DOC18/520205-01

Mr Paul Freeman
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

Hume Coal Project – Comments on the Response to Submissions (RTS) Report

I refer to your email of 23 July 2018 to the NSW Environment Protection Authority (EPA) containing the Hume Coal and Berrima Rail Projects' Environmental Impact Statement (EIS) Response to Submissions (RTS) report. The EPA has reviewed the RTS, focusing on Hume Coal's response to the matters raised in our 30 June 2017 advice to the Department of Planning and Environment (DPE) regarding the EIS and provides the following advice:

In relation to impacts on surface and groundwater quality, many of the EIS predictions are ultimately dependent on computer models set up to replicate the mine's water management system. The RTS states that following comments received on the EIS, models for the overall water balance, geochemical and surface water qualities were revised to improve the accuracy of prediction. The revised modelling included uncertainty and sensitivity analysis covering normal operating scenarios as well as divergent conditions. The RTS states that the revised modelling has been confirmed as being suitable for EIS prediction by an independent expert peer reviewer commissioned by DPE.

In general, the RTS provides supplementary information on a range of issues to allow the impacts of the development to be assessed. Many of the impact predictions, however, are ultimately dependent on the computer models set up to replicate the mine's water management system in a complex groundwater environment. In forming this view, the EPA has relied on the independent expert's judgment (appointed by DPE) that the models are fit for purpose and able to represent the mine's operation. The EPA does not have sufficient expertise to validate the veracity of the models used.

To ensure a robust assessment process that is commensurate with the scale and nature of the project and sensitivity of the receiving environment, any residual uncertainty will require careful attention to developing intensive post approval (if given) water monitoring programs to validate predictions and detect any aberration from expected outcomes. Any significant change or likely change to surface or groundwater quality that causes pollution and impairs the environmental values of waters may require clean up action, remediation, pollution reduction programs or compensation for damages resulting from pollution. Potentially uncertain long-term costs and environmental consequences may require the need for contingencies to be secured financially.

The EPA recommends that several matters, as outlined in the attachment to this letter (Attachment A), be addressed to help guide the assessment of this project. These matters could be addressed through

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conditioning or management plans for water, air and noise. Addressing this information will provide a greater assurance that Hume coal has a clear plan for managing the risks associated with the project.

The EPA recommends that any management plans proposed by Hume Coal or required by approval are developed in consultation with the relevant agencies. The EPA also recommends the inclusion of enforceable conditions requiring Hume Coal to implement and operate in accordance with, all endorsed management plans, if approval for the project is granted.

If you would like any further information please do not hesitate to phone the contact officer on (02) 4224 4100.

Yours sincerely

G Howard 14/8/18

GISELLE HOWARD
Regional Director Metropolitan
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Enclosure

Attachment	Title
Page 3	Water Pollution
4	Surface Water Quality
8	Ground Water Quality
9	Waste (Reject) Management
10	Noise
11	Air

Attachment A

Water Pollution

EPA EIS recommendation:
The EPA requested that the proponent undertake more work to fully characterise the concentrations and loads of pollutants in discharges to surface and groundwaters. The EPA stated that licensing of discharges of water may be required that pose a risk of non-trivial harm to human health or the environment.

Comment on RTS:
The RTS states that the site water balance as well as groundwater, geochemical, hydro geochemical and surface water quality modelling has been revised to improve accuracy. The assessment now considers the sources of pollutants listed in the EPA's submission on the EIS. The additional modelling also includes additional sensitivity analysis and has been confirmed as being suitable for EIS prediction (Class 2) by DPE's independent expert peer reviewer.

In relation to surface water discharges, the revised modelling shows that sufficient water storage will be available to "contain all surplus water generated by surface and underground activities without the need to release excess waters to local creeks".

In relation to groundwater, the RTS groundwater quality assessment concludes there will be negligible impacts to groundwater quality (p59). Specifically, the revised hydro geochemical modelling examined the effect of the emplacement of a combination of process water and lime amended reject on groundwater quality. It concluded that groundwater in the emplacement cells will exhibit dissolved metal concentrations lower than or equal to average baseline levels in Wongawilli coal seam. Consequently it states that the beneficial use of the groundwater will not be lowered.

Based on the revised analysis of surface water and groundwater impacts, the RTS concludes that a licence to treat and discharge pollutants is not required for either surface or groundwater.

Recommendation:
The RTS has addressed the EPA's request for additional information in relation to most surface and groundwater issues. The EPA accepts the independent reviewer's conclusion that the models predicting water quality impacts are fit for purpose.

