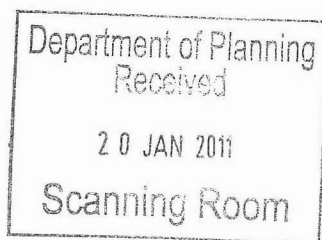




PCU018721

Naomi Nelson
Mining
Department of Planning
GPO Box 39
SYDNEY NSW 2001

File: DA 211_93Bengalla Mine Development Consent
Modification Letter.doc



Your Ref: 10/13705
Our Ref: A491830

Dear Ms Nelson

Subject: Bengalla Coal Mine Modification (DA No. 211/93)

The Hunter-Central Rivers Catchment Management Authority (CMA) has reviewed the information provided and offers the following comments for your consideration. The comments are provided in the context of the impact of the project on the Hunter-Central Rivers Catchment Action Plan (CAP) which is available on the CMA's website <http://www.hcr.cma.nsw.gov.au>

Hunter-Central Rivers CAP

The Hunter-Central Rivers CAP is a whole-of government approach to natural resource management which has been endorsed by the NSW Government. As such it should be taken into consideration in all planning decisions that have an impact on natural resources.

Native Vegetation

The CAP guiding principle, "Where practical, future development (e.g. residential, industrial) should be restricted to primarily cleared land. Where loss of vegetation is unavoidable, native vegetation offsets should be used", is strongly underpinned by the objects of the Native Vegetation Act, 2003, which includes prevention of "broad-scale clearing unless it improves or maintains environmental outcomes"

It is acknowledged that this proposal is being assessed under Part 3A of the Environmental Planning and Assessment Act, 1979 and that the Native Vegetation Act 2003 does not apply in this circumstance. Nevertheless, the CMA considers that the principles of the CAP and the Act should still apply.

The information provided regarding the native vegetation assessment of the Western Overburden Emplacement Area does not include an assessment of native groundcover. A native groundcover assessment is a vital component in the determination of the condition of the native vegetation. The CMA requests that a ground cover assessment be undertaken and to determine the condition of the native vegetation. If the area has greater than fifty percent native groundcover (NVA Section 20) under the assessment criteria (NVA regulation clause 42) an offset is appropriate for the removal of native vegetation for the Western Overburden Emplacement Area. The Southern Overburden Emplacement Area does not require an offset based on the data presented in the report.

The on ground native vegetation assessment included an investigation for the presence of *Prassophyllum* sp. *Wybong*. Please note this plant flowers in spring hence the targeted survey in March is highly unlikely to identify this plant.

You should be aware that there is a possibility of the presence of white box yellow box Blakely's Redgum Woodland under the NSW Threatened Species Act and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 please utilise the following <http://www.environment.nsw.gov.au/resources/native/box-gumldGuidelines.pdf> for the identification and categorisation purposes. The presence of a derived native grassland as classified under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 will need to be investigated.

Offsets

The CMA's position is that the Environmental Outcomes Assessment Methodology (EOAM) used in assessing native vegetation clearing under the *Native Vegetation Act, 2003* or BioBanking should be used to determine offsets to achieve "improve or maintain".

If the proposed Western Overburden area is found to be above low condition, the CMA strongly recommends that the offset strategy is consistent with DECCW's "*Principles for the use of biodiversity offsets in NSW*", including;

- *Offsetting requires additional management or increased security. Factors to consider include removal of threats, time-lag effects, and the uncertainties and risks associated with actions such as revegetation. Offsets should be agreed prior to the impact occurring.*
- *Offsetting should only proceed if an appropriate legal mechanism or instrument is used to permanently secure the area and required actions.*
- *Offsets should be based on quantitative assessment of the loss in biodiversity from the clearing or other development and the gain in biodiversity from the offset. The methodology must be based on the best available science, be reliable and used for calculating both the loss from the development and the gain from the offset.*

Riparian Health and Groundwater

The CMA supports comments from the NSW Office of Water regarding potential impact of the extension has on alluvial aquifer on the floodplain terraces.

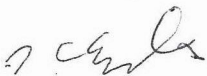
The proposal is not consistent with CMA guiding principles for mining and extractive operations to provide adequate buffers between mining activities and surface/alluvial aquifers, rivers and freshwater wetlands under the Hunter-Central Rivers CAP.

Several CAP guiding principles apply to this component including;

- "all activities within groundwater areas should ensure the long-term sustainability of the ecosystems supported by groundwater"
- "The end mining landform, particularly its stability and ability to intercept water (runoff and groundwater) should take into account in the development, and progressive implementation of coal mining post closure management plans and site rehabilitation programs for saline groundwater and surface water, including derelict mine sites"
- Adequate buffers should be maintained between mining activities and adjacent surface water/alluvial aquifers. The CMA recognises the legislative framework under which mining operations function but also promotes the implementation of controls that go beyond those legislative requirements".

If you require any further information please do not hesitate to contact Steve Eccles on 6542 4444.

