlined in **Attachment B**. It should be noted that provision of the additional information, adoption of the additional Statements of Commitment and incorporation of the recommended conditions of consent are important for the EPA's ongoing support of the proposal.

The key additional issues identified for further review include:

Water
Further information/clarification is required regarding the proposed impacts upon and measures to protect surface water and groundwater from pollution.

Waste Rock
Further information/clarification is required regarding the assessment of potentially acid forming material, proposed measures to manage waste rock and protect surface water and groundwater from pollution.

These issues are addressed in further detail in **Attachment A**. The EPA recommends that the proponent be required to provide the additional information specified above and that the EPA is provided with a further opportunity to review this new information before the project proceeds to the determination stage.

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It is also expected that the EPA will be given an opportunity to review the draft Director-General's Environmental Assessment report for this proposal prior to finalisation.

If the DoPI determines the project application by granting consent, the EPA recommends that the additional conditions of approval provided at **Attachment B** are incorporated into the consent.

The EPA notes that the proposal will require an environment protection licence pursuant to the *Protection of the Environment Operations Act 1997* to commence construction activities and to operate. The proponent will need to make a separate application to the EPA to obtain this licence once development project approval is granted.

Should you have any queries regarding the EPA's submission, please contact myself at the Dubbo Office of the EPA on (02) 6883 5367.

Yours sincerely

08/03/13

BRAD TANSWELL
A/Head Far West Operations
Environment Protection Authority NSW

Attachment A - Additional Detailed Information.
Attachment B - Revised Recommended Conditions

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ATTACHMENT A

Additional Detailed Information

WATER

The EPA acknowledges that the Preferred Project Report (PPR) indicates that:

- the interim discharge limits recommended in the EPA's previous advice have been adopted (Table 4-2, Appendix B of Appendix F);
- the Managing Urban Stormwater documents referenced in the EPA's previous advice will be considered in development of surface water management plans (s7.2.25);
- the management and monitoring of Potentially Acid Forming (PAF) in out-of-pit emplacement areas and acid mine drainage will be addressed in a Waste Management Plan (s5.2.3), although further comment is made on this matter is provided below;
- groundwater reuse issues previously raised by the EPA will be addressed in a Groundwater Management Plan (s6.2.12).

The EPA notes that if consent is granted by the Department of Planning and Infrastructure the EPA will be unable to issue a Scheduled Development or Scheduled Activity Licence until the relevant plans are prepared in consultation with the EPA and approved.

The Response to Submissions (RtS) makes no comment on water quality monitoring and so the EPA's previously recommended conditions of consent for this matter are retained. This is repeated in Appendix C. Outstanding water issues are discussed in more detail below.

Outstanding Water Issues

Review of Sediment Basin Water Quality Discharge Limits

The NSW Government policy position on water quality objectives is that where the objectives are being met measures should be taken to protect water quality, and where the objectives are not being met measures should be taken to make reasonable progress toward the objectives.

The interim discharge limits have been based on an assessment against site specific ambient trigger levels derived by the proponent at reference sites in the catchment. The PPR states in section 7.2.14 that the reference sites used for this assessment represent general catchment conditions and are not biased toward any particular land management practices. Discharge limits based on an assessment using these reference sites would therefore protect current water quality. However, it remains unclear whether these reference sites reflect a degraded system, slightly modified system or high conservation system as defined in s3.1.3.1 of ANZECC (2000), and therefore whether they are suitable for deriving discharge limits that would make progress toward water quality objectives for the catchment, consistent with the NSW Government policy position described above.

Consequently following adoption of the interim discharge limits recommended in the EPA's previous advice, the EPA would like to advise that it is the EPA's intention to add a condition to the Environment Protection Licence via a Pollution Reduction Program (if issued) requiring that the proponent review the interim

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discharge limits in 2 years, using the framework established in Chapter 3 ANZECC (2000) for setting ambient water quality triggers.

Section 3.1.4 of ANZECC (2000) provides guidance on defining a reference condition for undertaking an assessment of likely impact against a water quality objective. Consistent with the policy position described above, the reference condition should reflect a slightly modified ecosystem.

