

Phil Jones

From: Pluschke, Claudia <Claudia.Pluschke@environment.gov.au>
Sent: Tuesday, 29 April 2014 12:08 PM
To: Phil Jones; Mike Young
Cc: Andrew Tankey; Charmayne Murray; Helen Searle
Subject: Watermark Coal Project [SEC=UNCLASSIFIED]

Hi Mike

I am writing following our discussion a moment ago and Phil's earlier discussion with Helen Searle, concerning the Watermark Coal Project and offset requirements under the EPBC Act for the listed endangered Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia ecological community (Grey Box ecological community).

As you are aware, the current offset package does not include any existing remnants of the Grey Box ecological community as a direct offset to compensate for impacts to this ecological community. The EPBC Act Environmental Offsets Policy requires that offsets provide like-for-like compensation and a conservation gain. While I acknowledge the proponent's proposed offset package includes a commitment to revegetate 70 hectares of low diversity grassland and cropland to meet the threshold for the Grey Box ecological community, this revegetation does not meet the EPBC Act requirement to achieve 90% direct offsets.

The Department considers that, in order to meet the EPBC Act Environmental Offsets Policy, the proponent will be required to identify and secure an existing remnant(s) of the Grey Box ecological community. The Department notes the NSW Biodiversity Banking and Offsets Scheme would be an appropriate mechanism to meet this offset requirement although the magnitude of the offset may require further refinement to meet the EPBC Act Environmental Offsets Policy.

For your information and inclusion in your documentation, where appropriate, prior to the NSW Assessment Report being provided to the Planning Assessment Commission for review, the Department would likely include draft proposed conditions similar to those below:

1. To compensate for the loss of 30 hectares of EPBC Act listed threatened Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia ecological community (Grey Box ecological community), the person taking the action must provide for the conservation and management in perpetuity of an area of Grey Box ecological community equal or greater in size than that determined by the NSW Biodiversity Banking and Offsets Scheme methodology, and must achieve the outcomes required by the EPBC Act *Environmental Offsets Policy 2012* (or subsequent published revisions) and user guide.
2. The Grey Box ecological community offsets referred to in Condition 1 must be approved by the Minister in writing prior to substantial commencement of the action and must include:
 - i. The identification of the proposed offset site or sites;
 - ii. The proposed offset site or sites must contain Grey Box ecological community of equal or greater quality to that to be removed within the development footprint for the Grey Box ecological community;
 - iii. Should the offset sites identified not be sufficient to achieve the outcomes required by the *Environmental Offsets Policy 2012* (or subsequent published revisions) and user guide, as determined in writing by the Minister, the person taking the action must provide further suitable offset sites;
 - iv. The offset site or sites must be protected by a conservation covenant registered on the title of the offset site or sites under relevant nature conservation legislation within 12 months of the approval of the Grey Box ecological community offsets;
 - v. The covenant must provide for:
 - a) The protection of the land in perpetuity;
 - b) The prevention of any future development activities; and

- c) The active management of the land;
- vi. A summary of management measures consistent with advice from a suitably qualified expert, to be implemented on the offset site or sites and a summary of key milestones, monitoring, performance indicators, corrective actions and timeframes for the completion of all actions outlined in the Grey Box ecological community offsets;
- vii. Provisions for the finalised management measures, monitoring, performance indicators, corrective actions and timeframes for the completion of all actions, to be submitted to the department for comment prior to being registered on the title of on the offset site or sites. These measures must commence within three (3) months of the legal protection of the offset site or sites and must be registered on title;
- viii. Provisions for a yearly report addressing compliance with the Grey Box ecological community offsets management measures outlined in (vi) above to be published and documentary evidence providing proof of the date of publication and non-compliance with these conditions to be provided to the department at the same time as the compliance report is published.

If the Minister approves the Grey Box ecological community offsets then the measures outlined in these conditions must be implemented within one (1) year of the date of the approval of the Grey Box ecological community offsets.

Thank you for considering these comments. We look forward to the opportunity to review the proposed conditions prior to these being provided to the Planning Assessment Commission for consideration.

Please do not hesitate to contact Helen Searle or myself should you wish to discuss.

Kind regards
Claudia

Claudia Pluschke
Assistant Director
Victoria Section | South-Eastern Australia Environment Assessments Branch
Environment Assessment and Compliance Division
Department of the Environment

GPO Box 787 Canberra ACT 2601
T: 02 6274 2641 | E: claudia.pluschke@environment.gov.au





Watermark Coal Project
(SSD-4975 and EPBC 2011/6201)
Shenhua Watermark Coal Pty Ltd
Comments on the Response to Submissions

Reviewer: Department of the Environment (DoE, or the department)

Document Title: Watermark Coal Project – Response to Submissions (RTS), November 2013

Date of Review: 11 December 2013

Section	Reviewer Comment
RTS Ecology and Biodiversity Offsets chapters and appendices	Biodiversity Management Plan Please provide a schedule of ongoing management commitments to be incorporated into a Biodiversity Management Plan, expected conservation outcomes, timeframes for achieving conservation goals and contingency measures if expected outcomes cannot be achieved. Please also identify the person/company/agency responsible for delivering the Plan, and commitments to ongoing funding and resourcing.
RTS Ecology and Biodiversity Offsets chapters and appendices, and letter dated 1 November 2013,	Offsets The department has assessed the Biodiversity Offset Strategy and has determined that direct offsets for individual listed species are adequate, however, critically endangered ecological communities are under-represented in the current offset strategy. Specifically, proposed offsets for White Box, Yellow Box, Blakely's Red Gum Grassy Woodland and Derived Native Grasslands ecological community fall short of the direct offset requirement. The proposed offset for Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodland and Derived Native Grasslands of South-eastern Australia ecological community does not include any existing remnants and the resulting assessment shows the offset is insufficient as a direct offset. The department recommends further discussion in relation to compensatory measures for these ecological communities prior to an approval decision. Due to the lack of certainty around revegetation of ecological communities on improved pasture and the expected long time period to achieving a

Section	Reviewer Comment
Application of the DoE Offsets Assessment Guide to the Watermark Coal Project	functional ecological community, these areas have not been able to demonstrate significant conservation gains in the department's offset assessment. It should also be noted that mine rehabilitation does not qualify as an offset under the EPBC <i>Environmental Offsets Policy</i>. The department notes that some areas within proposed offset properties will continue to be used for agricultural purposes. The department prefers that these areas remain outside offset boundaries, rather than designated management zones within the offset.
Appendices as relevant to water, and letter dated 15 August 2013, Watermark Coal Project: Advice of the IESC	Water and IESC Advice The department notes the proponent's response to the IESC advice, and NSW's role in addressing water issues through the accredited assessment process. The department notes that the proponent has not included Scenario 3 (Namoi Water Study) in their discussion on cumulative impacts. The department considers that a worst case scenario would improve understanding of the context of the Watermark Coal Project in the landscape, and assist judgments on impact thresholds and long term catchment management.



Department of Primary Industries

OUT13/35091

13 DEC 2013

Matthew Riley
Planning Officer
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Riley

Thank you for your letter of 22 November 2013 concerning the review of the Response to Submissions (RTS) for the proposed Shenhua Watermark Coal Project.

The Office of Agricultural Sustainability & Food Security (O AS&FS) has reviewed the RTS provided by Hansen Bailey (November 2013). A summary of specific project related issues raised and suggested consent conditions are included in Attachment 1 and detailed comments regarding the RTS are included in Attachment 2.

The RTS has not addressed many of the concerns raised in our EIS/AIS review, additionally there appears to be cases where O AS&FS have been misrepresented. The RTS states (p. 426 & 485) that the "*O AS&FS and other stakeholders have suggested a minimum depth of 1.5m of soil is required to ensure class III land is achieved*". This statement, made twice in the RTS document, may have been raised by other respondents but was not made by the O AS&FS, which needs to be noted on the public record.

The following agricultural related issues remain unresolved following review of the proponents RTS:

- Incomplete identification of BSAL affected by the project, particularly BSAL in biodiversity offset areas,
- Errors in the calculations quantifying the soil available from stripping to be utilised in the rehabilitation of the project site,
- Methodology and rehabilitation criteria for reinstated agricultural lands,
- Potential project impacts on surrounding agricultural activities, particularly from dust,
- Possible risks to the agricultural water supply, and
- Previously raised socio-economic concerns.

This advice from the Office of Agricultural Sustainability & Food Security is forwarded direct to the Department of Planning & Infrastructure in accordance with agreed arrangements for mining applications that affect agricultural land. It includes comments provided by officers in Agriculture NSW and NSW Trade & Investment. Additional advice from the other divisions within the Department of Primary Industries may be forwarded by separate letter.

If you wish to discuss the issue further please call Rob Williamson on telephone 02 6391 3166 or by email robert.williamson@dpi.nsw.gov.au

Yours sincerely



Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security
Enc

Exhibition of Shenhua Watermark Coal Project - Response to Submissions.

Specific Agricultural Issues

NSW DPI recommends that the following conditions (see recommended response to each issue) be incorporated into the planning approval, if granted, regarding these specific agricultural issues:

Issue 1: Identification and protection of BSAL area affected by the project activities

- BSAL verification has not been carried out on the additional biodiversity offset property identified in the RTS.
- The response to large areas of BSAL in the disturbance area has not been adequately answered. Based on the information provided, there may be 960 ha of BSAL in the disturbance area, a tenfold increase compared to the amount stated (see comments in attachment 2).
- The mine plan indicates the location of 2 overburden emplacement areas immediately adjacent to mapped BSAL with no protection buffer allowed for.
- The final conceptual landform (RTS p.500) indicates the presence of 2 new water storages, also located on BSAL.

Recommended consent condition in response to this issue:

That Shenhua Watermark Coal Project:

1a - revise the offset plan for the additional biodiversity offset property, so that the areas where a commitment has been made for agricultural production to continue, align with the current mapped BSAL areas, thereby removing the projects BSAL impact on this property, and

1b - Provide a 200m zero-disturbance buffer which should be placed around all identified BSAL areas and these lands be then excluded from:
a) the disturbance boundary (including active mining areas, overburden emplacement areas, water storages and infrastructure areas.

Issue 2: Characterisation of soil used for stripping and rehabilitation

The Soil Survey and Land Capability Assessment (EIS Ap. Y) provides information on the soil that will be stripped cross the mining areas (EIS Table 41) which will then be utilised for rehabilitation post-mining.

- Assessment of information provided in the soil survey suggests that significantly less soil will be available for stripping and hence rehabilitation as smaller volumes of soil than those quoted in EIS Table 41 meet the criteria for soil suitable to be stripped for rehabilitation uses (see attachment 2 for detailed soil calculations).
- These miscalculated balances of soil availability are then used to determine the land capability class targets for rehabilitation in EIS Table 42 which must also be re-assessed as a result.

The amount of soil available for rehabilitation will significantly affect the area of land that can be reinstated in each land capability class and on the likelihood of successful rehabilitation outcomes.

Recommended consent condition in response to this issue:

Prior to project approval, Shenhua Watermark:

- 2a** - Demonstrate how the soil volumes required for the claimed agricultural rehabilitation areas can be achieved, and
- 2b** - Demonstrate how the calculated soil volumes can deliver the agricultural rehabilitated land areas claimed.

Issue 3: Rehabilitation of agricultural land

The project proposal describes the rehabilitation or creation of 3 233 hectares (57.4% of the total post-mine disturbance area) of land post-mining to meet the characteristics of land and soil capability class III of which 1000 hectares is to be dedicated for agriculture. The project also proposes an area of 100ha of BSAL will be rehabilitated although has not provided information in either the EIS or RTS as to the location of this land or its final land use.

- The evidence provided to back the proponent's claims of the ability to rehabilitate has several flaws. These being:
 - The quantities of soil (both top and sub soil) available for rehabilitation are not accurately assessed (significantly less may be available).
 - Evidence provided of similar rehabilitation does not demonstrate restoration of appropriate long term land of the same or similar soil and should not be considered as evidence to support the claim that mined land of this soil type can be rehabilitated to land capability class III.
 - No evidence has been provided to support the claims that BSAL (particularly land capability class II areas) can be successfully rehabilitated.

Recommended consent condition in response to this issue:

- 3a** - The proponent should develop an accurate post-mining land capability class allocation which is supported by accurate soil balances that are available from the soil stripping calculations (as discussed in issue 2);
- 3b** - Any land capability class III land that is created post-mining should be allocated for agricultural purposes.
- 3c** - The proponent shall demonstrate the ability to create land capability class III land through a long-term project which must:
 - (I) be established within 5 years of mining activity commencing and carried out on land that has previously been an active mining area;
 - (II) be prepared in consultation with crop and pasture experts, in accordance with any relevant DPI guideline and to the satisfaction of the Chief Executive Officer of DPI;
 - (III) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the Watermark Coal Project, Eastern Mining Area (or the first mining area used for activity), and trigger points for remedial action (if necessary);
 - (IV) include measures of success in reinstating land capability class III lands, developed in conjunction with NSW DPI and include the following:
 - a comprehensive suite of indicators of productivity and environmental sustainability (such as soil settling, soil profile development, other soil characteristics, water transmissivity and soil

- water availability, agricultural productivity, fertiliser needs, weeds and pests) over a 20 year period; and
- be replicated, peer reviewed and published.

3d - The proponent will be required to demonstrate the successful rehabilitation of 100ha of rehabilitation land meeting the criteria of BSAL (as outlines in the BSAL verification protocols). A BSAL site verification should be undertaken yearly and continue over a period of 20 years once the area is fully rehabilitated to establish and document the rehabilitation. This detailed information should be made available to the DPI and broader public.

Issue 4: Monitoring of agricultural rehabilitated land

The proposed monitoring of the rehabilitated agricultural land (EIS Ap.AA, p. 40) does not demonstrate sustained agricultural production on land capability class II and III land. No further information has been provided in the RTS, despite this being a key requirement of the issued DGR's.

Recommended consent condition in response to this issue:

That Shenhua Watermark Coal Project:

4a - Be required to develop their monitoring program for reinstated agricultural land areas, rehabilitation completion criteria and rehabilitation management plan in conjunction with O AS &FS and other relevant agencies.

Issue 5: Security of agricultural water supply for surrounding farms

- The EIS notes that a draw-down of groundwater is predicted which could affect agricultural bores in close proximity to the disturbance area. O AS &FS requests the inclusion of a "make good" consent condition for potentially affected domestic and stock/basic landholder rights groundwater users.

Recommended consent condition in response to this issue:

5a - O AS &FS requests that the proponents commitments as outlined in the RTS (p. 459) regarding water quality or water access impacts identified as resulting from the project activities to existing groundwater licence holders within the 0.25m draw-down zone (domestic and stock and basic landholder rights/domestic and stock water), be considered by DoPI and NOW to confirm a consent condition around this commitment.

Issue 6: The Social Impact Management Plan

In the OAS&FS submission, concerns were raised that the proponent would develop a Social Impact Management Plan (SIMP) once the project had been approved. It was recommended that the SIMP be provided for assessment prior to development approval and that it should include additional information. Alternatively, it was recommended that as a condition of consent, the proponent be required to complete the SIMP prior to mining activities commencing. The proponent has responded to these concerns and recommendations in RTS Section 4.27.9.

Recommended consent condition response to this issue:

6a - It is recommended that as a condition of consent, the proponent be required to finalise the SIMP to the satisfaction of the Director General of Planning and Infrastructure and relevant stakeholders prior to mining activities commencing.

- 6b** - That the proponent commits to undertaking a study as a part of the SIMP into any change in local land values over the course of the 5 years starting from commencement of the projects activities. This study should then be made publicly available.

Issue 7: Potential impacts on agricultural production

- There is ongoing concern regarding dust (RTS p. 197, 465-466) and water quality impacts (RTS section 4.2 and 4.3) on both livestock and crop production in the local area.
- Further investigation of the wind data provided by the proponent where it is stated that the prevailing winds at the site are south-easterly to south-south easterly and comparisons made with local observations and Bureau of Meteorology (BOM) data suggest that the prevailing day-time winds (recorded at 3pm) do indicate a west north-westerly wind pattern which may expose dust impacts beyond those predicted by the proponent.

Recommended consent condition in response to this issue:

That Shenhua Watermark Coal Project:

- 7a** - Before surface disturbance on the project site occurs, an area wide dust monitoring program must be in place and operation, to be designed in conjunction with surrounding agricultural industries (data to be made publicly available). This program should remain in place for the life of the mine and up until final land relinquishment.
- and
- 7b** - Compensate local agricultural producers for any financial loss experienced as a result of mining-related dust or water quality impacts on production and/or processing of agricultural products based on valley or district averages (as appropriate) for the relevant enterprise.

Issue 8: Project Visual Impacts

In the OAS&FS submission, concerns were raised with regard to deficiencies in the Visual and Lighting Management Plan (VLMP) proposed by the proponent for mitigating visual amenity impacts. Of particular concern was the lack of detail about the proposed mitigation measures and the time delay for these measures to become effective.

In the RTS (Section 4.17.1), the proponent has acknowledged that the proposed VLMP would still result in “high” and “moderate” visual impacts depending on the viewing location, for lengthy periods of time ranging from 6-30 years. In addition, the proponent has not provided a timeframe for the development and implementation of the VLMP.

Recommended consent condition in response to this issue:

That the proponent be required to:

- investigate alternative measures (e.g., visual bunds, advanced tree plantings) to mitigate visual impacts in a shorter timeframe than is currently proposed in the VLMP;
- revise the VLMP to incorporate these alternative measures; and
- implement the revised VLMP within 5 years (subject to development approval), particularly in high visual impact areas.

Issues raised by NSW DPI & T&I regarding the Shenhua Watermark Coal Project

Issues below are in relation to the DGR's Key Issue - Agricultural and Other Land Resources

Mine Project Boundary

- It is acknowledged that the proponent has designed the mine plan to allow for a minimum buffer of 150m from the alluvial black soils to the open cut pits (RTS p.18).

The RTS (p22) also highlights that two of the overburden emplacement areas (for the eastern and western mining areas) will be located immediately next to mapped Land Capability Class II land (BSAL).

The O AS&FS has continually requested that a buffer of 200m be placed around not only the alluvial black soils but all BSAL areas impacted on by the project in order to protect the soil profiles for future agricultural productivity.

Identification of BSAL

- The proponent maintains that only 96.1 ha of BSAL will be affected but has not provided sufficient evidence to eliminate a number of soils from this category. In some cases, the evidence provided is not sufficient.

Soil type	Ha in soil stripping area	Potential BSAL (Y/N)	Reason
1 Brown Sodosol	1761.7	No	
2 Brown Vertosol	62.2	Yes	High inherent fertility, no obvious limiting factors
3a Brown Sodosol	346.3	No	
3b Brown Chromosol	346.3	No	Marginally acid topsoil (4.9), some 3b soil may be BSAL
4a Brown Sodosol	673.9	No	
4b Brown Kandosol	673.8	No	
5 Red Chromosol	603.5	No	Red Chromosol may be fertile but low fertility in Banks (1995)
6a Brown Dermosol	361.5	Yes	Claimed high salinity not verified – should use chloride not EC
6b Brown Vertosol	361.4	Yes	No salinity as claimed
7 Red Ferrosol	174.7	Yes	
8 Brown Vertosol	223.8	Yes	High inherent fertility but now Class V?
10 Black Vertosol	8.6	No?	Inherently fertile? Why is this class VI?
13 Brown Dermosol	16.2	No?	No soil data provided. Why is this class VII?

- NSW DPI disagrees with a number of assertions in Section 4.18 (RTS p. 411):
 - Soil type 3b, a Brown Chromosol could well be moderately high fertility and therefore under this reasoning could be BSAL. However, it is noted that the topsoil is marginally acidic (pH 4.9) and this could exclude it from BSAL. Noting the area of this soil type (346.3 ha in the disturbance area, 225ha planned for soil stripping), there is a significant chance that some soil type 3b could be BSAL.

- The assertion that soil types 6a and 6b have high salinity is not supported by the data. Soil type 6b is described as non saline (EIS App. Y p. 38). Soil type 6a is described as highly saline in layers 1 and 3 (EIS App. Y p. 36) but have based this assumption purely on the ECe value. The *Interim protocol for site verification and mapping of BSAL* clearly states (p25) that “where gypsum is likely to occur salinity should be assessed using the chloride content method”. This has not been done. There is insufficient evidence to claim that soil type 6a has high salinity levels and sufficient evidence to state that soil type 6b is not saline.
 - No information has been provided that soil type 8 is class V land. This has only been asserted in the response to submissions.
 - NSW DPI assumes that where the proponent states soil type 8, 10 and 13 “...does meet the relevant criteria to be considered as BSAL” (RTS p.411), they mean they do NOT meet the relevant criteria.
- Having considered the additional information provided in the RTS, BSAL is still assumed in soil type 2 (62.2ha), 6a (361.5ha), 6b (361.4 ha) and 7 (174.7ha) in the disturbance area, totalling 959.8 ha of potential BSAL, a tenfold increase in the amount claimed.

Biodiversity Offset Areas

- NSW DPI notes that the draft BSAL mapping indicates a presence of approximately 600ha of BSAL on the Additional Biodiversity Offset Area, yet no attempt has been made to verify this area using the Interim protocol for site verification and mapping of BSAL (RTS p.412). The information provided in relation to estimating BSAL is insufficient and cannot be relied on. For example, the proponent has used land capability as a reason for excluding BSAL on the site, when they should be using land and soil capability.

In lieu of carrying out a BSAL verification of the properties concerned, the proponent has identified all areas currently or historically cropped (totalling 514 ha) and made a commitment that these areas will be maintained for continued agricultural production (RTS p. 360 & 371) (thereby excluding these areas from the offset calculations).

The areas that the proponent has identified and excluded from the biodiversity offset areas do not align with the mapped BSAL areas and NSW DPI would question the ability of some of the small areas marked on the Figure 82 (RTS p. 441) “to be maintained for continued agricultural production” in particular how these areas could be maintained for future cropping activities, especially the smaller islands which are completely surrounded by proposed biodiversity offsets.

- BSAL land within Biodiversity Offsets - It should be noted that the O AS&FS (respondent RA16) raised their concern regarding this issue in their response to the EIS exhibition, however this was not noted at RTS point 4.14.3.

Issues below are in relation to the DGR's Key Issue - Rehabilitation

Failure to address Key DGR issue for rehabilitation.

- The DGR's clearly state that the proponent must address specific rehabilitation issues such as the proposed rehabilitation strategy for the site including rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria.
- The O AS&FS has previously raised concerns regarding the adequacy of the proposed rehabilitation monitoring in the EIS and there has been no further information provided by the proponent in the RTS.
- The proponent has stated in the RTS (p.490) that the monitoring and completion criteria will be develop as part of the Rehabilitation Management Plan (despite this being a Key Issue for Rehabilitation in the issued DGR's) and that they will do this in consultation with O AS&FS and other agencies. In response to this the O AS&FS have recommended consent condition 4 (see attachment 1), to ensure that the monitoring programs and completion criteria developed for the reinstatement of agricultural lands be done so in conjunction with the O AS&FS, rather than just in consultation with.

Soil Stripping Volumes

- The proponent has still not addressed the issue of soil suitable for stripping. NSW DPI has recalculated available topsoil and subsoil based on any new information and identified a shortfall of 1,804,000 m³ topsoil and a shortfall of 13,648,250 m³ intermediate soil (see points 1 & 2 below for details).

1) Topsoil Stripping

Table 39 in the EIS (App. Y p. 71) clearly states the desirable soil stripping suitability criteria for topsoil, citing Elliot and Reynolds (2007) and Elliot and Veness (1981). When these criteria are applied to the soil characteristics detailed in Appendix Y for each soil type, a shortfall of 1,804,000 m³ topsoil is seen.

Soil type	Stated topsoil stripping volume (RTS, Table 58)	DPI calculated topsoil stripping volume (based on criteria from Table 39, EIS AppY, p.71)	Comments
1 Brown Sodosol	1,780,000	1,335,000	Stated pH and EC values in Table 39 (EIS, App Y) exceeded below 15cm.
3a Brown Sodosol	562,500	562,500	
3b Brown Chromosol	1,125,000	1,125,000	
4a Brown Sodosol	1,130,000	678,000	Stated pH values in Table 39 (App Y) exceeded below 15cm.
4b Brown Kandosol	2,491,500	2,491,500	
5 Red Chromosol	1,251,000	1,251,000	
6a Brown Dermosol	0	0	
6b Brown Vertosol	745,000	319,500	Stated pH and EC values in Table 39 (App Y) exceeded below 15cm.
7 Red Ferrosol	642,000	160,500	Stated pH values in Table 39 (App Y) exceeded below 15cm.
8 Brown Vertosol	417,500	417,500	
Total (m³)	10,144,500	8,340,500	Shortfall in topsoil of 1,804,000 m³

2) Intermediate or Subsoil Stripping

The only soil types where sampling has been conducted to a depth of 1.2m or more are soil types 2 and 6a, neither of which are being used for intermediate soil stripping. This means that there is no data supporting intermediate soil stripping of soils 3a, 3b, 4a, 4b, 5, 6b, 7 and 8 to a depth of 1.2m. In fact, statements in the proponents EIS (Appendix Y) on soil stripping depth would appear to specifically exclude a range of these soils.

Soil type	Sampling depth	Comments
1 Brown Sodosol	0-90cm	
3a Brown Sodosol	0-60cm	
3b Brown Chromosol	0-95cm	Clay subsoil past 0.5m can only be stripped if blended
4a Brown Sodosol	0-90cm	Only topsoils to 0.25m suitable for stripping (p28 App Y)
4b Brown Kandosol	0-80cm	
5 Red Chromosol	0-100cm	May be stripped below 0.3m if blended with sandy material (p33 App Y)
6a Brown Dermosol	0-140cm	Not suitable
6b Brown Vertosol	0-80cm	May be stripped to 0.35m if blended with sandy material (p 37 App Y)
7 Red Ferrosol	0-60cm	May be stripped to 0.6m if blended with sandy material (p 39 App Y)
8 Brown Vertosol	0-65cm	Recommended stripping depth 0.25m (p41 App Y)

Using this information, an estimate of available intermediate soil can be made:

Soil type	Ha of soil type in the project disturbance area	Potential intermediate stripping depths	Shenhua Watermark Stated Intermediate soil stripping volume (m ³)	DPI Calculated Potential Intermediate soil stripping volume (m ³)
1 Brown Sodosol	890	15-90cm	0	0
3a Brown Sodosol	225	25-60cm	2,137,500	78,750
3b Brown Chromosol	225	0.5-95cm	1,575,000	1,012,500
4a Brown Sodosol	452	15-25cm	4,284,000	452,000
4b Brown Kandosol	453	55-80cm	2,944,500	1,132,500
5 Red Chromosol	417	30-100cm	3,753,000	2,919,000
6a Brown Dermosol	212	0cm	2,544,000	0
6b Brown Vertosol	213	35-80cm	1,810,000	1,384,500
7 Red Ferrosol	107	15-60cm	642,000	481,500
8 Brown Vertosol	167	25-65cm	1,586,500	668,000
Total (m³)			21,277,000	8,128,750

As can be seen from the table, based on stated soil availability and known sampling depths, the amount of confirmed available intermediate soil is 8,128,750 m³ instead of the stated 21,277,000 m³, a shortfall of 13,648,250 m³.

Rehabilitation Areas and Final Land Use

- 3233 ha of class III land to exist within the disturbance boundary area post-mining. 1963ha of this will be rehabilitated land (EIS table 42, soil survey) and 1270ha will be land not affected by the mining footprint. 1000ha of the total 3233 ha Class III land has been allocated for agricultural use (EIS AA, p. 29, RTS p. 20) and will be located on the rehabilitated land. The soil stripping balances have been assessed as being inaccurate and therefore DPI believes that this area of land may not be able to be created with the balances that are actually available.