Yours sincerely

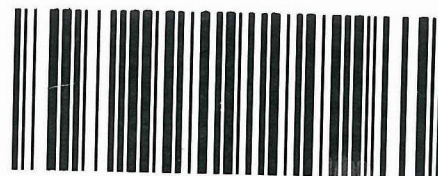


Steve Eccles
A/Catchment Coordinator, Upper Hunter
For Glenn Lyons
A/ General Manager

17/01/11



**Environment,
Climate Change
& Water**



PCU018557

Your reference: 10/13705; DA 211/93
Our reference: PART 4 DOC1056010;
LIC07/2079-03
Contact: Bill George, 49 086821

NSW Department of Planning
Mining and Industry Projects
GPO Box 39
SYDNEY NSW 2001

Attention: Belinda Parker

12 JAN 2011



Dear Ms Parker

PROPOSED MODIFICATION – BENGALLA COAL MINE (DA 211/93 MOD 4)

I refer to your letter dated 7 December 2010 to the Department of Environment, Climate Change and Water (DECCW) requesting a review of the adequacy of the document "*Bengalla Mine Company Development Consent Modification Environmental assessment*" prepared by Hansen Bailey and dated December 2010 ("the EA") and requesting that DECCW comment on the proposal and include any recommended conditions of approval.

DECCW understands that proposed modifications to the existing approval relates to:

- Increasing the extraction rate of mining operations in the Wantana Extension Area;
- Increasing the footprint of the existing waste dump; and
- Using an area to the west of the mine for the temporary storage of overburden

DECCW also understands that mining operations will continue to be undertaken at the currently approved production rate, approved mining methods, utilising the existing vehicle fleet and no change to the hours of operation at the mine.

DECCW has completed an assessment of the EA and comments arising from this review are provided below. While DECCW has no objection to the proposal, and no specific recommended conditions of approval in relation to air and noise impacts, DECCW is unable to provide advice regarding impacts to Aboriginal cultural heritage until a revised Aboriginal cultural heritage assessment is completed.

THREATENED SPECIES

DECCW has reviewed the EA, including the *Flora and Fauna Impact Assessment* ('the Report') and notes that the EA did not identify any threatened species, populations, communities, or threatened species habitat in either the Southern Overburden Emplacement Area (OEA) or the Western OEA. The Pine Donkey Orchid (*Diuris tricolor*) is a threatened species and plants in the Muswellbrook local government area also comprise an Endangered Population. In the Muswellbrook area this orchid is known to occur in derived grassland with both native and exotic species. DECCW considers that the Western OEA could include suitable habitat for this species. When the Western OEA was surveyed on 19th March 2010 plants of this species would either have still been dormant or had a few

non-descript grass-like leaves present – flowers are needed to identify this species. Therefore the Pine Donkey Orchid would have scarcely been detectable, let alone identifiable, during the ecological fieldwork for this proposal and its presence on the site has not been fully identified.

DECCW recommends that the proponent conducts targeted surveys for the Pine Donkey orchid (*Diuris tricolor*) sometime between 19 September and 17 October 2011 (the exact timing of flowering is based on the weather conditions of the preceding weeks; and the flowering of known *Diuris tricolor* plants in the Muswellbrook LGA may also be used as a guide) on the Western OEA to determine if this species is present on the site. If present, DECCW recommends that the proponent implements adaptive management to ensure that any *Diuris tricolor* plants are not impacted by the project.

AIR QUALITY IMPACTS

The Air Quality Impact Assessment (AQIA) provided with the EA has been reviewed and compared to the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, August 2005* (Approved Methods). The AQIA assessment generally follows the requirements of the Approved Methods. A detailed discussion of issues with the AQIA identified by DECCW is provided at **Attachment B**.

DECCW has identified that emissions from wheel generated dust and wind erosion may have been under-estimated in the AQIA. However, DECCW agrees with the conclusion that there would be a reduction in impacts on the surrounding air environment due to the modification as consistent approaches to assessment were used for both assessments.

NOISE IMPACTS

DECCW has reviewed the Acoustic Impact Assessment (AIA) prepared by Bridges Acoustics, dated 27 July 2010 and recommends that the Department of Planning consider the following advice when determining the project application:

- The proponent should justify that the predicted noise levels in Table 5 represents the best achievable noise levels after the application of all feasible and reasonable noise mitigation measures;
- Subject to the proponent satisfactorily demonstrating that all feasible and reasonable noise mitigation measures have been implemented, the predicted noise levels in Table 5 of the AIA do not exceed levels that DECCW would normally consider licensing to, and therefore DECCW raises no objection on consent limits being amended in line with the predicted noise levels in Table 5;
- Any approval by Planning, if issued, should include a condition which specifies that the increased noise limits only apply while modified emplacement practices are occurring. The proponent should be required to nominate a date after which the increased noise limits would not apply, and noise limits would revert back to limits currently applied in the existing consent; and
- Any approval by Planning, if issued, should include a condition which specifies that receivers likely to qualify for 'Additional noise mitigation measures' be advised of this fact by the proponent, so that noise monitoring can be undertaken to confirm noise impacts, and initiate the offer, where applicable.

