NSW EPA

Our reference: DOC 12/46368, FIL10/14253
Contact Brad Tanswell 02 6883 5330

Manager Mining Projects
Major Project Assessment
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2000

Attention: Stephen O'Donoghue

Dear Mr Reed,

I refer to the Project Application, Environmental Assessment (EA) and accompanying information provided for the proposed Cobbora Coal project (ref 10_0001) received by the Environment Protection Authority (EPA) on 5 October 2012.

The Environment Protection Authority (EPA) has reviewed the information in the EA and has determined that it is able to support the proposal subject to the Department of Planning and Infrastructure (DoP) seeking the important amendments to the draft Statement of Commitments, identified in **Attachment A** and subject to the proponent addressing the information requirements outlined below and in **Attachment B**. **Attachment B** also contains the EPA's assessment of the proposal, including justification for the amendments and request for additional information.

Following its review of the information in the EA, the EPA notes additional information is required for the EPA to adequately assess impacts of the project on water (groundwater and surface water), air, noise, site contamination and lighting impacts. These impacts should be appropriately assessed and addressed prior to consent being issued. The additional information requirements are summarised below and are discussed in detail in **Attachment B**.

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

Air
Further assessment/information is required regarding the Air Quality Impact Assessment and impacts on local air quality.

Noise
Further assessment/information is required regarding the Noise Impact Assessment and impacts on local noise amenity.

Site Contamination
Contaminated site assessments should be undertaken for both "Yallambie" and "Danabar" piggeries which the EPA understands will be impacted by the mine to identify the type and extent of contaminates to allow for the identification of remedial works, disposal locations, management options etc for both sites.

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Lighting Impacts

Further assessment/information is required regarding the potential impacts from lighting on local and regional amenity.

It should be noted adoption of the recommendations regarding the need for additional information are integral to the EPA's ongoing support for the proposal.

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.

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 amendments to the draft Statement of Commitments are not included to the satisfaction of the EPA, we will be recommending that they are included as Conditions of Approval, if approval is recommended by the Department of Planning (DoP).

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

The EPA would also appreciate receiving a copy of the submissions received by the DoP (or a report summarising these submissions) in response to the exhibition of the Environmental Assessment. This is to assist the EPA to review the draft Director-General's Report and to recommend additional conditions of approval, if required.

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

16/11/12

BRAD TANSWELL
A/Head Pesticides, Operations and Planning
Environment Protection Authority NSW

Attachment A – Proposed Amendments to Draft Statement of Commitments
Attachment B – Assessment and Justification
Attachment C – Recommended Conditions of Consent

ATTACHMENT A

Proposed Amendments to the Draft Statement of Commitments

HAZARDOUS CHEMICAL AND WASTE MANAGEMENT

The EPA recommends an additional heading be created for "Hazardous Chemical and Waste Management". The EPA also recommends that the following commitments be added to this section to read:

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

"Store all hydrocarbon and chemical products within a bunded area complying with the relevant Australian Standard"

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

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.

GENERAL AMENDMENTS

The draft Statements of Commitments should be updated to identify all Management Plans that will be developed as proposed in the EA.

The draft Statements of Commitments should be updated to include timing for implementation of tasks where relevant.

ATTACHMENT B

Assessment of the Proposal and Justification of Proposed Amendments to the Draft Statement of Commitments and Request for Additional Information

WATER

In summary, the project and its proposed management plans are at a conceptual level and further detail is required to ensure appropriate levels of environment protection for:

- erosion and sediment control measures;
- sediment basin discharge limits;
- post mining management of the final void;
- waste rock emplacement; and
- on-site groundwater reuse.

Erosion and Sediment Controls

Commitment to Erosion and Sediment Control Measures

The EA (Appendix E (pg 41)) indicates that an Erosion and Sediment Control Plan (ESCP) should be prepared in accordance with *Managing Urban Stormwater – Soil and Construction Volume 1* (Landcom, 2004) and *Volume 2E* (Mines and Construction (DECC, 2008). The proposal also includes unsealed roads, and installation of services such as rail spurs, roads, electricity and a water supply pipeline. As these activities are covered by different guidelines it is appropriate that the proponent prepare the ESCP having regard to *Managing Urban Stormwater: Soils and Construction: Volume 2C Unsealed Roads (DECC 2008)* 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 ESCP should address site preparation and construction phases, operational phases, rehabilitation phases and post mining.