The review of the interim discharge limits will involve the proponent either:

i) modelling the impact of the discharge at the edge of the near-field mixing zone against ANZECC default trigger values for a slightly modified system; or
ii) justifying the reference sites using the framework established in Chapter 3 ANZECC (2000); or
iii) where the proponent is not able to adequately justify the reference sites used in the environmental assessment, identifying appropriate reference sites that represent a slightly modified system and obtaining adequate water quality data over the next 2 years to support setting of site specific ambient trigger levels, and modelling the impact of the discharge at the edge of the near-field mixing zone against those site specific trigger levels.

The proponent should consider the alternate approaches above and consider the need to identify alternate reference sites if required and commence monitoring as required to support the preferred approach to the review.

Flocculants

Flocculants can cause ecotoxicological effects. It is therefore important that where the proponent uses flocculants to reduce TSS levels in water to be discharged from sediment basins, that it does so with caution to prevent impacts to aquatic organisms in receiving waters.

Section 7.2.18 of the PPR states that the proponent will use flocculants that have low toxicity, but contends that the costs of demonstrating an LC50 >100mg/L for local species is not warranted given the broad use of flocculants. The EPA accepts that local ecotoxicology testing may not be warranted however the proponent should check the product toxicity information before using any flocculant to ensure it meets an LC50 >100mg/L. The EPA recommends that the following commitments be incorporated into the proponents Statement of Commitments:

Recommended Statement of Commitment

Flocculants used on the site will be of low ecotoxicity. The proponent will maintain records of the flocculants used on the site including product ecotoxicity information and application rates.

Waste Rock Emplacement

The EPA had previously recommended that assessment of the acid mine drainage potential of waste rock associated with the Whaka seam be undertaken prior to consent, and separate specific management plans for this material be established if determined to be potentially acid forming material.

Section 5.2.1 of the PPR indicates that additional leachate analyses are being undertaken as part of detailed mine planning, and Section 5.3 states that additional analytical work is

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under way to confirm the quantity of acid mine drainage material and refine management measures. Section 5.2.2 of the PPR advises that PAF material in initial mining operations will be buried in out-of-pit emplacements to minimise the potential for acid formation, and section 5.2.3 of the PPR states that a waste management plan will be prepared that deals with all waste streams. However, the PPR does not state whether the additional analyses relate specifically to the Whaka seam and does not directly address what specific additional measures would be adopted to identify and manage PAF or uncertain PAF materials to prevent acid drainage to sediment basins. Further, section 5.2.2 identifies additional seams, or parts of seams, that are potentially acid forming or of uncertain acid forming potential.

The EPA recommends that the proponent be required to provide the additional information referred to above, including:

- **As the out-of-pit waste rock emplacement areas may affect water quality discharged from the sediment basins, the proponent should confirm the additional analyses of acid forming potential include the Whaka seam, and the additional seams listed in section 5.2.2 of the PPR; and**
- **Assessment of the acid mine drainage potential of waste rock associated with the Whaka seam and the additional seams listed in section 5.2.2 of the PPR and identification of the need for separate specific management plans for this material if determined to be potentially acid forming material.**

The EPA requests that a further opportunity be provided to the EPA to review this new information before the project proceeds to the determination stage to ensure impacts have been adequately assessed.

If the information outlined above is not provided to the satisfaction of the EPA, the EPA will be recommending that the Department of Planning and Infrastructure incorporate a condition of consent requiring that this be undertaken and considered as part of development of a specific a Waste Rock Management Plan to be developed for the site.

The EPA also recommends that the Department of Planning and Infrastructure incorporate the following condition of consent in relation to management of waste rock.