ABORIGINAL CULTURAL HERITAGE

DECCW has reviewed the EA and notes that the proponent has relied upon an Aboriginal cultural heritage impact assessment completed in 1992. Given that significant changes in landform can occur over time DECCW is of the opinion that a revised assessment is necessary, incorporating new/additional survey information and which makes reference to recent changes to the *National Parks and Wildlife Act 1974* (the NPW Act). The revised assessment should reflect the best practice standards recommended by DECCW in the "Code of Practice for Archaeological Investigations of Objects in New South Wales" (DECCW, 2010).

Further, while DECCW acknowledges that the current Bengalla Community Consultative Committee specifically formed for the Bengalla project – this committee does not represent all Aboriginal groups in the area. The proponent should undertake additional consultation with the local Aboriginal community in accordance with DECCW's "*Aboriginal Cultural Heritage Consultation Requirements for Proponents*" (DECCW, 2010).

Until a revised Aboriginal heritage impact assessment is provided, DECCW is unable to provide specific recommended conditions of approval for this project.

The proponent should also be advised that as the Bengalla consent was issued under Part 4 of the *Environmental Planning and Assessment Act 1979*, separate application for a permit under s90 of the NPW Act will be required if any impacts to Aboriginal heritage are likely to occur as a result of this project proceeding. Similarly, the proponent should liaise with the Hunter-Central Rivers Catchment Management Authority regarding any approvals required under the *Native Vegetation Act 2003* for the clearing of native vegetation as a result of this project.

If you require any further information on this matter please contact Bill George on (02) 4908 6821.

Yours sincerely



KAREN MARLER
Head Regional Operations Unit – Hunter Region
Environment Protection and Regulation

Enclosure: Attachment A – Air quality impact assessment review comments

Attachment A: Air quality impact assessment review comments

The AQIA submitted has been reviewed and compared to the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, August 2005

The AQIA assessment generally follows the requirements of DECCW's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods)*.

It is also noted that the AQIA assessment shows that there is a reduction in impacts on the surrounding environment due to the modification. This is considered to be a reliable assessment, considering that even though incorrect methodologies were used to assess the impacts, the methodology used to assess the impacts are consistent between assessments.

A summary of issues identified with the AQIA are presented below.

Issues with the AQIA

- **Emission estimates of wind erosion sources have been reduced due to estimated annual rainfall**

Emission estimates of wind erosion from exposed areas such as overburden dumps and coal stockpiles have been corrected to account for the number of rain days in a year. This approach is acceptable for assessing annual average impacts and for environmental reporting on an annual basis. However, this approach is not acceptable when assessing short term impacts such as 24 hour maximum concentrations of PM₁₀.

The air quality model, when run over a typical year, processes emissions data and meteorological data on an hourly basis to predict ground level concentrations that are also on an hourly basis. When determining impacts from coal mines the results are presented as annual averages and 24 hour maximum predicted concentrations. The maximum predicted concentration could occur during a day where there is no rain. By reducing emissions on an annual basis due to the number of rain days reduces the emissions that occurred on the worst case day. Therefore, there is the potential to under predict short term impacts by correcting emissions due to the number of rain days.

Rain days could be incorporated into the assessment to predict maximum short term impacts, if hourly contemporaneous rain data was used in conjunction with meteorological data used for dispersion in the model. However, a justification would need to be made that the meteorological data set used was representative of the worst case year (in terms of predicting air quality impacts). DECCW has performed an analysis of estimated emissions presented in the AQIA to determine the sensitivity of the assessment to this approach. Estimated emissions from wind erosion sources with a rain correction factor are compared to estimated emissions from these sources without a rain correction factor in Table 1. The difference in estimated emission is an additional 30% in emission load.

Table 1: Comparison of estimated emissions from wind erosion sources with and without a rain correction factor

Source	TSP Emissions With Rain Correction Factor (As Modelled) (kg/year)	TSP Emissions Without Rain Correction Factor (kg/year)
WE - OB - spoil areas (all approved + SOEA)	1,464,692	1,916,174
WE - OB spoil areas (WOEA)	159,026	208,044
WE - open pit	1,104,182	1,444,540
WE - ROM stockpiles	7,281	9,526
WE - Product stockpiles	57,034	74,615
TOTAL	2,792,216	3,652,899

However, as the majority of emissions from the proposed project are from other sources (such as haul roads and loading operations), the difference in estimated emissions for the facility is less significant and results in a potential underestimation of impacts of 11% as shown in Table 2.

Table 2: Comparison of estimated project emissions with and without rain correction factors for wind erosion sources

Total Project TSP Emissions With Rain Correction Factor for Wind Erosion (kg/year)	Total Project TSP Emissions Without Rain Correction Factor for Wind Erosion (kg/year)	Difference
7,716,000	8,577,000	11%

Another issue with the treatment of rain correction factors in the AQIA is that they are inconsistently applied to sources. For example emissions from wind erosion are corrected to account for annual rainfall, whereas, emissions from loading and unloading operations are not. Emissions from wheel generated dust are estimated using a “controlled” emission factor of 1 kg/km. It is not clear whether a rain correction factor is incorporated into this emission factor as a reference source is not supplied for this emission factor.

