

MT ARTHUR COAL CONSOLIDATION PROJECT

RESPONSE TO SUBMISSIONS

Prepared by:

HANSEN BAILEY
6/127-129 John Street
SINGLETON NSW 2330

18 February 2010

for:

HUNTER VALLEY ENERGY COAL PTY LTD
Thomas Mitchell Drive
PMB 8
MUSWELLBROOK NSW 2333

TABLE OF CONTENTS

1	INTRODUCTION	1
2	GOVERNMENT AGENCIES	2
2.1	DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER	2
2.2	NSW OFFICE OF WATER	21
2.3	INDUSTRY & INVESTMENT NSW	24
2.4	THE HERITAGE BRANCH, DEPARTMENT OF PLANNING	31
2.5	ROADS & TRAFFIC AUTHORITY	35
2.6	ENERGY AUSTRALIA	38
2.7	MUSWELLBROOK SHIRE COUNCIL	39
3	NON – GOVERNMENT ORGANISATIONS	48
3.1	CONSTRUCTION FORESTRY MINING AND ENERGY UNION	48
4	COMMUNITY SUBMISSIONS	49
4.1	DARLEY	49
4.2	DRAKE	59
4.3	HALLORAN	62
4.4	HAMILTON	63
4.5	LANE	69
4.6	MOORE	71
4.7	MUSHALIK	72
4.8	PAULSEN	75
4.9	PEEL	77
4.10	WOLFGANG	79
5	CONCLUSION	86
6	REFERENCES	87

LIST OF APPENDICES

Appendix A	EA Submissions
Appendix B	Noise Predictions in the absence of Mt Arthur Coal Rail Noise
Appendix C	Revised Greenhouse Gas Assessment Tables
Appendix D	Darley Response

**MT ARTHUR COAL CONSOLIDATION PROJECT
ENVIRONMENTAL ASSESSMENT
RESPONSE TO SUBMISSIONS**

for
Hunter Valley Energy Coal Pty Ltd

1 INTRODUCTION

Hunter Valley Energy Coal submitted an Application for Project Approval under Part 3A of the *Environment Planning and Assessment Act 1979* (EP&A Act) for the Mt Arthur Coal Consolidation Project (the Project) on 6 April 2009. The Mt Arthur Coal Consolidation Project Environmental Assessment (EA) prepared by Hansen Bailey was submitted to the Department of Planning (DoP) for a test of adequacy under Section 75H of the EP&A Act on 7 September 2009. The EA was determined to be adequate and was placed on public exhibition by DoP from 13 November 2009 to 28 December 2009 at which time the general public and the relevant Government departments were invited to provide written submissions.

DoP received 18 submissions to the EA. Submissions were received from seven Government agencies, one non-government organisation, one interested stakeholder and nine private landholders. Submissions from the NSW Heritage Office and seven private landholders were provided by DoP on 22 December 2009, with the submission from Muswellbrook Shire Council (MSC) provided on 5 January 2010. Submissions from the Department of Environment, Climate Change and Water (DECCW), the NSW Office of Water (NOW), the Construction Forestry Mining and Energy Union (CFMEU), Energy Australia, one interested stakeholder and one private landholder were provided by DoP on 8 January 2010. One private landholder submission was provided by DoP on the 12 January 2010. A submission from the NSW Roads and Traffic Authority (RTA) was received on 2 February 2010 and a submission from Industry & Investment NSW (I&I NSW) was received on 3 February 2010. All submissions are included in **Appendix A**.

This report has been prepared in response to submissions noted above. Input into the report has been provided by the relevant specialists involved in the preparation of the EA and Mt Arthur Coal personnel, where appropriate. Excerpts from the submissions are re-stated in italics, with a response to each following as normal text.

2 GOVERNMENT AGENCIES

2.1 DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER

2.1.1 Overview

DECCW Comment:

DECCW has completed an assessment of the Aboriginal cultural heritage, threatened species, air quality, noise, water quality, waste and greenhouse gas impacts of the proposal and provides comments (Attachment A). DECCW is unable to recommend Conditions of Approval at this stage because of two outstanding issues:

Threatened Species

Careful analysis of the threatened species impacts of the proposal indicate that 842 hectares of Endangered Ecological Community (EEC) will be cleared, but an offset of only 687 hectares of existing EEC will be provided. This does not meet DECCW's biodiversity offsetting principles and consequently, DECCW recommends that the Department of Planning does not grant approval for the proposal until a satisfactory offset has been developed.

Response

The 842 ha disturbance area of the Project should not be treated as a uniform ecological impact for the purposes of offsetting because the extensive highly disturbed grassland areas have significantly lower ecological values than the woodland and forest areas identified.

Thus, the total impact on listed Endangered Ecological Communities (EEC) of 842 ha includes fragmented patches of woodland and open forest EEC totalling 142 ha. The remainder is 700 ha of EEC derived native grassland that has been historically created by the clearing of the original tree and shrub cover. The grassland area, although dominated by native species, is significantly different from the original vegetation in that it:

- Lacks native tree cover;
- Lacks native shrub cover;
- Has a reduced diversity of native herbaceous plants;
- Contains significant proportions of exotic herbaceous plants; and
- Has a low habitat value for fauna and flora.

The Proposed Offset Areas total 1,217 ha in size and includes the 495 ha Thomas Mitchell Drive Offset Area, 222 ha Onsite Offset Area and 500 ha of Proposed Regenerated Woodland. This Offset package includes 596 ha of existent and future regenerated EEC woodland, and will also include 482 ha of EEC woodland that will be regenerated from existing derived native grassland EEC. In total the area of EEC woodland and forest (through retention and regeneration) that will be managed and protected by this offset will be 1,078 ha.

This Offset package is designed to address 240 ha of woodland and forest loss (of which 142 ha constitutes EEC) and 700 ha of derived native grassland, recognising that derived native grasslands possess little biodiversity value unless it is rehabilitated and managed. Thus, the proposed Offset package addresses DECCWs offsetting principles in that:

- It will offset like for like or better;
- It will increase the area of EEC in the Study Area from pre to post-development;

- It will improve the condition and value of EEC through rehabilitation and active management;
- It will be conserved in the long term pursuant to a legal mechanism, such as under section 88 of the *Conveyancing Act 1919*, determined in consultation with DoP, and appropriate to the offset commitment;
- It contains biodiversity values, such as threatened species, existing woodland and riparian habitat that will be protected. Some of these values are not present in the development area, such as riparian vegetation and *Diuris tricolor*; and
- The offset areas are connected to one another and are proximate (or connected to) existing offsets.

The proposed Offset package will provide for a total of 1,078 ha of regenerated and existing woodland EEC, which accounts for the value of the derived native grassland. It will replace the loss of grassland with woodland at a ratio of 1:1 and will offset the loss of EEC woodland at a ratio of 2.7:1. Moreover, such an offset will be consolidated into one broad area, contain streams and include an additional population of threatened orchids that are not present in the Project disturbance area.

For the reasons detailed in the response provided in **Section 2.1.6** below, the additional 500 ha Proposed Regenerated Woodland area will be protected by appropriate legal mechanisms once pre-determined completion criteria are achieved for the rehabilitation. The Proposed Regenerated Woodland area is an integral part of the overall Offset package for the Project.

Therefore, the proposed Offset package (consisting of 495 ha Thomas Mitchell Drive Offset Area, 222 ha Onsite Offset Area and 500 ha Regenerated Woodland area) adequately offsets impacts to biodiversity, with a 2:1 offset ratio for the loss of all native forest and woodland, and a 1:1 offset ratio for native derived grassland proposed to be cleared by the Project.

It is appropriate that rehabilitation be included in the Mt Arthur Coal Consolidated Offset Strategy, as has been done for numerous other mines in the Hunter Valley (such as Mt Owen Mine, Drayton Mine and Mangoola Mine (previously known as Anvil Hill)) and elsewhere in NSW.

Noise Impact Assessment

Mount Arthur Consolidation Project area includes the Antiene Joint User Rail Facility (Antiene Rail Line) and noise predictions in the EA have considered noise from this source in conjunction with mining activities. However, DECCW understands that the Antiene Rail Line is shared by both Drayton and Mount Arthur coal mines. It is recommended that the proponent clarify whether the noise predictions for the Antiene Rail Line have considered traffic generated by Drayton Mine. NSW Planning will also need to carefully consider how noise responsibility for the Antiene Rail Line will be apportioned between users before granting any approval to the Mount Arthur Consolidation Project.

Response

As requested by DECCW, the author has sought to clarify this issue below.

The Noise Impact Assessment presented in Section 8.2 (Volume 1) and Appendix G of the EA was undertaken in accordance with the *NSW Industrial Noise Policy* (INP) (EPA, 2000) and other relevant guidelines. It included an assessment of predicted construction and operational mining noise, road noise and rail noise against the relevant DECCW criteria.

Predicted noise levels at receivers were calculated using RTA Technology's Environmental Noise Model (ENM) which has been endorsed by DECCW for environmental noise assessment. The proposed open cut Extension Areas and infrastructure modifications have been modelled and combined with the existing approved activities to represent the noise generated from the Mt Arthur Coal Complex. Adjacent mining operations (including Drayton Mine, Bengalla Mine, Mangoola Coal and Mt Pleasant) were considered when determining the amenity criterion for the Project.

Rail noise was incorporated in the model for the Antiene Rail Spur (extending from the existing Rail Loading Facility to the junction with the Main Northern Railway Line). Two locomotives with approximately 1,280 m of wagons and one Rail Loading Facility were assumed to be operational at any one time. Typical Sound Power levels were applied to these locomotives and therefore the origin of the locomotive (i.e. Mt Arthur Coal or Drayton) does not influence predicted noise levels.

To facilitate DECCW's request above, noise predictions have been developed both with and without rail noise from the Antiene Rail Spur. These results are presented in **Appendix B**. The results show that the Project would comply with the appropriate Intrusive Noise Criteria ($L_{Aeq, 15 \text{ min}}$) at all receivers in Antiene (Zones A and G) while train movements from Mt Arthur Coal were not occurring.

It should be reiterated that the appropriate criteria to be considered for Project Approval (including rail movements along the Antiene Rail Spur) is the Intrusive Noise Criterion, which is based on ($L_{Aeq, 15 \text{ min}}$) - that is, a noise level averaged over 15 minutes. As the noise modelling assumed a train pass-by was present on the Antiene Rail Spur during any 15 minute period (irrespective if it is a Mt Arthur Coal or Drayton train), the Intrusive Noise Criteria is the most appropriate criteria to be included as a condition of Project Approval or Environmental Protection Licence (EPL).