Recommended Consent Condition

The Proponent shall prepare and implement a Waste Rock Management Plan prior to commencement of mining operations and to the satisfaction of the Director-General. The plan must:
(a) be developed in consultation with the EPA and NOW;
(b) include a detailed description of the procedures to be implemented to monitor and manage potential acid forming material;
(c) Detail groundwater and surface water monitoring programs to monitor potentially acid-forming waste rock and any leachate generated, including appropriately designed detection and response systems for acid generation (covering monitoring methods, trigger levels and proposed management actions);
(d) ensure effective isolation of potential acid forming material in rock dumps;
(e) include procedures for appropriate testing of potentially acid forming waste rock prior to it being bought to the surface;
(f) include procedures for prioritising the relocation of potential acid forming material to a suitable underground locations prior to oxidation;

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(g) include procedures to ensure that material relocated underground does not, to the extent reasonable and feasible, further oxidise or cause impact to groundwater;
(h) notwithstanding (f) above, trigger levels for any material that has oxidised to the extent that it cannot be placed underground without impacting groundwater quality and procedures for adequate capping and sealing of such material at the surface;
(i) detail proposed neutralising options to be implemented for oxidising material stored or encapsulated aboveground; and
(j) where there is likely to be an extended time between placement of potential acid forming material underground, details of proposed methods to prevent oxidation of the material underground or to otherwise manage acid drainage to prevent impacts on groundwater.
(k) Include contingencies for management of acid forming material should this present a larger issue than first expected.

The EPA notes the Waste Rock Management Plan must be prepared in consultation with the EPA and approved prior to issue of an Environment Protection License.

Liners for Contaminated Water Storages

The EPA's submission on the Exhibited EA dated 16 November 2012 identified that the EA also does not appear to provide detail on whether contaminated water storage structures will be lined and if so details of proposed liners to ensure pollution of surface water and ground water does not occur. This was also identified at adequacy stage. The EPA's submission on the Exhibited EA provided the following recommendations:

Recommendation 9

- ***Further information regarding the construction of the clay liners (or alternate geosynthetic liners) for all contaminated water storage structures onsite is required. This includes the location of liners (e.g. floor and walls), overall thickness of liners, thickness of successive layers, gradients of sides of structures of clay liners etc for all structures. Alternatively impermeable geosynthetic liners could be considered.***

- ***Further information is required to demonstrate how the EPA's clay liner requirements for contaminated water storage structures (outlined below) will be met to ensure impacts do not occur.***

- ***The EPA's standard requirement for these types of liners (i.e. contaminated water storage structures) is to achieve a permeability of 1 x 10^{-9} m/s or less with a re-compacted clay liner of at least 90 centimetres (cm) in thickness (or alternative geosynthetic liner of equivalence). Where the proposed liner will not meet this thickness and the natural geology of the site in conjunction with constructed clay liners is considered sufficient in meeting this requirement, sufficient evidence must be provided in support of this to demonstrate the construction will be adequate to prevent pollution of groundwater (e.g. geological evidence, appropriate groundwater modelling etc).***

- ***Even where the EPA's permeability requirements for contaminated water storage outlined above are met, any contaminants contained in contaminated water storages still have potential to permeate below clay linings albeit over***

a long period of time. Hence an assessment also needs to be provided including:

- *an assessment of the long term fate of contaminants in contaminated water storages;*
- *an assessment of potential impacts on groundwater quality in the longer term, against ANZECC 2000 criteria for any beneficial uses likely to be impacted as well as the preservation of aquatic ecosystems; and*
- *longer term arrangements for management, monitoring and response to any such impacts beyond the operational life of the proposed mine.*

This information should be provided for assessment prior to issue of consent to allow impacts to be adequately assessed.

The proponent has not provided a response to this request aside from indicating that it is now proposed to construct mine water dams with low permeability floor and walls (with no further detail) and subsequently it is uncertain whether contaminated water storages onsite will be adequately lined to prevent leakage and impact to surface water and/or groundwater.

The EPA recommends that the proponent be required to provide the additional information referred to above, including:

- **Detailed information on how all contaminated water storages will be lined (i.e. to what permeability standard and depth of liners for walls and floors of all facilities)**
- **Assess potential impacts on surface water and groundwater due to potential seepage from structures referred to above (refer to the EPA's comments dated 16 November 2011 for further information on impact assessment requirements).**

The EPA requests that a further opportunity be provided to the EPA to review this new information before the project proceeds to the determination stage to ensure impacts have been adequately assessed.

If the information outlined above is not provided to the satisfaction of the EPA, the EPA will be recommending that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to lining of contaminated water storages to prevent seepage and impact on surface water and groundwater.