- **Emission estimates of wheel generated dust emissions are not based on a referenced emission estimation technique.**

Wheel generated dust emissions are estimated using a constant emission factor of 1 kg TSP/km. This is reported to be representative of wheel generated dust from haul roads that have controls applied to them that reduce emissions by 75%. Therefore, the uncontrolled emission factor was assumed to be 4 kg TSP/km across the facility. Review of the *NPI EET Manual for Mining v2.3* (Environment Australia, 2003) shows that the default uncontrolled emission factor for TSP for wheel generated dust is approximately 4 kg/km (3.88 kg/km). This corresponds to the emission factor used in the AQIA. However, the default emission factor presented in the *NPI EET Manual for Mining* was derived using a default silt content of 10% and an average vehicle weight of 48 tonnes and a default moisture content of 2% using an outdated USEPA AP-42 equation as follows:

$$EF_{TSP} = \frac{2.82 \times \left(\frac{s}{12}\right)^{0.8} \times \left(\frac{W}{3}\right)^{0.5}}{\left(\frac{M}{0.2}\right)^{0.4}}$$

EF_{TSP}	=	TSP emission factor from wheel generated dust	(kg/km)
s	=	Silt content of road surface	(%)
W	=	Average weight of vehicles travelling on the haul road	(tonnes/vehicle)
M	=	Moisture content of the road surface	(%)

The USEPA AP-42 equation was updated in 2006 and is as follows (in metric units):

$$EF_{TSP} = 0.2819 \times \left(4.9 \times \left(\frac{s}{12}\right)^{0.7} \times \left(\frac{(W \times 1.1023)}{3}\right)^{0.45} \right)$$

EF_{TSP}	=	TSP emission factor from wheel generated dust	(kg/km)
s	=	Silt content of road surface	(%)
W	=	Average weight of vehicles travelling on the haul road	(tonnes/vehicle)

The key issue with the default uncontrolled emission factor is that it is based on an average vehicle weight of 48 tonnes. Information presented in the AQIA show that there are two types of mining trucks used at the mine, one with a carrying capacity of 218 tonnes and another with a carrying capacity of 135 tonnes. ATASU has reviewed mining equipment databases and found mining trucks that closely match these specifications (i.e. CAT 793 and CAT 785). The estimated average weight of trucks and associated controlled emission factors using the most up to date emission estimation technique is presented in Table 3.

Table 3: Revised Emission Factors for Wheel Generated Dust for the Proposed Mine Site

Haul Route	Vehicle Type	Carrying Capacity (tonnes)	Estimated Tare Weight (tonnes)	Estimated Average Weight (tonnes)	Control Efficiency (%)	TSP Emission Factor (kg/km)
OB - Hauling to emplace at Wantana extension	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at north emplacement	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at south emplacement	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at WOEA	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at SOEA (Option 1)	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at SOEA (Option 2)	CAT 793	218	165.7	274.7	75	2.15
OB - Hauling to emplace at SOEA (Option 3)	CAT 793	218	165.7	274.7	75	2.15
CL - Hauling ROM coal to dump hopper	CAT 785	136	113.5	181.5	75	1.78
CL - transporting rejects	CAT 785	136	113.5	181.5	75	1.78

DECCW has reviewed the emission inventory presented in the AQIA and compared total project emissions as modelled versus estimated emissions with revised emission factors for wheel generated dust. The comparisons between estimated emissions are shown in Table 4.

Table 4: Comparison of estimated project emissions as modelled versus estimated emissions using the revised technique for wheel generated dust

Total Project TSP Emissions (As Modelled) (kg/year)	Total Project TSP Emissions With Revised Wheel Generated Dust Emissions (kg/year)	Difference
7,716,000	9,874,088	28%

The impact of using an out-dated emission estimation technique for wheel generated dust has potentially led to an under estimation of emissions of approximately 28%. Combined with the error in accounting for rain days for wind erosion, there is a potential under estimation of emissions of 39% (on a daily level) in the AQIA.

Considering these factors the impact over 24 hours could be 39% greater (assuming a one to one ratio between emissions and predicted impacts). It is noted that further reductions to estimated emissions that may be possible due to speed limits on haul trucks have not been taken into account in this assessment as this information is not presented in the AQIA.

It is also noted that the AQIA assessment shows that there is a reduction in impacts on the surrounding environment due to the modification. This is considered to be a reliable assessment, considering that even though incorrect methodologies were used to assess the impacts, the methodology used to assess the impacts are consistent between the assessments.



OUT11/883
21 January 2011

Mr Howard Reed
Manager Mining and Industry Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Belinda Parker

Dear Mr Reed

**Bengalla Coal Mine (DA 211/93 MOD4)
Section 75W Modification**

I refer to your letter dated 7 December 2010 regarding Bengalla Mining Company Pty Ltd application to modify the project approval under the *Environmental Planning and Assessment Act 1979* for the above project.

Industry & Investment NSW (I&I NSW) technical officers have reviewed the Environmental Assessment (EA) for the project and have the following comments.