However the EPA considers that a level of residual uncertainty and risk exists by virtue of model assumptions, errors in estimates of inputs, and interactions between complex surface and groundwater systems and their chemistry.

Consequently the EPA recommends that the predicted quality of discharges and actual effects on groundwater should be verified at an early stage of the project through monitoring programs for discharge water quality, groundwater and surface water quality.

Any approval given should be conditional on the proponent preparing a management plan incorporating water quality monitoring and a trigger action response plan to detect and respond to pollution events.

In addition, the EPA recommends that the following two performance criteria for surface and groundwater quality protection be adopted in any approval.

There must be no discharge of water from the primary water dam (PWD) to local creeks.

There must be no statistically significant change in the beneficial use category of groundwater (from background levels) further than 40 m downgradient of cells used for emplacement of coal reject and wastewater.

More detail is provided in the following sections on surface water quality and groundwater.

Surface Water Quality

Construction stage surface water discharges

EPA EIS recommendation: The EPA requested characterisation of loads and concentrations of pollutants and impacts in relation to the ANZECC 2000 National Water Quality Guidelines.

Comment on RTS:
The *Revised Surface Water Assessment* does not assess the potential impact of construction stage discharges.

The RTS states "...the potential impacts and associated water quality management measures are dependent on the construction methods and staging, which would be determined at the detailed design phase of the project. Water quality modelling will be undertaken at the detailed design stage to estimate expected pollutant concentrations and loads, to size management measures, to demonstrate that management measures meet the Blue Book criteria, and to set discharge criteria for key pollutants."

Recommendation:

A recommended condition of consent (CoC) 1 below addresses this issue.

SB03 and SB04 – First flush system, controlled discharges and bypasses

Bypasses

EPA EIS recommendation:
The EPA requested clarification on how the first flush from SB03 and SB04 catchments will be managed.

Comment on RTS:
The RTS indicates that SB03 and SB04 will capture the first flush of runoff, after which runoff will bypass the basins and discharge to Oldbury Creek. Details of mitigation measures and an assessment of the potential impact of these bypasses are required to ensure risks to waters will be appropriately managed. Monitoring of bypasses will be required to ensure these do not pose risks to receiving waters

Recommendation:
These issues are addressed by recommended CoC's 2d, 4a and 5 below.

Controlled discharges

Comment on RTS:

The *Revised Water Assessment* states "Releases from SB03 and SB04 to Oldbury Creek will only be made after the first flush to these dams is pumped to the PWD and water quality release limit criteria are satisfied". Given the water balance modelling indicates the PWD will have capacity to receive all runoff captured in SB03 and SB04. Consistent with EPA policy, given there are practical measures available to avoid discharges, it is recommended that there be no controlled discharges from SB03 or SB04.

If controlled discharges from SB03 and SB04 are proposed, then a characterisation and impact assessment is required. The *Revised Water Assessment* considers the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* Neutral or Beneficial Effect assessment requirements, but does not consider the potential impact of the discharge on the environmental values of the receiving waterways with reference to the relevant ANZECC (2000) trigger values.

It is noted that the *Revised Water Assessment* compares average coal leachate concentrations with average concentrations in Oldbury Creek, selecting pollutants which were higher in the leachate for further assessment. This approach does not consider the ANZECC (2000) trigger values and could potentially exclude some pollutants present at non-trivial levels from the assessment.

Monitoring of controlled discharges would also be required.

Recommendation:

It is recommended that CoC 6 below is adopted to prohibit controlled discharges. If this condition is not adopted, then requirements for a discharge impact assessment are addressed by CoC 5. The requirement for monitoring of controlled discharges is addressed by CoC 4a.

Site specific trigger values

EPA EIS recommendation:
If site specific trigger values are adopted to assess potential impacts of discharges then, consistent with ANZECC (2000), these should be derived based on data from 24 contiguous monthly samples from an appropriate reference site/s. Slightly disturbed reference sites must be used to derive site specific trigger values for a waterway with a slightly to moderately disturbed protection level. Medway Rivulet and Oldbury Creek are moderately disturbed agricultural streams with urban diffuse source and point source inputs and are not appropriate reference sites. SWQ06, located in Belanglo State Forest, would provide an appropriate reference site as it is likely to be representative of a slightly disturbed stream

Comment on RTS:
Not specifically addressed

Recommendation:
Recommended CoC's 1 and 5 below address this issue

Mine water storage liners

Comment on RTS:

The RtS states: "The PWD will be lined up to the normal water storage level to prevent seepage... Other mine water dams that will contain water in contact with coal will be lined up to the normal storage levels to prevent seepage." Liner specifications for contaminated water and tailings storage facilities are not detailed.