Recommended Consent Condition

All contaminated water storages must have a basal or impermeable liner with an equivalent permeability of 1 x 10^{-9} metres per second over a minimum thickness of 900mm or other liner approved by the EPA.

The licensee must obtain and retain documentation from an appropriately qualified person to demonstrate the liners for all structures referred to above meet the permeability requirements specified above.

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Surface Water and Groundwater Protection Measures

The proponent has provided a comparison of options of tailings dewatering (Appendix C of Preferred Project Report and Response to Submissions (PPR)).

The report *recommends the Cobbora project adopt the base thickening design with high rate thickening and discharge to tailings emplacement as the economic alternative.* However as indicated on page 6, the report does not consider any effects on freshwater, groundwater or surface water from the proposed or alternate systems. That is, the proposed method of tailings emplacement is based on economic decisions only.

The EPA notes Tailings Storage Facilities (TSF) are proposed to be placed in mined areas A and B, which is below the current watertable 110 metres below surface and groundwater inflow is likely to occur during placement and following completion of filling. As indicated on page 123 of the Groundwater Assessment in Appendix C groundwater interacting with and flowing through the tailings emplacements is likely to undergo changes in quality as groundwater interacts with this material.

The tailings to be generated onsite contain potentially acid forming material amongst other potential contaminants. Page 141 of the EA indicates that most Potentially Acid Forming material (PAF) will be placed in the Tailings Storage Facility (TSF) and that PAF may generate and mobilise heavy metals. Page 175 of the EA indicates tailings TCLP results indicate exceedances of ANZECC criteria in terms of pH, nickel and zinc limits. The PPR does not provide any further information/clarification/assessment regarding potential impacts on surface water and groundwater due to potential seepage from the TSF's or proposed measures to protect surface water and groundwater from pollution aside from stating that the TSF's and associated seepage collection ponds will be lined material *of low permeability*, however no further detail is provided as to how they will be lined.

There is no additional information on monitoring of groundwater and surface water surrounding and underlying TSF's. The PRP does not address issues identified by the EPA in its comments on the exhibited EA dated 16 November 2012 in terms of further details of the expected quality of tailings and seepage generated from stored tailings and assessing and mitigating potential impacts on surface water and groundwater from the storage of tailings material.

Seepage from tailings must be managed in a manner that prevents impacts to surface water and groundwater to ensure compliance with section 120 of the Protection of the Environment Operations Act 1997.

The EPA recommends that the proponent be required to provide the additional information referred to above, including:

- **Detailed information on how the Tailings Storage Facilities will be lined (i.e. to what permeability standard and depth of liners for walls and floors of all facilities);**
- **Detailed information on the expected quality of tailings and seepage generated from stored tailings; and**
- **Assess potential impacts on surface water and groundwater due to potential seepage from the TSF's (refer to the EPA's comments dated 16 November 2011 for further information on impact assessment requirements).**

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The EPA requests that a further opportunity be provided to the EPA to review this new information before the project proceeds to the determination stage to ensure impacts have been adequately assessed.

If the information outlined above is not provided to the satisfaction of the EPA, the EPA will be recommending that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to lining of Tailings Storage Facilities to prevent seepage and impact on surface water and groundwater.

Recommended Consent Condition

All Tailings Storage Facilities must have a basal or impermeable liner with an equivalent permeability of 1 x 10^{-9} metres per second over a minimum thickness of 900mm or other liner approved by the EPA.

The licensee must obtain and retain documentation from an appropriately qualified person to demonstrate the liners for all structures referred to above meet the permeability requirements specified above.

The EPA notes alternative liners could be considered if alternative dewatering methods are reconsidered to minimise seepage generated from tailings. This may also minimise the need for heavy reliance on monitoring to detect any seepage.

If consent is granted by the Department of Planning and Infrastructure the EPA will be unable to issue a Scheduled Development or Scheduled Activity Licence until the issues outlined above are addressed.

SITE CONTAMINATION

In the EPA's submission on the exhibited EA, the EPA identified the need for contaminated site assessments to be undertaken for the "Danabar" and "Yallambee" piggeries to identify measures to manage any residual pollutants and/or contaminants.