Recommendation 1

The EPA recommends a condition of consent that requires the proponent to prepare and implement an ESCP prior to commencement of construction of surface facilities or mining operations 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.**

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 ESCP's are prepared and approved.

Sediment Basins Management and Discharge Water Quality

The EA (Appendix E, pg 23) states that the runoff from overburden emplacements, topsoil stockpiles and other disturbed areas will be managed by sediment basins, with captured water either reused on-site or discharged to the creek system after sediment settling.

The EA (Section 8.4.3, pg 203) sets out proposed discharge criteria for the sediment basins. These criteria have been based on an assessment against site specific WQOs. However, it is unclear whether the reference sites used to derive site specific WQOs are appropriate. The sites may reflect current land use impacts (eg stock access to waters, agricultural runoff and dryland salinity) but not reasonable land management practices that would justify their use as a reference site. Alternatively, it is also unclear if the baseline surface water quality is affected by groundwater base flow at some sites. It is therefore uncertain whether these WQOs have been appropriately derived in accordance with ANZECC (2000) and DEC (2006) procedures for customising WQOs.

Given this uncertainty about the appropriateness of the site specific WQOs it is recommended that interim water quality limits for discharge from sediment basins are set as outlined below and that such limits be reviewed based on further monitoring as part of the Site Water Management Plan (refer recommendations provided in Attachment C). The EPA's position on limits for certain parameters is discussed further below.

The EPA is required by s45 of the *Protection of the Environment Operations Act 1997* (POEO Act) to consider the practical measures that could be taken to prevent, abate or mitigate pollution when making licensing decisions, and therefore will take into account relevant guidelines for best practice and pollution levels that are achieved at other similar operations when setting discharge limits.

Total Suspended Solids (TSS) Limit

Sediment basins that are designed and operated in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004)* and *Volume 2E Mines and Quarries (DECC, 2008)* can generally be operated to achieve significantly better discharge quality than outlined in the EA, particularly for TSS which can be reduced through treatment with a flocculant. The EPA generally includes a limit of 50mg/L TSS for managed discharges from sediment basins in Environment Protection Licences for mining premises.

Flocculants

The achievement of lower TSS concentrations in water discharged from sediment basins may require the use of flocculants. Selection of a flocculating agent, if required, should aim for a low impact product. The ecotoxicology of the proposed flocculant should be assessed against a waterflea (eg cladoceran), a relevant fish species for the area and a freshwater alga to provide confidence that the flocculant is suitable, noting that cationic flocculants are often the most toxic and that some anionic flocculants can have low toxicity to fish but high toxicity to waterfleas.

Salinity

The results of the overburden leachate sampling (Appendix C) found that overburden generally contains low to moderate salinity (low $EC_{1:2}$ median of 238 µS/cm). Further, discharge from the sediment basins to a receiving waterway should only be required following high rainfall events and therefore the inflow to the basins should dilute salt levels below these leachate sampling levels. It is highly unlikely that the maximum TDS concentration in the sediment basins at the time of discharge will be at 1400 mg/L as proposed in the EA. Rather, a maximum salinity limit could be set based on other similar sites at around 900 µS/cm (or about 600mg/L TDS).

Metals and Acidity

Elevated metal and acidity (and salinity) levels in the sediment basin should be prevented or minimised through management responses that are triggered when required by a monitoring program. The trigger values should be established having regard for either default ANZECC trigger values for aquatic ecosystems, or revised site specific water quality objectives determined

using appropriate and justified reference sites in accordance with ANZECC (2000) and DEC (2006) – see recommendation 8.

Management responses to elevated metal and acidity in sediment basins may include, but not be limited to, diversion of overburden runoff to mine waters, dilution with alternative higher quality water prior to discharge or diversion of water with elevated pollutants to the mine water system.

While the site specific WQOs have not been adequately justified, the discharge from the sediment basins will be infrequent. The EPA therefore proposes to set interim metal concentration limits based on the EA until trigger levels have been established and discharge and ambient monitoring results are available to assess the practicality of those trigger levels and the actual ambient impacts of any discharges.