Recommendation:

Recommended CoC 7 below addresses this issue.

Monitoring sites on Wells Creek and Medway Rivulet downstream of the project boundary

Comment on RTS:

The RtS does not address the EPA's request for monitoring sites on Wells Creek and Medway Rivulet downstream of the project boundary to be included in the surface water monitoring program.

Recommendation:

Recommended CoC 4b below addresses this issue.

Sewage Effluent management

Comment on RTS:
The approach to effluent management proposed in the *Concept On-site Wastewater Management* report appears broadly appropriate. Prior to commencement of effluent reuse, a finalised effluent management plan will be required to ensure potential risks to waters are appropriately managed.

Recommendation:
Recommended CoC 3 below addresses this issue.

Management plans

Comment on RTS:
If approved, several issues will need to be addressed in relevant management plans, including details of management, monitoring, triggers and responses related to potential risks to waters.

Recommended CoC 2 below.

Recommended Conditions of Consent for Surface Water Management

The EPA recommends that DPE consider the following conditions for the project:

1. *Prior to commencement of construction, a suitably qualified and experienced person must prepare a construction stage discharge impact assessment. This assessment must, at a minimum:*
    a. *characterise construction stage discharges in terms of the expected concentrations and loads of all pollutants that may be introduced into the water cycle by source and discharge point, including residual discharges after mitigation measures are implemented;*
    b. *assess the significance of any identified impacts including considering the relevant ambient water quality outcomes consistent with the practices and principles of the ANZECC (2000) Guidelines and relevant trigger values;*
    c. *demonstrate how the proposal will be designed and operated to:*
        i. *protect the NSW Water Quality Objectives for receiving waters where they are currently being achieved;*
        ii. *contribute to achieving the NSW Water Quality Objectives over time where they are not being achieved;*
    d. *identify additional or alternative treatment measures if non-trivial risks to waters are identified;*
    e. *propose discharge criteria for key pollutants.*

    The ANZECC (2000) trigger values must be adopted when assessing potential risks to aquatic ecological health, including relevant physical and chemical stressors and interim working levels (where no moderate or high reliability trigger value is available). Alternatively, site specific trigger values can be developed consistent with ANZECC (2000) based on 24 contiguous monthly samples from an appropriate (i.e. slightly disturbed) reference site(s).

2. *Prior to commencement of construction, the following information must be included in relevant management plans:*
    a. *Details of management, monitoring, triggers, and responses related to potential risks to waters, including immediate management responses to monitoring results when a pollutant concentration is at acutely toxic levels and clarification regarding responses that apply if the pH is below the lower trigger value.*
    b. *Details of appropriate management and disposal of sediment collected in water storages and sediment basins to ensure adequate capacity and treatment performance is maintained.*
    c. *Details how mine water reuse will be managed to minimise the risk of water pollution.*
    d. *Details of measures that will be implemented to mitigate potential risks to waters from bypasses of SB03 and SB04.*
    e. *Details of any wheel wash wastewater management.*

3. *Prior to commencement of construction, a suitably qualified person must prepare an effluent management plan. Reuse of effluent by irrigation must be consistent with the practices and principles of the Environmental Guidelines, Use of Effluent by Irrigation (DEC 2004). The effluent management plan must include, at a minimum:*
    a. *a characterisation of the treated effluent in terms of expected pollutant concentrations and loads;*
    b. *the volume of effluent to be reused;*

c. *the locations and characteristics of reuse areas;*
d. *details of wet-weather storage and irrigation scheduling;*
e. *an assessment of the sustainability of effluent reuse.*

4. *Prior to commencement of construction, the Applicant must prepare a surface water monitoring plan that includes:*
   a. *parameters that will be monitored before and during any discharges from and bypasses of SB03 and SB04, subject to the results of the operational discharge impact assessment;*
   b. *monitoring sites on Wells Creek and Medway Rivulet downstream of the project boundary and which has been agreed to by the EPA.*