Site assessment should be done in accordance with guidelines such as the National Environment Protection (Assessment of Site Contamination) Measure 1999 and other relevant EPA Guidelines.

The proponent has committed to undertaking phase 1 assessments for both sites and to liaising with the EPA regarding future requirements. In light of this the EPA recommends that the Department of Planning and Infrastructure incorporate the following condition of consent.

Recommendation

Contaminated site assessments must be undertaken for both "Yallambie" and "Danabar" piggeries in accordance with guidelines such as the National Environment Protection (Assessment of Site Contamination) Measure 1999 and other relevant EPA Guidelines to inform management decisions prior to commencement of development works.

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ATTACHMENT B

Recommended Conditions of Consent

NOISE

The EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to noise impacts

Limit Conditions

L6.1 Noise generated at the premises must not exceed the noise limits in the table below.

Locality	NOISE LIMITS dB(A)			
	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{A1\ (1\ minute)}$
1001-1172, 1179, 1185-3020, 3029, 3044-3052, 3062-3086, 3218-3236, 5003-5022, 5024, 5025	35	35	35	45
1178, 3041	36	36	36	48
3021, 3022, 3043	39	39	39	50
3024, 5023	38	38	38	49
3035	37	37	37	46

L6.2 For the purpose of condition L6.1;

- **Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.**
- **Evening is defined as the period 6pm to 10pm.**
- **Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.**

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L6.3 To determine compliance:

a) with the $L_{eq(15\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) with the $L_{A1(1\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located within 1 metre of a dwelling façade.

c) with the noise limits in condition L6.1, the noise measurement equipment must be located:

- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by conditions L6.3(a) or L6.3(b).

L6.4 A non-compliance of condition L6.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions L6.3(a) and L6.3(b); and/or
- at a point other than the most affected point at a location.

L6.5 The noise limits set out in condition L6.1 apply under all meteorological conditions except for the following:

a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level.

L6.6 For the purposes of condition L6.5:

a) Data recorded by a meteorological station to be located onsite must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

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L6.7 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

L6.8 Heavy vehicle movements to and from the site are restricted to between the hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday and at no time on Sundays and public holidays.

Construction Noise

L6.9 All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and between 8am and 1pm Saturdays and at no time on Sundays and public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons.

Note: 'safety or emergency reasons' refers to emergency works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

Train Noise Performance

L6.10 The Proponent shall take all necessary actions to ensure that trains operated on the Site have received an 'approval to operate on the NSW rail network' in accordance with the noise performance criteria established under conditions L6.1 to L6.4 in Environment Protection Licences or a Pollution Control Approval issued pursuant to the former Pollution Control Act 1970.

M8 Requirement to Monitor Noise

M8.1 To assess compliance with Condition L6.1, attended noise monitoring must be undertaken in accordance with Conditions L6.3 and:

a) at each one or at a location representative of the most affected location of the locations listed in Condition L6.1;
b) occur annually in a reporting period;
c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:

- 1.5 hours during the day;
- 30 minutes during the evening; and
- 1 hour during the night.

d) occur for three consecutive operating days.

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Reporting Conditions

R4 Noise Monitoring Report

A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the yearly monitoring. The assessment must be prepared by a suitably qualified and experienced person and include:

a) **an assessment of compliance with noise limits presented in Condition L6.1; and**
b) **an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in Condition L6.1.**

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AIR QUALITY

The EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to air quality impacts

Coal Mine Particulate Matter Control Best Practice

1.1. The proponent must conduct a site specific Best Management Practice (BMP) determination to identify the most practicable means to reduce particle emissions.

1.2. The proponent must prepare a report which includes, but is not necessarily limited to, the following:

- **identification, quantification and justification of best practice measures that could be used to minimise particle emissions;**
- **evaluation of the practicability of implementing these best practice measures; and**
- **a proposed timeframe for implementing all practicable best practice measures.**

In preparing the report, the proponent must utilise the document entitled *Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline – August 2011 (http://www.environment.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf).*

1.3. All cost related information is to be included as Appendix 1 of the Report required by condition 1.2 above.

1.4. The report required by condition 1.2 must be submitted by the proponent to the Environment Protection Authority's Head of Operations Dubbo, at PO Box 2111 Dubbo NSW 2830 prior to an application for an environment protection licence for the project.