If 1963ha of class III land is to be rehabilitated, then this entire area of land should be fully returned to agricultural uses, rather than to Box Gum Woodland which may be allocated and better suited to other land classes.

- No information is provided to indicate where the 100ha of claimed post-mining onsite BSAL area will be located. No further information was provided in the RTS.

Issues below are in relation to the DGR's Key Issue - Water Resources

Key water-related issues raised in relation to the Agricultural Impact Statement included:

- Define the "external water supply component" (average 150 ML/yr and up to 600 ML/yr;
- Non-inclusion of NSW Murray-Darling Basin (Gunnedah-Oxley Basin) Groundwater source as water relocated from agriculture;
- Potential water quality issues associated with enhanced aquifer recharge (and surface seepage) via the Permian from overburden emplacement; and
- Response to potential draw-down of 1-2 metres in 4 bores adjacent to the Southern Mining Area.

1. External water supply

It is proposed (RTS p.462) that 150 and up to 600 ML/year may be diverted from:

- Zone 8 of the Upper Namoi Alluvial groundwater source via an existing project-owned irrigation bore (GW28622);
- Zone 7 of the Upper Namoi Alluvial groundwater source via an existing test bore; and/or
- NSW Murray-Darling Basin Porous Rock (Gunnedah-Oxley Basin) - @ 19L/sec in vicinity of WM0427A

The Water Access Licence shares associated with GW28622 is not known. As there is only a test bore in Zone 7, it is assumed there are no current WAL shares from Zone 7. It is indicated that the project has purchase shares of unassigned water from the Gunnedah-Oxley Basin porous rock groundwater source.

Reference to the NSW Office of Water Public Register of Allocation Assignments (<http://registers.water.nsw.gov.au/wma/AllocationSearch.jsp?selectedRegister=Allocation>) indicates that there is some history of annual allocation assignments (analogous to "temporary transfers") in Zone 8 but not in Zone 7. As a result, securing access to external water supply may prove challenging from the adjacent alluvial groundwater sources may prove challenging, especially the upper range of external water supply is required.

2. Non-inclusion of NSW Murray-Darling Basin Porous Rock (Gunnedah-Oxley Basin) as water relocated from agriculture

It is acknowledged that water quality, especially salinity indicated by the monitoring data supplied from the project locality is a constraint to agricultural uses and that there has been unassigned water available via market mechanisms in the water source.

3. Potential water quality issues from recharge via Permian sediments in the overburden

The response of including seepage from the overburden (into the mine water system) into the groundwater quality monitoring program to indicate seepage chemistry and potential risk to the environment is noted. The proposed response to adverse results, including interception or installation of pump-back bores to the mine water system is noted (RTS p. 460-461).

4. Response to potential draw-down of 1-2 metres in 4 bores adjacent to the Southern Mining Area

It is noted (RTS p.459) that the proponent is *'...committed to managing the impact of groundwater depressurisation due to the Project...'* and, if requested by landholders, will monitor all bores within the draw-down zone (area where a predicted drawdown of greater than 0.25 metres as a consequence of the project for has been identified) *'...for flow, water level and quality to validate model predictions and/or provide early warning of anomalous results'*.

NSW DPI commends this proposed response. Should impact as a consequence of the project be confirmed, it is proposed that mitigation of the impact (through bore construction methods including but not limited to installation of a new fit-for-purpose bore or modification of the existing bore with casing or other intervention to exclude affected formations/aquifers) and/or provision of secure alternative fit-for-purpose water supply be provided.

Recommendation:

DPI has recommended the inclusion of a "make good" consent condition for potentially affected domestic and stock/basic landholder rights groundwater users (see Issue 5 in attachment 1)

Issues below are in relation to the DGR's Key Issue - Social & Economic

1) Management of impacts on visual amenity

In the OAS&FS submission, concerns were raised with regard to deficiencies in the Visual and Lighting Management Plan (VLMP) proposed by the proponent for mitigating visual amenity impacts. Of particular concern was the lack of detail about the proposed mitigation measures and the time delay for these measures to become effective.

In the RTS (Section 4.17.1), the proponent has acknowledged that the proposed VLMP would still result in "high" and "moderate" visual impacts depending on the viewing location, for lengthy periods of time ranging from 6-30 years. In addition, the proponent has not provided a timeframe for the development and implementation of the VLMP.

2) Land values

In the OAS&FS submission, concerns were raised that the proponent had not adequately addressed the potential impact of the proposed development on land values.

In the RTS, the proponent presents a section on "Land Devaluation" in which it refers to a study by Deloitte Access Economics (2012), which found "that housing prices in Singleton were not statistically significantly different from other areas" (Section 4.28.2,

p.596). The proponent does not present any information regarding the potential devaluation of agricultural and rural residential land in proximity to the proposed new mine. This is of particular concern given the visual amenity impacts due to the proposed development may result in the devaluation of this land.



Department of Primary Industries

OUT14/8706

26 MAR 2014

Mike Young
Manager Mining
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Young

I refer to the recent site inspection of the Watermark Coal Project (WCP) located east of Gunnedah by staff from NSW Department of Primary Industries (DPI) on 19 January 2014. This visit was generated from issues raised in our correspondence to you dated 4 March 2014 (ref: OUT14/8033).

I am pleased to advise that the site inspection facilitated a resolution for the following three outstanding issues raised in the above referenced correspondence being:

1. Incomplete identification of biophysical strategic agricultural land (BSAL) affected by the project,
2. Errors in the calculations quantifying the soil available from stripping to be utilised in the rehabilitation of the project site, and
3. Methodology and rehabilitation criteria for reinstated agricultural lands.

Based on the presentation of information provided by consultants from the WCP and the on site inspection both completed on the 19 March 2014 I can now advise our informed position on these three points as:

Point 1-

DPI accepts the methods used to determine BSAL and accepts the stated quality of the Booloocooroo soil landscape. Mapped BSAL covers 439 282 ha of the Liverpool Plains catchment, meaning that the total 236 ha accounts for 0.05 per cent of BSAL in the Liverpool Plains. Within the Breeza Parish, mapped BSAL covers 4030 ha, meaning that the total 236 ha accounts for 5.9 per cent of BSAL in the locality.

Point 2 –

There is a reasonable probability that the volumes of soil required will be sourced and that this soil will be suitable, provided that a soil testing regime is specified to avoid the presence of hostile soils (particularly sodic, saline and acid soils). DPI is satisfied that this issue is able to be addressed in the rehabilitation plan.

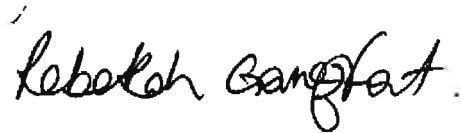
Point 3-

DPI will reserve final comment pending the publication of the rehabilitation plan. However consent conditions should state that DPI be consulted on the Rehabilitation Plan and any rehabilitation trials should be publicly evaluated through a peer review process.

This advice from the Office of Agricultural Sustainability & Food Security is forwarded direct to the Department of Planning & Infrastructure in accordance with agreed arrangements for mining applications that affect agricultural land. It includes comments provided by officers in Agriculture NSW and NSW Trade & Investment. Additional advice from the other divisions within the Department of Primary Industries may be forwarded by separate letter.

If you wish to discuss the issue further please call Rob Williamson on telephone 02 6391 3166 or by email robert.williamson@dpi.nsw.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rebekah Gomez-Fort'.

Rebekah Gomez-Fort
A/Director Office of Agricultural Sustainability & Food Security



Department of Primary Industries

OUT13/37034

Mr Matthew Riley
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Matthew.Riley@planning.nsw.gov.au

Dear Mr Riley,

Watermark Coal Project (SSD 4975) Comment on the Response to Submissions Report

I refer to your email dated 22 November 2013 to the Department of Primary Industries in respect to the above matter.

Comment by Fisheries NSW

Fisheries NSW advise no further comments.

For further information please contact David Ward, Fisheries Conservation Manager (Tamworth office) on 6763 1255, or at: david.ward@industry.nsw.gov.au.

Comment by NSW Office of Water

The Office of Water advises it requires further information to address the concerns and questions raised in its submission to the Environmental Impact Statement. More detailed information is required to enable more specific comments to be made on the project. Key comments are provided below and detailed comments are included in Attachment A:

- (i) The proponent has not secured, or demonstrated the ability to secure the required water licence entitlements for all but one of the relevant water sources where water take is predicted. This represents a significant risk to the viability of the project and it is recommended this be clarified prior to project determination.
- (ii) The proponent has not addressed a number of concerns identified previously by the Office of Water regarding the uncertainty of the groundwater modelling and related impact assessment. The Office of Water considers this uncertainty could lead to significant variations between actual and modelled impacts and hence uncertainty in the acceptability and ability to mitigate impacts. Well

designed monitoring and regular model verification and updating will be critical to lessen the degree of uncertainty.

- (iii) Due to the uncertainty in groundwater impacts it is recommended the proponent provide a report prior to project determination which considers the available mitigation and make-good provisions for predicted and unforeseen impacts, and their feasibility. This should include an identification of the risks and an assessment of the likelihood and consequence of those risks.
- (iv) The Office of Water requests consultation in development of a Water Management Plan for the project. A key component of this plan would be the commitment to update models for the project which is to include model verification based on a comprehensive monitoring and metering program.

For further information please contact Christie Jackson, Water Regulation Officer (Tamworth office) on 6701 9652, or at: christie.jackson@water.nsw.gov.au.

Comment by Crown Lands

Crown Lands advise no issues, but requests the standard conditions detailed in Attachment B be applied as applicable in any approval of the application.

For further information please contact Scott Stanton, Group Leader (Tamworth office) on 6764 5121, or at: scott.stanton@lands.nsw.gov.au.

Comment by Office of Agricultural Sustainability and Food Security

In accordance with procedures for mining projects that affect agricultural land the Office of Agricultural Sustainability and Food Security Will respond direct to your Department

For further information please contact Rob Williamson, Leader Land Use Planning (Orange office) on 6391 3166, or at: robert.williamson@dpi.nsw.gov.au.

Comment by Forestry Corporation NSW

As previously advised, as of 1st January 2013 Forests NSW became the Forestry Corporation of NSW, a separate government entity. Referral should be made direct to that Corporation for comment.

For further information please contact Conan Rossler, District Manager (Baradine office) on 6843 1607, or at: conan.rossler@fcnsw.com.au.

Yours sincerely



Tony Heffernan
A/Executive Director Business Services

Attachment A

Watermark Coal Project (SSD 4975) Comment on the Response to Submissions Report Additional comment by NSW Office of Water

1. Groundwater Management

Licensing

- The proponent has not secured, or demonstrated it can secure, the required water holdings for all but one of the relevant water sources from which take is anticipated (including holdings required following project completion – years 31-60).
- As the proponent does not currently hold water licences to cover the predicted volume of water take, there remains a risk that they may fail to obtain what they require.
- The Office of Water recommends that the proponent be required to license the maximum of the predicted annual water quantities prior to the commencement of activities.

Baseline monitoring

- The absence of stygofauna has only been inferred, not demonstrated. The proponent has demonstrated the absence of stygofauna to a reasonable degree, citing the sampling results from 20 bores, however uncertainty remains regarding the methodology used to interpret the suitability of host conditions.
- The proponent has not responded fully to a number of monitoring activities suggested by the Office of Water. It is recommended conditions of consent require the proponent to adhere to requirements specified by the NSW Office of Water through a Water Management Plan.

Assessment of impacts on groundwater and groundwater dependent ecosystems (GDEs)

- No analytical error or uncertainty estimates are presented, for any measured, inferred or synthetic data.
- While the proponent is of the view that the project will have very limited, if any, influence on the Mooki River, strict monitoring and mitigation provisions should apply for any eventual unforeseen impacts on the Mooki River.
- The impact of the proposed project on the existing spatial distribution of groundwater quality and beneficial use zones within the alluvium, as a consequence of laterally altered groundwater flow rates and/or directions, has not been explicitly addressed. Uncertainty remains with the characterisation of the formations immediately adjacent to the alluvium and the hydrology of the interface. It is vital that groundwater hydrodynamics and chemistry are adequately monitored so that any unforeseen impacts can be detected.

Salinity budget

- The proponent provides a qualitative description of the salinity data and the hydrodynamics which influence the potential salinity outcome for the Mooki River. While the proponent has presented a valid argument to not include a salinity mass balance for the Mooki River, strict monitoring and mitigation provisions should apply for any eventual unforeseen impacts on the Mooki River.
- Analytical errors were not presented for all data and a number of technical shortcomings relating to the salinity and geochemical impacts have not been fully addressed.

Modelling

- The Office of Water has identified many unquantifiable uncertainties with the groundwater model. It is recommended this uncertainty be acknowledged, recognising that it is essentially unavoidable to a reasonable degree, emphasising the importance of monitoring, mitigation and make-good measures. The proponent must therefore be compelled to commit to a thorough groundwater monitoring, modelling (including verification), mitigation and make-good program.

- The proponent quotes the requirements of the MDBC, 2001 modelling guidelines, however the relevant standard is the *Australian Groundwater Modelling Guideline (2012)*.

Monitoring

- The requirement to develop a water monitoring program in consultation with the Office of Water should be included in the conditions of consent for any approval.

Mitigation strategies

- The Office of Water strongly recommends that the proponent commit to developing clear triggers and mitigation strategies for changes in surface and groundwater levels, flow or quality.
- The proponent has not demonstrated that any of the potential mitigation strategies or make-good measures mentioned in the report are feasible. The risks associated with each proposed strategy should be recognised and quantified.

2. Floodplain Management

- The Office of Water considers Watermark Gully to be a second order stream.
- *Page 115* - Native Dog Gully does not receive flows from the Mooki River, it drains to the Mooki River. In addition Yarraman Creek flows into Native Dog Gully in all flow conditions, not just low flows.
- *Page 122* - The Response to Submissions states that there will be a maximum increase in flood levels of less than 5mm for the 100 year Average Recurrence Interval (ARI) flood event. A plan or diagram should be included to show where this impact is and why. If there is a 5mm impact from the Mooki River flood levels, it is considered its impact would be greater than 200m. More information is required to clarify this issue.
- *Page 123 (Section 4.3.12)* - The Response to Submissions report states that the impacts on the Kamilaroi Highway are negligible. Clarification is required as to how this judgement was made (i.e. what is deemed to be a negligible impact). Appropriate figures should be provided to support such an assessment. The report states that the 2 year and 100 year ARI peak flood levels at the Kamilaroi Highway increase by up to 0.04m and 0.03m compared to pre-mine conditions. Actual figures need to be provided and should be compared with Figures 35 and 36.
- Figure 31 shows nothing coming in from the side, however nodes indicate local inflow. A table or chart should be included to allow a comparison. A vector diagram showing pre and post-mine conditions should also be included.
- There should be a comparison included in the report of the range of events especially for the impact on the highway.
- Review of the report shows no ARI for post-mine or during mining. Information should be provided on the control point for flows at the highway (railway culverts) and how it changes pre-mine and post-mine. Clarification is required as to who determines what is the acceptable impact (e.g. Roads and Maritime Services?).
- Works on the floodplain are likely to require licensing under Part 8 of the *Water Act 1912*. It is recommended that the proponent submit an application at the earliest possible opportunity, and prior to any Planning Assessment Commission hearing to allow these to be considered by the Commission.

3. Riparian Management

The proponent outlines a Channel Diversion Plan will be developed, which will provide further detail on the design and hydraulic characteristics of the proposed diversion. The Channel Diversion Plan will be developed in consultation with the Office of Water. The requirement to develop a plan in consultation with the Office of Water should be incorporated into the Project Approval as a condition.

4. Conditions of Approval

The conditions of approval recommended by the Office of Water (in its submission on the EIS) should remain, with an added explicit requirement that when the groundwater model is updated, model verification should also take place.

End Attachment A

Attachment B

Watermark Coal Project (SSD 4975)

Standard conditions in respect to Crown land

STANDARD CROWN LAND CONDITIONS

For all Major Project Mining Approvals being assessed by NSW Planning

The Applicant shall ensure that all statutory requirements relating to Crown Land including but not restricted to those set down by the *Crown Lands Act 1989* are fully met.

The Applicant shall hold a Crown lands tenure, in accordance with the *Crown Lands Act 1989*, authorising occupation of Crown land reflective of the use of the land.

Irrespective of any development consent or any approval given by other public authorities, any work or occupation of Crown land cannot commence without a current tenure from Lands authorising such work or occupation.

The Applicant shall conform to the following requirements under the *Crown Lands Act 1989*:

- a). Where Crown roads are utilised for the purposes of the project or impacted on by the project activities, the Applicant must within 12 months of project approval, obtain a License or Lease over the Crown road in accordance with the *Crown Lands Act 1989*.
- b). Crown roads within holdings owned by the Applicant or impacted on by projects activities as described above, may be included in a road closing application lodged by the Applicant. Where Crown roads under application cannot be closed and purchased within a 12 month period following project approval, then the Applicant must obtain License or Lease over the Crown road in accordance with the *Crown Lands Act 1989*.
- c). Where Crown land (other than Crown roads) is utilised for the purposes of the project, the Applicant must within 12 months of project approval, obtain a License or Lease over the Crown land in accordance with the *Crown Lands Act 1989*. Note the Applicant has no authority to occupy or utilise Crown Land until a tenure under the Crown Lands Act, 1989 is granted. Given the complexities in regard to Native Title that affect many Crown Lands it is in the Applicants best interest to inform and apply to Crown Lands for a tenure as early as possible in the development process.
- d). Where the purpose of any existing Crown land Licence or Lease, held or acquired by the Applicant, is not compatible with the proposed project activities and land uses, the Applicant must within 12 months of project approval, obtain a new License or Lease over the Crown land that reflects the proposed use of the land in accordance with the *Crown Lands Act 1989*.
- e). Where the Applicant fails to meet any of the above conditions, the Applicant is subsequently not in compliance with the project approval, and all necessary enforcement from NSW Planning should come into effect.

The Applicant shall consult with the Minister administering Crown lands and the Minister's delegates, on any requirement of the Applicant to restrict public access to Crown land for the reasons of Public Safety, in particular in relation to prevent public access to land subjected to subsidence, blasting affects, water and air quality impact, and general security around access roads haulage roads and mining infrastructure.

The Applicant shall provide the Minister administering Crown lands and the Minister's delegates, the detail of any proposed Environmental Offset to be located on Crown land, in particular any conditions proposed by the Applicant that seek long term security of the Offsets.

The Applicant shall consult with the Minister administering Crown lands and the Minister's delegates, on any requirement of the Applicant to seek the rezoning of Crown land. Note that the landholders consent is required prior to the lodging of any re-zoning application.

The Applicant shall consult with the Minister administering Crown lands and the Minister's delegates, throughout the life of the mine on the development and implementation of all Environmental Management Plans that affect Crown land.

The Applicant shall provide the Minister administering Crown lands and the Minister's delegates, detailed information and location diagrams of the proposed use of Crown land, including but not restricted the following land uses:

- Hazard Waste and Industrial Waste disposal sites.
- Waste Water utilisation areas.
- Point Discharge areas.
- Waste Rock and Tailing structures.
- Processing Plants and other high impact Infrastructure sites
- Gravel Borrow Pits.
- Environmental Offset areas.

The Applicant, where requested by the Minister administering Crown lands or the Minister's delegates, shall purchase Crown land considered by the Minister to be impacted on by mining operations to the extent that it is in the interests of the Public of NSW that the land be sold to the Applicant. The Applicant shall pay all reasonable costs associated with the purchase. The Applicant shall pay the current market value of the land and a commercial premium as negotiated between the Applicant and the Minister administering Crown lands or the Minister's delegates.

End Attachment B



Mr Matthew Riley
Planning Office
Mining Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Riley

**Watermark Coal Project (SSD 4975)
Response to Submissions**

I refer to your email of 22 November 2013 regarding the Shenhua Watermark Coal Pty Limited (Shenhua) application to develop the Watermark Coal Mine and the Response to Submissions (RTS).

NSW Trade & Investment, Regional Infrastructure & Services, Division of Resources & Energy (DRE) has reviewed the *Watermark Coal Project Response to Submissions* dated November 2013 and provides the following comments which are directed at specific areas of DRE responsibility for this proposal.

REHABILITATION

DRE considers an EIS should provide an adequate description of the project's functional domains including tailings dams, waste emplacements, final voids, infrastructure areas.

This EIS does not adequately describe the functional domains of this project for rejects and coal tailings other than it will be disposed of within the emplacements.

In addition, specific performance objectives and standards of other domains are satisfactorily described, however the description of the domains are not referenced to a plan within either the EIS or Response to Submissions.

The development of trigger criteria for remedial actions has not been described or defined. Contingencies have not been described for how rehabilitation would progress during adverse conditions such as drought, or how the area of disturbance would be lessened should rehabilitation not meet performance targets. DRE recommends the proponent identify functional domains, incorporating specific domain objectives and closure criteria prior to the granting of any planning approval or alternatively that the identification domains form a condition of any consent as outlined below.

REHABILITATION PLAN

DRE recommends that the following condition be incorporated into any planning approval:

The Proponent must prepare and implement a Rehabilitation Plan to the satisfaction of the Director General of Department of Trade & Investment, Regional Infrastructure & Services. The Rehabilitation Plan must:

- a. be prepared in accordance with DRE guidelines and in consultation with relevant agencies and stakeholders including Forests NSW;
- b. be submitted and approved by the Director General of Department of Trade & Investment, Regional Infrastructure & Services prior to the commencement of surface disturbing activities;
- c. address all aspects of rehabilitation and mine closure, including final landuse assessment, landscape, final void management, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring.
- d. must clearly define:
 - **Domain Specific Objectives:** Identify the functional domains of the project and describe the rehabilitation objectives for each operational and rehabilitation domain:
 - **Completion Criteria:** Propose detailed 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.

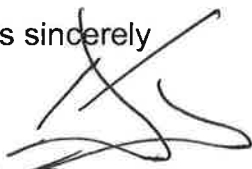
It is DRE's intention that the Rehabilitation Plan fulfils the requirement for a Mining Operation Plan (MOP) which will be a requirement of any mining lease granted for this project.

The Proponent should liaise with DRE in developing the above documents for their proposed operation.

DRE does not object to the approval of the Project provided the above recommendations are taken into account and implemented.

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

Yours sincerely



Adrian Delany
Acting Director, Industry Coordination

6.12.13



Our reference: : DOC13/93890-05
Contact: : Kharl Turnbull – 02 6773 7000 – armidale@epa.nsw.gov.au
Date : 16 December 2013

Mike Young
Manager Mining Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Matthew Riley

Dear Mr Young

EPA Review of Response to Submissions Report- Watermark Coal Project (SSD 4975)

The Environment Protection Authority (EPA) refers to the proposed Watermark Coal Project (SSD 4975) and the Response to Submissions (RTS) report provided to the EPA on 22 November 2013. I apologise for the delay in responding to correspondence.

The EPA has reviewed the information provided within the Response to Submissions Report (RTS) report by the proponent. **Attachment 1** provides further EPA comment with respect to the proponent's response to its submission made following the public exhibition of the Environmental Assessment. Additionally, the EPA's recommended noise and blasting conditions are provided in **Attachment 2** and air quality conditions provided in **Attachment 3**. It is recommended that these conditions are incorporated within any project approval issued for the project.

The proponent appears to have generally addressed the issues raised within the submissions with some exceptions as detailed in **Attachment 1**. The EPA would appreciate an opportunity to review any draft conditions of approval prior to the project being determined.

In summary, from the information presented in the EA, the EPA is still of the opinion that the most significant environmental issues are:

- Air Quality Impacts; and,
- Noise Impacts.

If you have any questions, or wish to discuss this matter further please contact Kharl Turnbull in the Armidale office on 6773 7000.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Robert O'Hern'.

ROBERT O'HERN
Head Regional Operations Unit - Armidale
Environment Protection Authority

Encl: *Attachment 1 – EPA review of Response to Submissions report for Watermark Coal Project (SSD 4975)*

Email: armidale@epa.nsw.gov.au
PO Box 494 Armidale NSW 2350
85 Faulkner Street, Armidale NSW 2350
Tel: (02) 6773 7000 Fax: (02) 6772 2336
ABN 30 841 387 271
www.epa.nsw.gov.au

ATTACHMENT 1 –EPA Review of Response to Submission Report for Proposed Watermark Coal Project (SSD 4975)

A. ACOUSTICS IMPACT ASSESSMENT

Recommendations from EPA submission dated 22 May 2013:

Issue 1: Predicted Operational Noise Impacts

Data provided in the AIA indicates that seven (7) sensitive receivers (14, 32 west, 60, 62 east, 62 west, 103 and 125) will experience noise in excess of 5 dBA above the Project Specific Noise Level (PSNL) of $L_{eq(15minute)}$ 35 dBA. The EPA does not propose to licence these impacts.

Nineteen (19) other sensitive receivers are predicted to be impacted by project residual noise impacts that exceed the PSNL of $L_{eq(15minute)}$ 35 dBA. Of these, fourteen (14) are predicted to be impacted between 1 - 2 dB(A) above the PSNL. Five (5) of these receivers are predicted to be impacted between 3-5 dBA above the PSNL. It should be noted however that these impacts are not predicted to come into affect until year 5 and in some case, year 10 and year 15 of mining activities. These predicted exceedences are also primarily night time during winter due to inversion conditions.

The inference in the EIS is that the EPA should licence the mining operation above the PSNL to allow the mine to operate. Considerable discussion is included that restricting operation at night would generally achieve compliance with the PSNL of $L_{eq(15minute)}$ 35 dBA. However, the EIS goes on to say that this would significantly affect the economics of the mine and in the proponents' opinion, make the project unviable.

The Industrial Noise Policy (INP) does make provision to consider specific circumstances of a development that may make it appropriate to set noise limits above the PSNL (section 1.4.7, p 6). Section 9 of the INP states that determining an approval condition should take into account:

- the assessed noise impact (including additional impact caused by meteorological conditions);*
- mitigation measures required to achieve project-specific noise levels;*
- identification of a practical limit on noise control;*
- consideration of trade offs; and*
- whether the final noise proposed is acceptable (INP, 9.1, p 47).*

The EPA has also considered the Bulga Warkworth appeal decision (Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48). The decision highlights the obligation on the EPA to consider all the matters outlined in Chapter 8.2.1 of the INP to evaluate the acceptability of residual noise impacts above the PSNL prior to forming an opinion.

There is no convincing evidence in the EIS that all of these factors in chapter 8 & 9 of the INP have been effectively addressed or considered before seeking noise limits above the PSNL. In particular, there needs to be an evaluation of the acceptability of setting noise limits in the approval conditions above the PSNL. The EIS does provide some discussion on the acceptability of noise mitigation from the proponents' view point but does not provide evaluation of the acceptability of the residual noise impacts on the surrounding community.

The EPA understands anecdotally that negotiations have occurred between the proponent and surrounding landholders and a significant number of residences predicted to be impacted by the mine project have been purchased.

The EPA notes however that, unlike other recent mining developments in the Gunnedah Basin, the EIS does not provide evidence that the proponent has initiated any negotiations with the remaining impacted receivers prior to its public exhibition. This could be perceived as a failure on the proponent's part to demonstrate that it has done all that is feasible and reasonable to address the projects potential noise

impacts. Private Negotiated Agreements are an important tool that can effectively address the concerns of affected community members and potentially eliminate ongoing business costs and the regulatory burden associated with future complaints from affected communities.