Recommendation 2

The EPA recommends that the development consent specify the following interim concentration limits for discharge from sediment basins to be revised by the EPA within 12 months of the commencement of operations:

Pollutant	Units of Measure	50 percentile concentration limit	100 percentile concentration limit
Total suspended solids	milligrams per litre		50
Total dissolved solids	milligrams per litre	350	600
pH	pH		6.5 – 8.5
Aluminium (total)	milligrams per litre		0.5
Iron (total)	milligrams per litre		1.5
Manganese	milligrams per litre		2.0

Recommendation 3

The EPA recommends a condition of consent that flocculants used on the site have a LC50 of greater than 100 mg/L.

Water Quality of Post Closure Void

It is noted that the final proposed landform has been changed since the draft Environmental Assessment, to include only one final void with half the volume of this final void to be backfilled (Appendix E, Appendix E, pg 69).

The EA states that a 32.5 metre freeboard will be maintained at the final peak water level, and that the final peak water level will be 5.5 metres below the adjacent creeks so there should be no impact of the final void on surface water quality. However, in relation to groundwater impacts of the final void the EA is contradictory, stating at s8.1 Appendix E, (pg 69) that there will be outflows from the final void from evaporative losses and seepage to the groundwater system, yet s8.2.2.3 Appendix E, Appendix E (pg 73) states that the water level in the void will be less than surrounding groundwater levels effectively creating a sink for groundwater flow (Appendix E, Appendix E, pg 73 and Appendix D, pg 117).

The water depth of the final void is expected to be approximately 30 metres and would generate hydraulic head pressure which may result in local seepage away from the void where this pressure exceeds pressure in surrounding groundwater systems. Given the expected high salinity concentrations in the final void water, should there be any local seepage, this would potentially impact surrounding groundwater quality and uses and may affect surface waters that intercept any affected groundwater systems. The EPA seeks to have this issue clarified and addressed prior to consent being issued.

Recommendation 4

Further assessment should be undertaken to ascertain whether the void water depth is likely to cause local groundwater seepage and whether specific mitigation measures need to be developed and incorporated into post closure mine plans to protect groundwater users and surface waters.

The water quality modelling indicates that salinity concentrations in the final pit will continue to rise indefinitely reaching 35,000 mg/L about 350 years after closure and over 100,000 mg/L after 950 years. The EA states that a hyper-saline lake could become stratified causing anoxic conditions, but indicates detailed management of this should be addressed as part of a mine closure plan (Appendix E, Appendix E, pg 78). However, it is important that further assessment and consideration be given to potential for anoxic conditions to generate local ecotoxicological and amenity issues that will need to be addressed in the mine closure plans.

Recommendation 5

Further assessment and consideration should be given to the hyper-saline final void potentially causing anoxic conditions resulting in longer term ecotoxicological and amenity impacts from the final void, and that such broad management solutions should be investigated while there remains opportunity to amend the final landform.

Waste Rock Emplacement

Waste rock will initially be placed out-of-pit in one of three emplacement areas. Ninety percent of the waste rock volume is estimated to be non-acid forming, with the remaining 10 percent having some acid forming potential (Main EA, pg 141). The emplacement areas are predicted to be pH neutral or slightly alkaline and have low to moderate salinity (Main EA, pg 143). The mine drainage system will be designed to direct runoff from these areas to sediment dams (Appendix E, Appendix E, pg 20). Water captured in the sediment dams will be transferred to the mine water management system for process use, or discharged to nearby creeks.

The EA commits to developing a waste management plan to monitor for acid mine drainage and include measures to minimise the potential for acid mine drainage including mixing of waste materials. Notwithstanding this commitment, Appendix C (pg 34) specifically indicates that the Whaka seam has a higher acid forming potential and recommends that further assessment is required. Given that there is potential for runoff from out-of-pit waste rock emplacement areas to be discharged to creeks through sediment basins, and that sediment basins are generally not designed to treat for acidic material, it would be prudent to undertake further assessment of waste rock associated with the Whaka seam to determine whether specific waste management strategies may be necessary for this material. This issue was raised during the adequacy review and remains outstanding.