2.1.2 Aboriginal Community Consultation and Cultural Significance Assessment

DECCW Comment:

The consultation process undertaken to date by the proponent has occurred in accordance with DECCW consultation guidelines. While support for the project is provided by the majority of the local Aboriginal stakeholders for the proposed field survey methodology, only 3 out of 26 stakeholder groups responded to the final Aboriginal Cultural Heritage (ACH) Assessment Report and no groups provided support for the proposed ACH management measures. DECCW recommends that the applicant continue to consult with and involve the registered Aboriginal stakeholders for the project, to seek final comments from all community stakeholders regarding the ACH report findings and proposed management actions, including the proposed 495 ha Archaeological Offset Area and the development and implementation of the Aboriginal Cultural Heritage Management Plan. Evidence of this consultation should be provided prior to the determination of the consent.

The proponent has not addressed the cultural significance of the Aboriginal sites identified within the project area. The cultural significance of an Aboriginal site can only be determined by the Aboriginal community. The complete absence of a cultural significance assessment by the community means that DECCW is unable to comment on the appropriateness of the proposed management strategies for all sites within the project area, particularly those sites likely to be impacted by the proposed development and including those sites within the three existing Heritage Management Zones and the proposed Archaeological Offset Area. DECCW recommends that the proponent seek additional evidence from the registered Aboriginal stakeholders confirming the cultural significance and value of all the Aboriginal Cultural Heritage values within the project area to complete the overall significance assessment. Any information provided should also be addressed in developing Aboriginal Cultural Heritage management options and commitments.

Response

All Aboriginal groups were extensively consulted with in regard to the Project throughout the preparation of the EA as detailed in Section 6.5 of Volume 1 and Section 4 of the Aboriginal Archaeology and Cultural Heritage Assessment (Appendix K).

Further to the various consultation methods implemented, a hard copy of the draft Aboriginal Archaeology and Cultural Heritage Assessment was provided to all 26 registered groups on 12 June 2009. A meeting was also held at the Mt Arthur Coal Complex on the same day to present an overview of the report findings, undertake a site inspection, provide a mechanism for questions to be addressed, seek comment on the proposed offset strategy and Cultural Heritage issues and agree on an appropriate engagement process going forward. Numerous phone calls were placed with all registered groups to request their attendance at the meeting and to discuss the findings and proposed offset strategy (refer to Consultation log included in Appendix K of the EA). Only eight groups (of 26 registered groups) attended the meeting.

Further, during June and July, numerous further phone calls were made to all of the 26 registered groups to obtain comment on the report and proposed offset strategy. Offers for further visits and meetings were made during these calls, of which no registered group accepted (refer to Consultation log included in Appendix K of the EA). Despite all of the numerous and extensive attempts at follow-up consultation and to seek the Aboriginal community's views on the Project and proposed Offset Strategy, only three registered groups provided a response. Of these three groups, only one did not expressly agree with the management recommendations for the Project. The remaining 23 registered groups elected not to provide a written response. It should further be noted that comments from the Aboriginal community were accepted beyond the nominal 21 day period.

As noted by DECCW in their submission, the cultural significance of an Aboriginal site can only be determined by the Aboriginal community. Despite the extensive consultation process applied throughout the EA and numerous direct requests for views of cultural significance, no registered Aboriginal group offered any information, either verbally or written, in regard to the cultural heritage values of the Project Area.

The detailed consultation log presented in the Aboriginal Archaeology and Cultural Heritage Assessment (Appendix K) demonstrates the extensive consultation effort applied to the Project, which is considered to exceed the requirements outlined in DECCW's Interim Consultation Guidelines. It is further considered that that EA *"clearly demonstrates that effective community consultation with relevant Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations"* as specified by DECCW to DoP in their assessment requirements for the Environmental Assessment Requirements (EARs) for the Project.

Mt Arthur Coal has an excellent relationship with the local Aboriginal community and will continue to proactively consult with all registered Aboriginal groups, in particular during the finalisation of the offset strategy and revision of the Mt Arthur Coal Aboriginal Archaeology and Cultural Heritage Management Plan (AACHMP). As reaffirmed in Statement of Commitment No 19, 'the salvage and the protection of any remaining Aboriginal objects within the EA Boundary will continue to be managed in accordance with a revised Aboriginal Archaeology & Cultural Heritage Management Plan in consultation with the local Aboriginal community and DECCW.'

2.1.3 Threatened Species

DECCW Comment:

Hunter Valley Energy Coal Pty Ltd proposes to consolidate all existing open cut mining related planning approvals at Mt Arthur into one contemporary Project Approval and to expand the current open-pit mining footprint by five 'Mine Extension Areas' by 990 ha (see Table 1), of which about 842 ha comprises Endangered Ecological Community (EEC) and preliminary-listed EEC vegetation as per Schedule 1 of the NSW Threatened Species Conservation Act 1995. The process of consolidation and expansion raises several issues which are discussed below.

Table 1. Summary of vegetation in the development footprint and proposed 'New Offset Area' (based on Table 33, Vol. 1 of the final EA).

General Vegetation Type and TSC Act status	Area to be cleared (ha)	Remnant vegetation in proposed offset (ha)	Planned rehabilitation in proposed 'offset' (ha)	Total vegetation in proposed new offset area (ha)
WOODY VEGETATION				
EEC	116.45	158.85	299.2	458.05
Preliminary listed EEC	26.21	45.99	92.13	138.12
Not listed	97.9	13.81	108.67	122.48
SUBTOTAL	240.56	218.65	500	718.65
NON-WOODY VEGETATION				
EEC	699.54	482.06	0	0
Not listed	49.8	0	0	0
SUBTOTAL	749.34	482.06	0	482.06
TOTAL	990.35	700.71	500	1200.71

Response

Noted.

2.1.4 Summary of Existing Consents

DECCW Comment:

The consent issued in May 2001 for the Mount Arthur North open pit included the requirements for the development and implementation of an Environmental Management Strategy that included strategic clearing and revegetation on the mining lease, particularly where replanting enhanced existing remnants of woody vegetation. It also included aims of managing remnant woody vegetation, developing strategies for a long term post-mining management plan to '...re-instate vegetation communities', establishing wildlife corridor links in the Saddlers Creek and Mount Ogilvie habitat areas and to monitor and report on the effectiveness of revegetation programs.

The consent for the Exploration Adit issued in September 2006 included a condition about salvaging tree hollows from any hollow-bearing trees, or establishing nest boxes where hollow-bearing trees were removed. It is noted that the Mt Arthur Coal Annual Environmental Management Report for 2007 makes reference to 50 nest boxes that were established on the mining lease (at least at Macleans Hill and on the slopes of Mt Arthur).

The consent for the South Pit Extension was granted on 9 January 2008 and included conditions for modifying the Voluntary Conservation Agreement on the flanks of Mt Arthur (to provide protection for the ecological values of the area), establishing a vegetated corridor (ca. 45 ha) between Mt Arthur and Saddlers Creek, excluding stock from the riparian corridor along Saddlers Creek, managing several areas of regenerating native vegetation on the mine lease for at least the mine life, installing nest boxes to compensate for the loss of hollow-bearing trees, annual monitoring for the period of five years of revegetation and utilisation of nest-boxes, and rehabilitation of overburden as part of the required works for decommissioning of the mine.

On 2 December 2008 consent was granted for the Mt Arthur Underground Project which included conditions for the establishment of the Saddlers Creek Conservation Area; which included areas with remnant vegetation and areas for assisted regeneration. It also included a condition for revegetation to be done over an area of about 154 ha along Edderton Road.

Response

Noted.

2.1.5 Changes to previously agreed offsets

DECCW Comment:

The proposed expansion of open pits at the Mt Arthur operations would result in the loss of most of the Habitat Management Zones (HMZ) on Macleans Hill and the northern slopes of Mt Arthur that were established as part of the 2001 consent for the Mt Arthur North open pit (Fig 6, Vol. 1). In the current EA (Vol. 1, pg 23) it was pointed out that these HMZs were never intended to have long term conservation outcomes and that they could be cleared for future mining subject to development consent being granted. The HMZ land has been a part of earlier rehabilitation and offset strategies and "...will ultimately form corridors of remnant, regrowth and rehabilitation vegetation" (Vol. 1, pg 23). The old Bayswater No. 2 open pit site was to form part of a revegetated corridor as a condition of consent for the South Pit Extension Project issued in January 2008 but under the new proposal that site would instead be largely covered by tailings (Fig. 10, Vol. 1 of the current EA). Similarly, the Mt Arthur to Saddlers Creek regeneration corridor, also from the South Pit Extension consent would be covered by overburden if the new project were approved in its current form.

In short, the proposed development will involve the removal of vegetation that has been set aside for conservation under earlier Development Consents.

In addition there appears to have been some "double counting" of offset land in the current proposal. Land on the western side of Thomas Mitchell Drive was included in a 'Habitat Management Zone' in the Mt Arthur Consent and this same land now forms part of the 'Onsite offset area' in the current proposal.

DECCW commends Hunter Valley Energy Coal Pty Ltd's commitment to protect the Mount Arthur Conservation Area (105 ha) and the Saddlers Creek Conservation Area (295 ha) under Voluntary Conservation Agreements.

Response

The author disagrees with some aspects of DECCWs comment above and has sought to clarify this matter further below.

The key long term components of the Mt Arthur Coal Complex Consolidated Offset Strategy are outlined in Table 32 of Section 8.6.2 of the EA (Volume 1), identifying where existing offset commitments are included in the overall Mt Arthur Coal Complex Offset Strategy, in addition to the Project commitments. In particular, Table 32 notes that the regeneration corridor designed to connect the habitats of Mount Arthur to Saddlers Creek is included in its entirety in the proposed Mt Arthur Coal Consolidated Offset Strategy and will not be modified from that proposed in the South Pit Extension EA.

This section of the EA (also detailed further in Section 3.5 of Volume 1) reiterates that there have been no commitments made to protect Habitat Management Areas in perpetuity in any EA, planning approval or Statement of Commitment lodged by Mt Arthur Coal. These areas were not intended to be managed for long term conservation, but rather were intended to be managed to maintain flora and fauna habitat within the landscape of the Mining Lease in the short term whilst mine rehabilitation was established.

In light of this, the land on the western side of Thomas Mitchell Drive (proposed Onsite Offset Area), originally nominated as part of the Habitat Management Area in the *Mt Arthur North Environmental Impact Statement* (MAN EIS), is proposed to be managed and protected in the long term (via appropriate legal mechanisms) for biodiversity conservation. There is no double counting of this land for offsetting purposes, as this land was always nominated to be a short term rehabilitation measure, with the EA for the Project now conserving this area in the long term.

As discussed in Section 8.6.2 of the EA (Volume 1) (specifically Table 32), corridors of regenerated forest and woodland will be created in the long term through rehabilitation to link the Conservation Areas to other significant ecological areas, including the Proposed Offset Areas for the Project.