The EPA may consider setting noise limits above the PSNL where the procedures set out in the INP (chapter 8 & 9) has been followed and documented to allow a transparent understanding of why the higher limits are the only option available to permit the development to proceed.

The Negotiated Agreement provisions of the INP are available to the proponent and the EPA recommends that the most appropriate way to deal with all impacts that exceed the PSNL is by negotiation between the proponent and the affected receivers – i.e. a 'Private Negotiated Agreement'.

Private Negotiated Agreements may be reached between a proponent and the owners of non-associated sensitive receivers to accept a higher level of noise impact from a proposal. Noise impacts at Private Negotiated Agreement locations should be managed, or agreements administered, through the relevant development consent rather than the premises' Environment Protection Licence (EPL) but should not result in adverse health impacts. General guidance on Private Negotiated Agreements is provided in the INP.

While not a complete list of additional information requirements, the following information would assist the EPA to make a recommendation concerning the request by the proponent for noise limits to be set above the PSNL to address the residual noise impacts.

- *Evidence is provided of community consultation but no discussion on individual consultation / negotiations and the success / failure or views of the impacted residents on the acceptability of the higher limits.*
- *No discussion is included on proposed mitigation to residences to address residual noise impacts.*
- *There is no predicted impact until year 5 and for some residents 10 and 15 years meaning that there is significant lead time for the proponent to undertake additional negotiation, mitigation or management practices to address the residual noise impacts above the PSNL.*
- *Only 45% of winter nights predicted to be affected by inversions conditions - i.e. 41 nights of the year. No assessment has been included for remaining seasons and how often inversions occur during those seasons. An evaluation has been made of the costs / benefits for not operating at night rather than just the nights that are affected by adverse weather conditions. This additional information is critical for the EPA to evaluate the acceptability, or otherwise reducing operations for just those nights and how this would impact on the proponent's ability to comply with PSNL and still remain economically viable.*
- *There is a proposal in EIS (7.8.4) to install "... a noise predictive system, linked with a weather station system to provide advanced warning of potential exceedances of relevant noise criteria and provide advice regarding available equipment relocation options...". A more detailed description is necessary of how this system works and what undertakings will be delivered by the proponent to manage noise at source.*
- *The CHPP is only proposed to be clad to 4 metres from the ground. Additional cladding to the ground may provide additional noise attenuation.*
- *Acoustic shielding options including earth bunds up to 6 metres high adjacent to mining areas and along major haul road has been discussed in the AIA (5.3.3) but discounted due to only delivering 1 dB(A) noise reduction. It is noted that active equipment management is considered to deliver the same outcome. However, given that twelve (12) of the nineteen (19) properties identified to be impacted by noise are predicted to be impacted by 1 dB(A) over the PSNL, bunds should be considered in addition to active equipment management.*

Recommendation 1:

- *That the recommended noise and blasting conditions provided at Attachment 2 are incorporated within any project approval issued for the project.*
- *That should the proponent seek to further investigate the option of higher noise limits above the PSNL to address residual noise impacts, that they provide the additional information outlined above.*

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

Additional Information / clarification has been provided by the proponent including re-modelling operations with a modified fleet of machinery.

However, the EPA is still concerned about the lack of detail about individual consultation and any success or otherwise with impacted residents on the acceptability of the noise limits above the project specific noise levels (PSNL).

Additionally, the Response to Submissions Report did not include any discussion on proposed mitigation to residences to address residual noise impacts above the PSNL. This additional information, originally requested in the EPA's submission, must be provided by the proponent before the EPA can consider recommendations for noise limits above the project specific noise levels.

There are no predicted noise impact above the PSNL of 35 dB(A) until year 5 and for some residents 10 and 15 years. This allows significant lead time for the proponent to undertake additional negotiation, mitigation and management practices to address the residual noise impacts above the PSNL. The EPA expects that the proponent can also utilise this initial phase of mining to adjust and modify operations using real time noise monitoring and predictive modelling to minimise predicted noise impacts.

It is requested that EPA's "*Recommendation 1*" provided above be reflected in any condition of consent should approval for the project be granted.

Issue 2: Low Frequency Noise Impacts

Recommendations from EPA submission dated 22 May 2013:

In its assessment of the 2012 version of the AIA provided for adequacy review, the EPA raised concern that the method of applying modifying factor adjustments at the source rather than the received A-weighted sound pressure levels may under-predict the impact of the proposal on sensitive receivers by up to 5 dBA, and that the Coal Handling and Preparation Plant may require the application of a modifying factor adjustment for low frequency noise. The AIA has not provided any further detail to justify the approach taken, and has instead stated that "Any modifying factors that are relevant to the assessment, including low frequency penalties, have been applied to the adopted sound power levels for affected mining and transportation equipment and no separate assessment of low frequency noise levels is therefore required. Relevant factors have been applied to the source sound power levels, rather than to received noise levels, to simplify the assessment of a large number of sources that do not require the same modifying factors."

The approach used in this case may be more conservative than the approach in the INP, depending on how modifying factors were applied and to which source sound power levels (SWL). EPA has discussed this matter with the author of the AIA and is willing accept this approach in this case, noting that compliance assessment will need to be undertaken in accordance with the INP.

Recommendation 2:

- *That the recommended noise monitoring conditions provided at Attachment 2 are incorporated within any project approval issued for the project to ensure that operations comply with the noise limits.*

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

It is requested that EPA's "*Recommendation 2*" provided above be reflected in any condition of consent should approval for the project be granted.

Issue 3: Predicted Rail Noise Impacts

Recommendations from EPA submission dated 22 May 2013:

ARTC is responsible for addressing the cumulative rail noise impact on the public rail network from this and the other approved rail traffic generating developments on the Werris Creek to Moree line. The AIA model suggested that a number of receivers already experienced rail noise in excess of criteria and that the Watermark proposal would be responsible for an increase of only 0.6dBA.

However on inspection this 0.6dBA quoted increase is relative to future impact levels associated with existing rail traffic plus future traffic from "other known coal mining projects" ("known" includes approved but not yet commenced projects, but appears to also include projects for which an application has been lodged, but not yet determined). If the influence of the other known coal projects is removed (because they haven't yet commenced operation), it appears that this proposal will be responsible for an increase in rail noise of 1.3dBA which is still below the 2dB increase threshold for significance. However, in EPA's opinion it is significant enough to warrant a condition requiring the use of best practise rolling stock.

Recommendation 3:

- *That the proponent should be required through a condition of consent to only use best practise rolling stock for rail transport resulting from the proposal (including only locomotives which have obtained EPA approval to operate on the NSW rail network under Condition L2 of EPL No. 3142, 12208 or 13421, or in accordance with the former Noise Control Act 1975).*

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

It is requested that EPA's "Recommendation 3" provided above be reflected in any condition of consent should approval for the project be granted.

B. AIR QUALITY IMPACT ASSESSMENT

Recommendations from EPA submission dated 22 May 2013:

The EPA has reviewed the revised AQIA and considers that it has been adequately conducted in accordance with the requirements of the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales. The assessment has sourced appropriate available input data to describe the site, including surrounding terrain, existing air quality and meteorology. The assessment has adopted generally accepted emission estimation techniques from Australia and the US EPA.

A high level of particulate control is assumed in the assessment and as such the predicted potential for impact relies heavily on whether emissions are controlled as effectively as assumed in the assessment. Key Performance Indicators to verify the effectiveness of emission controls have been identified but need to be further evaluated using site specific data as part of an air quality management plan for the project. Key issues identified during the AQIA review are identified below.

Issue 4: Risk of exceedances of the EPA's 24 hour average PM₁₀ impact assessment

Exceedances of the EPA's PM₁₀ 24 hour average impact assessment criterion are predicted for up to eighteen private residences in close vicinity of the eastern, western and southern boundaries of the project, with six private receptors predicted to experience impacts above the criterion due to the project alone. No exceedances of EPA criteria are predicted at sensitive receptors for both project only and cumulative annual average PM₁₀ and TSP. The proponent proposes day to day management of emissions using real time dust and meteorological monitoring.

Recommendation 4:

- That the recommended air quality conditions provided in **Attachment 3**, including the Coal Mine Particulate Matter Control Best Practice Implementation Pollution Studies and Reduction Programs are incorporated in any project approval as consent conditions in conjunction with the meteorological monitoring conditions provided in **Attachment 2**. The recommended air quality conditions detailed in **Attachment 3** include:
 - o Standard environment protection licence dust conditions
 - o Best practice management implementation for wheel generated dust
 - o Best practice implementation for disturbing and handling of overburden under adverse weather conditions
 - o Trial of best practice measures for disturbing and handling overburden
 - o Requirements for the development of a comprehensive air quality management plan to mitigate impacts at the affected residences identified in the AQIA

EPA notes that additional quantifiable and auditable environment protection licence conditions may be required

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

It is requested that EPA's "Recommendation 4" provided above be reflected in any condition of consent should approval for the project be granted.

Issue 5: Risk of exceedances of the EPA's one hour average NO₂ criterion

Recommendations from EPA submission dated 22 May 2013:

A limited number of exceedances of the EPA's one hour average NO₂ criterion are predicted at sensitive receptors of between one and eight hours per year of operations. EPA notes that all modelled exceedances occur between 4pm and 5 pm when there is a rapid drop in mixing height/ increase in atmospheric stability, resulting in poor dispersion conditions. The proponent proposes using predictive meteorological forecasting to avoid blasting in poor dispersion conditions.

Recommendation 5:

- EPA recommends development of a blast management plan utilising meteorological data and predictive forecasting for blast scheduling purposes as part of the air quality management plan for the project.

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

It is requested that EPA's "Recommendation 5" provided above be reflected in any condition of consent should approval for the project be granted.

Issue 6: Need for a comprehensive best practice Air Quality Management Plan

Recommendations from EPA submission dated 22 May 2013:

EPA note the assessment of potential particulates impacts from the proposed project utilises percentage reductions in emission calculations based on proposed best practice control methods and therefore the predicted potential for impact relies heavily on whether emissions are as effectively controlled as assumed in the assessment. Potential key performance indicators to determine the effectiveness of control measures have been identified and should be included in the Air Quality Management Plan (AQMP) for the project but will require further evaluation once operational data is available for input.

All proposed management practices must be consistent with best management practice and be quantifiable, measurable, auditable and enforceable. Methods for determining compliance must be clearly identified.

Recommendation 6:

- *That the conditions of approval include the development of a comprehensive air quality management plan for all dust generating activities at the site prior to application for an Environment Protection Licence.*
- *That the recommended conditions provided in **Attachment 3** are incorporated in any project approval to ensure that an AQMP is prepared and submitted to the EPA in conjunction with an Environment Protection Licence application prior to any dust generating activities commencing at the project site.*

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

The proponent has undertaken a mine planning optimisation review following the exhibition of the EA for the Watermark project. It was identified that a fleet of fewer, larger haul trucks would result in a decrease in total vehicle kilometres travelled and therefore emissions from haulage. The emissions inventory for year 25 of the project- the year of highest total emissions for the project- was recalculated, with a decrease in emissions of approximately 15 % utilising the optimised fleet.

Notwithstanding fleet changes the conclusions of the original AQIA remain unchanged.

Although the proposed use of fewer and larger trucks in the mining fleet would result in a decrease in total particulates emissions for the project additional modelling has not been conducted to quantify the potential reductions in impacts at receptors. Consequently, outcomes of the AQIA provided for the proposal have not altered and the EPA previous comments in relation to the AQIA remain. That is, the recommended air quality conditions provided in Attachment 3, including the Coal Mine Particulate Matter Control Best Practice Implementation Pollution Studies and Reduction Programs are incorporated in any project approval as consent conditions in conjunction with the meteorological monitoring conditions provided in Attachment 2.

It is requested that EPA's "Recommendation 6" provided above be reflected in any condition of consent should approval for the project be granted.

C. SURFACE AND GROUND WATER IMPACT ASSESSMENTS

Recommendations from EPA submission dated 22 May 2013:

Issue 7: Water Balance Calculations

There appears to be some discrepancy within the EIS and relevant appendices with respect to the proposed water application rates to haul roads for dust suppression. PAE Holmes Air Impact Assessment (AIA - Appendix G) appears to have assumed a control efficiency of 85% for dust suppression on haul roads. Lower levels of dust control efficiency (75 – 80%) in other comparable projects in the Gunnedah basin have been associated with commitments to apply some two litres/square metre/hour or more to haul road surfaces using water carts. The WRM Surface Water Impact Assessment (SWIA - Appendix S) water balance assumptions on the other hand have applied an extremely low haul road dust suppression water application rate of only 0.08 litres/square metre/hour (1.92 mm/day) along with the use of chemical dust suppressants.

This very low application rate has been justified via a reference to a report titled "Understanding Leading Practice Water Management" that was published by the Australian Coal Association Research Program (ACARP) in 2008. The SWIA asserts that this study of 11 open cut mine sites in the Bowen Basin and

Hunter Valley found a median water application rate of 2.5 mm/day and that leading practice haul road dust suppression used a water application rate of approximately 1.26 mm/day. However, it must be noted that the ACARP, 2008 report did not examine the dust control efficiencies being achieved at each of its 11 study sites. Rather the report focussed solely on water use efficiencies and best practice. As such, the proponent has failed to demonstrate that they can achieve the dust control efficiencies assumed in the AIA by PAE Holmes.

If the water application rate of 1.92 mm/day in combination with the use of chemical dust suppressants proves an ineffective means of adequately controlling dust emissions from mine haul roads, this will potentially have very significant implications for the site water balance modelling. If application rates circa those used at other established mines in the Gunnedah basin (i.e. 2 litres/square metre/hour) prove necessary for effective dust control, this will equate to a 25 fold increase in water demand for haul road dust suppression. The EPA is concerned therefore that there may be insufficient water available at the site to address this important issue.

When you further consider that the EPA is recommending the application of its best practice dust stop pollution reduction programs to the project site, and that these require the proponent to demonstrate a minimum dust control efficiency of 80% for haul road emissions, it is clear that performance at levels below this widely applied best practice performance benchmark will not be considered appropriate at this site.

The SWIA claims that water collected on-site will meet all the proposed site water demands ninety percent of the time. Despite this the water balance modelling shows that some water imports from off-site will be required even in 1 and 10 percentile wet years. The SWIA also indicates that the project as proposed will require some 168 share components of the total 29,589.5 share units available for the Mooki River water source to meet site water demand. It has however not provided any analysis of the security of Mooki River allocations, nor has it demonstrated that it will be able to secure and activate sufficient share component from the water market to reliably provide access to its off-site water needs under all climatic scenarios. It has also failed to provide any analysis of the water markets ability to supply any additional water to cover contingencies, such as the need to utilise more water to meet accepted dust control efficiency targets.

Recommendation 7:

That the project is not determined until the proponent has:

- Made provision for and demonstrated that sufficient water will be available throughout the entire project life to supply the haul road water application rates conservatively required to achieve the proponent's commitment to high level particulate control. Alternatively the proponent must demonstrate that the proposed application rate detailed in the SWIA in combination with the use of chemical suppressants will deliver a minimum 80% dust control efficiency from haul roads;
- Demonstrated that the Mooki River Water Source can provide the supply security required to cater for the projects water demands under all climatic conditions; and
- Identified appropriate contingency water supply/demand management measures that will be implemented to ensure the project continues to meet the required environmental and air quality performance benchmarks if the assumptions made in the water balance modelling prove inappropriate.

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

Additional Information/ clarification has been provided by the proponent. However, the EPA is still concerned with the availability of water from off site to secure sufficient water supply throughout the entire project life to ensure the required environmental and air quality performance benchmarks can be met (including available water to ensure that 85% control efficiency for dust suppression on haul roads).

The assumptions provided rely on the proponent gaining water access licences on the open market or alternatively, obtaining water from existing or yet to be constructed bores on Shenhua Watermark owned land that still need to obtain relevant licensing approvals.

It is requested that EPA's "Recommendation 7" provided above be reflected in any condition of consent should approval for the project be granted.

Issue 8: Final Void

Recommendations from EPA submission dated 22 May 2013:

While the EPA notes that the GIA predicts that the single final void in the western mining area will act as a groundwater sink rather than a source of potentially contaminated recharge, it also notes that the Planning and Assessment Commission report into the Maules Creek Project states, "final voids should not be an ongoing feature of mining in NSW". The EPA would prefer that final voids were avoided completely, reduced to the absolute minimum or were free draining, in line with world best practice to minimise or eliminate any future potential site liabilities and performance uncertainties.

Recommendation 8:

- *In light of the Maules Creek PAC report, consideration may need to be given to conditioning any project approval to require amendment of the proposed dimensions of the final void or incorporating design features (for example, seals and/or drainage mechanisms) to avoid any potential interaction with surrounding aquifers.*
- *The EPA recommends that alternative mine designs that avoid or minimise final voids are examined. The costs and benefits of these alternatives should be evaluated and include an analysis of how any liability for the life of the impact from the voids will be managed or offset following closure.*

Additional EPA comments following review of the proponents Response to Submissions dated November 2013

Additional information / clarification has been provided by the proponent.

The EPA encourages continual review as the project progress to minimise, and if possible avoid, the need for a final void.

ATTACHMENT 2 –Shenhua Watermark Coal Project Proposed Noise and Blasting Conditions

Limit Conditions

L6.1 Noise generated at the premises must not exceed the noise limit of $L_{Aeq(15\text{ minute})}$ 35 dB(A) at all times at any sensitive receiver not subject to a private negotiated agreement.

Note: The EPA may consider setting noise limits above $L_{Aeq(15\text{ minute})}$ 35 dB(A) at individual sensitive receivers where it has sufficient information available as outlined in the Industrial Noise Policy (INP) chapters 8 & 9 to evaluate the acceptability of residual noise impacts.

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 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; or
- c) Stability category G temperature inversion conditions.

L6.4 For the purposes of condition L6.3:

- a) Data recorded by the meteorological station identified as EPA Identification Point W1 and /or W2 (the station closest to the receiver location in question) 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.

L6.5 Noise impacts during the meteorological conditions defined in L6.3 a), b) & c) must be addressed by:

- a) documenting noise complaints received to identify any higher level of impacts; and
- b) where noise complaints indicate a higher level of impact then actions to quantify and ameliorate any enhanced impacts during these meteorological conditions must be developed and implemented.

L6.6 To determine compliance:

- a) with the $L_{eq(15\text{ minute})}$ 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 $L_{A1(1 \text{ minute})}$ 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 L6.5(a) or L6.5(b).

L6.7 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 L6.5(a) and L6.5(b); and/or
- at a point other than the most affected point at a location.

L6.8 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.

Blasting Conditions

Airblast overpressure level

- L7.1** The airblast overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L7.2** The airblast overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

Ground vibration level

- L7.3** Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L7.4** Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

Blasting hours

- L7.5** Blasting at the premises may only take place between 9:00am-5:00pm Monday to Friday. Blasting is not permitted on public holidays.
- L7.6** Blasting outside of the hours specified in L7.5 can only take place with the written approval of the EPA.

Blast monitoring

L7.7 To determine compliance with condition(s) L7.1 to L7.4:

- a) Airblast overpressure and ground vibration levels experienced at the following noise sensitive locations must be measured and recorded for all blasts carried out on the premises;
 - <enter exact location - consider ANZEC guidelines. Lot & DP, street address identifiers should be used >.
- b) Instrumentation used to measure and record the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.

NOTE: A breach of the licence will still occur where airblast overpressure or ground vibration levels from the blasting operations at the premises exceeds the limit specified in conditions L7.1 to L7.4 at any "noise sensitive locations" other than the locations identified in the above condition.

L7.8 The airblast overpressure and ground vibration levels in conditions L7.1 to L7.4 do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.

Monitoring Conditions

M7.1 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M7.2.

M7.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Points W1 and W2

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature at 2 metres	degrees Celsius	Continuous	10 minute	AM-4
Air temperature at 10 metres	degrees Celsius	Continuous	10 minute	AM-4
Wind direction at 10 metres	degrees clockwise from True North	Continuous	10 minute	AM-2 & AM-4
Wind speed at 10 metres	metres per second	Continuous	10 minute	AM-2 & AM-4
Sigma theta	degrees clockwise from True North	Continuous	10 minute	AM-2 & AM-4

Rainfall	millimetres	Continuous	10 minute	AM-4
Relative humidity	percent	Continuous	1 hour	AM-4
Total solar radiation	watts per square metre	Continuous	10 minutes	AM-4
Siting				AM-1

Note: The location of Point W1 and W2 must be approved by the EPA prior to the installation of the monitoring equipment. Two points have been included as EPA is aware that two meteorological stations are already location on the project site.

b) Monitoring of all parameters listed in Condition 1 Column 1 must commence prior to earth moving activities being undertaken at the site.

Requirement to Monitor Noise

M8.1 To assess compliance with Condition L6.1, attended noise monitoring must be undertaken in accordance with Conditions L6.5 and:

- a) at each one of the locations listed in Condition L6.1;
- b) occur quarterly 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 quarterly monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant 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.

Additions to Definition of Terms of the licence

- NSW Industrial Noise Policy - the document entitled "New South Wales Industrial Noise Policy published by the Environment Protection Authority in January 2000."
- Noise - sound pressure levels' for the purposes of conditions L6.1 to L6.7.
- "Noise sensitive locations" includes buildings used as a residence, hospital, school, child care centre, places of public worship and nursing homes. A noise sensitive location includes the land within 30 metres of the building.

ATTACHMENT 3- Shenhua Watermark Coal Project Proposed Air Quality Conditions

Operating Conditions

- O1.1** The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
- O1.2** Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission of dust from the premises.

Pollution Studies and Reduction Programs- Coal Mine Particulate Matter Control Best Practice Implementation

U1 Wheel Generated Dust

- U1.1** The Licensee must achieve and maintain a dust control efficiency of 85% or more on all active haul roads from *<date of commencement of dust generating activities at the site>*.

Control efficiency is calculated as:

$$CE = \frac{E \text{ (uncontrolled)} - E \text{ (controlled)}}{E \text{ (uncontrolled)}} \times 100$$

Where E = the emission rate of the activity

- U1.2** The Licensee must prepare a Monitoring Program to assess its compliance with Condition U1.1 under varying meteorological conditions. The Monitoring Program must detail the:
- parameters to be monitored;
 - methods to be used to monitor each parameter;
 - locations where each parameter will be monitored;
 - frequency at which each parameter will be monitored;
 - Key Performance Indicators that will be used to determine compliance with Condition U1.1; and
 - A detailed justification for each Key Performance Indicator selected.

As a guide, the EPA anticipates that the following parameters will be monitored:

- moisture and silt contents of haul roads;
- frequency, duration, rate and quantity of water applied to haul roads;
- frequency, duration, rate and quantity of suppressant applied to haul roads in comparison to manufacturer's specifications;
- vehicle kilometres travelled;
- haul truck weight;
- haul truck speed; and
- dust levels on haul roads.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>*.

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

- U1.3** The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must include an assessment of the dust control effectiveness, dust levels and

the Licensee's compliance with Condition U1.1. The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>*.

U2 Disturbing and Handling Overburden Under Adverse Weather Conditions.

- U2.1** The licensee must alter or cease the use of equipment on overburden and the loading and dumping of overburden during adverse weather conditions to minimise the generation of particulate matter *<date of commencement of dust generating activities at the site>*.
- U2.2** The Licensee must prepare a Monitoring Program to assess its compliance with Condition U2.1. The Monitoring Program must detail the following:
- parameters to be monitored;
 - methods to be used to monitor each parameter;
 - locations where each parameter will be monitored;
 - frequency at which each parameter will be monitored;
 - way in which changes to operational activities will be documented;
 - Key Performance Indicators that will be used to determine compliance with Condition U2.1; and
 - detailed justification for each parameter and Key Performance Indicator selected.

As a guide, the EPA anticipates that the following parameters will be monitored:

- wind speed and direction;
- temperature;
- rainfall/humidity;
- evaporation rate;
- solar radiation;
- operational activities; and
- dust levels.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>*.

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

- U2.3** The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must detail the following:
- weather conditions during which activities were altered or ceased;
 - changes made to operational activities as a result of adverse weather; and
 - resultant dust levels when activities were altered or ceased.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>*.

U3 Trial of Best Practice Measures for Disturbing and Handling Overburden

- U3.1** The Licensee must submit a report documenting an investigation and trial of best practice measures for the control of particulate matter from the use of equipment on overburden and the loading and dumping of overburden. Best practice measures may include, but should not be limited to, the following:
- use of foggers;
 - use of water sprays; and

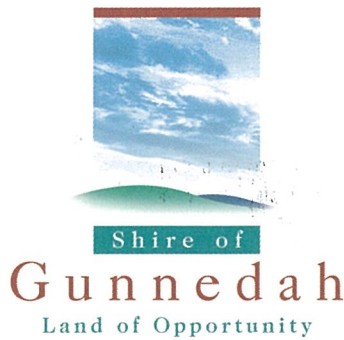
- reduction of drop heights.

The report must document the investigation and trial of each best practice measure. It must quantify the particulate matter control effectiveness and discuss the practicability of each best practice measure.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by <insert date>.

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:
 - *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 submitted to the Environment Protection Authority (EPA) in conjunction with the application for an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* for the project.
3. The air quality management plan must be implemented prior to the commencement of any dust generating activities at the site.



Director, Mining & Industry Projects
Major Projects Assessment
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

11 December 2013

Dear Sir

**Reply to the Response to Submissions report on the Proposed Watermark Coal Project
(Application Number SSD 4975)**

I refer to the Response to Submissions (RTS) document provided by Shenhua Watermark Coal Pty Ltd ('Shenhua') regarding submissions received in respect of the proposed Watermark Coal Project near Gunnedah.

Gunnedah Shire Council ('Council') provides the following commentary ('Reply') in respect of the RTS as it relates to Council's submission to the Project dated 2 May 2013.

As you may be aware Council is being proactive and constructive in engaging with Shenhua when considering the benefits and costs of the proposal so that our residents and ratepayers achieve the optimal outcome. Council has held meetings with Shenhua on 23 July and 17 October 2013 to discuss the Project. The latter meeting was specifically to discuss likely traffic and road impacts.

Council also met with Department of Planning & Infrastructure ('Department') on 15 July 2013 to discuss the proposed Project and to obtain feedback from the Department.

The feedback from the Department during this meeting included:

- Council's request for a regional air quality monitoring system was *"fair and reasonable"* and the Department would *"take it up with the EPA"*;
- Council's request for appropriate infrastructure upgrading by Shenhua was fair and reasonable and the Department would *"work proactively with Council on this issue"*;
- The Department was *"prepared to look at regional road infrastructure funding as per the Muswellbrook example, given seven new mines are likely in the region"*; and
- The Department *"supports social integration of the workforce with employees living in towns rather than in work camps"*.

During Council's meeting with Shenhua on 23 July 2013 there was acknowledgement that there were *"lots of issues Council raised in its Submission that were fair and reasonable"*, however there remain several points of difference that may require the Department's input to resolve.

Council seeks an outcome whereby the benefits of resource industry activities such as this Project are channelled into community wellbeing and long term sustainability. Consequently, Council wishes to see the project deliver a net community benefit, with Council adequately compensated for any loss or damage to public amenity, service or asset and to avoid the transfer of project-related costs from the company to the Shire ratepayers.

Having regard to the heads of consideration in Council's submission on the EIA, this Reply addresses the same topics for ease of reference.

Gunnedah Shire Council
63 Elgin Street, PO Box 63 GUNNEDAH NSW 2380
Tel: (02) 6740 2100 Fax: (02) 6740 2119
Email: council@infogunnedah.com.au
Web: www.infogunnedah.com.au

1. ROAD INFRASTRUCTURE

1.1 General

Council met with Shenhua on the 17 October 2013 to discuss likely traffic and road impacts and subsequently provided a response letter. Council has major concerns with the most recent traffic studies undertaken by Shenhua, especially regarding Bulunbulun Road.