Recommendation 6

The EPA recommend that further assessment be undertaken of the acid mine drainage potential of waste rock associated with the Whaka seam prior to issue of consent and separate specific management plans for this material be established if determined to be potentially acid forming material. If this is not undertaken prior to issue of consent the EPA will be recommending that this be undertaken as a condition of consent and must be finalised and appropriate management and mitigation measures developed and adopted prior to commencement of mining operations. The Acid Mine drainage management plan should include contingencies for management of acid forming material should this present a larger issue than first expected.

The EPA notes this Acid Mine Drainage management plan must be prepared and approved prior to issue of an Environment Protection License.

Groundwater

Appendix E, (pg 19) indicates that water in the pits will be pumped into mine water dams for reuse in process and other site demands.

The groundwater chemistry presented in Appendix D, shows quite variable water quality. For example, some groundwater monitoring sites show elevated salinity and/or a relatively high proportion of sodium ions relative to other cations (and therefore high SAR) which may potentially affect soil structure and cause erosion if not carefully managed, and chloride and sodium levels in many of the groundwater samples suggest that moderately tolerant to tolerant plant types may need to be selected for use in rehabilitation to avoid foliar damage during irrigation using this water. Groundwater captured in pits will therefore need to be closely monitored to ensure it is suitable for reuse throughout the site, especially for land application purposes such as irrigation of rehabilitated areas and dust suppression.

Further, groundwater reuse may be a source of potential surface water pollution when used for activities outside the pit catchment areas such as dust suppression along access roads etc if not managed closely. This is particularly important given that no treatment of mine pit water is proposed and sediment basins are not designed to treat elevated salinity and metals.

The proponent has made a commitment to develop a groundwater management plan, with a framework being presented at Appendix J of Appendix D. The framework includes monitoring, but little detail about management actions.

Recommendation 7
The EPA recommends that the Department of Planning and Infrastructure incorporate a condition of consent requiring that specific Groundwater Reuse Procedures be developed as part of the Groundwater Management Plan. The Groundwater Reuse Procedures must be designed to ensure that groundwater used on-site is fit-for-purpose and managed to prevent cumulative impacts on soil and vegetative condition and impacts on water quality in sediment basins.

Surface Water and Groundwater Protection Measures
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 EA proposes that tailings be disposed at Tailings Storage Facilities as thickened slurry. Further information/clarification is required regarding potential impacts on surface water and groundwater due to potential seepage from the TSF's. Further information is also required regarding management of tailings and the proposed measures to protect surface water and groundwater from pollution including further justification of the preferred disposal method and further consideration of best management practice in terms of management and disposal of tailings.

The EA presents conflicting information regarding seepage from TSF's and potential impacts on surface water and groundwater. Page 56 of the EA indicates tailings storage facilities will leak via fractures, page 176 of the EA indicates that tailings leachate will be collected in the pit water system, this goes on to state however that if small quantities of tailings leachate enter the aquifers impacts to groundwater quality will be low. 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.

Recommendation 8

- **The EPA recommends that the proponent further explore the use of best management practice techniques in terms of the disposal of tailings (i.e. production and disposal of solid tailings). The EPA understands belt filter press technology to produce solid tailings is currently proposed at other mine sites in NSW (eg. Shenua Watermark) and should be considered by the proponent. If this is not a feasible option the proponent should justify reasons why this is the case.**

- **Alternatively, if the proponent proposes to still produce and dispose of tailings material as a slurry further information should be provided on the expected quality of water seepage from the Tailings Storage Facilities and further assessment of potential impacts on surface water and groundwater needs to be undertaken as well as identification of measures that will be employed to prevent seepage and impact occurring (such as lining to prevent seepage). This should include identification of contingency measures in case impacts do occur.**

The EA also does not appear to provide detail on whether other 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 identified at adequacy stage.

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.

NOISE

The following issues regarding the Noise Impact Assessment have been identified and should be addressed prior to issue of consent.

The EPA does not agree with the use of a 2.25m/s wind as the wind roses indicate that winds up to 3m/s exceed 30%. The EPA considers that the model should have included winds up to 3m/s, however, the EPA considers that the potential impacts have been assessed by the inversion conditions used in the modelling. The EPA flags its intention to include winds up to 3m/s as conditions under which any noise licence limits would apply.