The Proposed Offset Areas will provide for a significant area of forest and woodland that will be protected and managed in the long term. Together with the Conservation Areas on Mount Arthur and along Saddlers Creek, these will provide a significant improvement to biodiversity in the vicinity of Mt Arthur Coal, consistent with the offsetting principles of DECCW.

2.1.6 Offset Issues

DECCW Comment 1:

Part of the proposal involves synthesising the previously issued environmental management conditions with proposed new mitigation conditions into the one consent. Previously agreed environmental management conditions cannot be considered as part of the biodiversity offsets proposed for the 'Mine Expansion Areas'. That is, the proposed New Offset areas (2,222 ha) offset the 990 ha of additional development for the Mt Arthur Coal Complex. The New Offset Areas are to be made of four areas: 'The Thomas Mitchell Drive Offset Area' (495 ha); the 'Onsite Offset Area' (222 ha); the 'Proposed Regenerated Woodland' (500 ha) and the 'Proposed Woodland Corridors' (1005 ha). The philosophy behind the offsets is said to be a 2:1 ratio of woodland and forest for that which will be cleared, and a 1:1 ratio of grassland offered to that which would be cleared and the re-establishment of woody vegetation on mined land (pg. 119, Vol.1).

Response

The author disagrees with some aspects of DECCWs comment above and has sought to clarify this matter further below.

Section 8.6.2 of the EA (Volume 1) presents a summary table (Table 32) detailing the existing offset commitments at Mt Arthur Coal which are included as part of the Mt Arthur Coal Complex Consolidated Offset Strategy. It should be noted that Section 3.5 (Table 4) of the EA (Volume 1) outlines all of Mt Arthur Coal's existing Biodiversity and Heritage Commitments for comparative reference.

Mt Arthur Coal has presented a Consolidated Offset Strategy as part of the EA to assist in ongoing biodiversity management at the site once the relevant existing development consents related to open cut mining are surrendered.

The Mt Arthur Coal Complex Offset Strategy addresses the impacts predicted for the Project by providing additional new offset areas, and builds upon existing offset commitments at the site. The strategy provides a holistic approach to heritage and biodiversity management at Mt Arthur Coal by consolidating existing offset commitments from previous Planning Approvals and proposed offset commitments required to mitigate the impacts of the Project.

The Mt Arthur Coal Complex Offset Strategy has specifically been developed to integrate the proposed offset areas with local and regional corridors, existing Conservation Areas and existing biodiversity conservation commitments at Mt Arthur Coal.

As noted in Table 32 of the EA (Volume 1) and discussed further in Section 8.6, the Mt Arthur Coal Complex Offset Strategy proposes 1,217 ha of new Offset Areas (495 ha Thomas Mitchell Drive Offset Area, 222 ha Onsite Offset Area and 500 ha Proposed Regenerated Woodland) to mitigate impacts associated with the Project.

These new Proposed Offset Areas mitigate the loss of 240 ha of woodland and forest at a ratio of 2:1 and the disturbance of 700 ha of highly disturbed derived native grassland at a ratio of 1:1, consistent with DECCWs Biodiversity Offsetting Principles.

DECCW Comment 2:

Thomas Mitchell Drive Offset Area (495 ha) – this area is said to include Upper Hunter White Box – Ironbark Woodland and derived grassland, and riparian forest. The quality and extent of the native vegetation in this offset will likely increase once cattle have been removed. This offset is as close as 1.4 km from the Drayton Wildlife Refuge but both areas are not connected by continuous woody corridor on the intervening privately owned land or largely cleared Travelling Stock Route along Thomas Mitchell Drive (e.g. see Fig 13, Vol. 1). Part of this proposed offset land is down slope of the Muswellbrook Industrial Estate and a recent site visit to the area has found that there is a large risk of weed incursion of the offset land from the Industrial Estate. The tenure of this offset is said to be secured by a legal instrument on title, such as by section 88 of the Conveyancing Act 1919. The proponent does not discount changes to the offset land (pg. 122, Vol. 1), such as the expansion of the Muswellbrook Industrial Estate. DECCW suggests that the proponent discuss this in more detail with Muswellbrook Shire Council so that the details of offset area, and its management are worked out as much as possible before a covenant is placed on the land, this would reduce the need to offset land in the future, and thus prevent remediation efforts being cleared.

Response

Noted. There is potential for the adjacent Muswellbrook Industrial Estate to have a negative impact on the ecology of the Proposed Offset Area by such factors as weed invasion. However, the Proposed Thomas Mitchell Drive Offset Area and Onsite Offset Area will be actively managed according to a Management Plan which will address key threatening processes including impacts from adjacent areas. The potential for indirect ecological impacts from adjacent areas will be addressed in the Flora and Fauna Management Plan for the Project (see Statement of Commitment No 3).

The Drayton Wildlife Refuge is relatively close to the Thomas Mitchell Drive Offset Area. The majority of threatened fauna identified in the Study Area were bird and bat species, which are relatively mobile animals that can fly between habitat patches. For non-flying species there is extensive forest and woodland on private land in between the Proposed Thomas Mitchell Drive and Onsite Offset Areas and the Drayton Wildlife Refuge, which affords an almost complete woodland link. Additionally, there is riparian woodland vegetation within the Proposed Thomas Mitchell Drive Offset Area. For these reasons, the Proposed Thomas Mitchell Drive Offset Area will have effective habitat linkages to the Drayton Wildlife Refuge for many species.

As discussed in Section 8.6.4 of the EA (Volume 1), the Proposed Offset Areas will be conserved in the long term pursuant to a legal mechanism, such as under section 88 of the *Conveyancing Act 1919*, determined in consultation with DoP, and appropriate to the offset commitment. Mt Arthur Coal will liaise with MSC at the appropriate time in this regard.

DECCW Comment 3:

Onsite Offset Area (222 ha) – *this area includes patches of Upper Hunter White Box – Ironbark Woodland, derived grassland from the previously mentioned EEC woodland, as well as Blakeley's Red Gum Woodland and Central Hunter Box – Ironbark Woodland, and also provides known habitat for a range of threatened species, including the ground orchid Diuris tricolor. The tenure of this offset is said to be secured by a legal instrument on title, such as by section 88 of the Conveyancing Act 1919.*

It is noted that Diuris tricolor populations along Thomas Mitchell Drive are at risk of local extinction by the establishment of exotic perennial tussock grasses, such as Eragrostis curvula, Chloris gayana and Hyparrhenia hirta. DECCW therefore recommends that the Diuris tricolor population in this offset area is managed in a way that keeps exotic, perennial tussock grasses in check so that the Diuris tricolor population is maintained in a healthy state.

Response

The potential threats to the *Diuris tricolor* population from the establishment of exotic perennial tussock grasses are noted.

The *Diuris tricolor* population that is located within the Onsite Offset Area is currently managed according to its own Management Plan. The Management Plan includes regular monitoring of orchids during the flowering season, and also management of orchid habitat, using measures such as weed control where necessary.

DECCW Comment 4:

Proposed Regenerated Woodland (500 ha) – this area would be placed on the northern side of the large overburden pile that would be formed at the northern end of the Mt Arthur North open pit and would be planted ‘...to woodland and open forest using trees, shrubs and native ground covers from the locality in order to offset the predicted loss of Box Gum Woodland understorey from the mining areas’ (pg. 120, Vol. 1). It is not clear how this recreated woodland / forest would be managed and maintained following the cessation of mining.

This 500 ha area appears to already include previously proposed woodland areas (Fig. 26, Vol. 1) and appears primarily to meet requirements for visual amenity for residents of Muswellbrook rather than for biodiversity issues. Thus the ‘proposed regenerated woodland’ does not appear to meet several of DECCW’s biodiversity offset principles, particularly by double counting the proposed plantings required for other means (Fig 26, Vol. 1) and the likelihood that any recreated woodland will not develop the same ecosystem function in the short to medium term as found in local remnant woodland vegetation. Nor is it certain that either of the two EECs intended to be recreated or rehabilitated will be successful, particularly on a post-mining landscape.

Response

The author disagrees with some aspects of DECCWs comment above and has sought to clarify this matter further below.

DECCWs Principles for the use of Biodiversity Offsets guide the development and negotiation of offsets in NSW. These were the guiding principles by which the proposed Mt Arthur Coal Complex Offset Strategy was developed. The principles do not state that the reconstruction of ecological communities is only appropriate if it supports core habitat. In fact, habitat reconstruction is listed as a suitable measure if it links areas of conservation value (Principle 6).

As described in Section 5 of the Ecological Impact Assessment (Appendix J) and summarised in Section 8.6 of Volume 1, the area of 500 ha that is proposed to be rehabilitated and revegetated to native forest and woodland has been strategically chosen for inclusion in the Mt Arthur Coal Complex Offset Strategy because it would link an existing Conservation Area at Mount Arthur to the new Proposed Offset Areas along Thomas Mitchell Drive. The Proposed Offset Areas have intrinsic value due to the presence of creek lines and riparian communities, the presence of endangered ecological communities, the threatened flora and fauna these areas support, the good recovery potential of their native grasslands and the proximity of these offset areas to neighbouring conservation areas (i.e. Drayton Wildlife Refuge).

The 500 ha Proposed Regenerated Woodland area has deliberately been positioned close to the other elements of the Proposed Offset Areas so that together the areas will create a large 1,217 ha block of forest and woodland.

The Proposed Regenerated Woodland area is not required primarily for visual amenity. Its primary purpose is as an ecological offset, to form a large block of habitat close to the Thomas Mitchell Drive offset. It should be noted that this area would be specifically designed and managed differently if its primary aim was for visual amenity.

The Proposed Regenerated Woodland area does not double count any existing long term offset commitments. There have been no commitments made to protect this area, or to re-establish 500 ha of EEC woodland in this location in perpetuity in any EA, planning approval or Statement of Commitment lodged by Mt Arthur Coal.

Rehabilitation works will be staged progressively through the life of the development. Revegetation of the 500 ha will occur concurrently with the rehabilitation of the existing vegetation in the new Proposed Offset Areas. This will consolidate or reinforce the biodiversity values of these areas in the short to medium term. The reconstruction of ecological communities would certainly support the overall biodiversity of the native woodland contained within the adjacent Proposed Offset Areas.

As stated above, the Proposed Regenerated Woodland Area will be created to help offset the loss of grassland areas, which are considerably degraded and which do not currently afford significant habitat for threatened species. However, when rehabilitation is completed, the area will have an extensive cover of trees, shrubs and other native species. Trees and shrubs, which are necessary to provide foraging habitat for threatened fauna such as birds, bats and Squirrel Glider, can readily be established using best practice mine rehabilitation techniques.