MINING TITLE

The proposed modification is within Mining Lease 1397, 1450 and 1469 as well as Assessment Lease 13. I&I NSW Mineral Resources understands that no additional mining titles will be required by the Proponent for the proposed modification.

MINING OPERATIONS PLAN

I&I NSW Mineral Resources require a revised Mining Operations Plan (MOP) be submitted by the Proponent and approved by I&I NSW Mineral Resources prior to commencement of any activities proposed by this Modification.

REHABILITATION PLAN

I&I NSW require the following issues to be addressed by the Proponent in presenting a Rehabilitation Plan to the satisfaction of the Director General I&I NSW.

- a) **Domain Specific Objectives:** Identify the functional domains of the project and describe the rehabilitation objectives for each domain.

- b) **Completion Criteria:** Propose strategic completion criteria for each domain having regard to the various phases of rehabilitation (ie. Decommissioning, Landform Establishment, Growth Medium Development, Ecosystem Establishment, Ecosystem Development) and outline the proponent's commitment to progressive rehabilitation.

I&I NSW recommend that the following conditions be incorporated into the planning approval, if granted:

The Proponent must prepare and implement a Rehabilitation Plan to the satisfaction of the Director General I&I NSW. The Plan must:

- a. be prepared in accordance with I&I NSW guidelines and in consultation with relevant agencies and stakeholders;
- b. be submitted and approved by the Director General I&I NSW prior to the commencement of construction;
- c. address all aspects of rehabilitation and mine closure, including final land use assessment, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring.

I&I NSW AGRICULTURE

Approvals for development of Bengalla Mine currently excludes disturbance to Hunter River alluvial (floodplain) areas. This is critical for minimising agricultural impacts. It also enhances future agricultural land use options.

The significance of alluvial lands is reflected in advice from;

- **Department of Planning** (4 May 2010) requiring the EA to justify the development of alluvial lands and provide a detailed description of amended final landform and rehabilitation objectives
- **Muswellbrook Shire Council Environmental Committee** (17 June 2010) briefing which noted concerns about overburden emplacement on the Hunter floodplain and identified compensation for impacts on Class II agricultural lands and rehabilitation as key issue to be addressed
- **Neighbouring landholders** (June 2010 briefings) noting concerns about emplacing overburden on agricultural lands
- **Industry and Investment NSW** (26 May 2010) requesting consideration of selective soil management and compensatory options for agricultural impacts (letter included as part of Appendix A of the EA)
- **NSW Office of Water** (25 June 2010) noting concerns about mining developments on the Hunter River Floodplain

Bengalla Mining Company advised I&I NSW in writing on 1 June 2010 that the proposal would affect Class II "*agricultural lands*" and that in consultation

with I&I NSW, the Bengalla Mining Company would investigate options to “ensure that any impacts associated with the Modification on Class II lands are appropriately compensated.” (EA Appendix A)

Adequate consultation with I&I NSW (Primary Industries Division) did not occur in relation to the value of the identified agricultural resource lands and proposed impacts. I&I NSW (Primary Industries Division) is additionally concerned that the Modification proposal and exhibited EA;

- does not identify adequate agricultural compensatory measures or offsets.
- may create precedent for future mining disturbance to important agricultural resource lands and related alluvial water resources in the Hunter (including by other mining companies).
- does not adequately identify rehabilitation objectives as required by DoP.

The proposed temporary Western overburden emplacement area is subject to future mining operations and eventual rehabilitation. Hence it would not result in significant additional loss of agricultural resources or land use options.

I&I NSW (Primary Industry Division) concerns consequently relate to the undisturbed areas within the South Eastern overburden extension (Survey area 1) and the resultant significant downgrading of agricultural resources from Class 1 – 3 Agricultural suitability (prime crop and pasture lands) to Class 3 - 4 (grazing lands). It would also result in the permanent loss of 9.6 ha of highly productive Class 1 lands. Class 1 Agricultural Suitability lands are extremely limited in extent (less than 2% of agricultural land in NSW) and are well suited for future food production

Agricultural Resources and Land Use Options

The EA provides detailed information on the soils within the proposed extension of the Bengalla overburden emplacement areas and recognises their past land use and value for future topdressing and rehabilitation. Information on agricultural resource values and agricultural impacts is not however, clearly presented.

Classification Systems

The objectives of the Soil and Land Capability Assessment include ‘describe pre and post mining suitability and capability’. The main EA text, however, only refers to Land Capability and fails to clarify that ‘Class II land’ (capability) is scarcer and more productive than Class 2 Agricultural Suitability land.

Potential for confusion exists in relation to consideration of alluvial areas vs alluvial soils affected by the proposed modification.

Soil Type 3 (Red Chromosol – Brown Dermosol complex which covers 12% of the Survey area 1 (South East overburden extension area) is classified as not being an ‘alluvial soil’ due to it no longer being directly connected to the Hunter alluvial groundwater flows and having developed a soil profile. This distinction and the subsequent notation that only 4.6 ha of the 9.6 ha of Class 1 Agricultural Suitability land comprises “alluvial soils” is a moot point when considering agricultural resource values, potential impacts and the merit of potential offsets.