The EPA notes that the modelled elevations of some plant (particularly the Rail Loadout and the CHPP) vary between years. For example, the Rail Loadout is at 417m in Figure 3.2 (Year 2 Modelled Plant Locations) and is at 410m in Figure 3.3 (Year 8 Modelled Plant Locations). The CHPP is at 402m in Figure 3.3 (Year 8 Modelled Plant Locations) and is at 409m in Figure 3.4 (Year 16 Modelled Plant Locations) then at 410m in Figure 3.5 (Year 20 Modelled Plant Locations). The EPA requires clarification of whether fixed plant such as a Rail Loadout and CHPP would actually increase or decrease in elevation throughout the life of the mine and if not then the model should be amended accordingly and new predicted levels provided.

The EPA also makes the following comments regarding the Noise Impact Assessment:

- The EPA notes that there are some locations identified in the Noise Impact Assessment that the EPA have not and will not provide Licence limits for because the predicted noise levels are above those the EPA would usually Licence to. For these locations the EPA expects Department of Planning and Infrastructure will assign acquisition rights.
- The EPA considers that Table 5.1 of the Noise Impact Assessment should include receiver number 3062 for the exceedances of the $L_{A,(Max)}$ criteria based on the discussion under Table 4.6 which indicates they would be included in discussions regarding noise management.
- The EPA considers that the Noise Management Plan needs to include the mitigation measures discussed in the Noise Impact Assessment for sleep disturbance.
- The EPA notes that truck deliveries are proposed for daytime only, therefore the EPA has recommended a condition that truck deliveries only occur during the day period.
- It appears from the assessment that there is potential for greater than 2dB(A) increase in off site rail traffic noise levels therefore the EPA has included a recommended condition that the premise use only locomotives that have received an 'approval to operate on the NSW rail network'

Recommendation 10

The EPA recommends that the noise conditions provided at Attachment C are incorporated into Department of Planning and Infrastructure's consent.

AIR

Coal mines are significant sources of fine particle emissions in and around NSW communities. Fugitive particulate emissions from coal mines and combustion particulate emissions from off-road vehicles and equipment used at coal mines contribute 60% and 34% of all human-made PM_{10} and $PM_{2.5}$ in the GMR, respectively.

There is no known 'no observed effect level' for fine particulate matter exposure and there are health benefits from reducing ambient concentrations.

The NSW EPA is currently implementing a Pollution Reduction Program (Dust Stop) requiring existing coal mines in NSW to implement Best Management Practice (BMP) to reduce fugitive particle emissions.

The Environmental Assessment (EA) predicts potential for impacts significantly above EPA impact assessment criteria at residences surrounding the mine. The assessment does not include mitigation measures expressed in a form that is quantifiable, measureable, auditable and enforceable for all major emission sources.

Assessment Results
The assessment predicts many exceedances of EPA's air quality impact assessment criteria at both mine owned and privately owned residences.

The assessment predicts a maximum 24-hour PM_{10} concentration of 461 $\mu g/m^3$ at the most adversely impacted mine owned residences. EPA's impact assessment criteria (50 $\mu g/m^3$) is predicted to be exceeded up to 336 days at the single mine owned residence with the greatest number of predicted exceedance days.

The assessment predicts a maximum 24-hour PM_{10} concentration of 62 $\mu g/m^3$ at the most adversely impacted private residence. EPA's impact assessment criteria (50 $\mu g/m^3$) is predicted to be exceeded up to 2 days per year at the single privately owned residence with the greatest number of predicted exceedance days.

Appendix E of the assessment provides tabulated results for all receptors and scenario years. Based on information provided in the EA it is unclear if residences, both mine owned and privately owned, with predicted exposure to ambient particle concentrations greater than EPA's impact assessment criteria will be occupied throughout the life of the project.

The assessment does not include a scenario where additional control measures have been included to ensure no exceedances occur.

Proposed Emission Control Measures
Table 13 of the assessment (reproduced below as Table 1) compares proposed emission control measures for the top four emission sources against best practice. The assessment concludes that the proposed control measures are consistent with best practice.