Research results are available that provide the latest information on issues like species selection, effectiveness of various rehabilitation substrates and post-establishment management. There are also numerous case studies of Hunter Valley mines that illustrate the effectiveness of rehabilitation techniques like topsoil replacement, seed pre-treatments and various sowing techniques. These studies indicate that the successful establishment of self sustaining and viable ecological communities on post-mining land is feasible with ongoing monitoring to track the progress of rehabilitation and to address issues that arise.

As discussed in Section 5 of the Ecological Impact Assessment (Appendix J of the EA), the 500 ha that is proposed to be rehabilitated has a reasonable chance of success if current and new research is taken into consideration when designing the rehabilitation program. The rehabilitation program will be regularly monitored to provide opportunities for review and revision to ensure that rehabilitation objectives will be met.

The 500 ha 'Proposed Regenerated Woodland' area will be protected by appropriate legal mechanisms once pre-determined completion criteria are achieved for the rehabilitation. It is an integral part of the overall Offset package for the Project. Clearly this rehabilitated area should be included in the Mt Arthur Coal Consolidation Offset Strategy, consistent with that accepted for numerous other mines in the Hunter Valley (such as Mt Owen Mine, Drayton Mine and Mangoola Mine (previously known as Anvil Hill)) and elsewhere in NSW.

DECCW Comment 5:

Proposed Woodland Corridors (1,005 ha) – Numerous woodland corridors have been proposed for the Mt Arthur mine site in its post-mining form (Fig. 26, Vol. 1). DECCW notes that they are based on the premise of mine ceasing in 2022 at the expiry of the current consent, despite the likelihood that mineable coal reserves will still occur on the mining lease (pg xviii, Vol. 1). DECCW acknowledges that, when established, these proposed woodland corridors will have ecological value but they do not meet the biodiversity offsetting principles and therefore this land cannot be considered as a biodiversity offset – but may meet the requirements of the mining lease.

Response

The proposed woodland corridors, discussed in Section 8.6.5 of the EA (Volume 1), have specifically been developed to integrate with local and regional ecological corridors, adjacent Conservation Areas and existing biodiversity conservation commitments at Mt Arthur Coal.

Connectivity of the Proposed Offset Areas, Proposed Regenerated Woodland areas and the existing Conservation Areas will be provided for in the long term Synoptic Plan corridors and the implementation of the corridors comprising the existing and proposed woodland areas. The existing and proposed woodland areas will provide a network of corridors for flora and fauna and in the long term, will enhance the ecological value of offset areas in the region.

The proposed woodland corridors have been designed to complement the Mt Arthur Coal Consolidated Offset Strategy and have not been designed to directly mitigate impacts of the Project.

DECCW Comment 6:

Therefore only two of the four areas of 'offset' can be considered to be 'biodiversity offsets' as per DECCW's 'Principles for the use of biodiversity offsets in NSW': the 'Thomas Mitchell Drive Offset Area' and the 'Onsite Offset Area'. Based on Table 33 in Volume 1 of the Final EA these offset areas have a total area of 717 ha, of which EEC and preliminary-listed EEC vegetation covers about 686.9 ha, but that this does not make up for the 842 ha of EEC and preliminary-listed EEC vegetation to be cleared (see Table 2 below). Therefore these offsets do not fully meet DECCW's requirements for a biodiversity offset for the proposed clearing.

Table 2. Summary of NSW-listed Endangered Ecological Community (EEC) and preliminary-listed EEC vegetation to be cleared in the 'Mine Expansion Area' and that mapped in the Proposed Offset (the latter comprises the 'Thomas Mitchell Drive Offset Area' and 'Onsite Offset Area'). Data from Table 33 from Vol. 1 of the EA.

EEC and preliminary-listed EEC vegetation	Area to be cleared (ha)	Remnant vegetation in proposed offset (ha)
WOODY EEC VEGETATION		
EEC	116.45	158.85
Preliminary listed EEC	26.21	45.99
SUBTOTAL	142.66	204.84
NON-WOODY EEC VEGETATION		
EEC	699.54	482.06
Preliminary listed EEC	0	0
SUBTOTAL	699.54	482.06
TOTAL	842.2	686.9

As summarised in Table 2, the proponent is proposing to clear about 842 ha of EEC and preliminary-listed EEC vegetation which would be offset by about 687 ha of similar vegetation in the offset area (a biodiversity offset ratio of about 1:0.8). In considering the woody component of this vegetation it comprises about 142 ha of woodland or forest with recognised conservation value to be cleared, with about 205 ha to be offset (a biodiversity offset of about 1:1.4; which is about the same ratio if only finally determined EEC vegetation is considered). White Box Yellow Box Blakeley's Red Gum Woodland EEC can still be considered to be present if the canopy species have been cleared and about 699 ha derived shrub land / grassland after this EEC would be cleared, with about 482 ha of the same vegetation type to be offset (a biodiversity offset ratio of about 1:0.7). Therefore, DECCW notes that the offset package provides less area of EEC vegetation than would be cleared and this does not meet Biodiversity offsetting principle number 6.

Response

The author disagrees with some aspects of DECCWs comment above and has sought to clarify this matter further below.

It is recognised that technically White Box Yellow Box Blakeley's Red Gum Woodland EEC can still be considered to be present if the canopy species have been cleared.

Notwithstanding this (as explained above in Response 2.1.1), this offset strategy is designed to address 240 ha of woodland and forest loss (of which 142 ha constitutes EEC) and 700 ha of derived native grassland, recognising that derived native grasslands possess little biodiversity value unless it is rehabilitated and managed. The proposed offset strategy will provide for a total of 1,078 ha of regenerated and extant woodland EEC. It will replace the loss of grassland with woodland at a ratio of 1:1 and will offset the loss of EEC woodland with EEC woodland at a ratio of 2.7:1.

2.1.7 Individual Threatened Species

DECCW Comment:

DECCW raised the issue of uncertainty of the effectiveness of older biological surveys cited in the EA at the adequacy review stage. DECCW asked then for copies of the older surveys, to independently assess how 'scientifically robust' (pg. 106, Vol. 1) the older surveys have been, and also to see if they contained records of species from the site that were subsequently listed as threatened; however these surveys have not been provided. Many of the biodiversity surveys cited in the final EA predate DECCW's 2004 Draft Threatened Species Survey Guidelines, and may not have met these standards. DECCW also notes that very few of the threatened species records from the older surveys have been submitted to the NSW National Parks and Wildlife Act 1974; which would have been required for such surveys).

Response

The author disagrees with some aspects of DECCWs comment above and has sought to clarify this matter further below.

There is an extensive database of flora and fauna records emanating from surveys conducted at Mt Arthur Coal from the original EIS surveys to the present date. These have been appropriately relied upon during the preparation of the EA. Surveys have been conducted for the South Pit Extension, the Mt Arthur Underground Project and for monitoring works that are part of existing consents. Extensive flora surveys were also conducted by Cumberland Ecology for the current EA to complement these previous surveys.

The EA does not solely rely upon older survey records. Moreover, where existing data has been relied upon, these have been carefully interpreted and compared with the results of recent surveys at Mt Arthur Coal and in surrounding areas.

The Ecological Impact Assessment (Appendix J) provides the relevant details of previous ecological assessments which it utilised.

2.1.8 Acacia Pendula

DECCW Comment:

Several of the ecological reports cited in the EA make reference to the large stand of *Acacia pendula* along Edderton Road about 1.5 km from the junction with Denman Road. The proposed realignment of the northern part of Edderton Road is discussed in section 4.8 of Volume 1 of the EA but does not make any reference to options for preserving this stand of Weeping Myall. The biology of indigenous *Acacia pendula* in the Upper Hunter Valley differs in several important aspects to the typical form that occurs more widely on the western slopes and plains of NSW.

The local Hunter Valley *Acacia pendula* plants rely heavily on clonal reproduction by the production of root suckers; they rarely flower and recent seed production is unknown. Unlike the plants from west of the Great Dividing Range the local plant have erect branches (Bell et al., 2007). The plants at Edderton Road form two stands either side of the paved road, with the plants on the eastern edge of the road forming a closed shrub land with at least 100 stems over a distance of at least 60 metres on the eastern side of the road, and including a tree at least 8 m tall. A smaller stand of Weeping Myall occurs on the western side of Edderton Road at this locality. The plants at the site have a form and clonal habitat consistent with the indigenous form of this species. It is not clear from the EA, such as Figures 10 and 25 in Volume 1, if some or all of the Weeping Myall at the site will be adversely affected by the proposed development. DECCW considered the *Acacia pendula* population at this site to be significant and therefore recommends that if approval is granted that the Department of Planning include a condition to ensure the population is preserved and given protection to ensure its long term survival.

Response

Noted. The proposed realignment of Edderton Road as part of the Project will not disturb known occurrences of *Acacia pendula*. The known occurrence of *Acacia pendula* will be fenced to ensure no disturbance to the area. This will be documented and managed via the revised Flora and Fauna Management Plan.

2.1.9 Air Quality

DECCW Comment:

The Air Quality Impact Assessment (AQIA) has quantitatively assessed particulate matter from the proposal. The AQIA includes:

- Characterisation of the existing environment surrounding the site, including meteorology and ambient air quality;
- Quantification of particle emissions from the proposal based on assumed operating scenarios, equipment and published emission factors;
- Atmospheric dispersion modelling for assumed operating scenarios using the ISCMOD dispersion model; and
- Analysis of likely air quality impacts based on dispersion model predictions.

AQIA results show many predicted exceedances of ground level concentration (glc) criteria adopted at nearby residential receptors. Table 9.5 of the AQIA, reproduced below, summarises all residences that are predicted to experience a minimum of one (1) exceedance of the project's adopted 24-hour PM₁₀ glc criteria.

Table 9.5- Number of days 24-hour PM₁₀ average concentrations predicted to exceed criteria due to project alone

ID	2016	2022
	No. days above criteria	
91	1	1
94	-	1
183	-	1
184a	1	4
184b	1	3
184c	1	3
187	-	1
200	-	1
201	-	1
203	-	3
204	2	5
205	2	4
206	2	9
207	2	9
208	8	20
209	5	20
210	20	38
211	25	46
212(b)	35	52
226	2	6

Note:

- (a) Numbers in bold identify those residences where the 24-hour average PM₁₀ criterion is predicted to be exceeded more than five times in a year.
- (b) Residence 212 is located in Bengalla Zone of Affection.

The project Statement of Commitments (EA chapter 9) and the compilation of air quality mitigation measures (EA chapter 8.1.3) outline dust management proposed for the project. Chapter 14 of the AQIA also identifies dust control measures assumed for the assessment and recommended for continued use at the Mt Arthur Complex. All dust management measures identified in Chapter 14 of the AQIA should be incorporated into the proposal.