As noted in section 3.2.4 of Appendix F, soil type 3 comprises a relatively flat alluvial terrace (< 1% slope) and was formed by ancient alluvial deposits. Prior to being purchased as part of the Bengalla mining development the site was used for irrigated cropping and its land use options remain identical to those of adjoining “alluvial soil types”. Non soil experts and the farming community would typically consider this location to be alluvial lands and its productive value is recognised by its assessment as Class 1 Agricultural Suitability (Class II Land Capability).

Consideration of the potential resource impacts may additionally be skewed by an apparently conservative classification of Agricultural Suitability for the pre mining landscape, whilst that for post mining is optimistic.

The EA identifies Soil Type 5 (Redoxic Hydrosol) as Class 4 Agricultural Suitability, which are “Marginal Lands not suitable for periodic cultivation with low to very low levels of production”. There are also usually very significant limits to agricultural use (eg shallow soil depth, steep slopes). The soil type comprises an old meander channel of the Hunter River within an alluvial floodplain area and the EA states that it is unlikely to have been cultivated due to the potential water logging.

Restrictions on agricultural use and periodic cultivation would only be significant if the depression was subject to frequent and prolonged flooding or high flow rates and scouring. Alluvial soils are typically free draining and the main obstruction to site drainage appears to be the old conveyor belt road that is a post mining feature. The alluvial origin of the soils mean that its nutrient levels are likely to be high and photos of this soil landscape (plate 3.12) show lush pasture growth. I&I NSW (Primary Industries Division) consequently suggests that a more appropriate classification of this pre mining soil landscape would be as Class 2 / 3 Agricultural Suitability.

I&I NSW (Primary Industries Division) similarly suggests that rehabilitated (post mining) areas with a relatively shallow topsoil profile on a slope of 10 – 18%, and which are vegetated with a mix of tree species and persistent, but not highly productive pasture species (as is typical of current mining rehabilitation) would be more appropriately classified as Class 4 Agricultural Suitability than Class 3.

The proposed temporary Western Overburden extension area is appropriately assessed in the EA as prime pasture lands (Class 3 Agricultural Suitability).

Resource Significance

Section 4.3.2 and table 4.6 of the Appendix F identifies that;

- 10.6 ha of the area within the proposed extension to southern out of pit emplacement area comprises Class 3 / 4 Agricultural suitability.
- 9.6 ha of the Soil Types 3 and 4 (Hunter River Soil Landscape) as Agricultural Suitability Class 1 lands (Class II Land Capability). Such soils have virtually no constraints to sustainable agricultural production and subject to available ground water / irrigation, this area would be well suited a very diverse range of agricultural development options including horticulture, food and fodder crops.

Premium Class 1 agricultural soils are of extremely limited extent in Australia and comprise less than 1% of agricultural land in NSW. The close proximity of this location to population sources and markets increases its value for both local food production and future food security generally.

Whilst the Class 1 lands on the site are separated from more extensive arable areas by the railway line embankment, I&I NSW (Primary Industries Division) considers that they are of sufficient size and potential to remain a valuable asset, particularly when considered in conjunction with adjoining grazing lands and the Bengalla homestead complex. Land use options include lucerne production, specialist calf rearing, horticulture or equine establishments. Fodder production on arable, alluvial lands is additionally critical for supporting optimal sustainable use of adjoining Class 3 and 4 grazing lands which typically have more seasonal growing periods.

Although overlooked in the EA the immediate proximity of the Bengalla homestead complex and related infrastructure (residence, sheds, access, etc) is highly relevant to the scope for agricultural use of these highly productive premium soils, post mining.

Agricultural Impacts

Appendix F of the EA indicates that 6.7 ha on a bench between the 230m and 240 m contour levels might be rehabilitated to Class 2 agricultural suitability. I&I NSW (Primary Industries Division) does not support this proposal. This site, would be isolated from water sources and power supplies necessary for irrigation that is essential to support high levels of production and cropping. Being located in an exposed position near the top of the overburden area would also introduce other constraints to productive agricultural use including increased exposure and evaporation, high levels of subsoil drainage and isolation from road access for cultivation, cropping

equipment and supervision. Hence even if it were possible to construct slopes of less than 3°, topsoils and to selectively save the alluvial soil types and replace them to a depth of at least 100mm, it is very unlikely that the site could comprise Class 2 agricultural suitability. Similar level areas of good soils on hilltops are more typically identified as being Class 3 agricultural suitability (ie suitable for grazing).

The EA also notes that the majority of Survey Area 1 would be rehabilitated to Class 3 Agricultural Suitability (Class V land capability), I&I NSW (Primary Industries Division) cautions that the proposed 10 -18% slope combined with a relatively shallow topsoil layer of mixed origins would not be suitable for being cultivated. Nor would it be well suited for improved pastures and it would not sustain high levels of grazing. Consequently post mining at least 45 ha (86%) within Survey Area 1 is more likely to comprise Class 4 Agricultural Suitability (Class VI Land Capability). This result would also be consistent with the EAs (Appendix F) pre mining assessment of Soil type 1 (Red Sodsol) as Class 4 Agricultural Suitability (and Class VI Land Capability) due to its 'steeper' slopes of 5 – 10%, erosion risk and predominance of native grasses.