Table 1 – Comparison of proposed emission controls with best practice

Highest ranked sources of PM emissions	Control method(s) proposed	Practicable best practice measures
Wheel Generated emissions from unpaved roads	Water application (75% control Efficiency) Average vehicle travel speed of haul roads of 40 km/hr	Chemical suppression

	Routine maintenance of haul roads to ensure low silt content within road surface material	
Bulldozing of Coal	Watering of travel route Ceasing/modifying operations during dry, windy conditions	Watering of travel route Ceasing/modifying operations during dry, windy conditions
Loading of Coal	Drop height minimisation Ceasing/modifying operations during dry, windy conditions	Drop height minimisation Ceasing/modifying operations during dry, windy conditions
Wind Erosion of waste and topsoil dumps	Progressive rehabilitation of emplacements	Progressive rehabilitation of emplacements

Table 12 of the assessment (reproduced below as Table 2) provides a summary of all control measures proposed for the project with quantifiable emission reduction factors based on published literature. The identified control efficiencies were incorporated into the project emissions inventory compiled for the air quality modelling assessment.

Table 2 – Emission control measures for the project

Activity	Measure	Control efficiency
Wheel generated emissions form unpaved roads	Water application (75% Control Efficiency) Average vehicle travel speed of haul roads of 40 km/hr	82.5%
Wind erosion of waste rock and topsoil stockpiles	Progressive rehabilitation of emplacements	30% (New Rehabilitation Areas) 90% Established Rehabilitation Areas)
Trucks unloading coal to hopper	3-sided enclosure with a roof and water sprays	85%
Drilling	Drill water sprays	70%
Crushing and screening	Enclosure	70%
Coal stockpiles	Water sprays	50%
Train wagon loading point	Telescopic chute	70%

In addition to the quantifiable emission control measures proposed, the assessment proposes implementation of real time air quality and meteorological monitoring and an associated reactive/proactive air quality control system. It is proposed that daily decisions regarding the need to cease or modify operations due to adverse meteorological conditions or elevated air pollution concentrations will be supported through the application of a reactive/proactive air quality control system. The detailed design and implementation of the propose system has not yet been determined.

EPA's Current position on proposed emission controls

The proponent has not sufficiently addressed EPA's comments from the pre-adequacy review stage. Many of the proposed controls assumed in the assessment do not include sufficient information to enable EPA to draft quantifiable, measureable, auditable and enforceable EPL conditions. The example of wheel generated emissions form unpaved roads is provided in Table 3 below.

Table 3 – Wheel generated emissions form unpaved roads

Information required by EPA	Information provided in EA	Comment
Key performance indicator(s)	82% control (watering and average vehicle speed 40km/hr)	Nominated controls are not auditable or enforceable. Additional information could include watering application rates, frequency and locations, soil moisture content benchmarks and upper limits of silt loading.
Monitoring method	No information provided	No methods proposed. Monitoring should incorporate methods that quantify source control effectiveness. Monitoring results should enable direct comparison with units of measure relevant to each KPI.
Location, frequency and duration of monitoring	No information provided	No implementation details provided. No responsibility allocated. Location, frequency and duration of monitoring should transparent and auditable.
Record keeping	No information provided	No method proposed. No responsibility allocated. Records must be kept up to date and accurate to allow auditing of EPL and management plan conditions.
Response mechanisms	Reactive management plan proposed	No detail on the reactive management plan provided. No responsibility allocated. No definition of adverse weather and elevated air pollution concentrations provided.
Compliance reporting	No information provided	No method proposed. No responsibility allocated. Records must be kept up to date and accurate to allow auditing of EPL and management plan conditions.

Potential dust impact on Siding Springs Observatory

There is a risk that rising dust around the mine will be illuminated by the mines lighting equipment, effectively increasing light influx from the mine.

Recommendation 11

The EPA recommends that the proposed air quality and lighting management plans give consideration to measures to minimise potential impacts on the Siding Spring observatory.

SITE CONTAMINATION

Section 4.4.4 of the EA which relates to SEPP 55 Remediation of Land and more specifically onsite contamination states that no contaminated land is identified within the project site. The EPA has recently become aware that land acquired by the proponent for the proposed mine entails two former piggery sites namely "Danabar" and "Yallambee" piggeries. Both piggeries previously held Environment Protection Licences with the EPA (licence numbers 12527 and 12526 respectively) however these have recently been surrendered.