The AQIA does not mention dust management for the conveyor systems. DECCW considers that enclosing conveyors is a reasonable and feasible control option for the project and should be included in the list of proposed dust management strategies.

Response

Noted. All of the best practice dust management measures identified in Chapter 14 of the Air Quality Impact Assessment (Appendix F) are currently implemented at Mt Arthur Coal. All of these mitigation measures will continue to be implemented as required as part of the Project.

All existing conveyors at Mt Arthur Coal are fully enclosed, with their dust emissions maintained to a minimum. Conveyors proposed as part of the Project will be fully enclosed and/or within a building to minimise dust generation (Section 4.2.3 of Volume 1 of the EA).

2.1.10 Noise Impacts

DECCW Comment:

The Mount Arthur Coal Complex currently operates under the following planning approvals: Bayswater No. 3 (Approval 210/93), Rail Loading Facility – Antiene Joint User Rail Facility (105-04-00), Mount Arthur North (114-05-2000), South Pit Extension (06_0108), Mount Arthur Coal Exploration Adit (06_0040) and Mount Arthur Underground (06_0091). The current proposal will result in the ultimate surrender of 4 of 6 current planning approvals, with approval for the Exploration Adit and Mt Arthur Underground being retained.

The current Mount Arthur Coal Complex operations have recently been consolidated under a single Environmental Protection Licence 11457.

129 residential receiver locations have been considered in the assessment. These locations have been grouped into seven (7) residential zones from A – G for the purpose of noise assessment.

Extensive noise monitoring has been undertaken around the Mount Arthur Coal Complex since 1999, and the Noise Impact Assessment (NIA) includes analysis of this data to determine existing noise levels, and hence establish noise criteria. The proposed intrusive criteria established in the NIA are the same as for the Mount Arthur North EIS and Mount Arthur Underground (previous assessments) with the exception of Zone C, E and G. The RBLs determined for Zone C are slightly higher than those reported in the previous assessments which is said to be attributed to more urban noise from Muswellbrook. Zones E and G were not monitored in the previous assessments so additional noise monitoring, as part of this EA, were undertaken. The rating background noise levels are considered reasonable, and have been used to establish intrusive criteria.

Response

Noted.

DECCW Comment:

The amenity criteria have been established on the premise that; 'no residence will be exposed to more than two major industrial operations (i.e. Mount Arthur Coal Operations and Bengalla Mine, Drayton Mine, Mangoola Coal or Mt Pleasant, depending on the location)'. This premise does not seem unreasonable, and results in a night time amenity criteria of LAeq, night 37dB (A), except for Zone C, where an amenity criteria of LAeq, night 38dB (A) has been adopted. However, the amenity criteria will not inform the PSNL, as explained below.

The NIA asserts that long term noise monitoring indicates that noise from Mount Arthur North generally exhibits the following relationship: the LAeq, 9 hr is 4dB(A) lower than LAeq, 15 minute level. So the amenity criteria would need to be >4dB (A) above the intrusive criteria for it to become the project specific noise level (PSNL). On this basis the intrusive criteria informs the PSNL for all locations. This is considered reasonable.

Response

Noted.

DECCW Comment:

The Environmental Noise Model (ENM) has been used in the noise assessment. Based on the long term noise modelling around the MACC, a calibrated modelling approach was developed. It has been determined that the use of 4°C / 100 m inversion parameter in the model delivers a close correlation to measured noise levels on worst case winter nights. This approach was accepted in South Pit Extension EA, and is considered acceptable for the purposes of this proposal.

Response

Noted.

DECCW Comment:

The project area includes the Antiene Joint User Rail Facility (Antiene Rail Line) and hence noise predictions have appropriately considered noise from this source in conjunction with mining activities. However, the Antiene Rail Line will not be licensed by DECCW. Therefore DECCW is interested in noise predictions without the rail line for EPL purposes. While DECCW acknowledge that NSW Planning will likely develop noise limits and noise management approaches for the project in total, they cannot be mirrored in an EPL, because the EPL will not regulate noise from the Antiene Rail Line, as it does not constitute a rail systems activity. Therefore it is recommended that the proponent be requested to provide noise predictions with and without the Antiene Rail Line. Additionally, the proponent should clarify whether the noise predictions for the Antiene Rail Line have considered traffic generated by Drayton Mine. NSW Planning will also need to carefully consider how noise responsibility for the Antiene Rail Line will be apportioned between users. Until this information is provided DECCW is unable to provide the likely noise limits that will be included in an EPL.

Response

Please see response in **Section 2.1.1** above.

DECCW Comment:

The traffic noise assessment has indicated that impacts from additional project related traffic (construction and operational) will be minimal (i.e. less than 2dB in all cases). However, existing traffic noise levels at receivers 11, 12, 13, 39, 40, 41 & 42 currently exceed the applicable criteria under the EPA Environmental Criteria for Road Traffic Noise. The 2dB 'allowance criteria' should only be applied after it is demonstrated that reducing noise levels to the criteria is neither feasible nor reasonable. It is recommended that mitigation options for these receivers be considered.

Response

The Noise Impact Assessment presented in Section 8.2 of Volume 1 and Appendix G of the EA, assessed road traffic noise as a result of the Project in accordance with the EPAs *Environmental Criteria for Road Traffic Noise* (ECRTN). As noted in the EA, the ECRTN advises that "In all cases, the redevelopment should be designed so as not to increase existing noise levels by more than 2dB. Where feasible and reasonable, noise levels from existing roads should be reduced to meet the noise criteria."

Some possible ways of mitigating traffic noise include:

- Mitigation of traffic noise by at-road treatments (such as noise barriers). This measure is usually not feasible and reasonable in rural settings with widely spaced receivers who require openings in the barriers for access to the roads;

- The use of low noise pavements. They may provide some noise mitigation benefit, but would not reduce noise to the criterion at all receivers; and
- Acoustic architectural treatment of affected properties. In consideration of the predicted traffic noise levels, this may involve checking the seals of doors and windows, and provision of mechanical ventilation.

As the increase in traffic noise due to the Project is at most 0.8 dBA, it is not considered reasonable or feasible to provide noise mitigation to all affected receivers. The cumulative increase is predicted to be 1.8 dBA, which complies with the criteria provided by ECRTN.

DECCW Comment:

The assessment of construction noise indicates that construction impacts will be minimal. Construction will only be undertaken during daytime hours.

Blast related impacts are predicted to satisfy the ANZEC guidelines, however careful management will be required.

The proposal does not result in train movements that exceed the maximum allowable under the existing planning approval for the Antiene Joint User Rail Facility. Hence an assessment of noise impacts on the Main Northern Line has not been undertaken. This is acceptable.

Response

Noted.

2.1.11 Greenhouse Gas & Climate Change Impacts

DECCW Comment:

There are a number of typographical errors in the data tables of the EA. Table 12.3 lists electrical energy used in kWh, the data is however in MWh. Similarly the values for diesel and biodiesel use are given in litres but the data presented is clearly in kL. In Table 12.4 the data for methane emissions from mining and total Scope 1 & 2 and Scope 3 emissions is incorrect.

After correcting for the above errors DECCW assessed the EA and found that:

- *The proponent has estimated Scope 1 emissions from diesel fuel use appropriately. Diesel fuel use rates are 5.39 L/t ROM. These are comparable to other similar operations;*
- *The proponent has estimated fugitive emissions from the open-cut mines appropriately. However fugitive emissions from underground mining have not been estimated. The proponent has not supported an estimate of zero fugitive emissions from the underground operations. To provide a comprehensive estimate of greenhouse gas emissions, fugitive emissions from the underground mining would need to be estimated using site specific measurements (NGERS Method 4). If no site specific data are available or if measurements do not meet the requirements for NGERS Method 4, then an estimate of fugitive emissions using the default NGA emission factor for non-gassy mines could be provided;*
- *The proponent has estimated Scope 2 emissions from electricity use using appropriate methodology. The electrical energy efficiency of the project is approximately 4.8 kWh/t ROM. DECCW is unable to verify the accuracy of this estimate, however it is comparable to other similar operations;*
- *The proponent has estimated Scope 3 emissions from electricity and fuel supply and the transport of product coal to the customer adequately;*

- The proponent has estimated Scope 3 emissions from the combustion of the product coal of approximately at **928.6 Mt CO₂e** per annum. The estimate uses specific coal energy content from the Mt Arthur complex and assumes that all coal is used for electricity generation;
- Total greenhouse gas emissions from the operation are estimated at **965.2 Mt CO₂e** or an average of **74.2 Mt CO₂e** per annum; and
- The proponent has not provided a detailed assessment of reasonable and feasible energy efficiency measures. The proponent has listed some measures identified by their Energy Excellence Working group and has committed to undertaking regular reviews to identify greenhouse gas minimisation and energy efficiency initiatives. There is however no assessment of the feasibility of reducing fugitive emissions, the second largest source of emissions. If approval is granted, DECCW recommends that the proponent be required to provide a more thorough assessment of the feasibility of measures to reduce greenhouse gas emissions and improve energy efficiency.

Response

Noted. The typographical errors presented in some of the greenhouse gas emission tables in the EA have been revised and are presented in **Appendix C**. It should be noted that these minor errors did not affect the predicted greenhouse gas emissions of the Project as reported in the EA.

In regard to DECCWs concern over the inclusion of fugitive emissions from underground mining at Mt Arthur Coal, if the default non-gassy emission factor for underground fugitive emissions is applied (as advised from the National Greenhouse Gas Accounts Factors 2009) to the maximum underground ROM production of 8 Mtpa, this would result in 64,000 t CO₂-e of fugitive emissions to be considered. In light of this result, the inclusion of fugitive emissions from underground mining does not change any of the conclusions presented in EA.

As discussed in Section 8.1.3 of the EA (Volume 1) and reaffirmed in Statement of Commitment No 5, 'Mt Arthur Coal will undertake regular reviews and monitoring of greenhouse gas emissions and energy efficiency initiatives to ensure that greenhouse gas emissions per tonne of product coal are kept to the minimum practicable level.'

As part of BHP Billiton, Mt Arthur Coal has been working toward technological solutions to reduce its greenhouse gas emissions and increase Energy Efficiency. BHP Billiton has committed to a 13% reduction in energy intensity and a 6% reduction in greenhouse gas intensity by 2012 when compared with the 2006 baseline. Mt Arthur Coal's energy and greenhouse gas management system has been developed to support these targets.

As a result, Mt Arthur Coal has implemented the Energy Excellence Program, with an active Energy Excellence Working Group. The program allows Mt Arthur Coal to:

- Reduce their contribution to global greenhouse gas emissions;
- Meet legislative requirements such as the *Energy Efficiency Opportunity Act 2006* and the *National Greenhouse and Energy Reporting Act 2007*; and
- Identify ways to further improve energy management and reduce energy requirements.