1.5. The report required by condition 1.2 above, except for cost related information contained in Appendix 1 of the Report, must be made publicly available by the proponent on the proponent's website by <date>.

Air Quality Management Plan

1.6. Based on the information contained in the site specific BMP (refer to condition 1 above) and the project EA, the proponent must develop and implement an air quality management plan for the project in consultation with the EPA. As a minimum the air quality management plan must include the following information for each emission source:

- ***Key performance indicator(s);***
- ***Monitoring method;***
- ***Location, frequency and duration of monitoring;***
- ***Record keeping;***
- ***Response mechanisms; and***
- ***Compliance reporting.***

If consent is granted by the Department of Planning and Infrastructure the EPA will be unable to issue a Scheduled Development or Scheduled Activity Licence until the documentation referred to above is prepared and approved.

WATER

The EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to water quality impacts.

Recommended Consent Condition

The EPA recommends that the Department of Planning and Infrastructure incorporate a condition of consent requiring that the Site Water Management Plan be prepared prior to commencement of site construction in consultation with the EPA. The Site Water Management Plan must address:

- **measures to ensure that pit water, coal washery wastewater, groundwater seepage and process water are retained within the pit, infrastructure and process water systems (as committed to in the EA)**
- **measures to ensure that water from overburden emplacements, topsoil stockpiles and other disturbed areas are directed to sediment basins designed, constructed and operated in accordance with:**
    - ***Managing Urban Stormwater: Soils and Construction Volume 1*;**
    - ***Managing Urban Stormwater: Soil and Construction: Volume 2E Mines and Quarries (DECC, 2008);***
    - ***Managing Urban Stormwater: Soils and Construction: Volume 2C Unsealed Roads (DECC, 2008)* for erosion and sediment control of on-site roads and waterway crossings** (guidance is also provided in the field guide *Erosion and sediment control on unsealed roads* available on the Office of Environment and Heritage stormwater website)**; and**
    - ***Managing Urban Stormwater: Soils and Construction: Volume 2A Installation of Services (DECC 2008)* for erosion and sediment control during the installation of the water pipeline and any other reticulated services.**
- **the development of sediment basin salinity, acidity and metal trigger values that prompt investigations of the causes of elevated salinity, acid or metal levels and the implementation of mitigation measures**
- **a surface and groundwater quality monitoring program that sets out:**
    - **the duration (pre, during, and post mining), sites to be sampled,**
    - **frequency of sampling**
    - **the parameters to be measured, for each water system including for water reuse in land application, management of the process water, groundwater and inflow to sediment basins from stockpiles**
    - **the trigger values for investigation derived from assessment against WQOs determined using either ANZECC (2000) default trigger values or site specific WQOs determined in accordance with ANZECC (2000) and DEC (2006) procedures**
    - **mitigation actions when trigger values are exceeded**
    - **monitoring of discharges from the sediment basins and ambient monitoring for the purpose of confirming or amending discharge limits**

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- **a framework for post-mining monitoring, with a commitment for a detailed post mining monitoring program to be prepared two years prior to the cessation of mining operations**
- **a program for reporting on the effectiveness of the water management systems**
- **Groundwater Management Plan with Groundwater Reuse Procedures.**

The EA lists some groundwater quality monitoring parameters in section 7.6.1 (pg 144), but provides no proposed surface water quality monitoring parameters.

Sediment basin monitoring will need to include TSS/NTU, oil and grease, and pH. Sediment basin monitoring should also assess other potential risk factors in the runoff from the overburden stockpiles including a suite of metals, EC/TDS, and sulphate until such time as these parameters are demonstrated not to be an issue for this project.