Both piggery sites should be considered as potentially contaminated until a suitable assessment determines otherwise. The EPA understands the "Danabar" piggery may require decommissioning to make way for one of the proposed pits. It is unclear if "Yallambie" piggery will require decommissioning or ongoing management to ensure any pollutants do not cause impact to the environment.

The proponent must clearly identify the intended future use for both piggeries at "Danabar" and "Yallambee". If either are to be decommissioned they need to have a contaminated site assessment undertaken to identify the type and extent of contaminates to allow for the identification of remedial works, disposal locations, management options etc.

The EPA believe that nutrients will be the key pollutant, however; the proponent needs to consider past site use, history, and other potential contaminates that may be present to clearly assess each site. A contaminated 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.

If either piggery will remain a contaminated site assessment should also be undertaken as outlined above and measures to manage any residual pollutants and/or contaminants should be clearly identified.

The EPA wrote to the proponent on 5 November 2012 advising the proponent of this issue. A copy of the letter is provided as attachment D

Recommendation 12

The EPA recommends that contaminated site assessments 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 prior to consent being issued by Department of Planning and Infrastructure.

If contaminated site assessments are not undertaken prior to consent being issued the EPA recommends the Department of Planning and Infrastructure incorporate a condition of consent requiring that contaminated site assessments 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

Section 17.4.3 indicates that a lighting management plan will be prepared so the project complies with AS 4282- control of obstructive effects of outdoor lighting and AS/NZS 1158- lighting for roads and public spaces. However little information is provided on potential impacts or actual measures that are proposed to mitigate impacts from night lighting.

Recommendation 13

- **The EPA recommends that further assessment be undertaken into the potential impacts of night lighting on surrounding lands as well as Siding Springs observatory which has potential to be impacted by night lighting. This should be undertaken in accordance with the requirements of Warrumbungle Shire Council's Development Control Plan No.1- Shire Lighting Control and other applicable environmental planning instruments.**

- **It is recommended that the proponent engage with the Australian Astronomical Observatory and Siding Springs observatory in development of lighting management measures.**

- **Pending the findings of the assessment referred to above, the EPA recommends that further information be provided on proposed mitigation measures to prevent impacts from night lighting prior to consent being issued to allow impacts to be properly assessed.**

ATTACHMENT C

Recommended Conditions of Consent

WATER

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);***
- **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**
- **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.

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. 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.

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.

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.

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.

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.

ATTACHMENT D

"Yallambie" and "Danabar" Piggeries Letter

NSW EPA

Our reference: DOC12/44739,
Contact: Samantha Wynn, 02 68 835 330

Dr Andrew Krause
Cobbora Holding Company
First Floor, 133-135 King Street
NEWCASTLE NSW 2300

CC: EMM Pty Ltd

Dear Mr Krause,

Thank you for your email dated 17 October 2012, phone conversation on 22 October, and follow up email dated 23 October 2012 to the Environment Protection Authority (EPA) regarding "Danabar" and "Yallambee" Piggeries and the associated relationship of these premises with the Cobbora Holding Company (CHC) Cobbora Mine project located between Dubbo and Dunedoo.

The EPA concurs with the major components of your email record, but wish to add the following comments to confirm the EPAs position for both premises as discussed on 22 October 2012.

The EPA advises that CHC need to clearly inform the EPA of the intended future use for both piggeries at "Danabar" and "Yallambee". If they are to be decommissioned they need to have a contaminated site assessment undertaken to identify the type and extent of contaminates to allow for the identification of remedial works, disposal locations, management options etc.

The EPA believe that nutrients will be the key pollutant, however; CHC need to consider past site use, history, and other potential contaminates that may be present to clearly assess each site. A contaminated 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 EPA recommends that CHC seek specialised assistance – if required – from appropriately qualified consultants regarding the site assessment.

Should you have any further enquiries regarding this matter please contact Samantha Wynn at the Dubbo Office of the EPA by telephoning (02) 6883 5330.

Yours sincerely

5/11/12

BRADLEY TANSWELL
Acting Head Pesticides, Operations and Planning
Environment Protection Authority

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