It is noted that the RTS states *"given the pre-existing road condition, it should not be the responsibility of Shenhua Watermark to fund all the upgrades, as suggested by Council (with the exception of Cull Road and Werner Road upgrades which are directly required by the Project)"* (Section 4 page 545).

Council is of the opinion that Shenhua should undertake at its expense the road amendments and upgrade works as recommended by Council, with the prior approval of Council. The reason being that the current roads meet the required needs of the community, whereas Shenhua's Project triggers a fundamental quantum change to local land use from rural to industrial and with it very different characteristics as to the type and volume of traffic.

If, during the life of the Project, Council finds evidence of significant increases in traffic volumes or vehicle types on other roads in the locality not addressed in the EIS that can be directly attributable to the Project, we seek the approval of the Department that Shenhua will be required to reach a negotiated settlement with Council to provide additional funds for road repair, maintenance or any necessary upgrade works.

1.2 Bulunbulun Road (Breeza-Curraabubula Road)

Council considers that this gravel road will be heavily utilised by the employees, contractors and service providers based in Tamworth, as it is the shortest route to the Project site. As a consequence, it will carry a heightened level of traffic that will significantly impact on the road's serviceability. It is Council's view that as a result of this traffic impact the road will trigger service level D, resulting in the need for Bulunbulun Road to be bitumen sealed.

Council strongly disputes the traffic assessment prepared by Shenhua that suggests the Bulunbulun Road has spare capacity in its current state to absorb the additional traffic likely to be generated by the Project. The assessment appears to assume that the design capacity of a gravel road is the same as for a sealed road. This is not appropriate because of added safety concerns regarding dust, surface unravelling and gravel throw affecting visibility and general road safety.

The traffic assessment suggests Bulunbulun Road, a gravel rural road, has capacity to carry 820 vehicles per lane per hour. This capacity has been deduced using a disability factor (fw) of 0.8. When it was suggested at the traffic technical meeting on 17 October 2013 that this factor has no justification, the Shenhua's traffic consultant did not dispute this statement. The Austroads standards relate to sealed roads and have no relationship to the carrying capacity of gravel roads. The disability factor relates to various impediments such as road width and tree locations that reduces the theoretical carrying capacity of a sealed road – how this disability factor has been established in this instance for application to Bulunbulun Road has no scientific basis.

To suggest that Bulunbulun Road has a capacity of 820 vehicles per lane per hour or one vehicle every 4.4 seconds is without justification. It is unconscionable, to think, that such a capacity could be suggested as a basis of justifying the ability of this gravel road to cater for additional traffic impact. The premise that this gravel road has the suggested level of spare capacity is clearly wrong. This is a critical error and one which will seriously compromise the road safety of the community and Council's asset management costs if accepted.

The traffic assessment makes no reference or comment regarding the future management or maintenance of this road despite an admission within the assessment that the development alone will add 168 trips per day on the road in addition to the 108 Average Annual Daily Traffic (AADT) currently on the road. This gives rise to a predicted AADT of 276 – that is a 150% increase on the existing traffic impact.

Additionally the future of this road needs to be considered from an asset management perspective given the 30 year life of the coal mining project and the impact of the AADT of 276 vehicles over this period. The traffic report takes no account of asset management, with no reference to the Australian Road Research Board (ARRB) or any other road assessment or maintenance authority relative to the impracticality of maintaining a gravel road with more than 150 to 200 vehicles per day.

The more appropriate manner to analyse impact of additional traffic is to use the data contained in ARRB Research Report ARR316, 1997 which details under Section 6.1 Road Surface Type the effective and efficient break-even point for maintenance costs for a gravel road as approximately 200 vehicles per day. With the proponent suggesting the AADT will be 276 vehicles once the project is operational it is clear that the serviceability and the safety of this gravel road will be compromised, notwithstanding the theoretical capacity suggested by the traffic consultant.

The additional 168 trip days identified by the traffic assessment is the primary reason for the road maintenance to move beyond the 200 vehicles per day tipping point. Accordingly, Council is of the opinion that any road upgrade to bitumen sealed standard is due to the proposed Watermark Coal Project alone. The existing gravel road is fit for purpose in respect of the AADT volumes currently being experienced and likely future agribusiness development from existing farms in the area.

This leads to the issue of ongoing road maintenance on this section of road. The additional 168 trip days will represent 60% of the total anticipated AADT on the road once the project commences.

It is Council's view that Bulunbulun Road must be reconstructed and bitumen sealed from the end of the existing bitumen seal near the low level bridge at the Mooki River to the existing bitumen seal located at the boundary of the Liverpool Plains LGA, with a 9 m formation and 7 m bitumen seal consistent with Austroad design standards, and subject to Council's approval. Council also believes that Shenhua should enter into a road maintenance agreement with Council in order to meet 60% of the ongoing maintenance cost (including scheduled bitumen reseals) of Bulunbulun Road for the life of the project.

There are also the implications for the local road network within the village of Breeza that require further consideration. Council has safety impact concerns regarding Hogarth and Maitland Streets, the shortest and most convenient route to the Project site. The proponent suggests that the use of Hogarth Street by Project related traffic will be avoided and managed by sign posting. Notwithstanding this, it is considered that this route will be preferred as it gives access through the village of Breeza and via a controlled rail crossing with the intersection with the Kamilaroi Highway being at an 80 km/hr speed limit. This appears a preferred and more likely access option, however safety implications on the low level bridge over the Mooki River also require further assessment as does the intersection of Maitland Street and Bulunbulun Road. It is unclear how the proponent is going to ensure compliance with the signage indicating that access via Maitland and Hogarth Streets is restricted.

Accordingly, should this be the adopted option then all subject intersections in the village need to satisfy Austroads standards whilst being cognizant of the speed limits on the different roads and likely queue lengths.

It appears the proponent is suggesting that the project traffic will use the intersection of Bulunbulun Road and the Kamilaroi Highway on the southern outskirts of Breeza rather than the Hogarth Street and Kamilaroi Highway intersection within the village.

The traffic assessment report is inconsistent and deficient in addressing road safety issues resultant from the impact of the proposed development at the Bulunbulun Road and Kamilaroi Highway intersection. It lacks clarity and a definitive approach to intersection management and implications for increased traffic on the rail crossing.

This rail crossing does not carry safety gates, warning lights and bells nor does the intersection of Bulunbulun Road and the Kamilaroi Highway have any mechanisms to allow safe integration of traffic.

Council is particularly concerned that this crossing of the rail way line should be the proponent's preferred option for project traffic movement without any attention to the upgrading of the rail crossing given the considerable likely increase in rail traffic from coal mines north of Gunnedah over the next five years. On this safety issue no consideration has been given in the traffic assessment report to the future cumulative impact of rail transport.

The 110 km/hr speed limit on the Kamilaroi Highway has the potential, on the basis of the 85th percentile, for traffic to in fact be travelling at least at 116 km/hr on the highway. As such, there is a need for considerable safety and traffic management treatments to improve the safety of the Bulunbulun Road and Kamilaroi Highway intersection.

This reinforces Council's original concerns at adequacy assessment stage of the Environmental Impact Statement regarding the standard and quality of the traffic assessment report. Despite comments on this issue in both the adequacy analysis and during the submission period to the EIS as well as at the technical traffic meeting with the proponent's consultant on 17 October 2013, the proponent has failed to address this traffic safety issue in the RTS.

Notwithstanding the lack of clarity in the RTS, Council is of the view that through traffic should use the Bulunbulun Road and Kamilaroi Highway intersection for access to and from the mine site subject to the following works being undertaken:

- a) Installation of safety gates, warning lights and bells to Bulunbulun Road at the rail crossing with associated road upgrades to improve safety at this crossing to the requirements of ARTC, Austroads standards and approval of Council.
- b) Upgrade of the intersection of Bulunbulun Road and the Kamilaroi Highway to improve safety at the intersection by providing queuing capacity on both roads with appropriate lane channelization on the Kamilaroi Highway to Austroads standards and the requirements of Council.
- c) Installation of road signage directing that all project related traffic shall not access the village of Breeza via either the Maitland Street and Bulunbulun Road intersection or the Hogarth Street and Kamilaroi Highway intersection.

1.3 Road Closures and Post Mining Road Access

The Project requires the permanent closure of Court Lane, Rowarth Road, Whitby Road, The Dip Road and unnamed roads within the Project boundary. It is noted that the roads to be closed are local roads for which Council is the road authority and will be initiated in accordance with Part 4, Roads Act, 1993.

• **Court Lane/Nea Siding Road**

The closure of Court Lane will result in the following traffic movements being diverted onto Nea Siding Ridge Road for access to the Kamilaroi Highway:

- a) to or from the north or north west (Gunnedah) via the Kamilaroi Highway; and
- b) to or from the south, southwest and south east of the Project Site;

Council is concerned about the consequential impact on the Nea Siding Road. It is Council's considered opinion that Nea Siding Road should be widened to a 7m bitumen seal on the existing 8 m formation, to Austroad design standards and be subject to Council's approval. Such works should be funded by Shenhua and undertaken to a standard approved by Council. We note in the RTS Shenhua states "there is little justification for upgrading this road on the sole account of the Court Lane closure" (section 4, page 543)

There has been no acknowledgement of the implications for through traffic from the mining project. It is apparent that the road closure of Courts Lane will significantly change the traffic movements through the area with a particular concentration on the Nea Siding Road. The Nea Siding Road will effectively become the major north-south arterial road in this area.

An 8.8 kilometre section of the road currently carries a 3.8 metre wide bitumen seal on an 8 metre formation with the balance of the road having a 7 metre bitumen seal. It is noted in the traffic assessment report that the existing use of 108 AADT will increase by 25% as a consequence of the road closures and redirection of traffic. Council acknowledges that the proponent should only accept the cost of impact on the road that is attributable to the impact of its development. The change in traffic movements will increase the "risk" considerations associated with use and maintenance of this road.

Council as part of its long term asset management planning will be increasing the width of the 3.8 metre sections of Nea Siding Road to a 7 metre bitumen seal in association with its long term reseal program. To date sections of the road have been widened to this width. However there remains the 8.8 kilometre section that has not been widened, although the existing seal has been renewed recently in order to maintain its integrity and preserve its capability. This 8.8 kilometre section of the road is scheduled for resealing in 12 years.

As Court Lane will be closed from the commencement of the project, Council believes that it is important that the road width matter be addressed in the early stage of the project given the implications for road users and asset management.

Currently the widening of Nea Siding Road is not within Council's current long term financial plan, however Council wishes to ensure that the widening that is required as a result of the project, is undertaken in a timely manner. Council considers that Shenhua should contribute 25% of the cost of widening the 8.8 kilometre section of the bitumen seal on Nea Siding Road from 3.8 metres to 7 metres, by agreement with Council, within five years of commencement of construction of the project.

Further, given that the redirected traffic will be using a bitumen sealed road, in lieu of Courts Lane which is a gravel road with commensurate differences in maintenance cost, Council considers that the proponent should meet 25% of the cost of maintaining Nea Siding Road for the life of the project.

This change in road patterns and traffic movement also has significant implications for post mining traffic. Again this is an area that has not been addressed by the proponent despite Council's call for a post mining (following rehabilitation) road layout to establish how the land is to be used for agriculture and other purposes. Council is extremely concerned that these unresolved questions will result in it and the community having to accept long term resultant costs from the impact of the development, particularly in respect of future road access.

- **Cull Road/Clift Road**

The EIS notes the closure of The Dip Road in Year 15 and the use of an alternative route via Cull Road, Werner Road and Clift Road for traffic originating from, or travelling to, south of the Project site. It appears to be a view shared by both parties that Cull Road and Clift Road should be constructed to a two lane two way all weather gravel road standard with a 9 m formation, to Austroad design standards and be subject to Council approval prior to the closure of western section of The Dip Road adjacent to the Southern and Western Mining areas. Such works should be funded by Shenhua and undertaken to a standard approved by Council.

- **Werner Road /Future Road Access**

It appears to be a shared view that Werner Road be reconstructed to a two lane two way all weather gravel road standard with a 9m formation, to Austroad design standards and be subject to Council approval prior to the closure of the western section of The Dip Road adjacent to the Southern and Western Mining areas.

The EIS provides little detail on the future road access arrangements for the Project site post mining. This is a key issue for Council given Shenhua indicates that sections of the site will be returned to agricultural land use. The establishment of an agreed, post mining road network prior to Project determination is essential from Council's perspective in order that its future road asset management responsibilities in the area are understood and can be considered in its future Long Term Financial Plans.

Council thus seeks Department concurrence that Shenhua submit a Future Road Network layout for accessing the rehabilitated Project site, for Council's approval prior to the determination of the Development Application.

1.4 Other Intersection and Road Upgrades

Council has also analysed the potential for increased traffic from and to Tamworth via the following routes:

- Oxley Highway, Clifton Road Highway, Edward and Hogarth Streets, Breeza, and Kamilaroi Highway (101.9 km) ; and
- Oxley Highway, Clifton Road, Norman Road, Long Point Road, Pullaming Road, Long Mountain Road and Kamilaroi Highway (90.9 km).

These routes are longer than the route from Tamworth via Bulunbulun Road, however may be utilised by traffic from the western sections of the Tamworth district seeking access to the project site. It is not considered, at this stage that these routes will be subject to significant traffic increases associated with employees, contractors or service vehicles.

Whilst Council considers Bulunbulun Road will be the primary road choice to and from Tamworth, it reserves the right to improve the standard of these other roads and the need for a contribution of funds from Shenhua for upgrade and ongoing maintenance should traffic impacts attributable to the Project increase over the life of the Project as noted in Council's Requirement in 1.1 General.

1.5 Funds for Ongoing Road Maintenance

As a consequence of increased traffic flows (both heavy and light vehicles) directly associated with the Project, significant impacts will occur on Council's local road network. In some situations these impacts will be exacerbated by the closure of a number of Council roads. Aside from Shenhua funding the necessary upgrading works, Council seeks appropriate annual funding via the VPA for ongoing repair and maintenance.

Council urges the Department to require that Shenhua will provide a suitable level of annual funding via a Voluntary Planning Agreement (VPA) to offset the additional road repair and maintenance costs.

2. FLOODING

In a meeting held on 22 July 2013 Shenhua stated that it was likely to build a detention basin in Watermark Gully to ensure flooding was not increased.

The RTS does not appear to include this commitment but rather a prediction that post mining the flow to the Kamilaroi Highway will increase by 9%, with the 2 year ARI peak flood level at the Kamilaroi Highway increasing by 0.04 m and the 100 year ARI peak flood increasing by 0.03 m, compared to pre-mine conditions (section 4, page 125). The likely increase in the duration of inundation will be less than 5% (Section 4, page 544). Thus the RTS concludes that the flood impacts at the highway will be "negligible" (Section 4 page 123).

The catchment area for Watermark Gully increases 13% in the final land form. Despite the assessment indicating that flooding impacts on the Kamilaroi Highway will be "negligible", any impact will be significant on both the North West region and the state highway network. The 9% additional surface water flow is based on reduced intensity with a longer concentration. With the potential, given climate change forecasts for significantly greater intensity in rain events it is probable that the calculation for the increased flow to the Kamilaroi Highway post mining is significantly understated.

The intermittent closure of the Kamilaroi Highway at the Watermark causeway due to flooding has significant economic development and business activity cost implications for business and communities in the North West region. These impacts have been a concern of business, State Government and Local Government Authorities for some considerable time having regard to the financial loss to the local area, the State and the nation. As a result, these impacts are currently subject to analysis by consultants to Roads and Maritime Services.

Council therefore questions the findings on this matter that are detailed in the RTS and does not consider the impacts to be "negligible".

Whilst there is an acknowledgment of an existing problem, it is considered that the proposed development will significantly exacerbate the current highway closure issue. The proponent has not clearly defined how this matter will be addressed. Council supports the Shenhua proposal, outlined at its meeting with Council on 22 July 2013 that it is likely to construct a detention basin to mitigate the impact of flooding on the causeway. This support is subject to the detention basin being of a capacity that will limit the overflow to the current discharge across the Kamilaroi Highway.

It is also noted that the Kamilaroi Highway deviation works associated with the proposed Rail Overbridge and Project Site access commences at the Courts Lane intersection. This is approximately 200 m from the eastern extent of the existing causeway. It is Council's view that upgrade work to the causeway should occur simultaneously with the other highway deviation works. This would provide cost benefits for both Shenhua and Roads and Maritime Services.

3. WORKFORCE ORIGINS, POPULATION & HOUSING

The RTS suggests that based on Whitehaven's experiences, some 80+% of the operational workforce is likely to live locally (that is those recruited locally or those who permanently relocate to the region). However, the scenarios modelled range from 80% local hires to 20% local hires, suggesting it is uncertain as to the likely source of workers.

Council is of the view that there is a very low level of confidence in the accuracy of population impacts and this is acknowledged as such by Shenhua on section 4 page 557, where it states:

- *"The skills and working intentions of available labour are not known and therefore difficult to predict"; and*
- *"It is also difficult to predict how many people currently working in other industry sectors" will move into the mining & resources sectors.*

Council is therefore in a quandary as regards planning for the resultant consequences on housing and accommodation supply and demand and related services.

Council wishes to see Shenhua enter into a housing development program with Council consistent with the findings, recommendations and any actions arising from the Regional Workforce Plan (proposed by the SRLUP) and the Social Impact Management Plan (by Shenhua) to ensure adequate housing is provided for its operational workforce and to address any adverse impacts on residential land development and other service related infrastructure.

Shenhua says it will *"encourage"* use of the MAC Werris Creek by construction workers and also 'non-local' operations personnel (section 4, page 566 & 567). The details in the RTS are not sufficiently detailed to explain to Council what steps Shenhua plans to take in managing its workforce personnel using this accommodation camp.

The issue of impact of the development goes well beyond encouraging project workers to use a certain type of accommodation. The implications of a development of this scale are wide spread, particularly to those within the community that are disadvantage. This is particularly the issue for low paid workers, families on lower incomes, pensioners, those with a disability or the elderly.

Currently the community housing provider, Homes North Community Housing Co Ltd (Homes North) manages 170 properties within Gunnedah. Despite the coal mining industry being currently in a development phase it is clear from waiting list figures that there is still an accommodation availability issue in Gunnedah and across the region. Homes North enquiries for housing products are showing an increase in the second half of 2013. This is demonstrated by 31 clients currently being on the Homes North waiting list for social housing in Gunnedah.

The Department of Family and Community Services data on median rent tables showed an 11.6% increase in the June 2013 quarter for three bedroom homes in Gunnedah. This has slightly eased in the September quarter but is still placing pressure on families on lower incomes finding suitable accommodation. Further the Department's Housing Parthways Wait Time figures show that clients may be waiting for between 2 and 5 years for a suitable social housing property in Gunnedah. This data also shows that there are no social housing properties available in smaller centres across the region and similar waiting times and cost pressures are occurring in the other major centres.

It is therefore apparent that with a project of this scale, that greater pressure will be placed on individuals outside the mining industry that are least able to afford additional costs of accommodation. To address this, Council seeks to establish a partnership with Shenhua and community housing providers to make provision for a variety of housing types that will support the various sectors of the community negatively impacted by this project. This will involve provision of accommodation that addresses affordable housing, accommodation for low paid workers, pensioner housing as well as aged housing.

The proponent has suggested it will favour local housing, particularly in Gunnedah, over use of mining village accommodation for its operational workforce however there is no definitive approach to confirm how this will be achieved. In order to implement this aspiration a process by which there is transparent, definitive and direct encouragement of workers to permanently reside in the Gunnedah district needs to be applied and financially supported.

Council believes it is essential that there is a definitive and demonstrable commitment from Shenhua to address this issue.

Therefore, Council's view is that Shenhua should be required to enter into a housing development agreement with Council relative to the implementation of a program that will ensure provision of a variety of housing types to support those disadvantaged in the community by the impacts of the development as well as mechanisms that will encourage and support its workforce to occupy housing accommodation within the Gunnedah residential community.

4. TRAINING PROGRAMS

It is essential from Council's perspective that there is an employment benefit to the local community from the Project and in particular the provision of apprenticeships and traineeships for local persons in order that skills and experience are enhanced and developed.

Whilst Shenhua is offering some training initiatives, the RTS is vague and non-specific regarding its commitments regarding apprenticeships and traineeships.

Council seeks Shenhua establishing an apprenticeship and traineeship employment program with a commitment to a minimum of 8 apprenticeships or traineeships for local personnel provided annually over the life of the Project.

In addition, given Gunnedah has an Indigenous population which represents 11% of its total population (2011 Census) compared to an overall State population of 2.5%, Council seeks the establishment of a specific Indigenous employment program with a commitment that a minimum of 5 new Indigenous staff members will be provided annually over the life of the Project.

5. ECONOMIC APPRAISAL

Mindful of Justice Preston's recent decision in the Land & Environment Court (Bulga/Warkworth Case) and similar commentary as stated in The Economists at Large Pty Ltd submission on the EIS, Council wishes to see various adjustments and clarifications made to the social and economic assessment methodologies, namely:

- Assessment that better considers inter-generational and intra-generational equity consistent with the need to address ESD principles;
- Internalising into the valuation of the Project all environmental costs (eg noise, dust, amenity and ecosystem services, etc);
- A more effective weighting and balancing given to environmental and social factors, in addition to economic ones; and
- Changes to the Input Output modelling so there is a more realistic prediction as to the number of jobs created by the project (ie no overstating) and avoiding the use of the assumption that there will automatically be available a pool of highly skilled yet unemployed people in the local community that will be absorbed by the Project.

The RTS does not appear to accommodate these important requests and Council urges the Department to require them.

6. ENVIRONMENTAL IMPACTS ON NEARBY FAMILY FARMS AND BREEZA

Council is concerned to ensure that the environmental regulators are most diligent to protect rural residents that are close to the mine and the residents of Breeza, so they do not have to accept a diminished quality of life because of the mine.

Various potential impacts will include:

- Air Pollution (Dust): Council requires an assurance that the health and quality of life of locals will not be adversely affected by dust. Council has been, over the last three years, calling for the establishment of a regional air monitoring program specifically designed to assess the impacts of dust generated from resource development activities in the Namoi Valley. This is a critical cumulative impact issue in terms of coal mining development and implications for human health in the region.

- It is therefore essential that the NSW Government, through the EPA with the active support of the Department, establishes a regional air pollution monitoring program within the Namoi Valley to ensure the health of residents is not diminished by this and other coal mining developments.

Council notes that preliminary investigation work has recently been completed by the EPA and consultation has commenced with both Gunnedah and Narrabri Shire Councils. It is also encouraged that the Department believes this program has merit and should be implemented.

Council therefore seeks to ensure that a regional air quality monitoring program, with involvement and commitment from Shenhua and other coal companies, be implemented and be operational by January 2015.

- **Visual:** The views from various homes may be adversely affected by overburden dumps and night lighting. Mitigative measures to the satisfaction of the landowners are required. Tree screening programs should be developed and implemented as soon as possible during the construction phase to ensure adequate visual barriers are established in the later years of the project to help mitigate impacts on the visual amenity.
- **Noise:** Inevitably there will be some noise on occasions affecting some houses. As with dust safeguards, Council looks for the imposition of strict consent conditions to protect the landholders and residents of Breeza, with proactive compliance management by the EPA.
- **Water Resources:** Council requires an assurance that the quantity and quality of both surface water and ground water will not be adversely affected by the Project.

7. CUMULATIVE IMPACTS

With the existing and pending resource developments within the Gunnedah Basin, Council requests the Department to consider the potential cumulative impacts. There are a raft of proposed developments which will have socio-economic and environmental benefits and costs with impacts on road and rail infrastructure, ground and surface water, workforce supply and housing supply to name just a few.

To illustrate the point the EIS states that by 2016 the population associated with the cumulative mining and CSG sector workforce in the Gunnedah Basin is expected to be three times its current size of 2,600, that is 8,410 (page 288). The EIS goes on to say that in 2022 the Watermark operations workforce of 383 is expected to be just 11% of the total mining & CSG personnel in the Gunnedah Basin, that is, will be 3,500.

Council requests the Department arrange for cumulative impact studies, especially as regards workforce and accommodation implications in the Gunnedah Basin over the next decade. These studies could identify the hard and soft infrastructure needs that will be imposed on local Councils and the likely funding requirements. The various mining and energy proponents in the Gunnedah Basin could contribute to the funding and development of such studies.

8. IMPACTS ON AGRICULTURE

The Economic Impact Assessment suggests the project will have a mildly positive influence on agricultural industries. This finding is contradicted by the experience of local farmers as other coal developments have moved into the region. Rather than increasing the number of people they are employing, farmers are suggesting that they have been reducing employees.

As the Watermark project would be larger than most other projects in the area and closer to the more agriculturally intensive Liverpool Plains, this Project's impacts on agricultural employment will be even more acute.

Council requests the Department engage independent experts to ensure the adopted assumptions can be substantiated and the resultant conclusions are reflective of the true impact of the proposal on agriculture across the Gunnedah and Liverpool Plains LGAs.

9. SURFACE AND GROUNDWATER IMPACT ASSESSMENT

It is acknowledged that other agencies are responsible to the ongoing monitoring, environmental management and environmental licensing activities in respect to potential surface and groundwater impacts. However, the impact on surface and groundwater within the surrounding area is a major community concern.

Council urges the Department to require that Shenhua ensures that ongoing sustainable surface water and ground water supply is available, at current levels of yield and quality, to nearby landholders. Appropriate rectification measures are to be put in place should future mine operations negatively impact on the availability/sustainability/quality of supply. Any future rectification measures shall be at full cost to Shenhua and with the onus of proof resting with Shenhua.

Thus Council urges the Department to require that independent experts be engaged by the NSW Office of Water and the Office of Environment & Heritage to peer review the Groundwater Assessment and

Surface Water Assessment reports to ensure they are thorough, robust, adopt the Precautionary Principle and provide protection of the ground and surface water resources and users within the vicinity of the Project and the Namoi Valley generally.

10. FINANCIAL CONTRIBUTIONS TO GUNNEDAH SHIRE COUNCIL

As the sphere of government directly responsible for the day to day governance of Gunnedah LGA, the issues challenging Council are significant. Whether it be the provision of hard or soft infrastructure, the availability and quality of this infrastructure impacts on the standard of living and economic prosperity of our citizens and ratepayers.

Council therefore seeks to channel the benefits of resource industry activity into community wellbeing and long term sustainability. To help achieve this objective Council is keen to avoid the transfer of Project-related costs from Shenhua to local ratepayers.

Shenhua has expressed a desire to enter in to a VPA. Council welcomes this interest.

Council seeks to secure a VPA whereby financial contributions are agreed for:

- a) The repair and maintenance of various roads and intersections for the operational life of the mine. Shenhua needs to be aware that if the roads to be upgraded are only to gravel standard then there will be flow on consequences as regards additional repair and maintenance costs that Shenhua will be required to bear on an annual basis as part of the VPA;
- b) General community enhancement to address social amenity and community infrastructure requirements arising from the project; and
- c) Compensation for current and ongoing Project related administration and management costs incurred by Council.

Separate and independent of the financial contributions listed above the VPA will also need to address the funding and undertaking of road upgrading and other infrastructure works that are necessary prior to construction of the mine.

Council is of the view that the VPA must be negotiated before any Project Determination is granted, with the VPA outcome to be included as a specific condition within the determination. Council has prepared a VPA template for use as soon as the funding items and quantum have been agreed.

Council trusts that the Department understands and appreciates the matters raised. If you have any queries please don't hesitate to contact the Council's Director Planning & Environment, Mr Michael Silver on (02) 67402120.