Whilst topsoil stripping recommendations for each soil type are given, no specific advice is provided on selective topsoil management or emplacement of the higher quality agricultural soils. This is contrary to the objectives of the Soil and Land Assessment (see section 16.3.3 of the EA and section 1.2 of Appendix F). It also fails to support the indicative proposal to re-instate highly productive arable lands. The EA also fails to provide specific rehabilitation recommendations in relation to re instating or rehabilitating agricultural lands.

Agricultural Recommendations

Mitigatory / compensatory offsets are expected for the proposed complete and permanent loss of a total of 11 ha of high quality agricultural lands (soil types 3, 4, 5) within the undisturbed residual areas affected by the proposed South Eastern overburden extension and the associated permanent downgrading of future land use options.

Bengalla Mining Company's commitment in Table 11 of the EA to compensate for impacts on Class II (Land Capability) lands is supported, however I&I NSW (Primary Industries Division) does not support reliance on indicative plans to rehabilitate a smaller extent of land near the top of the overburden emplacement. Reliance on undisclosed proposed future modifications to the existing land management plan is also unsatisfactory.


Similar to biodiversity offsets compensatory offsets for the loss of agricultural resources might include specific proposals to enhance the agricultural management of equivalent highly productive farmlands within the control of

the mining company or to purchase and ensure appropriate long term management of additional farming lands as an offset.

I&I NSW (Primary Industries Division) also recommends that topsoil from the highly valuable soil types (3, 4 and 5) is selectively managed and re used to support maximum future agricultural production rather than being included in the generic mix.

Should you have any enquires regarding this matter please contact Julie Moloney, Principal Adviser, Development Coordination on (02) 4931 6549.

Yours sincerely



William Hughes
Director
Industry Coordination

21/1/11



Contact: Siobhan Lavelle
Phone: (02) 9873 8546
Fax: (02) 9873 8599
Email: siobhan.lavelle@planning.nsw.gov.au
File: 10/25009
Our Ref: B254443
Your Ref: DA 211/93 MOD 4

Ms Belinda Parker
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Dear Ms Parker

**BENGALLA MINE DEVELOPMENT CONSENT MODIFICATION – 75W EPA ACT – DA 211/93 MOD 4
– REVIEW OF ENVIRONMENTAL ASSESSMENT**

Reference is made to a letter dated 7 December 2010 inviting comment of the Environmental Assessment for the above project prepared by Hansen Bailey on behalf of the Bengalla Mining Company (Coal & Allied).

The modification is proposed to maximise the mine's overburden storage capacity within the existing Development Consent Boundary. The existing Overburden Emplacement Area (OEA) would be extended to the south-east with permanent rehabilitation of the northern face of the existing OEA to occur by 2016, and permanent rehabilitation of the eastern face, which is visible from Muswellbrook, to continue as quickly as possible. An already approved temporary Overburden Emplacement Area would be relocated further west, away from areas to be mined. The proposed modifications would also allow the acceleration of mining operations within the Wantana Extension area to align with the existing mining area, with no overall increase in total annual production from Bengalla.

The EA prepared by Hansen Bailey deals with heritage issues in Section 6.9 and in a separate report Appendix L Non-Indigenous Heritage Impact Assessment prepared by Archaeology Australia in July 2010. The EA notes that two heritage buildings exist in the vicinity of the Bengalla Mine, the Bengalla Homestead and Overdene Homestead. The assessment concluded that no significant impact on Overdene Homestead would occur as a result of this Modification. The Bengalla Homestead has previously been assessed as being of high local and regional significance. It represents early settlement and continued occupation and development of rural industries. Whilst this may be the case, the Heritage Branch notes that 'high local' and 'regional' significance are incorrect terms which do not conform to Heritage Council guidelines or terminology.

The fence line of the Bengalla Homestead is noted to be approximately 50 m from the Southern OEA Extension and has been identified by Archaeology Australia as being potentially impacted upon by this Modification. A physical site inspection of the Southern OEA Extension identified other potential indirect impacts on Bengalla Homestead such as:

- Increased traffic may result in increased dust settlement within the Homestead. Additionally, traffic vibration may impact on the Homestead footings;
- Increased catchment area and steep slopes may increase the risk of flooding in the immediate vicinity of the Homestead; and
- Decreased visual integrity as a result of the proximity of the proposed Southern OEA Extension.

The Assessment determined that there will be no significant direct impacts on any heritage items resulting from the proposed Southern OEA extension. In addition, no significant impacts on any non-indigenous heritage items are predicted as a result of the Western Overburden Emplacement Area.



Section 6.9.4 of the EA indicates that Bengalla will continue to comply with the mitigation and management measures for the Bengalla Homestead in accordance with the Bengalla EHMP, Rio Tinto Environmental Performance Standard 9 Land Use Stewardship and CNA Environmental Procedure 2.1 Cultural Heritage Management and as described in the Bengalla SEE as previously approved by the Department of Planning.