In accordance with the Energy Excellence Program, Mt Arthur Coal will develop and maintain internal energy management plans with specific targets for its operations, including the Project. Mt Arthur Coal will also develop and maintain an internal greenhouse gas management plan consistent with internal corporate requirements.

Mt Arthur Coal will continue to investigate all greenhouse gas minimisation and energy efficiency initiatives, with a particular focus on reducing fugitive emissions. This commitment is reflected in Statement of Commitment No 5 in the EA. Mt Arthur Coal will investigate opportunities for methane drainage ahead of open cut mining and methane capture and combustion through flaring or energy production. All initiatives will be reported as part of the Annual Environmental Management Report.

2.2 NSW OFFICE OF WATER

2.2.1 Comment 1

The Department of Environment, Climate Change and Water, NSW Office of Water (NOW), has reviewed the Environmental Assessment (EA) for the Mt Arthur Coal Consolidation Project. The following comments are submitted in accordance with NOW's statutory obligations, and with reference to the Hunter Regulated River Water Sharing Plan (HRRWSP) and Hunter Unregulated River and Alluvial Water Sharing Plan (HURAWSP).

ALLUVIAL SETBACK

As stated in NOW's response to test of adequacy on 28 September 2009, a precautionary 150 metre setback has been prescribed along the connected alluvium to the Hunter River and other major rivers in the Hunter catchment. The 150 metre setback is defined as a minimum protective measure to protect the Hunter River and its connected alluvium, and to reduce interaction between the open cut excavation and alluvial groundwater. NOW advises this minimum barrier is insufficient to avoid interactions between mining excavation and the river and its connected alluvium, mining depressurisation impacts may extend many hundreds of metres beyond mine pit limits. In terms of depressurisation of other impacts upon the connected alluvium to the Hunter River, any interactions which occur must be regulated under either or both the above water sharing plans. The water sharing plans form statutory environmental planning instruments under which all water use, including incidental surface or alluvial interception, is regulated.

The EA describes several potential interactions along the extended boundary between the extended Mt Arthur North pit and the Hunter River alluvium. These include excavation into alluvial pockets associated with Fairford and Whites Creeks, leakage from the alluvium through diffuse fine fracture pathways, and potential pathways activated through larger geological structures along the increased pit face. The creation, extension or reactivation of these pathways is likely to induce long term loss of hard rock contribution to alluvial groundwater volumes and losses of alluvial groundwater to the open cut pit.

Response

Noted. As described in Section 8.10.3 of the EA (Volume 1), the Project will require mining through and removal of alluvium associated with the remaining sections of Whites Creek and some small tributaries that drain into the Hunter River. As indicated in Figure 32 of the EA (Volume 1), these activities fall within the 150 m buffer specified by NOW. It should be noted that the majority of the Whites Creek alluvium was previously approved to be disturbed by mining activities in the MAN EIS (URS, 2000).

Mt Arthur Coal recognises the potential interactions of mining activities within the 150 m buffer and the Hunter River alluvium. For this reason, Mt Arthur Coal has committed as part of the Project (Statement of Commitment No 8) that, mining (other than that already approved in the MAN EIS), will not extend beyond a nominal 150 m buffer zone from the Hunter River Alluvials until agreement is reached with NOW regarding the installation of a lower permeability barrier along the point of connections of mining and the alluvium or other appropriate safeguards.

Further, as described in Section 8.10.4 of the EA (Volume 1), Mt Arthur Coal will ensure all necessary Water Access Licences for the Project are obtained and the rules of all applicable Water Sharing Plans are met and enforced.

2.2.2 Comment 2

ALLUVIAL GROUNDWATER IMPACTS

The 150 metre setback from the Hunter River alluvium nominated in the EA is accepted by NOW, as it is based on limitations applying currently to open cut operations throughout the Hunter Valley. However, NOW is concerned that the cumulative depressurisation of the porous hard rock groundwater system by Mt Arthur Operations in conjunction with Bengalla and other mining operations along the Hunter River alluvium. NOW advises that Zone 1 of the Hunter Regulated River (which is dependent on supporting connected alluvial groundwater) may experience alteration of flow in terms of contributions from alluvial groundwater, due to local and sub-regional depressurisation of supporting porous rock aquifers. NOW notes several instances of measured reversal of groundwater gradients along Zone 1 of the Hunter River, and considers the river has some level of risk of experiencing 'artificial drought' due to the loss.

Considering the critical importance of supply of water from the Hunter River to all users, NOW requests that the following be considered for conditions of project approval.

NOW requires that any loss of alluvial groundwater is accounted for under the rules of the HURAWSP. This will require:

- Accounting for losses induced to the alluvial groundwater system by both reversal of gradient toward the open cut pit, and reduction in porous rock contribution to alluvial groundwater's;*
- Verification of groundwater modelling predictions, and development of investigation and remedial triggers to impacts within the connected alluvium, including both reduction of saturated thickness and any alteration in groundwater quality across the area of impact caused by Mt Arthur Operations; and*
- Development of mechanisms to isolate the alluvial groundwater system from the mining operation, and permanently purchase licence entitlement under the rules of the HURAWSP to account for alluvial groundwater interception.*

As any interception or extraction of surface or ground waters is licensable under the Water Act 1912 or Water Management Act 2000, BHP Mt Arthur Operations must develop account reporting to NOW for volumes of water from each water source, and reporting as to the limitations or restrictions on such interception or extraction.

The verification of groundwater drawdown must be required on an annual basis. This should be followed by audit reports on a three yearly basis to NOW, to demonstrate compliance with the accounting mechanisms and avoidance of harm to the alluvial groundwater source.

Response

As discussed in Section 8.10.4 of the EA (Volume 1), Mt Arthur Coal will ensure that any loss of alluvial groundwater is accounted for under the rules of the *Hunter Unregulated River and Alluvial Water Source Water Sharing Plan* (2009). This will include losses incurred by both reversal of gradient toward the open cut pit, and reduction in porous rock contribution to alluvial groundwaters.

Mt Arthur Coal in consultation with NOW, will:

- Measure any groundwater drawdown from the alluvium via a groundwater alluvial monitoring program. As described in Section 8.10.4 of the EA (Volume 1), Mt Arthur Coal will “incorporate a program to monitor the seepage rates associated with the potential leakages from the Hunter River alluvium. This will include the installation of some additional paired bores (i.e. one in the alluvium and the second in the underlying Permian strata) on the Hunter River alluvial areas where impacts were predicted, to quantify the leakage from the Hunter River Alluvials”;
- Ensure monitoring bores installed to monitor influences with the alluvium will be equipped with data loggers to monitor groundwater fluctuations on a daily basis. Results of the groundwater alluvial monitoring program will be reported annually as part of the Annual Environmental Management Report (AEMR);
- Verify groundwater modelling predictions, using 2D SEEPW modelling or other such approved method;
- Develop investigation and remedial triggers of impacts within the connected alluvium, including both reduction of saturated thickness and any alteration in groundwater quality across the area of impact caused by the Project; and
- Continue to monitor hydro-geomorphological conditions and scrutinise for evidence of any groundwater ingress or endwall instability indicators as it progresses the previously approved mining towards the Hunter River Alluvials. Mining (other than that already approved in the MAN EIS) will not extend beyond a nominal 150 m buffer zone from the Hunter River Alluvials until agreement is reached with NOW regarding the installation of a lower permeability barrier along the point of connections of mining and the alluvium or other appropriate safeguards (Statement of Commitment No 8).

Further, as described in Section 8.10.4 of the EA (Volume 1), Mt Arthur Coal will obtain all necessary Water Access Licences for the Project from NOW and will develop account and limitation reporting as required.

2.3 INDUSTRY & INVESTMENT NSW

2.3.1 Mining Title

Based on the material presented in the Mt Arthur Coal Consolidation Project Environmental Assessment dated November 2009, I&I NSW supports the proposed mine development as an appropriate use of the State's coal resources and makes the following comments and recommendations:

As coal is a prescribed mineral under the Mining Act, 1992, the proponent is required to hold appropriate mining titles from I&I NSW in order to mine this mineral.

Response

As shown on Figures 8, 9 and 10 of the EA (Volume 1), the proposed Mine Extension Areas for the Project are located within Mt Arthur Coal's existing Mining Leases – ML 1358, ML 1593, ML 1487, ML 1548 and CL774. As noted in Table 6 of Section 3 of the EA (Volume 1), these Mining Leases are valid for the life of the Project, with the exception of ML 1358 which will require renewal in 2015. Mt Arthur Coal will ensure valid Mining Leases are maintained throughout the life of their mining operations.

2.3.2 Rehabilitation and Final Landform

As highlighted in the I&I NSW EA adequacy review for this project the EA provided limited detail on proposed rehabilitation and final landform for the project. The EA has identified general rehabilitation objectives that may be considered satisfactory to achieve a safe, stable and non-polluting final landform. However the EA should provide an adequate description of the project's functional domains including tailings dams, waste emplacements, final voids and infrastructure areas. Specific performance objectives for each domain were not satisfactorily described. Broad revegetation and rehabilitation techniques were outlined although no detail on completion criteria was provided.

Response

Section 8.15 of the EA (Volume 1) provides a description of rehabilitation objectives, techniques & criteria for the Project and outlines the proposed final landform and final void use and management. The detail provided in Section 8.15 of the EA (Volume 1) was considered adequate and in accordance with the Director-General's EARs. Detailed discussion on the rehabilitation strategies for the various functional domains for the Project will be provided as part of the Mining Rehabilitation and Environmental Management Process (MREMP) (incorporating the Mining Operations Plan and AEMR) and the Rehabilitation Management Plan.

As reaffirmed in Statement of Commitment No 3 of the EA (Volume 1), Mt Arthur Coal will prepare a Rehabilitation & Landscape Management Plan for the Project (including Final Void Management) in consultation with I&I NSW, to the approval of DoP. The Rehabilitation & Landscape Management Plan will be prepared within 12 months following the grant of Project Approval.

In accordance with I&I NSW requirements, the Rehabilitation & Landscape Management Plan will provide a description of: final land uses at Mt Arthur Coal; rehabilitation objectives at Mt Arthur Coal and how these integrate with offset packages in the area; performance standards and strategic completion criteria for each rehabilitation domain at Mt Arthur Coal; a life of mine tailings management strategy; proposed rehabilitation methods and techniques; proposed monitoring and research programs; and any post-rehabilitation maintenance requirements for the Project and how these will be managed.

2.3.3 Requirements Prior to Granting of Approval

I&I NSW require the following issues to be addressed prior to the granting of any planning approval if possible. However if this is unachievable, a condition of consent must be included, that a Rehabilitation Strategy must be provided within 12 months of the granting of approval.