Yours faithfully



Eric Groth

GENERAL MANAGER

Contact: 6740120

Reference: ms:vg



Reference: DLA:dla 13/0558

Contact: Donna Ausling

6 December 2013

Attention: Mr Stephen O'Donohue

NSW Department of Planning & Infrastructure
Major Projects Assessment – Mining & Industry Projects
GPO Box 39
SYDNEY NSW 2001

Email: plan_comment@planning.nsw.gov.au

Dear Sir,

Re: Response to Shenhua Watermark RTS Report, Liverpool Plains LGA

Your Ref: SSD_4975 – Watermark Coal Project Application

Reference is made to the above Major Project application, which is currently under assessment.

As detailed in Council's previous correspondence dated 26 April 2013, there are a range of issues in relation to this project that are likely to affect the Liverpool Plains Shire community. Such potential impacts are also potentially far-reaching, and thus are not confined to arbitrary local government boundaries. As a consequence, in the first instance, Council wishes to outline its sincere disappointment in not being formally advised by the Department in respect of the existence or availability of the RTS documentation, nor being afforded with the opportunity to provide further comment and feedback.

Given LPSC's ongoing and largely unabated concerns with particular aspects of this Project, Council's Technical Staff have undertaken a review of the submitted Response to Submissions (RTS) documentation. It is noted that this RTS information has recently been uploaded to the Major Projects component of the Department's website. In this regard, there are a number of issues that are considered to remain outstanding and unresolved. These are detailed below for the further consideration and action as appropriate by the Department:

1.0 Traffic & Transport

Section 4.26 of the RTS document (pp. 512-554), as prepared by Hansen Bailey, has been reviewed in detail. It is noted that this additional documentation endeavours to respond to submissions from various stakeholders, including the adjoining Gunnedah Shire Council, in respect to the potential implications of Project traffic on the local and regional road network.

On 23 October 2013 both Gunnedah and Liverpool Plains Shire Council provided feedback to the project consultants (Hansen Bailey) regarding the deficiencies in the previous reports and the RTS documentation. A copy of this correspondence is attached for the information of the Department. It is noted from the review of the submitted RTS documentation that some issues have been addressed but others clearly remain outstanding.

LIVERPOOL PLAINS SHIRE COUNCIL

60 Station Street PO Box 152 QUIRINDI NSW 2343

TEL 02 6746 1755 FAX 02 6746 3255 EMAIL lpssc@lpssc.nsw.gov.au

WEBSITE www.lpssc.nsw.gov.au ABN 97 810 717 370



These include:

- There is still no account of service vehicle traffic included within Table No. 73 (NB: previously Table 1 in the draft RTS documentation).
- Application of Austroad intersection warrants – data is still misrepresented in Figure 86.
- *Figure 87 – Key Intersections Capacity Diagram* (p.526) does not appear to have been reviewed (NB: previously Figure 4 in the draft RTS documentation).

1.1 RTS Summary Response:

The pre-existing condition and capacity of the local road network is able to sufficiently cater for the traffic generated by the project. Current intersection and safety performance and clear zone widths will not be impeded by the predicted additional traffic volumes.

1.2 LPSC Commentary (Traffic & Transport):

Heavy emphasis is provided within the Traffic and Transport RTS report in respect to road capacity. In this regard, *Figure 84 Key Road Midblock Capacity Diagram*, provides some useful data in terms of spare capacity within the likely impacted road network. However, as is outlined in Council's preceding submission, the traffic analyses submitted to date ignore road safety considerations.

The additional report contained within the RTS is predominantly underpinned by a heavy, and somewhat false, reliance on an existing road capacity argument. This is also reflected through the use of a variety of 'throw away' statements, including the response to Council concerns on specific road safety risk elements being: '... *existing issues, compromising the safety of the existing road users*' (p.525). Such statements are littered throughout the RTS Report and it is considered, from Council's perspective, that road safety remains a significant outstanding and unresolved issue.

The capacity methodology applied in the RTS report is generally undisputed. However, it should be clearly stated that the report has ignored existing compromises to accepted road safety standards. Furthermore, the disproportionate increase in risk that LPSC will be exposed to via the increase traffic generated from the development is also not addressed. The theoretical assessment of intersection capacity, for example, at Werris Creek Road (MR130) / Bulunbulun Road, has not considered the width restrictions at the site caused by the Currabubula Creek Bridge and the unavailability of satisfactory length sheltered right turn lanes at the intersection.

Furthermore, the report's credibility on the issue of overall road capacity is seriously questioned by the suggestion that the gravel section of Bulunbulun Road has a capacity of 820 vehicles per lane per hour. This equates to more than 13 vehicles per minute, or one vehicle every 4.4 seconds, on a gravel road. It is considered that the dust nuisance alone would warrant upgrading of the subject road.

It is generally accepted practice within the road industry and in practical terms that it becomes uneconomical to maintain a gravel road when traffic volumes approach and exceed 150-200vpd. This is subject to numerous environmental factors, including rainfall, gravel characteristics and traffic composition (whether heavy or light). Similarly, the narrow formation of the sealed section of Bulunbulun Road will see significant deterioration of the unsealed road shoulders and sealed bitumen and road edges, as vehicles pass in opposing directions.

The identified capacity in the existing intersections and the suggested required intersection treatment(s), is also disputed. Based on the data provided within the report, and the supplied intersection design graphs, it is indicated that the Gap Road/Kamilaroi Highway; Waverley Road/Kamilaroi Highway; Werris Creek Road/Bulunbulun Road; and the Werris Creek Road/Gap Road intersections all require channelised intersection treatments.

The traffic volume quotes in the RTS were also measured outside of some significant traffic generating periods. These include, for example, grain harvest, school holidays, the Tamworth Country Music Festival (a regional event), and, Agquip. These data limitations are also acknowledged on p. 539 of the RTS report: *"It is acknowledged that the "once-off" traffic surveys conducted in August 2013 may not be an accurate reflection on the peak traffic conditions from a seasonal fluctuation perspective"*. The report goes on to suggest that conservative estimates have been made and examination of residual capacity has been undertaken. Council does not consider that these assumptions are appropriate given the substantial increases in peak traffic volumes above the estimated traffic figure at these times.

In addition to the above, the comments made in the report in respect to rail traffic implications (pp. 547-554), and corresponding observations are not reflective of the local experience. The data provided is not considered representative of average delays. A more meaningful delay indication would have been obtained via the application of an average delay survey taken over a daily or weekly period. Traffic is regularly 'backed-up' into the Quirindi CBD area due to level crossing closures. Additionally, the delays at Werris Creek Road (south of Werris Creek) have been recently experienced for up to 20 minutes. This is primarily due to the proximity of the level crossing to the Station and the slow moving nature of the train(s).

The report also ignores the impact of localised flooding on the corresponding workforce and service delivery. A photograph taken during a recent rainfall event affecting the Gap Road low level crossing mentioned on page 525 of the RTS is provided below for the Department's information:



Plate 1: Gap Road Werris Creek Inundation - photograph taken on 23/11/2013

2.0 Voluntary Planning Agreements & Cost Shifting

Section 4.27 of the RTS document (pp. 555-574) responds to the submissions from stakeholders in respect to the likely social impacts of the development. In this regard, there are two (2) areas of ongoing concern. These specifically pertain to sections 4.27.8 and 4.27.9 of the RTS, respectively:

2.1 *RTS Summary Response:*

Shenhua Watermark has made an offer to GSC, LPSC and TRC to pay the amounts believed to exceed that which could be imposed in a planning approval under section 94 of the EP&A Act and as provided in each Councils' current Development Contributions Plans. In this respect, such monetary contributions will assist in mitigating both existing social needs and the social impacts resulting from the project (Hansen Bailey 2013, s.4.27.8, p.572).

2.2 *LPSC Commentary (VPAs):*

It should be clearly noted that in the early stages of negotiation of the VPA, concerns were expressed by Shenhua Watermark in respect of the use of VPA funding towards 'hard infrastructure'. Such infrastructure included both road upgrades and road maintenance. In this regard, and as part of the VPA negotiation processes, clear preference was given by Shenhua to the allocation of VPA funds for 'more attractive' community building projects. In LPSC's case, this funding is proposed to contribute towards the construction of an indoor sports stadium, which has been identified in LPSC's adopted Section 94A Contributions Plan.

At the time of the VPA negotiations taking place, Council was of the opinion, and indeed still is, that a range of road upgrades would need to be undertaken at full cost of the proponent, commensurate with the projected impacts of the development. It is now apparent that the proponent is seeking to abrogate their responsibilities in this area.

Section 94 contributions have been historically levied for the development and provision of a range of infrastructure within communities. The payment of such contributions levied in accordance with section 94 need to be clearly distinguished from the necessary and immediate infrastructure upgrades that are required in order to facilitate particular development, or, are arising as a direct consequence of that development. Accordingly, VPAs are not designed to replace a proponent's responsibilities in this regard, nor are they designed to mitigate direct impacts.

2.3 *RTS Statement:*

As provided in Section 3.4 of this RTS, Shenhua Watermark has made an offer to GSC, LPSC and TRC to pay the amounts believed to exceed that which could be imposed in a planning approval under section 94 of the EP&A Act and as provided in each Councils' current Development Contributions Plans. Discussions are progressing with each Council to finalise agreement over the terms of each VPA. It is likely that some funds from at least GSC's VPA will be invested in local road maintenance and upgrades (Hansen Bailey 2013, p.573).

Refer LPSC commentary above.

2.4 LPSC Commentary (cost shifting):

It is noted that no formal response has been provided in respect to Council's request for the contribution to administration costs arising from this development. Additionally, as detailed in the preceding sections, it is noted that no funding is proposed for the ongoing maintenance of the local road network or road upgrades due to the recommendations of section 4.26 of the RTS (Traffic & Transport Study).

3.0 Cumulative Impacts

Council wishes to take this opportunity to once again highlight the potential cumulative impacts arising from this proposal, particularly with other projects, including, and not limited to, the Vickery Coal Project, scheduled to commence in the near future. Careful consideration should be therefore given to likely cumulative impacts on the Liverpool Plains Shire community, particularly in respect of traffic and transport considerations.

Council would be pleased to provide any additional information or clarification in relation to this correspondence, as required. Should you require any further information or have any questions regarding this matter you are invited to contact the undersigned or Council's Manager of Planning & Development, Ms Donna Ausling, on (02) 6746 1755 or email lpssc@lpssc.nsw.gov.au.

Yours faithfully,



Robert Hunt
GENERAL MANAGER



Catchment Management Authority Namoi

Our ref: NAM02784

6 Dec 2013

Matthew Riley
Planning Officer
Mining Projects
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Matthew,

Re: Watermark Coal Project – Comment on Response to Submissions

Thank you for the opportunity to comment on the response to submissions for the Watermark Coal Project. The Namoi CMA notes the effort the proponent has made to both addressing the issues raised, and modifying the proposal in response to the submissions received on the EIS.

If you need to discuss this matter further, please do not hesitate to contact Dennis Boschma on (02) 6764 5950 or email dennis.boschma@cma.nsw.gov.au.

Yours Sincerely

Bruce Brown
General Manager
Namoi Catchment Management Authority

Phil Jones - Watermark Coal Project

From: Mitchell Isaacs
To: Phil Jones
Date: 14/02/2014 6:21 PM
Subject: Watermark Coal Project
CC: Christie Jackson; DMunro@hansenbailey.com.au; Douglas Trudeau; Mike Y...

Phil

Following the NSW Office of Water's comments on the Watermark Coal Project Response to Submissions, a meeting was held with the proponent and consultants on Tuesday 11 February.

Broadly there were 4 main areas of discussion

1. Water licensing
2. Groundwater modelling
3. Water quality
4. Floodplain management

The NSW Office of Water has also reviewed the reports by Franz Kalf in developing this response.

In summary, issues 1-3 are resolved to the satisfaction of the NSW Office of Water, subject to some recommended conditions of approval, below.

Issue 4 will be discussed further by teleconference on Monday 17 February, and is the only outstanding issue from our perspective.

Issue 1

As required under the NSW Aquifer Interference Policy, the Office of Water recommends that a condition of approval require that the maximum of the predicted annual water quantities are licensed from the commencement of the activity. The purpose of this recommendation is to ensure that future water intensive activities in the same water source do not reduce the availability of water on the market to the point where this project is unable to obtain the required water entitlements.

However, DP&I could consider the following conditions as an alternative to achieve a similar objective, and in effect treats the licensing of water at each mining area separately:

1. Mining is not to commence at each of the separate mining areas (being the Eastern, Southern and Western) unless sufficient water licences are held to account for all intercepted water from all water sources for the predicted maximum annual quantity for that mining area.
2. The proponent is to update the groundwater model on a regular basis, including 2 years following commencement of mining. The Water Management Plan will describe the frequency of review and update following the initial update.
3. Whenever the model is updated, the proponent shall undertake a forward water demand forecast covering at least five years which will include an assessment of other activities that may reduce the availability of water on the market in any of the relevant water sources.

Issue 2

The Office of Water concurs that the model is fit-for-purpose and suitable for the assessment of this project. Any comments regarding uncertainty or future monitoring can be adequately addressed during consultation on the Water Management Plan.

Issue 3

Any comments regarding water quality concerns and monitoring can be adequately addressed during consultation on the Water Management Plan.

Issue 4

Discussion on Monday Feb 14 will cover:

- If any of the levees will require a Part 8 approval under the *Water Act 1912*. The definition and extent of

the floodplain is different for the purpose of mining and water legislation. If a Part 8 approval is required, then an approval should be lodged prior to referral to the Planning Assessment Commission.
- Details on the information required to support the flood impact study.

If you have any queries please do not hesitate to contact Christie Jackson or myself. I will be overseas from Thursday of next week, however Tim Baker will fill in for me while I'm away.

Regards
Mitchell

Mitchell Isaacs | Manager Strategic Stakeholder Liaison
Department of Primary Industries | NSW Office of Water
Level 11, 10 Valentine Ave Parramatta NSW 2124 | PO Box 3720 Parramatta NSW 2124
T: 02 8838 7529 | M: 0403 103 823 | E: mitchell.isaacs@water.nsw.gov.au
W: www.water.nsw.gov.au

From: Mitchell Isaacs
To: Phil.Jones@planning.nsw.gov.au
CC: Mike.Young@planning.nsw.gov.au; Christie.Jackson@water.nsw.gov.au; Tim.B...
Date: 19/02/2014 2:54 PM
Subject: Watermark Coal Project - residual issues

Phil

There are 2 residual flood management issues which can be adequately addressed through conditions of approval and consultation on future management plans. The NSW Office of Water considers that there should be no obstacle from our perspective to the finalisation of your assessment.

1. Levee to prevent pit inundation. It is important that this levee is designed and constructed to ensure that the pit is not inundated in severe flooding. The levee should be designed to prevent inundation of the pit in floods at least of 100 year ARI severity both during operation and post closure of the mine. The proponent should further consider the benefit of excluding floods of lower frequency in lowering its operational risk.

The proponent should consult with NOW during the construction and design of this work. While there is no obligation on the proponent to hold a Part 8 approval under the Water Act 1912 prior to construction, it should be recognised there is a delay risk due to the legislative advertising and appeals process in the Act.

2. Watermark Gully and flood impacts to Kamilaroi Hwy. The Office of Water recognises that the proponent plans flood mitigation measures to reduce the potential impacts. These should be developed in consultation with the Office of Water through a management plan, and the flood impacts mitigated to the satisfaction of RMS. Flood impacts should be examined both during operation and post-closure of the mine.

I am on leave from tomorrow, returning 24 March. You can contact Tim Baker in my absence, and Christie Jackson is the relevant contact for this project.

Regards
Mitchell

12 December 2013

Stephen O'Donoghue
Senior Planner Mining Project
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr O'Donoghue,

WATERMARK COAL MINE PROJECT

Thank you for supplying us with the responses to the Adequacy Review of EIS WaterMark Coal Project and the Environmental Impact Statement (EIS) exhibited on the NSW Department of Planning & Infrastructure web site in relation to the Watermark Coal Mine Project.

Air Quality

While the EIS considers the particulate matter (PM) impacts of the mine in relation to criteria specified in the *Approved Methods* and NEPM air quality goals, it is important to note that there is no evidence of a threshold below which exposure to PM is not associated with health effects. Therefore, if the project is approved, the proponent should be required to take all reasonable and feasible measures to ensure PM emissions from all sources are as low as reasonably practicable.

Noise

There is evidence that exposure to noise is associated with a range of health conditions, including cardiovascular disease. The EIS notes activities associated with construction, operation and maintenance of the project will be carried out for up to 24 hours a day, 7 days a week. It is thus critical that the noise criteria imposed by the EPA are strictly adhered to, in order to minimise any potential health risks.

If you require additional information, please contact Mr Glenn Pearce, Senior Environmental Health Officer, on 02 67648000.

Yours sincerely



Dr Tony Merritt
Acting Director - Health Protection
Hunter New England Population Health



Contact: Katrina Stankowski
Phone: (02) 9873 8569
Fax: (02) 9873 8599
Email: Katrina.stankowski@heritage.nsw.gov.au
File: 11/20365
Our Ref: A1764925

Matthew Riley
Planning Officer – Mining Projects
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Riley

**RE: STATE SIGNIFICANT DEVELOPMENT – WATERMARK COAL PROJECT (SSD-4975) –
COMMENT ON RESPONSE TO SUBMISSIONS REPORT.**

On behalf of the Heritage Council of NSW, the Heritage Division of the Office of Environment & Heritage provides comment on the Response to Submissions Report prepared for the above project. The Heritage Council has previously commented on this project in November 2011, November 2012 and March 2013.

Accordingly, the Response to Submissions report by Hansen Bailey has been considered and the following comments are provided for your information.

It is noted that in the Heritage Council's submission of March 2013 a number of recommendations were made, several of which have been accepted by Shenhua Watermark and incorporated into the general mitigation measures for the project.

However, a number of other recommendations were not incorporated. These include the requirement for an archaeological research design and methodology (if archaeology is required) and for the nominated archaeologist to meet the requirements of the Heritage Council excavation criteria

The Heritage Council also recommended that photographic and archival recording of all impacted historic heritage be undertaken prior to the commencement of works. Shenhua Watermark have stated that as the project has a long life (30 Years) it would be more appropriate if the archival recording was conducted at each site prior to its disturbance. The Heritage Council does not agree with this conclusion.

The lifetime of the project is a long one and it is unclear if Shenhua Watermark will be maintaining the heritage sites in their present condition or allowing them to decompose during the projects lifetime prior to any impact. Therefore it is considered prudent that archival recording of the heritage is undertaken now, whilst they are still recognisable and reasonably good condition.



These recommendations are still considered appropriate and it is considered that if the Department of Planning & Infrastructure approves this project, the following are included as conditions of consent:

- *Photographic and archival recording of all affected Heritage items, as identified in the specialist reports prepared as part of the Environmental Impact Assessment for the project, is to be undertaken prior to the commencement of any construction activity. Recording is to be completed in accordance with the Guidelines issued by the Heritage Council of NSW.*
- *If archaeological excavation is undertaken this must be completed in accordance with Heritage Council guidelines and a research design and methodology be submitted for the approval of the Heritage Council. Any nominated archaeologist should meet requirements of the Heritage Council excavation director criteria.*

If you have any further enquiries regarding this matter, please contact Katrina Stankowski at the Heritage Division on (02) 9873 8569.

Yours Sincerely



11/12/13

Ed Beebe
Acting Manager
Conservation Section
Heritage Division
Office of Environment and Heritage

AS DELEGATE OF THE NSW HERITAGE COUNCIL



**Office of
Environment
& Heritage**

Your reference SSD 4975
Our reference:
Contact: Sonya Ardill
 02 6883 5313

Director, Mining and Industry Projects
Major Projects Assessment
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2011

6 December 2013

Attention: Matthew Riley

Dear Mr Riley

RE: Response to Watermark Coal Project's Response to Submissions Documents

I refer to your request, received on 22 November 2013, inviting comment from the Office of Environment and Heritage on the Response to Submissions documents for the Watermark Coal Project. A detailed response is included at **Attachment A**.

The proponent has addressed many of the comments provided by OEH after the exhibition of the Environmental Impact Statement. OEH considers that general biodiversity and cultural heritage impacts, in have been adequately addressed by the inclusion of an enhanced Biodiversity Offset Package. However, OEH considers that a number of issues regarding Koalas at the project site require further attention prior to endorsement of the Watermark Revised Koala Plan of Management. These matters are outlined in more detail in the attachment.

If you have any questions regarding the items raised in this response please contact myself on 02 6883 5313.

Yours sincerely

SONYA ARDILL
Senior Team Leader Planning, North West Region
Regional Operations

Attachment A: OEH response to the Modified Biodiversity Mitigation and Offset Measures document

Attachment A

Watermark Coal Project Response to Submissions

Office of Environment and Heritage Response

GENERAL COMMENTS

The format of this response follows that of the OEH response to the Watermark Coal Public Exhibition dated 2nd May 2013.

ACRONYMS USED WITHIN THIS DOCUMENT:

BOP – biodiversity offset package

BSAL – biophysical strategic agricultural land

CEEC – critically endangered ecological community

EEC – endangered ecological community

EIA – ecological impact assessment

EIS – Environmental Impact Statement

GDE – groundwater dependent ecosystem

KPoM – Koala Plan of Management

RTS – response to submissions

BIODIVERSITY IMPACTS

1. The vegetation condition mapping is inadequate, particularly in relation to grasslands.

Refer to point 5 below.

2. Some areas of vegetation currently mapped as “Low diversity grassland, planted and exotic pasture” potentially should be re-mapped as derived native grassland - a component of the Box-Gum Woodland EEC listed under the Threatened Species Conservation Act 1995.

Refer to point 5 below.

3. Avoidance and mitigation measures described in the EIA should be formalised within any approval process.

Background

OEH evaluates proposals against the OEH policy of ‘*Principles for the use of biodiversity offsets in NSW*’ (<http://www.environment.nsw.gov.au/biocertification/offsets.htm>)

The principles state that impacts from a development must be first avoided, mitigated, and finally offset. OEH notes that a number of measures have been proposed within the EIA to ameliorate the impacts of the Project on flora and fauna species and their habitats. Given that these measures have been undertaken to reduce the impact of the Project on biodiversity, OEH requested that some surety be provided within any Project approval conditions to ensure that these biodiversity values are not impacted by future mining operations. OEH supports the following commitments in the RTS:

- no disturbance of the Breeza State Forest, and

- no disturbance of the Mt Watermark Offset Area and a commitment that biodiversity offset areas will be conserved in perpetuity.

The retention of EECs between the mining infrastructure area and the overburden emplacement area associated with the eastern mining area, outlined in the EIS in section 7.10.5, does not appear to have been referred to in the RTS. OEH requests that any Project approval conditions provide surety that this area is protected.

OEH notes the monitoring program outlined in the RTS Appendix F Biodiversity Offsets Report and that this contains, amongst other aspects:

- monitoring of vegetation and threatened species and the establishment of reference sites as detailed in or Appendix F section 4.4 of the RTS;
- the development of a biodiversity management plan; and
- regular independent audits conducted on the BOP.

If these biodiversity values were impacted upon, or commitments to monitoring and the development of a biodiversity management plan were not upheld, the basis for this assessment of the impacts of the Project on biodiversity values would be compromised.

Recommendation

3.1 Biodiversity avoidance and mitigation measures as discussed above should be formalised within any project approval granted by the Department of Planning and Infrastructure.

4. Inadequate consideration has been given to the loss of endangered ecological communities and how the impacts will be ameliorated in the short to medium term.

Refer to point 5 below.

5. The Biodiversity Offset Package is considered inadequate in a number of areas.

Differences of opinion between OEH and the proponent regarding the mapping and classification of vegetation types at the project site and the offset sites have not been fully resolved.

In addition OEH is not confident that mine rehabilitation will result in the creation of EECs. Reference to mine rehabilitation for all biodiversity offset calculations should be removed and offset ratios should be re-calculated accordingly.

Notwithstanding the above comments, the status of the BOP has been enhanced since the EIS by the inclusion of the Additional Offsite Offset Area near Tambar Springs. OEH considers that the quantity and quality of the offset package now proposed by the proponent in the RTS is sufficient to overcome the aforementioned deficiencies.

Security of the proposed biodiversity offsets remains unresolved. Section 4.14.7 of the RTS states that *“The mechanism for the security of biodiversity offset areas will be determined in consultation and to the satisfaction of relevant government agencies. Notwithstanding this, the biodiversity offset areas will be conserved in perpetuity.”*

OEH recommends the following mechanisms and instruments to the proponent for securing offsets in the first instance:

- BioBanking Agreement and retiring of credits;
- Dedication to the public reserve system (where agreed to by OEH);
- Conservation Agreement (where agreed to by OEH);
- Trust Agreement; or
- Planning Agreement.

Recommendation

5.1 The future management of proposed offsets should be secured in accordance with the NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State Significant Development (SSD) and State Significant Infrastructure (SSI) projects.

6. The EIA does not demonstrate that indirect impacts on remaining vegetation and habitat have been effectively accounted for in either the assessment of significance or in calculating offsets.

OEH notes the additional information supplied by the proponent and clarification that the buffer areas are within the disturbance area.

7. Careful planning will be required to ensure that the proposed dual biodiversity outcomes for Offset Area 6 are achieved.

It is noted that the revised Offset Area 6 is still expected to have a dual role for biodiversity outcomes – to re-establish EECs (and other vegetation communities), and to provide habitat for Koalas. OEH supports multiple outcomes in biodiversity offsets however the ability of the proponent to secure both outcomes with revegetation remains in doubt. OEH requested further information in comments regarding the EIS and notes that the RTS proposes the proponent provide further information in the Biodiversity Offset Management Plan:

- An indicative map showing which vegetation communities will be revegetated in which areas; and
- An indicative list of species included within the revegetation areas to ensure the dual outcomes for Koalas and CEECs is met.

Recommendation

7.1 The following information should be provided in the Biodiversity Offset Management Plan for Offset Area 6:

- A map indicating where each EEC/CEEC will be restored.
- The proposed species composition of the Koala habitat plantings.

8. The identification of Biophysical Strategic Agricultural Land (BSAL) within the onsite offset areas may alter the final biodiversity offset ratios.

OEH notes the further information supplied by the proponent and that BSAL has been removed from Offset area 6. In the case of the Additional Offset area areas of current and previous cultivation have been excised from the offset area to avoid possible conflicts with BSAL.

9. The assessment of the occurrence of groundwater dependent ecosystems (GDEs) within the Project site, and potential impacts from the Project is inadequate.

OEH notes the further information supplied by the proponent.

ISSUES SPECIFIC TO THE KOALA

Due to the formatting of the revised KPoM it is difficult to extract meaningful information on key questions regarding the Koala population on the site. These include; what is the population of koalas to be affected, what will the impact be on the population and what is going to be done to secure their future? Many of the concerns regarding the original KPoM remain unresolved.

Research over the last thirty years has shown that Koala populations are more fragile than previously believed. Numbers have fallen and policies and plans haven't stabilised populations. This has been recognised by the recent listing of the koala under the EPBC Act.

It is possible to address the points raised by OEH but there is not enough detail in this document to allow a competent ecologist to conclude that the population will survive in the face of sustained mining impact.

On the positive side, the document recognises the Koala issue as important and it is attempting to manage a difficult issue. It is recognised that there are few precedents for managing the effects of mining on so many Koalas in a relatively small area over such a long time.

OEH acknowledges that the reporting of Koala management at the site will be made publicly available. It is recommended that the data and reports remain on public display for the life of the mine and are archived permanently. There is potential for the information gained in this program to be an important study of national significance.