5. *Prior to commencement of operations, a suitably qualified person must prepare an operation stage discharge impact assessment. This assessment must, at a minimum:*
   a. *characterise operation stage discharges in terms of the expected concentrations and loads of all pollutants that may be introduced into the water cycle by source and discharge point, including residual discharges after mitigation measures are implemented;*
   b. *assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes consistent with the practices and principles of the ANZECC (2000) Guidelines and relevant trigger values;*
   c. *demonstrate how the proposal will be designed and operated to:*
      i. *protect the Water Quality Objectives for receiving waters where they are currently being achieved;*
      ii. *contribute towards achievement of the Water Quality Objectives over time where they are not being achieved;*
   d. *identify additional or alternative treatment measures if non-trivial risks to waters are identified;*
   e. *propose discharge criteria for key pollutants.*

   The ANZECC (2000) trigger values must be adopted when assessing potential risks to aquatic ecological health, including relevant physical and chemical stressors and interim working levels (where no moderate or high reliability trigger value is available). Alternatively, site specific trigger values can be developed consistent with ANZECC (2000) based on 24 contiguous monthly samples from an appropriate (i.e. slightly disturbed) reference site(s).

6. *There must be no controlled discharges from SB03 and SB04 during the operation stage. This condition can be reviewed after an initial period of operation subject to monitoring results.*

7. *All contaminated water storages and tailings storage facilities must have a constructed clay liner of at least 1,000 mm with a hydraulic conductivity of 1 x 10-9 m/s or less or a geosynthetic liner providing equivalent or better protection. Liner systems must be designed, constructed and operated to prevent pollution of surface water and groundwater from seepage of contaminants through the base and side walls.*

8. *For the Berrima Rail project, prior to commencement of construction, the Applicant must prepare a Soil and Water Management Plan. The plan must:*
   a. *detail construction and operation stage stormwater management consistent with Managing Urban Stormwater, Soils and Construction (Landcom, 2004) and Managing Urban Stormwater, Soils and Construction, Volume 2A Installation of Services (DECC, 2008);*
   b. *include specific measures to manage the increased erosion risk from the sodic soils*

Groundwater Quality

Groundwater Monitoring

EPA EIS recommendation:

As any proposal based on modelling necessarily has inherent uncertainties, the EPA recommended that the proponent develop targeted monitoring and complementary contingency management options to reduce risk levels.

Comment on RTS:

The RTS has not addressed the EPA's EIS recommendation.

Contingency management options, have not been detailed in the RTS if any adverse impacts to groundwater occur as a result of wastewater or coal reject emplacement.

Recommendation:

The EPA recommends that any approval be conditional upon the proponent developing a Water Monitoring Plan in consultation with relevant government agencies. The monitoring plan should contain:

- *a statistical based monitoring program capable of detecting groundwater quality changes above those predicted in the EIS/RTS, and*
- *a Trigger Action Response Plan to detect and respond to any significant changes detected in groundwater quality*

Temporary CPP Surface Reject and Lining

EPA EIS recommendation:

Shallow groundwater monitoring should be proposed to monitor any downgradient seepage that could occur from the temporary surface CPP rejects.

Comment on RTS:

The RTS has addressed the EPA's EIS recommendation on pages 261-262

Recommendation:

The EPA recommends that approval be conditional on requiring Hume Coal to produce a Water Monitoring Plan that includes the installation of shallow groundwater monitoring bores downgradient of potential seepage points at the pit top.

EPA EIS recommendation:

The EPA recommended the proponent demonstrate that proposed barriers are sufficient to prevent pollution to shallow groundwater from the temporary surface emplacement of CPP reject and Process Water Dam.

Comment on RTS:

Although considered, the RTS has not addressed the EPA's EIS recommendation (P116). The RTS notes that the Process Water Dam will be lined, however no other details have been provided.

It is unknown what liner material will be used as a barrier to prevent seepage entering shallow groundwater systems.

Recommendation:

It is recommended that approval be conditional on contaminated water storages to be lined to meet current NSW EPA requirements as listed above.

Waste (Reject) Management

EPA EIS recommendation:
The EPA requested that contingencies would need to be considered if underground emplacement were not viable.

Comment on RTS:
The EPA could not find a specific response to this comment. However the RTS does state that further consideration of beneficial use of coal wash in civil engineering applications could be considered in the future subject to economic and environmental feasibility assessment.

Recommendation:
It is recommended that if not implicit in any Approval given for the project, that active mining be conditional on underground emplacement of reject in accordance with the proposal. i.e. no surface emplacement will be allowed in the project area.