Groundwater reused for land application (rehabilitation and dust suppression) and water that may be stored within the mine workings and basins that could affect local groundwaters should also be monitored for:

- a full suite of metals
- volatile organics
- total petroleum hydrocarbons (C6 - C9 and C10 - C36)
- semivolatile organic compounds including polycyclic aromatic hydrocarbons and phenols
- polychlorinated biphenyls (PCBs)
- alkalinity, hardness, pH , conductivity/salinity, major ions (including: sodium, chloride, bicarbonate, potassium, magnesium, carbonate, fluoride, hydroxide, sulfate, calcium)
- non-metallic inorganics – cyanide.
- radionuclides.

The issues outlined above should be addressed in the Site Water Management Plan.

If consent is granted by the Department of Planning and Infrastructure the EPA will be unable to issue a Scheduled Development or Scheduled Activity Licence until the Site Water Management Plan is prepared and approved.

Recommended Consent Condition

The Proponent shall prepare and implement a Waste Rock Management Plan prior to commencement of mining operations and to the satisfaction of the Director-General. The plan must:
(a) be developed in consultation with the EPA and NOW;
(b) include a detailed description of the procedures to be implemented to monitor and manage potential acid forming material;
(c) Detail groundwater and surface water monitoring programs to monitor potentially acid-forming waste rock and any leachate generated, including appropriately designed detection and response systems for acid generation (covering monitoring methods, trigger levels and proposed management actions);
(d) ensure effective isolation of potential acid forming material in rock dumps;
(e) include procedures for appropriate testing of potentially acid forming waste rock prior to it being bought to the surface;

PO Box 2111 Dubbo NSW 2830
48-52 Wingewarra Street Dubbo NSW
Tel: (02) 6883 5312 Fax: (02) 6884 8675
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(f) include procedures for prioritising the relocation of potential acid forming material to a suitable underground locations prior to oxidation;
(g) include procedures to ensure that material relocated underground does not, to the extent reasonable and feasible, further oxidise or cause impact to groundwater;
(h) notwithstanding (f) above, trigger levels for any material that has oxidised to the extent that it cannot be placed underground without impacting groundwater quality and procedures for adequate capping and sealing of such material at the surface;
(i) detail proposed neutralising options to be implemented for oxidising material stored or encapsulated aboveground; and
(j) where there is likely to be an extended time between placement of potential acid forming material underground, details of proposed methods to prevent oxidation of the material underground or to otherwise manage acid drainage to prevent impacts on groundwater.
(k) Include contingencies for management of acid forming material should this present a larger issue than first expected.

The EPA notes the Acid Mine Drainage Management Plan must be prepared and approved prior to issue of an Environment Protection License.

HAZARDOUS CHEMICAL AND WASTE MANAGEMENT

The EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to hazardous chemical and waste management following the proponent's commitment to meeting these requirements as outlined in the Response to Submissions report.

Recommended Consent Condition

"Dangerous Goods must be transported in accordance with the requirements of the "Australian Code for the Transport of Dangerous Goods by Road and Rail- Current Edition."

Recommended Consent Condition

"All hydrocarbon and chemical products must be stored within a bunded area complying with the relevant Australian Standard"

Recommended Consent Condition

"Toxic Chemicals must be stored in accordance with the requirements of AS/NZS 4452- The Storage and Handling of Toxic Substances."

Recommended Consent Condition

All wastes onsite must be classified as waste in accordance with the document "Waste Classification Guidelines Part 1: Classifying Waste" (DECCW 2009) and subsequently disposed at landfill facilities that can lawfully accept the waste following classification.

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SITE CONTAMINATION

The EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent in relation to the need for contaminated site assessments onsite prior to the commencement of development works.

Recommendation

Contaminated site assessments must be undertaken for both "Yallambie" and "Danabar" piggeries in accordance with guidelines such as the National Environment Protection (Assessment of Site Contamination) Measure 1999 and other relevant EPA Guidelines to inform management decisions prior to commencement of development works.

LIGHTING IMPACTS

The EPA acknowledges the proponents commitment to engage a suitably qualified expert to prepare a detailed light management plan for the project. In light of this the EPA recommends that the Department of Planning and Infrastructure incorporate the following conditions of consent.

Recommendation

The proponent must engage an appropriately qualified expert to prepare and implement a light management plan for all aspects of the project.

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ABN 30 841 387 271
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