10. The Koala population at the Project site.

The technique adopted to survey the Koalas at the site, the Spot Assessment Technique (SAT), is effective at determining occurrence of the species and its habitat preferences. It gives no information on demographic aspects such as age structure, sex ratio, breeding status or health of individuals. This key information on population dynamics is crucial in managing the population.

Without reliable information on the numbers of Koalas, their mobility, health status, breeding status and whether the population is stable, declining or increasing it will not be possible to report on the effectiveness, or otherwise, of management actions. A change to the population will not be able to be reliably explained, and if the proponent is not sure of the cause of change then they will not be able to reverse the changes. It will also not be possible to distinguish between regional factors or site factors causing any change without this demographic information.

OEH believes that inadequate information has been provided within the EIA and the Koala Plan of Management (KPoM) to assess the impacts of the Project on the Koala population, and whether the population will be improved or maintained over the life of the Project. OEH has previously requested that the proponent address this inadequacy in the EIA documents. Population studies that include radio-tracking, spotlighting and health surveys are required throughout the life of the mine to determine the status of the Koala population at the Project site.

OEH supports the vision in the KPoM of achieving a viable onsite population throughout and at the end of the life of the mine. Collection of detailed baseline information should enable monitoring of the Koala in the local area to determine whether this goal is likely to be achieved. If monitoring was to show that the population was failing to remain on track then further measures would need to be taken by the proponent to improve the chances of maintaining a viable local population.

Recommendation

- 10.1 Specific details of the Koala population including population composition, breeding success and population health will need to be collected to provide baseline information on the status of the population prior to commencement of management activities.

11. Impacts of the Project on the on-site Koala population.

It is clear that the central focus of the document has been the issue of habitat loss and its replacement. While this is important and has been addressed satisfactorily, the Koala population on the Project site faces other substantial threats including traffic and train movements, dog attacks, disease, stress and extreme weather events. These can all significantly decrease the ability of the Koala population to survive in the long term. Therefore the measures proposed in the EIA fall short of being able to provide sufficient evidence of sustaining a local koala population.

The KPoM is weak on measures to deal with Koala mortality caused by cars, trucks and trains. It is reasonably likely that the greatest threat to the population will be through individual deaths by motor vehicle, particularly if breeding-aged females are impacted. The measures outlined are passive and largely rely on signs, education and speed limits which are unlikely to be sufficiently effective. The remainder of the response relies on monitoring incident numbers and acting if these are too high. It is clear that the mine will greatly increase traffic movements into and around the site and that this risk is accentuated given the reliance of Koalas on roadside vegetation for movement corridors. OEH is concerned that mitigation measures to reduce road and rail mortality will be addressed following consent during the detailed design phase. OEH recommends that this detailed design phase plan be required as a condition of consent and that OEH be consulted prior to its approval by the Department of Planning and Infrastructure.

The monitoring program outlined in the document appears to be adequate but the KPoM does not state what will occur if the monitoring determines that the population is in decline. There appear to be no response triggers nor actions to deal with a decline.

OEH is concerned that the corridors assigned to facilitate the natural movement of Koalas through the site are very narrow, particularly considering their length. For example corridors 3,5,6 and 7 are planted corridors with minimum width of 15-20 metres. These need to be wider, particularly as they are primarily on rehabilitation areas and their stated intention is to facilitate movement of Koalas. They should also include planting of Poplar Box and appropriate shelter species.

Clearing, edge effects and fragmentation may increase the exposure of Koalas to severe heat wave events, which have already proved to be very damaging to Koala populations in the region. OEH recommends the establishment of shelter sites using appropriate local species to ameliorate this impact.

Recommendations

- 11.1 The identification of high risk areas for road or rail collision must be undertaken in conjunction with detailed site plan (as in KPoM s. 11.2.3) so measures such as underpasses and Koala-proof fencing can be included. Retrofitting of such measures is likely to be more difficult. For example it is likely that more than one rail line underpass will be required to prevent isolation of the Mt Watermark population.
- 11.2 The proponent should provide a detailed discussion on the impact of increased road and rail movements on the Koala population and how these impacts will be mitigated. At the minimum this should include the imposition of road speed limits of less than 60 km/h during daylight hours and 20 km/h from dusk until dawn. Even with these limits in place, koala road deaths will occur. There needs to be a regular, eg daily, reporting, of road deaths. It is possibly the most serious threat to the local koala population, and it is crucial that measures are implemented to limit the deaths. A radio-tracking program may help identify which koalas are crossing the roads in and out of the mine, the time of crossing, and be able to find the koalas if they are hit, but not killed.
- 11.3 The detailed design phase plan be required as a condition of consent, and that OEH be consulted on measures to reduce Koala mortality, prior to its approval by the Department of Planning and Infrastructure.
- 11.4 The KPoM should also include measures to limit mortality on the approaches to the mine and along the Kamilaroi Highway adjacent to the mine as it is likely that mining activities may push some individuals towards the Highway.
- 11.5 Corridors described in section 11.2.4 of the KPoM should be wider and incorporate Poplar Box and appropriate shelter species.
- 11.6 Shelter sites using appropriate local species should be established across the mine site area and at the onsite offsets to reduce the impact of extreme weather events.
- 11.7 If the Koala population on site appears to decline above the rate at which Koalas are being translocated then the proponent should outline in the KPoM measures to be undertaken to determine the cause of this decline, deal with the cause if appropriate and at what stage this will occur.

- 11.8 If the Koala population in the offset areas appears to change above that which can be explained by the translocation program then the proponent should outline in the KPoM measures to be undertaken to determine the cause, deal with the cause if appropriate and at what stage this will occur.

12. Translocation of Koalas.

Section 4.12.4 of the RTS proposes translocation of Koalas as a major mitigation measure. This is a drastic measure and exceptional care will be required. It is a very high profile measure as there is public concern over the welfare of individual animals as well as the population.

OEH notes the intention to prepare a Koala Translocation Management Plan for submission to OEH for approval and licensing. Intensive population studies must be undertaken to determine the level of survival of translocated animals, and also to determine the impact on the resident population of Koalas within the translocation site. A comprehensive review of the success of the translocation program should be undertaken after an agreed time period (annually) and appropriate alternative mitigation procedures should be adopted if the results are not favourable, as determined by OEH.

Recommendations

- 12.1 As stated in the revised KPoM, any proposal to translocate Koalas outside of the EP&A Act Approval Area must adhere to the NPWS Policy and Procedure Statement No 9 - Policy for the Translocation of Threatened Fauna in NSW (October 2001).
- 12.2 If translocation of Koalas proceeds then it should be undertaken as a trial in the first instance. An intensive population study of the translocated Koalas and the resident Koalas within the translocation site should be undertaken. A comprehensive review of the translocation program should occur annually to determine its success.
- 12.3 Alternative procedures must be available if the translocation of Koalas is not successful.
- 12.4 Suitable, alternative translocation sites need to be identified if the ones currently considered in the document prove not to be suitable.

CULTURAL HERITAGE IMPACTS

OEH has examined and accepts the proponent's responses to each of the matters raised in the OEH submission of the Aboriginal cultural heritage assessment for the Project. The development of the Aboriginal Cultural Heritage Management Plan (ACHMP) post approval is viewed by OEH as critical for ensuring that mitigation for Aboriginal objects and values is appropriate and managed effectively. It is recommended that with the proponent contact OEH to discuss the scope of mitigation and proposed management strategies in the ACHMP.

File No: NTH11/00154; CR2013/008412
Your Ref: SSD 4975

The Director
Mining & Industry Projects
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Mr Matthew Riley – Planning Officer

Dear Mr Riley,

Response to Submissions: Watermark Coal Project, Kamilaroi Highway, Breeza (SSD_4975)

I refer to your email correspondence of 22 November 2013 regarding the abovementioned information referred to Roads and Maritime Services for consideration and comment.

1.0 Roles & Responsibilities

In accordance with the *Roads Act 1993*, Roads and Maritime has interests in relation to road safety, traffic control facilities, connections to roads and other works on the classified road network. The Kamilaroi Highway (HW29) is a classified (state) road and Gunnedah Shire Council is the 'Roads Authority' for this road in the subject locality and all other public roads surrounding the site.

Roads and Maritime concurrence is required under Section 138 of the Act for works on this road with Council's consent. In accordance with Sections 61 and 64 of the roads act, Roads and Maritime can assume the role of the road authority and is exclusively responsible for decisions regarding road works on state roads.

In accordance with Clause 101 of the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) the Consent Authority for this development is to have consideration for the safety, efficiency and ongoing operation of the classified road as the development has frontage to a classified road.

The development is a State Significant Development (SSD) for the purpose of Section 89K(1) of the *Environmental Planning & Assessment Act 1979* (EP&AA) and as the proposed road works on the Kamilaroi Highway are considered part of the development pursuant to Clause 8(2) of the *State Environmental Planning Policy (State & Regional Development) 2011*, they are a matter for assessment under Section 79C of the EP&AA. All impacts arising from the proposed highway deviation and rail loop construction must be appropriately considered by the consent authority prior to a determination of this application.

2.0 Roads and Maritime Response to RTS

Roads and Maritime has reviewed the additional information provided in support of the 'Response to Submissions' (RTS) and considers that significant issues have yet to be adequately addressed by the SSD application. The following points are raised for the Consent Authority's consideration;

2.1 Environmental Impacts of Proposed Kamilaroi Highway Deviation and Rail Overbridge

I refer to Roads and Maritime's previous response to the Environmental Impact Statement (EIS) of 2 May 2013 and further consultation undertaken with the proponent during June 2013. Subsequent to these discussions email correspondence was forwarded to the applicant's consultant on 5 July 2013 and copied to your office (See enclosed a copy of this email and its attachment for your reference).

The email correspondence outlined the information deemed necessary to enable an appropriate assessment of the road-related works proposed by the application and requested that additional information be provided to clarify and address the likely environmental impacts arising from the identified road works on the Kamilaroi Highway.

It is noted that the requested information has not been addressed by the RTS and accordingly Roads and Maritime maintains its position that insufficient information is available for the Consent Authority to adequately quantify the potential impacts associated with the identified works and/or to make a determination of appropriate mitigation measures required to address likely impacts. The consent authority should satisfy itself that the issues highlighted by Roads and Maritime have been appropriately addressed prior to determining this application.

Should the project be approved and potential environmental impacts are identified during the 'Works Authorisation Deed' process, there may be a requirement to modify the project approval prior to construction commencing, which may result in a delay to the project time line. It is requested that the Consent Authority advise the applicant of this process and ensure that all parties are aware that Roads and Maritime is not responsible for the environmental assessment of these road works.

2.2 Traffic Impacts on the classified road network and suitable intersection standards

A review of Sections 4.26 and 5 of the RTS has identified inconsistencies between identified traffic conditions and comparable traffic data available to Roads and Maritime and the applicable roads authorities for the affected areas.

The assessment of key intersections on the classified road network has misrepresented existing intersections layouts and has not adequately addressed the subsequent risks to road safety arising from the introduction of increased traffic movements associated with this development.

On page 538 of the RTS, Table 79 concludes that a number of intersections meet the minimum AUSTROADS requirement for a 'basic right turn' (BAR) treatment and also identifies that an intersection has an auxiliary left-turn (AUL) treatment. Site inspections at these intersections have identified the following inconsistencies with these conclusions;

- i. *Werris Creek Road and Bulunbulun Road intersection:* the existing layout does not currently meet the minimum BAR treatment as stated in the RTS. The identified increase in traffic movements would warrant an Austroads 'channelised short right-turn' CHR(S) treatment.
- ii. *Werris Creek and Gap Road intersection:* the existing layout does currently meet the minimum BAR treatment as stated in the RTS. Recent traffic data available to Roads and Maritime indicates that a CHR(S) treatment would be warranted prior to the introduction of additional traffic movements.
- iii. *Kamilaroi Highway & Bulunbulun Road intersection:* The existing layout does not currently meet the minimum BAR treatment as stated in the RTS. Given the 110k/h speed environment and the predicted increase in turn movements at this intersection there is an opportunity to improve road safety by requiring a CHR(S) treatment and auxiliary left AUL treatment to provide improved protection for turning vehicles whilst maintaining through efficiency for highway traffic.
- iv. *Kamilaroi Highway & Gap Road intersection:* The existing layout does not currently meet the minimum BAR treatment. The intersection should meet the minimum BAR treatment prior to the introduction of additional development-related traffic.

- v. *Kamilaroi Highway & Waverley Road intersection*: The existing layout does not currently meet the minimum BAR treatment and does not include an AUL treatment as stated in the RTS. Whilst the intersection provides the minimum BAL treatment, the intersection should be upgraded to provide the minimum BAR treatment prior to the introduction of additional development-related traffic.

The RTS has acknowledged a risk for the vehicles to queue at the existing rail level crossing adjacent to Kamilaroi Highway and Hogarth Street intersection in Breeza. RTS proposes that development-related traffic will be restricted from using this route and that signage will advise of the risk for queuing traffic. Roads and Maritime considers that it will be difficult to monitor and/or enforce compliance with such a restriction and that alternatively an AUL left-turn treatment and advance warning signage would be more appropriate in addressing any risk associated with queuing. Any spill over into the deceleration lane would be clearly visible to highway traffic and would offer through traffic the alternative to continue on to the Kamilaroi Highway and Bulunbulun Road intersection.

The impact of additional development-related traffic movements on intersections that do not meet the current minimum AUSTROADS Guidelines has the potential to affect the future safety and efficiency of the wider road network. Given past observations of the cumulative impacts arising from multiple mining projects in the Hunter Region, Roads and Maritime suggests that the Consent Authority satisfy themselves that appropriate planning is undertaken at a strategic level to better understand future traffic demands associated with mining projects and to ensure that suitable arrangements are in place to secure adequate contributions and/or works-in-kind to enable the relevant roads authorities to manage future increases in development-related traffic across the wider road network.

2.3 Flooding impacts on the classified road network and suitable mitigation works

Watermark Gully Causeway on the Kamilaroi Highway is periodically affected by inundation and closure to traffic of the highway during flood events. Such inundation affects the safety and efficiency of the classified road, whilst closures impact adversely on local communities, regional connectivity, and transport efficiency.

In Section 4 of the RTS, on page 129, it is highlighted that the development will exacerbate flooding impacts on the Kamilaroi Highway in terms of increased flow and duration. It is noted that the EIS and RTS have yet to propose appropriate mitigation measures to address this impact on the classified road. Whilst the RTS has claimed that any increase in flood flow or duration will not be significant, it is assumed that the modelling undertaken has yet to take into account the likely drainage impacts associated with the proposed railway overpass and highway deviation works.

Roads and Maritime considers that suitable mitigation works should be identified to ensure that overland flows and flooding duration are at least maintained at existing levels. It is requested that the Consent Authority consult with the Developer to identify appropriate mitigation measures to address flood-related impacts on the safety and efficiency of the classified road. Any approval for the project should include consent conditions that require appropriate measures to be in place prior to any development-related changes to the subject catchment.

2.4 Arrangements for proposed Kamilaroi Highway deviation and over bridge construction

Roads and Maritime has previously highlighted that minimal information has been provided in relation to the proposed deviation of the Kamilaroi Highway and private rail overbridge. As previously mentioned the level of detail provided has made it difficult to determine whether environmental impacts associated with this part of the project have been adequately considered. Whilst Roads and Maritime understands that the applicant may wish to await project approval prior to undertaking further investigation, it must be acknowledged that environmental approvals for such works are not the responsibility of Roads and Maritime or the other roads authorities, where the works form part of an SSD.

Should the proposal obtain SSD project approval, then the Developer will be required to enter into a 'Works Authorisation Deed' (WAD) with Roads and Maritime prior to construction of the Kamilaroi Highway deviation, rail overbridge and any associated works or structures. The WAD will oversee the detailed design process, construction surveillance, maintenance contributions and the necessary approvals in accordance with the *Roads Act 1993*. A pre-qualified contractor will be required to undertake all works to the satisfaction of Roads and Maritime services prior to the deviation of Highway traffic and/or the commencement of mining operations. All costs associated with the works and administration of the WAD will be the responsibility of the Developer.

Prior to execution of the WAD, the nominated Rail Interface Manager (RIM) for the private Rail line will be required to enter into a 'Surface Interface Agreement' (SIA) with Gunnedah Shire Council and Roads and Maritime Services. The SIA will address construction, maintenance, surveillance and any post-project handover or decommission of the rail-overbridge structure in accordance with the requirements of the *Roads Act 1993* and the *Rail Safety (Adoption of National Law) Act 2012* (NSW) requirements. All costs associated with the works and administration of the SIA will be the responsibility of the Developer.

All roads works on the Kamilaroi Highway will need to be designed and constructed in accordance with the relevant Austroads Guidelines, Roads and Maritime Supplements and Australian Standards.

Given the complexity of agreements and approvals required under the WAD and SIA processes, it is recommended that the Developer initiate discussions with Roads and Maritime as soon as possible after any SSD approval to minimise potential delay to the project timeline. A detailed concept design for the proposed works is to be directed to: wad.northern@rms.nsw.gov.au prior to initiating contact with the Roads and Maritime Project Manager (WAD) in the Northern Regional Office on (02) 6640 1300.

For your reference, a list of the Roads and Maritime's Pre-qualified Contractors can be obtained at: <http://www.rms.nsw.gov.au/doingbusinesswithus/tenderscontracts/prequalifiedcontractors.html>

3.0 Advice to the Consent Authority

It is advised that the Developer must enter the necessary WAD and SIA processes to facilitate delivery of the proposed Kamilaroi Highway deviation, rail overbridge and associated works and structures. It is noted that the RTS has committed to entering discussions regarding these agreements with the 'intension' of entering these agreements. Roads and Maritime requests that the consent authority ensure that the requirement for these agreements is clearly outlined to the applicant and that suitable consent conditions are included in the project approval. Accordingly, it is requested that the Consent Authority refer the applicable draft conditions to Roads and Maritime for consideration and comment prior to finalising a determination for SSD approval.

Upon determination of the project, it would be appreciated if a copy of the project approval and any conditions of consent can be forwarded to Roads and Maritime. If you have any further enquiries regarding the above comments please do not hesitate to contact Matt Adams on 6640 1362 or email: development.northern@rms.nsw.gov.au

Yours sincerely,



24 December 2013

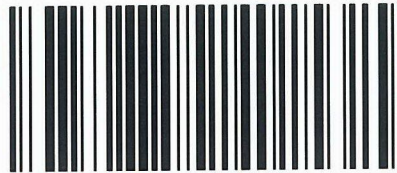
John Alexander
Regional Manager, Northern Region

CC: General Manager – Gunnedah Shire Council
General Manager – Liverpool Plains Shire Council

ENC: Email correspondence and attachments of 5 July 2013



Transport
for NSW



PCU50394

The Director
Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

Attn: Matthew Riley

Dear Mr Riley

**Watermark Coal Project (SSD 4975)
Response to Submissions**

Thank you for your email dated 22 November 2013 requesting Transport for NSW (TfNSW) review and provides comments on the Response to Submissions for the Watermark Coal Project (SSD 4975).

Transport for NSW (TfNSW) has reviewed the supporting documentation presented in the Response to Submissions. A number of issues have been identified from the original submittal that need rectification before Transport for NSW can provide its final position. Detailed comments are provided in **Attachment 1**.

Transport for NSW understands that Roads and Maritime Services will be providing a separate response.

Thank you for providing TfNSW the opportunity to review and comment on the Response to Submissions for the Watermark Coal Project. Should you have any questions regarding this matter, please contact Robert Rutledge, Principal Transport Planner on 8202 2203 or Robert.rutledge@transport.nsw.gov.au.

Yours sincerely

13/12/13

Mark Ozinga
**Manager, Land Use Planning and Development
Planning and Programs Division**



CD13/23059

Detailed TfNSW Comments

There are a number of concerns with the responses provided in Section 4: Environmental and Socio-Economic Issues. These concerns are described below:

1. Page 548: 4.26.11 Predicted Rail Traffic Impacts

TfNSW original comment: *"No assessment has been made of the ARTC upgrades to accommodate the project's impact on the rail network.... It is recommended that the Department has approval from ARTC for the required train paths before making its determination on the application."*

The proponent indicates in the last paragraph of section 4.26.11 that *"ARTC has demonstrated an ability to deliver capacity creating infrastructure to meet contracted future tonnages."* It is not clear if ARTC has indicated that it has the ability to provide the additional capacity in this particular instance, or if ARTC has provided the requested approval for the required train paths.

This issue was not adequately addressed in the Response to Submissions. TfNSW is not able to recommend project approval to DP&I until the proponent provide written confirmation from ARTC demonstrating it is able / will be able to provide the additional capacity required for the Watermark Coal project.

2. Page 548: Rail Network Upgrades

This section discusses the possibility of reopening and reconfiguring the Gap – Werris Creek line to address certain capacity issues at Werris Creek as a result of coal train operations.

TfNSW originally commented on the lack of assessment in the Transport and Traffic Impact Assessment report concerning ARTC infrastructure upgrades to accommodate the project's impact on the rail network. TfNSW requested the applicant identify any necessary mitigation measures already proposed by ARTC to accommodate the Watermark Coal project on the network. Is this project in ARTC's future program, and how will reopening the line be funded? Confirmation from ARTC in writing is requested.

3. Page 549: Rail Traffic Interactions with Agriculture

TfNSW commented on the Transport and Traffic Impact Assessment report's insufficient detail provided on the impact of this proposal on port and rail capacity and availability for other industries, namely agriculture.

This section of the Response to Submissions suggests that passenger and grain rail traffic have / or do receive priority in capacity allocation.

TfNSW requests a letter from ARTC confirming this assertion. If the proponent is unable to procure this assertion from ARTC, then TfNSW recommends the conditions of consent include a requirement to ensure that the project will not impede the rail and port accessibility requirements of other industries during seasonal peaks.



EARTH SYSTEMS

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Australian Business Number 42 120 062 544

REVIEW OF RESPONSE TO SUBMISSIONS: ENVIRONMENTAL IMPACT STATEMENT, WATERMARK COAL PROJECT

Prepared for

CAROONA COAL ACTION GROUP

December 2013

Earth Systems was commissioned by the Caroon Coal Action Group (CCAG) with the support of the Namoi Valley Environmental Protection Fund, Australian Community Foundation, Namoi Water, Sunrise Project, Cotton Australia, the Upper Namoi Cotton Growers Association, the Namoi Community Network and 322 local landholders, to conduct an independent review of the Environmental Impact Statement (EIS) for the proposed Watermark Coal Project (hereafter referred to as the 'Project') in New South Wales. The EIS was prepared by Hansen Bailey on behalf of the Proponent, Shenhua Watermark Coal Pty Ltd (Shenhua Watermark).

An independent review of the EIS was prepared by Earth Systems in May 2013 as a public submission on behalf of the CCAG (Earth Systems, 2013). This was one of 139 public submissions that were provided by the DPI to Shenhua Watermark in relation to the Project. The submissions were made by 17 regulatory agencies, 107 members of the public and 14 special interest groups.

In November 2013, Hansen Bailey prepared their "Response to Submissions" (RTS) comprising 45 separate documents, including a main report in excess of 600 pages and 6 appendices.

This document provides comment on the RTS where relevant to Earth Systems' May 2013 report. Given the extensive number of documents to review and very limited time available to comment on the RTS, this document has focussed only on a selected number of key issues at a high level. If more time is available, Earth Systems would welcome the opportunity to provide more detailed responses or further clarification of any of the comments and concerns raised in this document.

An analysis of the suitability and quality of Hansen Bailey's "Responses to Submissions" with regards to the findings, queries and recommendations identified by Earth Systems (2013) are presented in Table 1. The review is structured according to the key points identified in the Executive Summary of Earth Systems (2013).

Table 1: Review of Hansen Bailey's "Response to Submissions" (RTS) with regards to issues identified by Earth Systems (2013).

Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
General				
There is a general lack of fundamental information in the Project description (mine model, mine schedule, definition of disturbance areas, extent of blast exclusion zone, details on water supply and treatment infrastructure, workforce accommodation, etc). It is not possible to assess environmental impacts in the absence of such data.	S.4.1.2, S.4.10.3, S.4.27.3	S.4.1.2 “Table 6 in Section 3.2 of the EIS provides an indicative production schedule, which corresponds to the stage mine plans.” S.4.1.2 “Section 3.1 of the EIS provides an overall layout of the Project. This is accompanied by a set of conceptual staged mine plans (Figure 10 to 17) in Section 3.2 of the EIS, which illustrates the progression of mining operations. Further, Detailed Design Drawings for the Project were provided in Appendix B of the EIS.” S.4.1.2 “Details and drawings regarding the mine plan and broader Project design, including OEAs, stockpiles, final void, water and power supply infrastructure and waste, are provided in the EIS.” S.4.10.3 addresses extent of blast exclusion zone by way of 500 m buffer zone illustrated in Figure 63-64. S.4.27.3 “Shenhua Watermark intends for its construction and maintenance workforce to utilise the MAC Werris Creek Workforce Accommodation Facility to avoid placing undue short-term excess pressure on local rental demand. During the operations phase, employees will be locally based or encouraged to relocate and settle in the region. A range of affordable accommodation options exist within the Sub Regional Study Area to cater for the initial influx of employees and their families.”	Table 6 provides an indicative production schedule only for 8 of the 30 years and this excludes the backfill schedule and in particular the scheduling of PAF/NAF material handling. Although a Disturbance Area is indicated in the EIS figures, the definition remains unclear (mining areas and infrastructure that are generally located within the disturbance boundary). No further information appears to have been provided regarding water supply and treatment infrastructure. For the operations phase, it does not appear that the proponent intends on developing a plan to house its staff and their families, placing the majority of the responsibility on its staff and expecting the host community to accommodate.	Partially addressed (blasting exclusion zone only).



Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
The Project design with final void remaining in Western Mining Area is a concern given the potential long term impacts on receiving water quality and groundwater flows. It should not be presumed that approvals will be granted for future Project expansion, particularly given the conditions of EL 7223 which prohibit long wall mining.	S.4.22.1, S.3.1.9	S.4.22.1 <i>"The mine plan for the Project was specifically redesigned so that the two largest voids created by operations in the Eastern Mining Area and the Southern Mining Area can be completely backfilled and rehabilitated. A third, much smaller, residual void has been engineered in the Western Mining Area so that it is remote from the black soil plains and groundwater aquifers.</i> <i>Shenhua Watermark may, depending upon market factors and resource confirmation, seek further relevant approvals for the extraction of these. In this instance the Western Mining Area final void will be ideally placed for underground access to this coal resource, however this is not considered as part of the Project."</i> <i>"The Western Mining Area void will cover an area of approximately 100 ha. It will have a maximum depth of around 80 m below the natural ground surface, with a volume of approximately 76 Mbcm. As part of the final landform, it is planned that the final void will have the majority of the highwall blasted back and the low wall graded, to improve its safety and stability"</i> S.3.1.9 defines the conditions of EL 7223, specifically that no long wall mining may occur underneath the "deep alluvial irrigation aquifers" or underneath the "floodplain".	Additional information regarding the final void has been provided. While the Proponent acknowledges the conditions of EL7223 regarding long wall mining, it is still implied that approvals may be sought at a later stage and this implication is used to justify maintaining a final void.	Partially addressed.



Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
EL 7223 also prohibits open cut mining anywhere on the floodplain. The Project appears to breach this EL condition, as the flood impact assessment (Section 7) indicates that part of the Eastern Mining Area will experience flood levels up to 1.7 metres in a 100-year event.	S.3.1.9	The EL conditions do not define "floodplain". On 9 October 2013, the Minister for Resources and Energy advised that the definition of the term "floodplain" is as follows: "A floodplain is an area of low-lying, nearly flat plain adjacent to a river, formed mainly of river sediments and subject to regular flooding." <i>"The flood modelling for the EIS indicated a small area in the Eastern Mining Area (adjacent to The Dip Road) may experience flood inundation during a 1 in 100 year flood event. Whilst this area (referred to as The Dip Road land below) is low-lying (less than 2% average gradient), the slope in the area has been drastically modified by contour banks and dams and is not indicative of a natural or residual floodplain. The Dip Road land is clearly not located adjacent to a river. The Mooki River is approximately 4 km to the east of The Dip Road land. In addition, the flood modelling in the EIS clearly demonstrates that the land is not "often" flooded by the Mooki River "at high water or when the channel reaches capacity". The Soils Survey and Land Capability Impact Assessment for the Project (Appendix Y of the EIS) demonstrate that The Dip Road land is not predominately comprised of river sediments.</i> <i>For the reasons specified above, The Dip Road land is not considered to be a "floodplain" for the purposes of enforcing the conditions of EL 7223. As such, the Project design complies with the conditions of EL 7223."</i>	This response ignores the previous finding reported in the EIS that part of the Eastern Mining Area will experience flood levels up to 1.7 metres in a 100-year event. In other words, there is a 30% chance of flood water reaching a depth of 1.7 metres during the mine life, and an even greater chance of the area being flooded to <1.7 metres depth. Any floodwater that approaches the EMA presents a major risk associated with pit wall stability and the potential for pit flooding. The proponent intends to install a bund wall, hence acknowledging the flood risk, but has given no consideration to modifying the extent of the EMA.	No, comment appears to be inadequately addressed.

Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
Recent changes to the regulatory framework do not appear to have been considered in the EIS despite their likely significance to the Watermark Project. These include the EPBC Act Environmental Offsets Policy (October 2012), the Murray Darling Basin Plan (November 2012), and the Mining Regulation 2010.	S.4.14.1, S.3.1.7, S.3.1.4	S.4.14.1 <i>"The Biodiversity Offset Strategy for the Project has been revised since the EIS was exhibited. Having regard to State and Commonwealth offsetting methods, the biodiversity offsets proposed for the Project will adequately compensate these impacts of the Project on biodiversity values."</i> S.3.1.7 indicates that Shenhua Watermark is aware of its obligations relating to the Murray Darling Basin Plan including Basin Plan Diversion limits for the <i>"Namoi, Namoi Alluvium and Easter Porous Rock water resource units."</i> S.3.1.4 <i>"Shenhua Watermark will provide the [required] information to DRE when seeking a Mining Lease over the applicable area for the Project"</i> as part of the requirements of the Mining Regulation 2010.	The Biodiversity Offset Strategy has been revised to comply with the EPBC Act Environmental Offsets Policy. No specific details were provided on how the Project will meet its requirements for the Murray Darling Basin Plan beyond stating that it will abide with the Baseline Plan Diversion Limits as listed in Tables 1 and 2, S. 3.1.7.	Yes , comment appears to be adequately addressed.
There are major gaps in the baseline data, particularly in relation to water quality and geochemistry. Other gaps exist in the meteorological, ecological and archaeological / cultural heritage baseline. It is not possible to fully assess environmental impacts in the absence of such data, nor will it be possible to distinguish Project-related impacts from external influences if the Project was to proceed.	Various	Adequacy of baseline data is referred to in various sections of the RTS. In some cases the response states limitations during the baseline characterisation (eg. with respect to archaeology where ground visibility was a limiting factor) in other cases justifications are provided as is the case for groundwater baseline data. Specifically S.4.2.1 <i>"... the groundwater assessment is based on the results of a comprehensive field investigation program, one of the most extensive ever conducted for a coal mining EIS in the Gunnedah Basin of NSW. This has resulted in an extensive groundwater baseline data set being collected (minimum of two years data was included in the Groundwater Impact Assessment) and over 24,200 samples..."</i>	In most instances additional investigation was not completed to supplement initial baseline studies, as such major data gaps remain. Until these major data gaps are filled (and detailed management plans provided) the adequacy of the impact assessment remains uncertain. Specific concerns regarding the water quality baseline also remain. While a large number of samples may have been analysed in the field, only limited laboratory analytical data were presented in the EIS.	No , comment appears to be inadequately addressed.

Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
			Concerns also remain regarding the lack of sufficient geochemical baseline data (see below).	
The risk assessment conducted for the Project is condensed into a single page of the EIS and is not considered to be sufficiently detailed or comprehensive given the magnitude of the proposed Project, the significant number of risks involved, and the sensitivity of the receiving environment and community. The assessment of residual risks appears to be largely based on management recommendations from the technical studies, many of which have not been incorporated into Section 7 (Impacts, Management and Mitigation) or Section 8 (Management and Monitoring Summary). Hence, the risk assessment appears to understate the likely impacts and risks associated with the development of the Project.	S.4.29.2, S.4.29.3	S.4.29.2 <i>"the Risk Assessment was prepared in accordance with AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines and Handbook 203 – 2012: Managing Environment-Related Risk, which supersede AS/NZS 4360 – 2004: Risk Management and Handbook 203 – 2006: Environmental Risk Management – Principles and Process, respectively."</i> S.4.29.3 <i>"The Revised Risk Assessment was prepared following completion of technical specialists environmental and social assessments. This information was then used to reassess the risk ranking of each issue, after consideration of the mitigation and management measures proposed. This process is consistent with the DGRs and relevant Australian standards and guidelines."</i>	The general approach and structure used for the risk assessment was understood, but the initial comment relates to the lack of a sufficiently detailed risk assessment commensurate with the magnitude and sensitivity of the Project. Furthermore, while the revised risk assessment is clearly based on the management recommendations provided in the technical studies, many of these have not been incorporated into EIS as management commitments. For this reason the risk assessment, presented as a main chapter in the EIS, is considered to be misleading.	No , comment appears to be inadequately addressed.
For most aspects of the EIS, the potential impacts of the project (without management measures) have not been distinguished from residual impacts (with management measures).	Not established	It has not been possible to locate a specific response to the comment within the RTS.	This comment does not appear to have been addressed. Additional work would be required to transparently present and quantify potential impacts alongside residual impacts for all aspects of the EIS.	No , comment appears to be inadequately addressed.



Initial Comment by Earth Systems, May 2013	Response by Hansen Bailey, November 2013		Comment by Earth Systems regarding suitability of Hansen Bailey response, December 2013	Has Earth Systems' Initial Comment (May) been adequately addressed by Hansen Bailey (November)?
	Section of RTS document	Brief Summary of Response		
The potential impacts of the project during construction, operations and post-closure have not been clearly distinguished throughout the EIS.	S.3.3.1	S.3.3.1 "Noise modelling for the Project (see Appendix H of the EIS) concluded that the offsite impacts during the construction phase are within the appropriate assessment criteria and will not affect the conduct of adjacent land users (with the exception of receiver 125 who will also be significantly impacted by operational noise). A Construction Management Plan will be developed by Shenhua Watermark, which will include a range of mitigation and management measures to manage noise and avoid adverse impacts on this sensitive receiver."	It does not appear that the comment has been specifically addressed with the exception of some further assessment of noise impacts during construction.	No, comment appears to be inadequately addressed.
In general, very limited detail is provided on many of the management measures proposed in Section 7 of the EIS, and there appears to be only limited commitment to best practice (such as those outlined in the Federal Government leading practice handbook series for sustainable development in the mining sector) with the exception of air quality and noise management. Several management measures have been documented or recommended by specialists in the technical appendices but have been omitted from the EIS.	S.3.3.3, S.4.29.2, S.4.29.3	S.3.3.3 "Implementation of best-practice sound power levels on all of the equipment fleet to reduce noise impacts." S.4.29.2 The Leading Practice Sustainable Development Program for the Mining Industry – 'Risk Assessment and Management' guideline was "considered during the preparation of the Risk Assessment, however the Risk Assessment was prepared in accordance with the Australian Standards and Guidelines specified in the DGRs which are more comprehensive." S.4.29.3 "Shenhua Watermark has committed to the preparation of various management plans, should Development Consent for the Project be granted. This procedure is consistent with all NSW coal mining approvals and is considered to be done so in accordance with industry-leading practice."	The summary table of environmental management and monitoring commitments has been updated but the level of detail is still very limited. An EMP should be provided as part of the EIS documentation to address this gap (see below). In some cases, the response provides a justification for choosing an alternative guideline / practice such as the case for the selected Risk Assessment guidelines. Overall however, no additional commitment has been made to achieving best practice (eg. beyond legal/regulatory requirements).	No, comment appears to be inadequately addressed.



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A key requirement of SEWPaC is to include an Environmental Management Plan (EMP) as part of the EIS. This has not been provided.	Table 93, S.5	An Environmental Management System will be developed, comprising of a number of management plans.	No, an Environmental Management Plan has not been provided. The reference to an EMS, and updated summary table of environmental management and monitoring commitments, is not considered sufficient to meet this SEWPaC requirement.	No, comment appears to be inadequately addressed.
A summary of management commitments has been prepared in Section 8 of the EIS. Many of these are simply "commitments" to develop management plans. In the absence of these management plans (and EMP) it is not possible to assess the effectiveness of mitigation measures and hence the likely impacts of the Project. Furthermore, it is not possible to cost the mitigation measures.	Table 93, S.5	An Environmental Management System will be developed, comprising of a number of management plans.	Reference to an EMS and updated summary table of environmental management and monitoring commitments is not considered sufficient to enable accurate assessment of the effectiveness of management measures and hence likely impacts of the Project. Furthermore, it is not possible to cost the management measures without this information.	No, comment appears to be inadequately addressed.
Despite the above, the economic impact assessment has attempted to develop some preliminary cost estimates for environmental impact management, largely associated with greenhouse gas emissions, surface and groundwater (obtaining licences) and road closures. Costs of foregone agricultural production, noise management, blasting, air quality, surface and groundwater, ecology / offsets, road transport, heritage and visual impacts are dismissed as either "minimal" or "included in opportunity cost of land and development costs".	S.4.28.1	<i>"The Economic Impact Assessment (see Appendix AF of the EIS) is based on all the information provided in the EIS, including the indicative production schedule provided in Table 6 of the EIS. The Economic Impact Assessment does not repeat this information, but more importantly, specifies the methodology and data used in calculating the net social benefits of the Project to the community. In BCA, the costs and benefits of a project, including the environmental, social and cultural impacts, are valued (weighed) in accordance with how individuals in</i>	This response provides justification for the methodology and rationale for the BCA, and indicates the expected benefits for the values listed in the comment. However, without a detailed assessment of potential impacts (not just residual impacts) and without a detailed EMP, it is not possible to quantify the costs associated with managing all environmental impacts.	Partially addressed (more detailed explanation provided, but without quantifying all environmental costs).

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		<i>the society value them, as per the Guideline for the use of Cost Benefit Analysis in Mining and Coal Seam Gas Proposals (BCA Guidelines) (DP&I, 2012c). This is based on the principles of supply and demand. The methodology employed for the BCA for the Project (see Appendix AF of the EIS) is therefore considered appropriate."</i>		
An environmental monitoring program for the operations phase has not been provided. At the very least, this should include a comprehensive water quality monitoring plan "including management triggers to detect potential issues in a timely manner and to avoid, minimise or ameliorate adverse impacts" (SEWPaC requirement).	Table 93, S.5	<i>"Shenhua Watermark will continue to monitor groundwater levels on a monthly basis and water quality on a quarterly basis in accordance with the Water Management Plan. Shenhua Watermark will monitor surface water quality in accordance with the Water Management Plan."</i>	An environmental monitoring program for the operations phase has still not been provided. Furthermore, in the absence of a Water Management Plan, it is not possible to ascertain if the water monitoring program is adequate.	No , comment appears to be inadequately addressed.
Water				
Project water supply sources and specific water supply requirements from each source, including the Mooki River, have not been quantified. It is therefore not possible to fully assess impacts on surface and groundwater resources.	S.4.3.10	<i>"Very little of the offsite water requirement can be obtained from the Mooki River, due to the Mooki River generally being dry at the times when offsite water is required. The maximum external make-up water supply (600 ML/annum or 19 L/s) has been demonstrated to be obtained from existing or proposed bores on Shenhua Watermark owned land, subject to appropriate water licensing." Regarding the Mooki River pipeline:</i> Analysis of site demands and Mooki River flows "demonstrates that harvesting of water from the Mooki River is unlikely to be a primary water source for the Project because river flow only occurs after significant rainfall which results in increased water availability on the site".	The response provides some clarity regarding surface versus groundwater supply requirements, however: - It remains unclear why the Mooki River pump station is still under consideration given the results of the analysis reported in Section 4.3.10. - It remains unclear whether the pipeline options relate to water supply only, or water supply and off site discharge.	Partially addressed.

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		“Similarly, under very dry conditions when imported water may be required for the Project, there is unlikely to be available surface flow in the river”. “For these reasons, the Mooki River pump station may be constructed, as required”.	The potential impacts of groundwater abstraction for Project water demand do not appear to have been considered in the groundwater modelling or impact assessment.	
There is a lack of consistency throughout the EIS regarding the need for off site discharge. In addition, the likely quality of water to be discharged off site has not been assessed. It is therefore not possible to assess impacts on downstream water quality, water resource use and aquatic ecosystems.	S.4.3.3	<i>“The water management strategy for the Project is based on the primary principle of separating water from different sources in terms of water quality. This ensures all water of poor quality that does not meet the adopted water quality criteria is contained on site. Releases are only proposed from OEA runoff following treatment and only then when it meets the agreed adopted water quality criteria. Mine water (i.e. water that has generally come in contact with coal) will not be discharged from the Project and will be preferentially used to meet site water demands.</i> <i>“Sediment-laden” water (i.e. surface runoff water from areas that are disturbed by mining operations) will be captured in sediment dams and treated to improve water quality prior to release from the site in accordance with discharge locations and criteria specified in the EPL, or returned to the mine water system if the water quality is not suitable for release. “Mine water” (i.e. water that has generally come in contact with coal) will not be discharged from the Project and will be used to meet site water demands. The results of site water balance modelling indicate that there will be no release of “mine water” from the mine site under any rainfall conditions that have been experienced in the area during the past 100 years.”</i>	The response provides some clarity regarding the need for discharge, but insufficient consideration of water quality and likely treatment requirements. The distinction between “sediment-laden” water and “mine water” is considered simplistic, particularly if mine water is to be used for dust suppression (thereby affecting site runoff water quality) or if seepage from OEAs contaminates surface runoff from the same material, etc.	Partially addressed.

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A number of assumptions used to develop the operational water balance are unclear. Uncertainties in the water balance calculations are not explained in the EIS, but may have significant implications for site water demand and discharge requirements. In terms of the post-closure water balance, the void water rebound rate has been estimated at between 100 years (WRM) and 2000 years (AGE). Further work is required to resolve this discrepancy.	S. 4.3.4 S.4.3.15	S.4.3.4: <i>"The proposed surface water management system and the water balance modelling methodology are consistent with current industry best practice and the DGRs issued for the Project."</i> <i>"The assumptions and methodology used in the water balance model are credible, justified and consistent with industry best practice and the DGRs, having been based on the best available data."</i> S.4.3.15: <i>"The assessment of final void behaviour has been refined to improve consistency between the surface water and groundwater models of the final void, based on more detailed consideration of interactions between the final void lake and the surrounding groundwater. Both models predict a long term equilibrium water level in the open void of about 280 m AHD. Both models confirm freeboard of about 40 m thereby indicating that the final void will not overflow. The open void will remain a permanent sink for groundwater flow and the saline water that will develop within the void lake will not be able to flow to the adjacent alluvial aquifers."</i>	No additional information appears to have been provided regarding the assumptions used to develop the operational water balance. There remains a significant discrepancy between the estimated duration of void water rebound based on the WRM model (within 300 years) and revised AGE model (1500 years). This highlights the sensitivity of different modelling approaches to uncertain input parameters and model assumptions.	Partially addressed.
The site salinity balance is completely inadequate and cannot be used as a basis for assessing Project-related impacts on downstream water quality, nor developing an appropriate site water and salinity management strategy.	S. 4.3.14	<i>"The model results show that the total average salt load released offsite in surface runoff is not significantly increased by the Project. The maximum total average salt load of 66.0 t/day occurs in Year 30 of the Project and represents an increase in the pre-mine salt load of approximately 1% for that year. Native Dog Gully has high salinity under existing conditions and may contribute to a small observed increase in Mooki River salinity downstream of Native Dog Gully."</i>	The average annual salt balance documented as part of the response provides further clarity of the assumptions made. However the calculations assume that dust suppression, net loss from the CHPP and vehicle washing represent "salt outputs" from the site. It is implied that ~5-8 tonnes	No , comment appears to be inadequately addressed.



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			per day of salt is permanently stored / trapped on site, despite the potential for remobilisation of this salt in surface water runoff and seepage that ultimately reports off site via sediment dams. Furthermore, these figures are considered underestimates as geochemical aspects are still not fully addressed (eg. salinity from waste and wallrock associated with sulfide oxidation – see below). These factors do not appear to have been adequately incorporated into the long term average surface water salt loads (Table 14).	
The potential for AMD, neutral metalliferous and/or saline drainage from mine waste materials and unsaturated pit wallrock has not been adequately assessed. Saline drainage associated with sulfide oxidation in waste materials and wallrock is likely to be a major contributor to the site salinity load, with potential for impacts to extend for years or possibly decades after mine closure.	S. 4.5	<i>"The core sampling strategy and effort followed a risk based approach consistent with relevant mining industry guidelines and previous sampling programs at other mines. In this regard, the sample size adopted for the Project is adequate for the purposes of the EIS."</i>	It remains a concern that the number of samples collected for static testwork is equivalent to only 1 sample per 20,000,000 m ³ of overburden/interburden.	No , comment appears to be inadequately addressed.
		<i>"The stratigraphic profile across the three proposed mining areas is relatively uniform and predictable therefore the geochemical nature of drill core samples is expected to be very similar to final wall rock. Significant salinity and neutral mine drainage (NMD) are not expected from this source, given that materials classified as PAF or Uncertain make up a small fraction (<5%) of the wall rocks."</i>	This response suggests a lack of appreciation of potential NMD or saline drainage (NMD/SD) generation risks, which are more likely to be associated with material classified as NAF rather than PAF. As a result, management measures for NMD/SD have not been considered.	



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		<i>"KLC testing was undertaken on five samples representing interburden classified as uncertain and/or PAF associated within and near the Hoskisson Lower seam."</i>	This comment remains inconsistent with the reported negative NAPP values (implying NAF not PAF classification) for the (3) composite interburden samples tested, nor the previous acknowledgement that testing on PAF materials should be completed.	No, comment appears to be inadequately addressed.
		<i>"The KLC tests reflect conditions experienced by near surface materials at an OEA. When completed over 12 weeks under ideal oxidising conditions, this test provides sufficient time to provide reliable data for long term equilibrium values to be recorded from samples."</i>	Given the reported negative NAPP values for the column leach tests, there is insufficient data to suggest that 12 weeks is a sufficient testwork duration for PAF material. Furthermore, this response implies that only near-surface materials will be exposed to oxidising conditions, which is unlikely in an OEA.	
		<i>"The only materials which could be considered 'geochemically unstable' are a small amount of coal reject materials and interburden from below the Hoskisson Lower seam. The management measures proposed for the emplacement of such material will ensure a safe and stable landform during and post mining."</i>	The potential for sulfide oxidation and the development of NMD/SD within NAF material has not been considered.	
		<i>"Long term trends in a free draining situation will reflect the availability and solubility of minerals on the material surfaces. In this regard, a decline in salt generation and release rates towards an equilibrium value over time is expected from the bulk overburden/interburden materials."</i>	Refer to comments above, particularly regarding use of NAF material for column leach testwork and limited duration of testwork, which may not be representative of long term trends.	



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The uncertainties associated with modelled predictions of groundwater drawdown adjacent to the Project area are not clearly explained in the EIS. Furthermore, it has not been possible to confirm the vertical extent of the Gunnedah Formation and any high permeability pathways that may connect the Project area and Gunnedah Formation.	S.4.2.6 S.4.2.2	S.4.2.6: <i>"The uncertainty analysis assessed the full range of parameter distributions observed in the field data. A calibration constrained, Monte Carlo approach was adopted for the Groundwater Impact Assessment, which is considered best practice. Detailed reporting of the methodology, implementation, results and recommendations was presented as Appendix 8 of the Groundwater Impact Assessment."</i> S.4.2.2: <i>"The Gunnedah Formation has been comprehensively delineated via a multidisciplinary study and ground truthing. The extent of the Gunnedah Formation has been determined with sufficient accuracy to assess the potential impacts on groundwater users in this formation."</i>	Even if the assumption that the mining areas are set back from the Gunnedah Formation by 900 m is correct and "this buffer prevents the direct connection of water between the Gunnedah Formation and the proposed mining areas", there may still be potential for hydraulic connection via other formations. S.4.2.7 acknowledges that "the groundwater modelling conducted for the Project (as outlined in the Groundwater Impact Assessment) indicated that there is a potential for enhanced recharge through the OEA of the Project to increase the flow of groundwater from the ridge areas to the alluvial aquifers". It is understood that the groundwater model has been developed in accordance with leading practice but this does not guarantee the accuracy of model outputs, as implied in the EIS. Given the significant complexity of the modelling and review time limitations, it was not possible to conduct a full technical review of the model for this document.	Partially addressed.

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The measures proposed to mitigate groundwater impacts are limited to acquiring licences to offset the groundwater lost as a result of mine dewatering. Other management options were briefly identified by AGE but not considered in the EIS.	S.4.2.12	<i>"Should the Project be approved, Shenhua Watermark will develop a Water Management Plan in accordance with any conditions of development consent and in consultation with relevant stakeholders."</i>	An EMP, including Water Management Plan, should have been developed as part of the EIS documentation, in line with SEWPaC requirements.	No, comment appears to be inadequately addressed.
The final void water quality is predicted to progressively deteriorate after closure, with salinity levels of 30,000 mg/L (and increasing) which is 10 times that of typical background water quality for the Western Mining Area (reported as 3,000 mg/L). The final void water level (around 302.8 m AHD) would be elevated above the Gunnedah Formation (base 230 m AHD). However, impacts on receiving groundwater have not been assessed, nor have management measures been considered.	S.4.3.15	<i>"The assessment of final void behaviour has been refined to improve consistency between the surface water and groundwater models of the final void, based on more detailed consideration of interactions between the final void lake and the surrounding groundwater. Both models predict a long term equilibrium water level in the open void of about 280 m AHD. Both models confirm freeboard of about 40 m thereby indicating that the final void will not overflow. The open void will remain a permanent sink for groundwater flow and the saline water that will develop within the void lake will not be able to flow to the adjacent alluvial aquifers."</i>	It is understood that revised modelling indicates the open void will represent a permanent sink for groundwater.	Yes, comment appears to be adequately addressed.
Agriculture				
The plan to reinstate 1,000 ha of agricultural land within the Project area will be largely dependent on the success of mine rehabilitation and closure. Concerns regarding mine rehabilitation and closure, as identified in this review, therefore apply to the agricultural impact assessment.	S.4.18.5 S.4.18.6 S.4.21	S.4.18.6 <i>"Shenhua Watermark has committed to the rehabilitation of 3,233 ha of Class III land within the Project Boundary post mining with 1,000 ha reserved for future agricultural purposes following the cessation of mining. This does not account for rehabilitation of infrastructure areas as outlined in Section 4.18.3. Table 71 of the EIS (reproduced in Table 59) shows that the minimum recommended depth for reestablishment of Class III land is 0.3 m of topsoil overlying 0.5 m of subsoil. The aim of a minimum topsoil and subsoil depth overlying inert weathered overburden is to create a soil profile capable of providing the required medium</i>	The concerns regarding mine rehabilitation and closure have not been fully addressed (see below) therefore it remains unclear whether 1,000 ha of agricultural land can be successfully rehabilitated in the Project area.	No, comment appears to be inadequately addressed.



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		<i>for roots of typical native woodland species and agricultural species cropped within the region.</i> <i>As provided in Section 4.18.4, a surplus of soil resources is anticipated. Where available, this material may be used to supplement areas dedicated to the rehabilitation of Class III land, in particular the 1,000 ha Class to be reserved for future agricultural purposes."</i> <i>S.4.18.5 "Soil type 6a and 6b is characterized as Class III land, not Class II land as incorrectly noted in the Soil Survey and Land Capability Impact Assessment and EIS. This has been amended given the physical and chemical characteristics of the land and its distribution relative to other Class III land within the Disturbance Area. Any reference to this soil type as Class II land is incorrect. This also accounts for submissions in regard to any perceived discrepancies associated with the quantum of Class III land present."</i> <i>Section 4.21 of this RTS provides examples which demonstrate the feasibility of reinstating high quality agricultural land.</i>	There also appear to be some inconsistencies in the figures provided, for example: • 3,233 ha of Class III land is not consistent with the 1,963 ha Class III Area to be Rehabilitated stated in Table 59, Section 4.18.3. Although 1,963 ha represents "actual mine disturbance footprint to be rehabilitated excl. infrastructure areas etc. which will also be reinstated to Class III," it is not clearly defined how the total 3,233 ha Class III land will be obtained and therefore it is uncertain if 1,000 ha will actually be available for agriculture land use. • If Class III land was incorrectly classified in the Soil Survey and Land Capability Assessment, yet Tables 58 and 59 were reproduced, this leads to uncertainty regarding the area of Class III land to be rehabilitated for agriculture.	

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Agricultural impacts beyond the Project area will be dependent on surface and groundwater impacts, as well as potential air quality impacts (see below). Concerns regarding the water and air quality assessments, as identified in this review, therefore apply to the agricultural impact assessment.	Various	S.4.2.3 "The Project will not impact the sustainability of adjacent private bores, agriculture or ecosystems when suitable management and mitigation measures are adopted." S.4.19 "The Project will impact agricultural land resources and its associated production through the Project disturbance footprint, Onsite and Offsite Biodiversity Offset Areas and the utilisation of groundwater and surface water that could otherwise be used for agricultural production. The impact of the Project on agricultural land and its associated productivity will partially be offset by the proposed rehabilitation of 1,000 ha of Class III land within the disturbance footprint."	As specified throughout this review of the RTS, the identified data gaps combined with the limited management and mitigation details provided in the original EIS and the RTS, make it difficult to assess the extent of impact beyond the Project Disturbance Area on values such as agriculture.	No, comment appears to be inadequately addressed.
Air Quality and Greenhouse Gas Emissions				
On face value the Director General air quality assessment requirements have been met. However, it appears that there is a significant flaw in the quantitative assessment that has been undertaken. Only wind data from November 2010 to October 2011 was used for the modelling which is not representative of long term variation in the region. It is clear that the air modelling should be conducted over a greater spread of wind conditions reflecting the variable nature of wind patterns in the area. Due to the importance of this issue and the potential for impact on community and assets, it is recommended that wind data over a longer time period is used in the modelling of air quality for the Watermark Project and the impact assessment revised.	S.4.7.2	"The baseline meteorological data used in the air quality dispersion modelling utilises 12 months of hourly data which accurately captures all wind directions and their occurrence. The data used in the EIS and air quality dispersion modelling is consistent with the predominant winds recorded within 50 km of the Project." "An independent audit of the two Watermark meteorological stations was completed in June 2013 by Carbon Based Environmental. This audit found that both sites are operating within accepted tolerances and are located in conformance to the Australian Standard AS 2923-1987 Ambient air - Guide for measurement of horizontal wind for air quality."	Continuous on-site data was available from Nov 2010-Oct 2011, however as demonstrated, data over a longer period is available from several stations in the region, and other years can be simulated using the TAPM / CALMET / CALPUFF suite. The frequency of extreme conditions and "worst-case scenarios" has also not been examined in the models, eg. high winds or calm conditions which could exceed the criteria. These were instead estimated using	Partially addressed.