Noise

Rail Link Alignment & Rail Curve Noise

EPA EIS recommendation:
The EPA requested that the proponent consider further mitigation measures to manage curve noise, bunching noise and rail noise on the rail link and loading loop.

Comment on RTS:
The Response to Submissions (RTS) discuses additional rail noise mitigation measures but does not specify which measures will be adopted for the project.

Recommendation:

The EPA recommends that any approval for the project be conditional upon:

The proponent's use of locomotives that have been approved to operate on the NSW rail network by meeting noise limits in the ARTC's Environment Protection Licence number 3142.

All feasible mitigation measures proposed for the colliery and rail loop be implemented

The proponent undertakes a study of additional reasonable and feasible rail noise mitigation measures during the detailed design stage prior to commencement of construction.

Low Frequency Noise and Construction Noise

EPA EIS recommendation:
The EPA recommended that the proponent provide an assessment of operational noise which includes a 5dB modifying factor adjustment if the mine noise Lceq is predicted to be 15dB or greater than the Laeq.

Comment on RTS:
The Response to Submissions (RTS) addresses the EPA's EIS recommendation.

Recommendation:

Based on the EPA's experience of noise from collieries, it is recommended that the proponent add a contingency in its budget to allow for additional acquisition of private dwellings above and beyond those proposed in the NIA and Response to Submissions document.

The EPA recommends consideration of a conceptual buffer zone around pit top operations at the colliery. This could result in the minimising or elimination of noise complaints from future colliery operations. The buffer zone would need to be established with consideration of all proposed feasible and reasonable noise mitigation measures for the proposed colliery and with consideration of VLAMP.

The EPA recommends that a construction noise and vibration management plan (CNVMP) be prepared by the proponent if the colliery is approved. The CNVMP should include the following key elements:

1. *should be prepared in accordance with the EPA's Interim Construction Noise Guideline (ICNG);*
2. *establish construction management noise levels;*
3. *provide a cumulative assessment of concurrent construction noise impacts from all phases of work as depicted in Figure 1 of the Hume Coal Project Independent Noise Advice;*
4. *provide a schedule of noise monitoring;*
5. *provide a plan for responding to noise complaints and noise exceedances;*
6. *provide a plan for stakeholder engagement and negotiation of respite periods in accordance with ICNG;*
7. *assess and recommend reasonable and feasible noise mitigation measures; and*
8. *monitor the effectiveness of the noise mitigation measures.*

Air

Data Analysis

EPA EIS recommendation:
The EPA requested that the proponent clarify how the results from the two data sets (Hume and BOM sites) were incorporated into the cumulative 24-hour average PM10 and PM2.5 assessments.

Comment on RTS:
The RTS satisfactorily explains the method used on pages 357-358 of Volume 1.

Recommendation:
The EPA recommends that DPE consider the following conditions of approval for the project:

Air Quality Management Plan

1. *For all emission sources at the site the proponent must prepare an air quality management plan that includes, but is not limited to:*
   - *Site specific benchmarking of emission controls with best management practice;*
   - *Key performance indicator(s);*
   - *Monitoring method(s);*
   - *Location, frequency and duration of monitoring;*
   - *Record keeping;*
   - *Response mechanisms; and*
   - *Compliance reporting.*
2. *The air quality management plan must be implemented prior to the commencement of any dust generating activities associated with the project.*

Dust

3. *All operations and activities occurring at the premises must be carried out in a manner that prevents and minimises the emission of air pollutants from the premises.*
4. *The premises must be maintained in a manner that prevents and minimises the emission of air pollutants.*
5. *Water sprays must be used on the ROM and product stockpiles to prevent and minimise particulate emissions.*
6. *Product stockpiles must be aligned to minimise erodible surface area during peak wind events.*
7. *Conveyor transfer points must be fully enclosed.*
8. *Water sprays must be used at ROM conveyor transfer station and tertiary sizing station.*
9. *Wind shielding (either a side wall wind break or side wall and roof) must be installed on all conveyors with the exception of the product stockpile stacking and reclaim conveyors.*
10. *Variable height stacker with boom tip sprays must be used when stacking coal.*
11. *Bulldozers must not operate at the stockpiles.*
12. *Wind guards must be fitted to stockpile stackers.*
13. *Sizing, screening and coal preparation operations must be enclosed, with water sprays.*
14. *Water sprays must be used on unsealed roads.*
15. *Water sprays must be used during product handling, storage and material transfer.*
16. *Rail wagons (both full and empty) must be covered at all times.*