The Proponent must develop a Rehabilitation Strategy, in consultation with I&I NSW, that incorporates the following:

- **Final Landuse Statement:** Describe the final landuse/s for the entire project. This should be set in the form of a Mission or Vision Statement with an adequate description of the desired final rehabilitation outcome of the project and its purpose. A conceptual drawing depicting the final landuse/s and landforms (including indicative vegetation types and structures) should be provided to support the statement. Also discuss alternative final landuse/s and provide justification for selecting the proposed final landuse/s.
- **Performance Objectives:** Describe performance objectives for the project (i.e. long term goals, such as "safe, stable and non-polluting resilient landforms" and how each performance objective and final land use complies with relevant Government legislation or policies, research or industry leading practise. Identify each rehabilitation domain and describe ultimate/final performance standards for each domain. Describe the potential for integrating the rehabilitation strategy with any other offset (or conservation strategies) in the region.

Response

As described in response 2.3.2 above, Mt Arthur Coal will prepare a Rehabilitation and Landscape Management Plan for the Project, in consultation with I&I NSW and to the approval of DoP, within 12 months of the Project Approval being granted. The Rehabilitation and Landscape Management Plan will address all of I&I NSW's comments above.

2.3.4 Recommended Conditions of Approval

The Proponent must commence to prepare and implement a Rehabilitation Plan, no longer than 6 months after the finalisation of the Rehabilitation Strategy, to the satisfaction of the I&I NSW.

The Rehabilitation Plan may also include the following:

- **Completion Criteria:** Propose strategic completion criteria for each domain having regard to the various stages of rehabilitation and outline proposed timeframes for progressive rehabilitation. [Note: performance standards and detailed completion criteria for each stage of rehabilitation will be developed through the REMP process];
- **Monitoring and Research:** Outline the proposed rehabilitation methods and techniques and proposed monitoring and research programs; and
- **Post-closure maintenance:** Describe any post-rehabilitation maintenance requirements for the project site and how these will be managed.

The Rehabilitation Plan must be prepared in accordance with I&I NSW guidelines and in consultation with I&I NSW and relevant agencies and stakeholders.

The Rehabilitation Plan should address all rehabilitation aspects, including landscape, final void management and mine closure. Therefore I&I NSW requests that all references to Mine Closure Plans, Landscape Management Plans and Rehabilitation Management Plans referred to in the EA and previous Development Consents, be replaced by the Rehabilitation Plan referred to above.

The Proponent is required to incorporate Life of Mine Tailings Management into the Rehabilitation Plan. Included will be a life of mine strategy design, and an environmental risk assessment in order to demonstrate that the emplacements can be designed, managed and rehabilitated appropriately. The Life of Mine Tailings Management strategy should be developed in consultation with I&I NSW and other stakeholders.

I&I NSW does not object to the approval of the Mt Arthur Coal Project provided the above recommendations are taken into account and implemented. The timing requirements of the Rehabilitation Plan can be discussed with Department of Planning prior to the granting of approval. I&I NSW is happy to meet with the Proponent to assist in developing the above documents for their operation.

Response

As described in response 2.3.2 above, Mt Arthur Coal will prepare a Rehabilitation and Landscape Management Plan for the Project, in consultation with I&I NSW and to the approval of DoP, within 12 months of the Project Approval being granted. The Rehabilitation and Landscape Management Plan will address all of I&I NSW's comments above.

2.3.5 Agricultural Resources

Agricultural Resources

The EA provides limited information on the impacts of the mining proposal on agricultural land use within and adjacent to the EA boundary. The proponent should provide additional information on:

- *Impacts from noise and dust on farming operations;*
- *Impacts from changed water regimes to farming enterprises reliant on these water sources;*
- *Weed and pest management arrangements with the Livestock Health and Pest Authority;*
- *Social impact of mining employment to agricultural industries; and*
- *Future agriculture uses within the EA boundary.*

Attachment 1 provides further advice on the above agricultural issues.

Response

Please refer to the detailed responses to these concerns in Response **Error! Reference source not found. - Error! Reference source not found.** below.

2.3.6 Agricultural Resource Lands

The proposal will expand the footprint of existing mining activities within the existing mining lease, disturbing additional cleared agricultural lands that had previously been avoided. The proposal will also extend mining operations over a longer period and potentially increase the impact on adjoining landholdings and farming activities.

The EA notes that the project is on land that previously was used for grazing and cultivation. It does not document land uses on surrounding lands, particularly the specific agricultural land uses in close vicinity to the proposal. Adjoining holdings to the west of the project are relatively small, but are also irrigated and contain highly productive agricultural lands.

Response

It is noted that in this submission 'I&I NSW supports the proposed mine development as an appropriate use of the State's coal resources'.

As described in Section 4.1.1 of the EA (Volume 1), the Project will continue to extract coal resources via a shovel and excavator operation until 2022, consistent with the Mt Arthur North development approval. The Project does not seek to extend the life of open mining operations at Mt Arthur Coal.

Any potential impacts of the Project on adjoining landholdings and farming activities have been comprehensively assessed throughout the EA. In particular, Section 8.1, 8.2 and 8.3 of the EA (Volume 1) outline the predicted air quality, noise and vibration impacts of the Project on neighbouring landowners. Mt Arthur Coal is committed to minimising their impacts on neighbouring landowners and have developed a variety of commitments (as presented in Section 9 of the EA (Volume 1) in this regard.

Land use surrounding the Project is discussed in Section 2.3.2 of the EA (Volume 1) outlining the various Power, Mining & Industrial, Agriculture and Rural / Residential areas.

2.3.7 Rehabilitation

The EA identifies the land capability and suitability (respectively) at the pre-mining and post-mining stages. The agricultural land suitability assessment notes that Class 1 lands will expand from 2 % to 9 % (it is not clear how this would occur); Class 2 lands will decrease very slightly from 17 % to 16 %, Class 3 lands will decrease to almost a third (19 % to 7 %), Class 4 lands will increase from 47 % to 55 %, and Class 5 lands decrease slightly from 15 % to 13 %. Clearly at both pre and post mining levels Class 4 lands which are suitable for grazing dominate. The extent of more productive Class 3 grazing lands however will decrease. This shift in the balance of Agricultural lands can reduce the overall sustainability of agricultural operations post mining. It also seems that the assessment of post mining landscapes does not accurately identify proposed vegetation corridors within Class 3 areas as Class 5 Agricultural Sustainability (i.e. not available for future agricultural use).

What the EA does not clearly spell out is that the focus of rehabilitation will be on enhancing the biodiversity values to 5 times that of the pre-mining landscape. Cessation of grazing appears to be a key management action to deliver this success. The EA also offers no advice as to the future of these lands for agricultural use. Inspection of Figure 26 shows that the Class 2 land will be dissected from other agricultural lands by a nature corridor. Appropriately half the Class 3 land and all of the Class 4 land is also tagged as proposed woodland.

Further consideration is required regarding the management objectives for agricultural lands, particularly of the Class 1 and 2 lands post mining. The EA should also justify the proposed changes in future land use.

Consideration should also be given to moving the vegetation corridor that dissects the Class 2 land further south so that the residual agricultural land can better be managed as a whole unit. It may also result in better environmental outcomes if the vegetation corridor is adjacent to the water storage with both water quality and the vegetation corridor having reduced impact from agricultural (assuming agriculture continues).

Response

As described in Section 8.14.2 of the EA (Volume 1), Class 1 agricultural land will increase from 2% (pre-mining) to 9% (post mining) to further mitigate the loss of Class 3 agricultural land and Class I rural land capability. This was designed to maintain the overall sustainability of agricultural land at Mt Arthur Coal post mining.

Figures 6 and 7 of the Soil Survey & Land Resource Assessment (Appendix Q) illustrate the Pre-Mining Agricultural Suitability Classification and Post Mining Agricultural Suitability. These figures demonstrate that Class 1 agricultural land will be reinstated within Mine Extension Area 2, adjoining Denman Road and the Hunter River floodplain.

As discussed in Section 8.15.3 of the EA (Volume 1), rehabilitation planning at Mt Arthur Coal will attempt to maximise opportunities for a diverse post mining landscape and land use. It is presently proposed that the final land use of the rehabilitated site will include pastoral, commercial forestry, recreation and/or wildlife habitat opportunities. Mt Arthur Coal will prepare a Rehabilitation and Landscape Management Plan for the Project which will provide a description of final land uses and rehabilitation and land use management objectives (particularly for Class 1 and Class 2 agricultural land and how these will be reinstated) at Mt Arthur Coal. Therefore, including a variety of pastoral areas with woodland habitat corridors within the Project area (as presented in Figure 26 of the EA (Volume 1) is a key component of the overall rehabilitation and offset strategy at Mt Arthur Coal.

Mt Arthur Coal will consider relocating the Proposed Woodland Corridor which dissects Class 2 agricultural land (Mine Extension Area No 2) further south near the final void / water storage area (as shown on Figure of the EA (Volume 1) when preparing its Rehabilitation and Landscape Management Plan in consultation with I&I NSW.

2.3.8 Weed and Pest Management

The EA indicates a strong commitment to weed and pest management and will revise its current flora and fauna plan to reflect this proposal. The revised plan should include agreements with Livestock Health and Pest Authority (former RLPB) about the Travelling Stock Reserve and coordinated pest animal management.

Response

Noted. Mt Arthur Coal will revise the Flora and Fauna Management Plan for the Project, which will also include details of ongoing weed and pest management and any agreements with the Livestock Health and Pest Authority. It should also be noted that Mt Arthur Coal currently liaise and participate in coordinated pest animal management with the Livestock Health and Pest Authority.

2.3.9 Water

With regard to surface water flows, the EA notes that there are on-farm dams used for stock watering and irrigation and two privately owned extraction entitlements immediately downstream.

The EA identifies potential surface water impacts as: changes to flows in local creeks as a result of mining activities, the extraction and use of water; the drawdown of groundwater; and potential for export of contaminants and short term salinity increases. However, mitigation measures proposed (s8.9.4) appears to be only about water management for the Mine itself rather than consideration of managing downstream impacts of the mine. Further advice as to how these potential surface water downstream impacts will be managed is critical for assessing the sustainability of the proposed mining expansion, but is not addressed in the EA.

Response

As noted above by I&I NSW, Section 8.9.3 of the EA (Volume 1) and the Surface Water Impact Assessment (presented in Appendix M) identifies potential changes to flows in local creeks due to the Project, drawdown of groundwater, potential for export of contaminants and any short term increases in salinity during periods of licensed discharge under the Hunter River Salinity Trading Scheme (HRSTS).