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			Monte Carlo statistical simulations. Although potential 30 year impact scenarios have been evaluated in the models, the associated future potential climate change scenarios were only briefly summarised (Table 13.2) and were not considered in the models. Australian Standard AS 2923-1987 (as listed in the NSW Approved Methods 2005) for meteorological stations is now defunct, and has been replaced by AS 3580.1.1-2007 Methods for sampling and analysis of ambient air – Guide to siting of air monitoring equipment; and AS 3580.14-2011 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality.	
The assessment of greenhouse gas (GHG) impacts is significantly underestimated as it excludes the substantial contribution from Scope 2 and 3 emissions sources. Impacts of the Project on anthropogenic global warming should be assessed using a Global Carbon Budget approach as defined in the scientific literature.	S.4.8.1, S.4.8.2	<i>"The contribution of the Project is smaller than the accepted margin of error in the global carbon budget, and as such the Project has minimal potential to have any significant impact on the climate."</i> <i>"The greenhouse gas assessment for the Project was conducted in accordance with the methodologies established by the relevant policies and guidelines specified in the DGRs and used the most recent National Greenhouse Accounts Factors available..."</i> <i>"...diesel emissions are the largest source of GHG emissions... referring to the largest Scope 1 emissions only."</i>	While Scope 2 and 3 emissions have been calculated, the assessment of GHG impacts remains heavily focussed on Scope 1 emissions only, which represent a very small proportion of total emissions. As a result, the full GHG impacts of the Project appear to be understated. The Proponent does not appear to appreciate the potential value of the carbon in future global trade.	Partially addressed.



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		<i>"The product coal from the Project will be exported overseas, and as such, CO₂-e emissions from the burning of this coal will not be included in the calculation of CO₂-e emissions from NSW. Whilst it is accepted that no matter where the coal is burnt the CO₂-e emissions will add to the global carbon dioxide (CO₂) load, only the Scope 1 and Scope 2 CO₂-e emissions from the Project would be included in NSW CO₂-e emission inventory. The Scope 3 CO₂-e emissions that occur within NSW (e.g. rail transport) would be accounted for in the NSW totals as emissions released by the company that operates the railway."</i>		
The assessment of greenhouse gas emissions intensity of the Project (0.05 t CO ₂ e/t saleable coal) excludes Scope 2 and 3 emissions sources. Furthermore, insufficient data is provided to enable direct comparison to the greenhouse gas emissions intensity (all scope emissions) of other coal mines. This should be a key consideration in determining whether the Project is justified, particularly given the IEA in the World Energy Outlook report (2012) which indicated that "no more than one-third or proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2°C goal".	S.4.8.2	<i>"It was incorrectly stated in the submission by SIG10 that GHG emissions intensity presented for other mines in Figure 13.1 of the Air Quality and Greenhouse Gas Impact Assessment are not directly comparable with the Project. All the GHG intensities presented are for Scope 1 only and as such a direct comparison has been provided."</i> <i>"The most recent report published in June 2013 (IEA, 2013) states that "to stay on an economically feasible pathway, the rise in emissions from the energy sector needs to be halted and reversed by 2020" and acknowledges that though achieving this is feasible, it will be extremely challenging and require significant political commitment at all levels. It is outside the requirement of the Air Quality and Greenhouse Gas Impact Assessment to determine how this policy may be developed or the contribution the Project would make."</i>	Figure 13.1 of the Air Quality and Greenhouse Gas Impact Assessment shows that GHG emissions are estimated at 0.05 t CO ₂ -e/t. This is for Scope 1 emissions only and an equivalent comparison for Total emissions is not provided, which would have enabled a more comprehensive assessment.	Partially addressed.

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Considering the substantial estimated release of fugitive CH ₄ during operations it is unclear why coal seam gas harvesting potential has not been assessed.	S.4.8.3	<i>"Coal seam gas harvesting is not part of Project scope nor is it something Shenhua Watermark is seeking approval for."</i>	This is potentially a significant lost opportunity, as large quantities of methane GHG will be released during the mine life. Coal seam gas (CSG) is becoming an increasing part of the NSW energy sector, centred on the Hunter Region, with a Governmental Office of Coal Seam Gas in Maitland. CSG harvesting could be contracted to an existing NSW operator as part of the GHG and energy reduction plan.	No , comment appears to be inadequately addressed.
Greenhouse gas emission mitigation strategies are very brief and are not considered sufficient to address the terms listed in the Director General's Environmental Requirements and EPBC Act requirements.	S.4.8.1	<i>"As a part of the Air Quality and Greenhouse Gas Management Plan, Shenhua Watermark would prepare an Energy Savings Action Plan to include standards to minimise energy use and GHG emissions from the Project. Such standards will include:</i> <i>• Conducting a baseline study of energy use;</i> <i>• Assessing lighting plant efficiency;</i> <i>• Developing targets for GHG emissions and energy use and to monitor and report against these;</i> <i>• Improving energy use and efficiency;</i> <i>• Review of mining practices to avoid double handling and inefficient routes; and</i> <i>• Direct measurement of gas content to provide a Project-specific factor for Scope 1 methane emissions for GHG reporting."</i>	A commitment has been shown to prepare an energy-saving and GHG emissions reduction plan. However, as previously noted, the Proponent does not appear to have considered tangible emission reduction approaches in any detail, despite the requirement under the Director's General Requirements and EPBC Act.	No , comment appears to be inadequately addressed.

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Ecology / Biodiversity				
Assessment of potential impacts on highly mobile fauna, as well as potential indirect and cumulative impacts on fauna, has not been conducted adequately. Further baseline surveying and assessment of potential impacts on highly mobile fauna, as well as potential indirect and cumulative impacts on fauna, should be undertaken within a continuous zone around the Project Boundary as required by OEH's Survey and assessment guidelines (2009) guidelines.	S.4.11.1, S.4.11.9	S.4.11.1 "The majority of surveys presented within the Ecological Impact Assessment were undertaken within the Project Boundary, with some additional surveys having been undertaken within Breeza State Forest. Due to access restrictions, surveys could not be conducted in areas outside of the area covered by EL 7223. The information collected within the Project Boundary was supplemented by existing knowledge of the locality to assist in determining the likelihood of occurrence of threatened species." S.4.11.9 "The indirect impacts of the Project have the potential to be experienced beyond the Project Boundary, particularly for mobile species. As a precautionary measure, the Disturbance Area incorporates buffers around the open cut mining areas, mine infrastructure areas and transport corridors. The majority of the Disturbance Area includes a 50 m buffer around these areas; however there are a few locations where this is reduced to 20 to 30 m such as along the southern boundary of the Western Mining Area, to ensure the Disturbance Area is located wholly on land owned by Shenhua Watermark. These buffers have been included within the calculated area of impact for the Project (i.e. the Disturbance Area, which totals 4,084 ha, includes the buffer described above). Inclusion of this buffer around the open cut mining areas, mine infrastructure area and transport corridors has allowed for assessment of some areas that may be indirectly impacted and provisions have been made to offset this area."	The response acknowledges a potential impact beyond the Project Boundary and has provided an overview of potential impacts and mitigation measures in Section 4.11.9. However, only high level of assessment is provided. Furthermore, although "many of the threatened species that occur, or have potential to occur in the Project Boundary are also found in the upper Hunter Valley coal fields amid woodland areas in close proximity to active mines that have noise [and other disturbance] from mining, the presence or absence of such species appears to be dictated much more by the presence of suitable native vegetation than by the presence or absence of artificial lighting." There remains a need to adequately characterise ecological baseline conditions surrounding the Project where direct, indirect or cumulative impacts may occur. A 50 m buffer may not be sufficient (c.f. blasting exclusion zone 500m). Cumulative impacts were not discussed.	No, comment appears to be inadequately addressed.



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Given the significant risks and uncertainties associated with translocation of koalas, revise the Koala Plan of Management to include: • Details of how the Key Performance Indicators for the plan will be measured (including time-bound thresholds for achievement of the Plan Objectives), • Contingency measures for the potential scenario where Plan Objectives are not met within a reasonable timeframe, • Detailed criteria for assessing the success of establishing corridors/linkages between existing vegetated areas such as Breeza State Forest and other suitable koala habitat, and • Detailed information regarding criteria to evaluate at what point animals to be translocated are euthanised (eg. end point) to protect Koala welfare.	S. 4.12.7, Appendix E	S.4.12.7 <i>"Key Performance Indicators (KPI) have been established in the Koala Plan of Management (Appendix E) and other relevant documents to include time-bound thresholds for achievement of objectives, as well as potential contingency measures should the KPIs not be achieved within these timeframes. This offers stakeholders tangible criteria for which the plan can be measured against in terms of success."</i> <i>"The program will be reviewed after several years and contingency measures adopted should survival rates not meet Key Performance Indicators."</i> Appendix E <i>"A plan identifying potential high risk areas, based on known use of habitat corridors and where these will intersect with large increases in road or rail traffic (such as parts of the rail loop) will be prepared during the detailed design phase of the Project. This will indicate what management actions will be undertaken at these areas, where deemed necessary (i.e. fencing and underpasses and/or lighting and speed bumps, etc). High risk areas will be monitored and reviewed in consideration of the collision register findings, based on feedback from employees and the local community."</i> S.4.12.7 <i>"Regarding the submission querying when translocated animals may need to be euthanized, this will be decided on a case by case basis considering the existing health of each animal by the Koala expert undertaking the translocation work."</i>	The Koala Plan of Management is more comprehensive than the previous version. KPIs have been established. Although S.4.12.7 states the potential need for contingency measures, no measures have been developed. Developing contingency measures only once survival rates do not meet a KPI is a reactive approach and will delay plan implementation. No criteria or intention to develop assessment criteria are provided for measuring success of corridor/linkages. No example criteria are provided for determining whether an animal is to be euthanised with respect to translocation. Criteria must be developed in order to ensure consistent and transparent procedures for translocation / euthanasia are followed.	Partially addressed.

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Offsets required for potential impacts on EPBC Act species and communities should be recalculated based on the new Environmental Offsets Policy released in October 2012, and update the proposed Biodiversity Offset Strategy accordingly (or provide evidence of approval from SEWPaC that assessment under the previous policy is acceptable).	S.4.11, S.4.14.1, Appendix F	S.4.14.1 <i>"The Biodiversity Offset Strategy for the Project has been revised since the EIS was exhibited. Having regard to State and Commonwealth offsetting methods, the biodiversity offsets proposed for the Project will adequately compensate these impacts of the Project on biodiversity values. The Biodiversity Offset Strategy will protect approximately 6,071 ha of woodland and open forest, revegetate 2,686 ha of woodland and rehabilitate 2,384 ha of woodland. The Biodiversity Offset Strategy also includes significant areas of known and potential habitat for the suite of species predicted to be impacted by the Project."</i>	Offsets were calculated using relevant offset policies in addition to proposing additional offsets.	Yes , comment appears to be adequately addressed.
Rehabilitation and Mine Closure				
The potential impacts of expected long term seepage of saline water (283 ha) from the Overburden Emplacement Areas (OEAs) on Onsite Offset sites (eg. impacts on revegetation success) and other areas (eg. downstream) have not been assessed.	S.4.21.2	<i>"Section 7.1 of the EIS has shown that the existing water quality in the alluvium adjacent to the proposed mine is commonly saline and as such it is improbable that mining landforms will generate salinity that has a significant impact compared to the existing conditions. In this regard, any long term runoff or seepage generated by the OEAs is not anticipated to significantly impact the existing environment, in particular water quality, beyond the conditions currently experienced."</i>	Although baseline conditions indicate existing saline conditions, there may still be a potential impact on water quality (eg. contaminant / salt loads) with respect to downstream water use and aquatic resources. Without assessing the potential impact it is not possible to determine how water quality conditions will change or what the cumulative impacts may be, and therefore how to manage and mitigate them.	No , comment appears to be inadequately addressed.



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The rehabilitation and closure strategy is primarily focussed on revegetation, with no serious consideration given to the significant long term risk associated with geochemical instability of waste materials (and wallrock) and associated water quality issues. The current rehabilitation and closure strategy will result in final groundwater levels above current levels and elevated above surrounding aquifers. Connectivity between aquifers will be enhanced, resulting in significant potential for cross-contamination of aquifers.	S.4.21.1, S.4.5.6	S. 4.21.1 <i>"The majority (approximately 95%) of overburden has a low sulphur content, significant excess acid buffering capacity and is classified as NFA material. The concentration of total metals detected in the sampled overburden is below the applied guideline criteria for soils. The geochemistry of bulk overburden demonstrates characteristics with a high factor of safety with respect to potential acid generation and metals."</i> <i>"The remaining portion of overburden (approximately 5%) that is associated with uncertain or PAF material, will be preferentially placed as backfill deep in the open void, below the level of the predicted post mining groundwater recovery level, and covered with at least 5 m of benign overburden material (see Section 4.5.9)."</i>	Concerns regarding long term geochemical stability of overburden and wallrock material have not been addressed (see above). NAF material could generate NMD/SD, representing a potential long term post-closure water quality risk. Further investigation into the potential cross-aquifer contamination is also required. (S.4.2.7 acknowledges that "the groundwater modelling conducted for the Project (as outlined in the Groundwater Impact Assessment) indicated that there is a potential for enhanced recharge through the OEA of the Project to increase the flow of groundwater from the ridge areas to the alluvial aquifers".)	No , comment appears to be inadequately addressed.
Subsidence of backfilled material in pits is inevitable, however the potential extent of subsidence and irregularity of the final landform (and implications for local final land use) have not been considered.	S.4.20	<i>"For an open cut mining operation, settlement and surface instability can occur on the post mining landform (not beyond this as suggested in submissions). If not appropriately managed, this settling of the landform has the potential to create localised drainage or erosion issues. Mine subsidence is associated with underground operations and is not associated with open cut mining methods, for which the Project applies.</i> <i>Wide area settling can occur during overburden swelling, which is a process by whereby</i>	Regardless of the terminology used ("subsidence" vs "settlement") it is anticipated that an irregular landform or one that is different to the post mining landform originally planned and developed will occur. Furthermore the response indicates that settling will be limited to the Disturbance Boundary using the compaction methods to be employed. However:	No , comment appears to be inadequately addressed.



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		<i>extracted/stockpiled overburden expands or bulks following emplacement. Once overburden is emplaced, the unconsolidated materials undergo natural settling. Due to the mining and overburden emplacement methods which facilitate additional compaction with each "lift" and final landform design proposed for the Project (with reinstated slopes at a maximum of approximately 10 degrees), this settling process will be confined to land within the Disturbance Boundary and will not affect the surrounding landscape or agricultural enterprises."</i>	• The likely extent of settlement has not been quantified. • Implications for final land use within the disturbed area itself have not been considered.	
A rehabilitation and closure strategy cannot be developed in the absence of a mine model and scheduling information (need to develop a backfill schedule in order to manage long term pore water and seepage issues).	S.4.1.2	<i>"Table 6 in Section 3.2 of the EIS provides an indicative production schedule, which corresponds to the stage mine plans."</i>	Table 6 provides an indicative production schedule only for 8 of the 30 years. "Figure 10 to Figure 17 illustrate the conceptual mine plan layouts for phases occurring indicatively in Years 1, 2, 5, 10, 15, 21, 25 and 30 respectively." Some additional, but limited details are provided for Years 12, 17, 21, 24, 26 and 30 within the text. Section 3.12.8 of the EIS provides some information on backfilling under "Final Voids", however no schedule is provided, and no detailed consideration has been given to PAF/NAF material handling in the mine schedule.	No , comment appears to be inadequately addressed.



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There remain significant uncertainties regarding availability of sufficient and suitable quality soil for revegetation works.	S4.18.3 (Table 58-59); S.4.5.4; S.4.21.1	Estimated volume of suitable topsoil from mining areas: 9,130,500 m³. Estimated volume of suitable intermediate subsoil from mining areas: 19,149,300 m³. Total estimated volume of suitable material for reuse in rehabilitation: 28,279,800 m³. Total volume of material required for rehabilitation: 24,578,000 m³, resulting in a surplus of 3,701,800 m³. S.4.118.3 <i>"The stripping depths for each soil type identified in the soil balance are based on the physical and chemical characteristics best suited for rehabilitation as per Elliott and Veness (1981) and Elliott and Reynolds (2007). In this regard, the Project will maintain sufficient soil resources to afford the targeted post mining rehabilitated land capability."</i> S. 4.5.4 <i>"Whilst some overburden/interburden materials are classified as sodic and may have structural stability problems related to potential dispersion and erosion, other materials are less sodic and deemed suitable for revegetation and rehabilitation activities (in final landform surfaces or as a growth medium). Such soil characterisation has been undertaken as part of the Soil Survey and Land Capability Impact Assessment (see Appendix Y of the EIS)."</i> S.21.1 <i>"If this monitoring shows that the underlying overburden materials are potentially having a detrimental effect on rehabilitation outcomes, further soil testing and soil amendments, may be undertaken to improve the chemical characteristics of the substrata for revegetation."</i>	Quantity of topsoil and subsoil available for reuse in revegetation/rehabilitation is provided. Suitability of topsoil and subsoil is not defined in the RTS and no further information or work regarding soil quality has been provided. Therefore is not possible to determine if soil properties of stripped soil to be used in revegetation is of suitable quality.	Partially addressed.



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Socio-Economic and Health				
The EIS captures a number of potential social, economic and health impacts associated with the Project. The major issue associated with the EIS assessment of these aspects is the uncertainty associated with the assessment of the physical impacts. For example, there appear to be gaps in key areas of understanding such as impact to surface and groundwater, and impact to air quality. A full and proper understanding of these key areas is required for a social, economic and health assessment to be considered comprehensive.	S.4.27.5, S. 4.28.2	S. 4.27.5 <i>"The expected impacts of the Project on existing community facilities and services in the Gunnedah, Liverpool Plains and Tamworth Regional LGAs (such as childcare, health, education and emergency services) will generally be incremental. Much of the population growth generated (particularly by the operations phase) will be absorbed by the natural growth of facilities and services."</i> <i>The Project will impact 0.3% of the agricultural land in the Gunnedah and Liverpool Plains Shires.</i> <i>The Project design...will operate to ensure that there is no significant effect on the environment as a result of the Project which would diminish the health, diversity or productivity of the location for future generations.</i> S.4.28.2 <i>"The BCA undertaken of the Project clearly shows that the Project will have significant net social benefits to Australia. Notwithstanding this, Shenhua Watermark has proposed a range of measures to mitigate, offset and compensate for relevant negative, positive or neutral environmental, social and cultural impacts."</i>	Concerns remain about many of the physical / environmental impacts initially raised in May 2013, as documented above. Hence the implications for social impact assessment also remain a concern.	No , comment appears to be inadequately addressed.
Archaeology and Cultural Heritage				
Further Aboriginal archaeological surveys are required within the disturbance footprint to address concerns of the Registered Aboriginal Parties (RAPs) regarding survey coverage and limitations due to poor ground surface visibility.	S.4.15.1	<i>"Effective coverage data for the survey suggest that limited surface visibility was a constraint in assessing the surface Aboriginal archaeological record of the Project Boundary. Nonetheless, observations made during survey suggest that a reasonably high sample of exposed ground within the Project Boundary was</i>	No additional archaeological surveys have been conducted. It is unclear how the observations made during the survey suggest that a reasonably high sample of exposed ground was achieved.	No , comment appears to be inadequately addressed.



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		<i>achieved. Accordingly, the results of survey provide a valid basis from which to assess the known and potential Aboriginal archaeological resource of the Project Boundary, to determine probable impacts and formulate appropriate management/mitigation options.</i> <i>In recognition of the ground surface visibility conditions within the Project Boundary and RAPs concerns regarding survey coverage, Shenhua Watermark will conduct a staged Aboriginal heritage clearance process for all areas to be disturbed. The archaeological salvage work will be undertaken by, or under the supervision of qualified archaeologists and RAPs as detailed further in the Aboriginal Cultural Heritage Management Plan for the Project."</i>	During the proposed staged clearance of the Aboriginal heritage, special regard must be paid to the potential for uncovering additional archaeological evidence.	
The Proponent should commit to establishing procedures for chance finds of unrecorded Aboriginal archaeological evidence (such as human skeletal remains and totemic animal remains) in consultation with OEH, NSW Police, NSW Heritage Branch and RAPs to minimise potential impacts these resources.	S.4.15.1	<i>"Management actions for any newly identified Aboriginal archaeological sites during the archaeological salvage work will be managed in accordance with the procedure specified in the Aboriginal Cultural Heritage Management Plan for such finds of unrecorded Aboriginal archaeological evidence (such as human skeletal remains and totemic animal remains)."</i>	An Aboriginal Cultural Heritage Management Plan has not been provided. No commitment has been made to including chance find procedures in the Aboriginal Cultural Heritage Management Plan.	No , comment appears to be inadequately addressed.

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Other Comments				
The potential impact of flyrock associated with blasting activities has not been assessed. It has been stated that a 500 m buffer zone will be enforced during blasting. This has not been mapped but is likely to extend beyond the Project Boundary, with potential to impact on people, livestock or property.	S.4.10.3	<i>"Figure 63 illustrates the maximum extent of the 500 m buffer zone whilst Figure 64 shows the maximum extent of the 500 m buffer zone in regard to land ownership. The exclusion zone does extend beyond the Project Boundary and at the maximum extent, will affect property 125. This property is predicted to be significantly impacted by noise and air quality and would therefore be subject to acquisition upon request by the landowner.</i> <i>The maximum extent of the 500 m exclusion zone from all blasts also encroaches into the eastern portion of the Breeza State Forest. Shenhua Watermark will liaise with NSW State Forests in this regard.</i> <i>No other privately owned properties would lie entirely or partly within the 500 m exclusion zone from blasts."</i>	Mapping has been conducted to show the extent of buffer zone and private properties, however the response does not mention potential impacts of flyrock on livestock.	Partially addressed.
The assessment of noise impacts appears to be compromised by the lack of high quality wind data for the Project area (as is the case for the air quality impact assessment).	S.4.9.3, S.4.9.4	<i>"The baseline meteorological data used in the noise model was based on a full year of hourly data, processed in accordance with the INP. The noise enhancing effect of all potentially noise enhancing wind directions was included in the noise model and is therefore considered conservative."</i> <i>"Available data for 2012 and from January to July 2013 have subsequently been analysed and indicate similar prevailing weather conditions continued to occur in these years, and that therefore the meteorological data used in the Acoustics Impact Assessment remains appropriate."</i> <i>"The NSW Industrial Noise Policy (INP) (EPA, 2000) recommends that noise enhancing winds or</i>	The meteorological data employed in both the air quality and noise assessments is based on two on-site meteorology stations, which do not agree with each other and suggest local topographical influences. The site stations underwent a systems audit in 2013, however the auditors employed defunct Australian Standard AS 2923-1987. This has been replaced by AS 3580.1.1-2007 Methods for sampling and analysis of ambient	Partially addressed.



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		<i>temperature inversions that occur for at least 30% of the time in any season or time period should be considered when predicting noise levels."</i> <i>"In accordance with the INP, temperature inversions were determined based on winter monitoring data. Nevertheless, as required by the EPA in their submission, an additional analysis of temperature inversions is provided... The additional temperature inversion analysis demonstrates that the assessed/modelled weather conditions in the Acoustics Impact Assessment were appropriate for all seasons"</i> <i>"The meteorological forecasting system would predict conditions for the coming day to determine, one day in advance, where the risk of noise enhancing weather conditions may occur (e.g. based on wind speed, direction and atmospheric stability). This information would then be utilised in a simplified noise model to determine if the proposed activities for the day would cause any exceedances of the relevant criteria. If a predicted exceedance is identified, the proposed equipment locations and mining activities would be amended to ensure compliance with the relevant criteria."</i>	air – Guide to siting of air monitoring equipment; and AS 3580.14-2011 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality. Construction of the open pit may influence the local wind character further, making confirmation of the accuracy of these stations paramount if they are to be used in any form of on-site warning systems.	
A brief study on regional subsidence was conducted as an appendix to the Groundwater Impact Assessment, however subsidence has not been adequately assessed in the EIS. In addition, the potential for local subsidence of backfilled waste and pit wallrock has not been assessed.	S.4.20	<i>"For an open cut mining operation, settlement and surface instability can occur on the post mining landform (not beyond this as suggested in submissions). If not appropriately managed, this settling of the landform has the potential to create localised drainage or erosion issues."</i>	The study on regional subsidence has not been presented in the EIS. No assessment of local subsidence/settlement has been conducted for waste material or wallrock.	No, comment appears to be inadequately addressed.



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The potential for environmental emergencies has not been considered, nor have any contingency plans been developed (Director General requirement) to manage such impacts.	S.4.3.3	<i>"The mine water management system has been designed to prevent spills from the dams containing mine affected water. Water balance modelling has also demonstrated that the proposed system would not spill mine affected water under any rainfall event over the last 100 years.</i> <i>The management of risks associated with engineering failures will be addressed through appropriate management plans which will be developed in consultation with government agencies."</i>	Although the water management system is designed to prevent spills, environmental emergency procedures are still a Director General Requirement and therefore should be developed. In order to determine if potential impacts (eg. contamination, flooding, etc.) are adequately mitigated / managed it is best practice to develop environmental emergency plans as part of the impact assessment process to ensure all reasonable impacts are addressed / mitigated.	No, comment appears to be inadequately addressed.

CONCLUSIONS

As noted in Earth Systems (2013) initial review:

“Many aspects of the EIS have been conducted well and numerous detailed technical studies have been undertaken to support the EIS. Despite this, a number of significant gaps and deficiencies in the EIS were identified during the review. Further work is considered necessary to address these issues and provide an adequate assessment of impacts. Several of the Director General and SEWPaC requirements have not been adequately addressed in the EIS”.

Specific examples were detailed throughout Earth Systems' 2013 report and it was recommended that the Proponent address the gaps and uncertainties described by Earth Systems (2013) so that “a rigorous assessment of impacts from the Project can be conducted. This will provide the community and other stakeholders with confidence that if the Project is developed, it is developed in a manner that does not compromise other assets and values within the region”.

In general, the *Response to Submissions* document (RTS; Hansen Bailey, 2013) provided a very detailed response to the issues raised by Earth Systems in May 2013 and appears to have taken all comments seriously. Additional work has been undertaken and documented in the RTS to improve the EIS in several areas. These include:

- Regulatory requirements.
- Surface and groundwater modelling of the final void.
- Biodiversity impact assessment and management / offset strategy.
- Noise impact assessment.

Overall, however, a number of key gaps and uncertainties described by Earth Systems (2013) still remain a concern and these primarily relate to:

- The method used to conduct the EIS, which does not clearly distinguish:
 - Construction / operations / post-closure phase impacts of the Project; nor
 - Potential impacts (without management) versus residual impacts (with management) of the Project.
- The lack of a detailed Environmental Management Plan as part of the EIS documentation, which limits the ability to accurately assess environmental impacts of the Project.
- The apparent lack of commitment by the Proponent to implement leading practice environmental management approaches throughout all aspects of the Project.

REFERENCES

Earth Systems, 2013. *Independent Review of the Environmental Impact Statement for the Watermark Coal Project*. Prepared by Earth Systems for the Caroon Coal Action Group (CCAG). May, 2013.

Hansen Bailey, 2013. *Watermark Coal Project: Response to Submissions*. Prepared by Hansen Bailey for Shenhua Watermark Coal Pty Ltd. November, 2013.