The Statement of Commitments in Section 7 of the EA also indicates (Commitment No. 4) that the measures recommended by the specialist heritage report and in Section 6.9.4 would implemented.

Following review of the proposed modification and the supporting documents it is considered that, based on the results of the Heritage Impact Assessment, no specific mitigation is required for non-Indigenous heritage. The SOC's provided in Section 7 of the Environmental Assessment are considered adequate to manage the project in the event the modification is approved.

If you have any questions regarding the above matter please contact Siobhan Lavelle using the details on this letter.

Yours sincerely

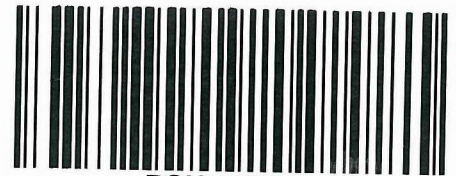
22/12/2010

Vincent Sicari
Manager
Conservation Team
Heritage Branch
Department of Planning

cc. Hansen Bailey, PO Box 473 Singleton, NSW 2330



Office of Water



PCU018253

**Major Development Assessments
Department of Planning
GPO Box 39
SYDNEY NSW 2001**

c: Fergus Hancock
t: 02 4904 2532
f: 02 4904 2501
e: Fergus.Hancock@water.nsw.gov.au

Our ref : ER 21343

Your ref: 10/13705

Date 4 January 2010

Attention: Naomi Nelson

Department of Planning
Received
10 JAN 2011
Scanning Room

Dear Naomi

Bengalla Coal Mine Modification – DA 211/93

The NSW Office of Water has reviewed the Environmental Assessment for the above modification of development consent. NOW advises that the modification area comprises part of the Hunter Regulated Alluvial Water Source, governed under the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009 (WSPHUAWS), and as a result, protection to the water source is governed under the water management principles (S.5 Water Management Act 2000) and rules of the WSPHUAWS.

The EA fails to adequately describe the geomorphological and depositional history of the floodplain pocket on which out of pit spoil dumping is proposed. However, the groundwater impact assessment in Appendix H to the EA indicates extensive gravel and sand lenses form the majority of the aquifer, which provides confirmation that the alluvial material is derived and connected to the Hunter River. Previous mining interception and removal of alluvial materials has been strictly limited to tributary deposits, with a general prohibition on excavation through or spoil dumping on the alluvial floodplain.

The specific impact of greatest concern to NOW relates to aquifer compaction in the Hunter Regulated Alluvial Water Source, and resultant sterilisation of the alluvial water source to productive use. This is not addressed in the EA. NOW is not in a position to provide advice as to means to avoid alluvial compaction and consequential loss of porosity and groundwater storage in the alluvium.

NOW, in conjunction with Industry and Investment NSW (IIN), as a policy principle opposes sterilisation of alluvial groundwaters and floodplains by mining activities. The account framework of the WSPHUAWS, water quality and geomorphological integrity of the riverine system should be protected to the greatest extent possible. This is a general obligation to any approval or activity authorised under the *Water Management Act 2000*, and must be considered by NOW in terms of any approval(s) which are required to install or operate water supply, drainage or flood works.

As the EA has not clarified whether any of the above approvals will apply to the proposal, NOW cannot complete its assessment of the proposal. Should any of the above approvals be required to construct the out of pit spoil dumps, NOW may be unable to issue any such approval. Therefore, NOW requires clarification as to the approvals required to the application, and protection measures to the alluvial aquifer on the floodplain terrace.

If you require any clarification of the above, please contact Fergus Hancock on (020 4904 2532.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'm. mignanelli', with a stylized flourish at the end.

Mark Mignanelli
Manager Major Projects and Assessment

Chris Gidney
02 6549 3770

18 February 2011

**The Director General
Department of Planning
GPO Box 39
SYDNEY NSW 2001**

Dear Sir,

Re: Bengalla Coalmine Modification 4

I wish to advise that Council at its meeting held on 14th February 2011 resolved to submit the following response to the Department of Planning regarding the Bengalla Coalmine modification 4 proposal:

1. Council supports the Statement of Commitments (SoC) provided by the Proponent as appropriately addressing the issues the subject of the SoC.
2. Council does not support, as a general principle, the emplacement of overburden on alluvial land but notes that the present case:
 - (a) A miscalculation occurred in the quantum of material to be emplaced;
 - (b) The mining operation could not continue without the modification; and
 - (c) The land has been annexed from the alluvial area for more than 50 years.
3. Council requests that the Department of Planning review its processes for assessing overburden calculation in respect to emplaced material to ensure that future calculations are accurate.
4. The Proponent undertakes a flood impact study in respect of the Rosebrook Creek Catchment on, and consequential upon, the area of the proposed further overburden emplacement.
5. The Proponent enters into a section 94 contribution plan with respect to capital contributions for the upgrade of the Thomas Mitchell Drive.

Yours faithfully

SJ McDonald
General Manager