Mt Arthur Coal's existing Environmental Protection License 11457 permits discharge of excess mine water from its licensed discharge dam (the Environmental Dam) during periods of high rainfall in accordance with the DECCW administered HRSTS. Any discharges from the licensed discharge dam flow along the Whites Creek diversion, across Mt Arthur Coal land into the Hunter River. As indicated in Section 4.2.3 of the Surface Water Impact Assessment (Appendix G), it is estimated that on average the Project would result in a decrease of 193 ML/year controlled release to the Hunter River under the HRSTS. Based on a median Total Dissolved Solids (TDS) of 1,000 mg/L (from Environmental Dam monitoring), this represents an average decrease in salt discharge of 193 t/year. It should be emphasised that discharges would occur during periods of high flow (as mandated in the HRSTS) and would therefore not affect river low flows.

As discussed in Section 5.4 of the Surface Water Impact Assessment (Appendix G), Mt Arthur Coal's water management system would continue to be operated in accordance with best management principles including minimising contamination of site water, maximising reuse of mine water on site and managing water so that any releases from site are controlled in accordance with the HRSTS. By segregation and preferential re-use of the more saline water on site (such as occurs in the tailings storage), off site discharges of salt to the Hunter River would be controlled. Water with other contaminants (e.g. hydrocarbons) will be retained, treated and reused on site.

Apart from the Whites Creek Diversion, no other local creeks are proposed to experience short term increases in salinity or export of contaminants. Potential surface water downstream impacts are assessed and presented in the EA, with no significant impacts on downstream surface water impacts identified. As discussed in Section 8.9.4 of the EA (Volume 1), surface water will continue to be managed in accordance with the Mt Arthur Coal Environmental Management System (EMS) and the existing Site Water Management Plan will be revised as necessary, to ensure that it meets the changing requirements of the Project and any adjacent water users' needs.

Mt Arthur Coal has in place a comprehensive onsite water management system which is based on adherence to well-established, best water management practices. As noted in Section 8.9.4 of the EA, water from all disturbed areas will continue to be collected in drainage structures and sediment dams and either recycled in the mine water management system or allowed to leave site following settlement of sediment. Sediment dams capturing runoff from areas of pre-strip and rehabilitation will continue to be designed in accordance with the provisions for sediment retention basins in *Managing Urban Stormwater Guidelines* (Landcom (2004)). It should further be noted that Mt Arthur Coal's Environmental Protection Licence issued under the *Protection of the Environment Operations Act 1997* provides stringent requirements for water management and does not permit the release of sediment laden mine water off site.

Mt Arthur Coal undertakes extensive monitoring of surface water in the Project Area catchments and of the associated operational water management system. Monitoring locations include sites on Quarry Creek, Fairford Creek, Whites Creek, Whites Creek Diversion, sediment dams, the Environmental Dam, the Bayswater Main Dam, Ramrod Creek and Saddlers Creek.

The existing monitoring, review and reporting system will continue throughout construction and operational phases of the Project. Additionally, Mt Arthur Coal will install a continuous real-time surface water monitoring station downstream of the Project on Saddlers Creek.

2.3.10 Social Issues

There will be a significant increase in employment levels as a result of this proposal. There should be further consideration as to the possible social impact of mining employment on the rural labour force.

Response

As discussed in Section 8.12 of the EA (Volume 1) and the Stakeholder Impact Assessment and Stakeholder Engagement Program (Appendix P), population impacts are likely to be experienced in Muswellbrook, with the Project-specific peak workforce influx likely to result in approximately 746 new community members moving to Muswellbrook. The assessment found that it is unlikely that these impacts will occur concurrently and as such, a more gradual phasing of new personnel into the region will afford local communities and service providers the opportunity to adjust and improve current capacities where required to manage the changing demands of population growth. The assessment also found that it is unlikely that there will be any cumulative construction workforce impacts for the region, particularly on key service sectors such as the temporary accommodation sector.

Notwithstanding this, Mt Arthur Coal will continue to monitor its recruitment policies and employment patterns within the region and will continue to actively participate in any regional initiatives in this regard.

2.3.11 Noise and Dust

The EA identifies that adjoining receivers (rural holdings) will be impacted by dust and noise pollution, but it is not clear whether this involves agricultural land users and hence businesses. Consideration of dust and noise impacts on farming operations in particular; crop yields, the health of grazing animals and farm managers should be taken into account when assessing impacts and developing relevant management plans.

Response

The Air Quality Impact Assessment and Noise & Blasting Impact Assessment presented in Sections 8.1 and 8.2 of the EA (Volume 1) respectively, have assessed potential impacts of the Project against stringent amenity, nuisance and human health criteria set by the NSW government. It is therefore considered that an assessment against these stringent criteria takes into account of any impacts on adjacent farming operations, livestock health and crop yield.

Mt Arthur Coal has a demonstrated history of maintaining the agricultural productivity of its land holdings not directly required for mining and mine related purposes. All available undisturbed agricultural land owned by Mt Arthur Coal or land acquired through owner initiated acquisition is leased to experienced local farmers and graziers, who manage the land in accordance with sound agricultural practices. This practice will continue throughout the life of the Project.

2.4 THE HERITAGE BRANCH, DEPARTMENT OF PLANNING

2.4.1 Comment 1

The Heritage Branch received your letter, dated 13 November, referring the Environmental Assessment (EA) currently on Public Exhibition to us for comment.

The Heritage Branch has reviewed the EA and notes that it pertains to an extension of mining operations at Mt Arthur Coal and that during a desk top and field survey it was identified that these works have the potential to directly affect seven items listed as being of local significance and to indirectly affect five items listed on heritage registers, two of which are listed on the State Heritage Register.

Response

The author disagrees with some aspects of the Heritage Branch's comments above and has sought to clarify this matter further below.

As described in Section 8.8.3 of the EA (Volume 1) and reaffirmed in Section 7.1 of the Non-Aboriginal Heritage Impact Assessment of the EA (Appendix L), a total of nine sites were identified as having a potential to be impacted by the Project. Of these, six sites were assessed as being within the Mine Extension Areas or Edderton Road realignment Options (one of which was a new site identified by the recent survey). Three items identified outside of the EA Boundary (including two which are listed on the State Heritage Register) were assessed as potentially being impacted by blasting activities associated with the Project utilising current practices.

2.4.2 Comment 2

Accordingly, the Heritage Branch has the following comments regarding the project EA:

- 1. The mitigation proposed by the Proponent in the Statement of Commitments for Non-Aboriginal Heritage affected by the proposal is not considered sufficient for the level of disturbance these items will be subject to. Belmont Homestead complex (which includes the homestead, garage meat house, tack store, shearing sheds and shearer's quarters) has been assessed as showing the importance of pastoralism in the early twentieth century and is scheduled for demolition. Edderton Homestead Complex, Edderton Catena site, Mills Cottage, the 'Ruins' site are scheduled for demolition if they are considered to be structurally unstable following subsidence impacts from the works. The Hospital Building and Beer Homestead are to be relocated 'to an appropriate location' prior to works commencing.*

Response

The author disagrees with some aspects of the Heritage Branch's comments above and has sought to clarify this matter further below.

As described in Section 8.8.3 of the EA (Volume 1) and reaffirmed in Section 7.1 of the Non-Aboriginal Heritage Impact Assessment (Appendix L), only the Belmont Homestead Complex and Beer Homestead Slab Hut are proposed to be directly impacted by the Project. The EA (specifically Statement of Commitment No 20) provides mitigation measures for these sites and commits Mt Arthur Coal to undertaking archival recordings of the Belmont Homestead Complex and Beer Homestead slab hut prior to any disturbance or relocation of these sites. The Mt Arthur Coal Consolidation Project is seeking approval for the disturbance of these two sites only.

In regard to the other heritage sites referred to above by The Heritage Branch (i.e. Edderton Homestead Complex, Edderton Catena Site, Mills Cottage, the 'Ruins' site and the Hospital Building), these sites will not be impacted by the Project and no Planning Approval is sought as part of the Project for their disturbance. Rather, these sites were assessed to be impacted by subsidence caused by the Mt Arthur Underground Project and will be managed in accordance with the conditions provided in Project Approval (PA) 06_0091 in this regard.

2.4.3 Comment 3

The Heritage Branch considers that in addition to the undertaking to archivally record Belmont and Beer Homesteads, the Statement of Commitments should also contain a commitment to:

- a. *Complete archival recordings of all items scheduled for demolition or potential demolition prior to the works beginning;*
- b. *Engage in discussions with the Heritage Branch, Department of Planning prior to any decision on where to relocate Beer Homestead and the Hospital Building;*
- c. *An agreement by the Proponent to undertake a landscape study to identify the best location to relocate the Hospital building and Beer Homestead;*
- d. *An architectural report to determine the most sympathetic way to deconstruct and reconstruct these two buildings; and*
- e. *A commitment to undertake any necessary archaeological mitigation works associated with the demolition of any identified historic sites.*

Response

The author disagrees with some aspects of the Heritage Branch's comments above and has sought to clarify this matter further below.

As described in Section 8.8.3 of the EA (Volume 1) and reaffirmed by Statement of Commitment No 20, Mt Arthur Coal will undertake archival recordings of the Belmont Homestead Complex and Beer Homestead slab hut prior to any disturbance or relocation of these sites. As discussed above, all other heritage sites (Edderton Homestead Complex, Edderton Catena Site, Mills Cottage, the 'Ruins' site and the Hospital Building) will be managed in accordance with the conditions of approval for the Mt Arthur Underground (PA 06_0091).

As described in Section 8.8.3 of the EA (Volume 1), Mt Arthur Coal will revise the Non-Aboriginal Heritage Management Plan, in consultation with the Heritage Branch. This will include engaging in early and ongoing discussions with the Heritage Branch on where to relocate the Beer Homestead. The Belmont Homestead is proposed to be demolished as part of the Project. It should be reiterated that the Beer Homestead slab hut has been previously been relocated and is not in its original setting, thereby affecting its heritage significance. In light of this, a separate Landscape Study and Architectural Report are not considered necessary.

The Hospital Building is not proposed to be impacted by this Project and its relocation will be managed in accordance with the conditions of approval for the Mt Arthur Underground (PA 06_0091).

Mt Arthur Coal will scope the appropriate archaeological mitigation works associated with the demolition of the Belmont Homestead Complex as part of the Non-Aboriginal Heritage Management Plan. A revised set of Statement of Commitments is therefore not required.

2.4.4 Comment 4

2. *In addition, vibrations from the expanded mining operations have the potential to affect five heritage items situated outside the project boundary – Edinglassie Homestead and Rous Lench Homestead (both on the State Heritage Register and owned by Mt Arthur Coal), Bengalla Homestead and Overdene Homestead (owned by Bengalla Mining Company) and [REDACTED] Homestead (in private ownership). A vibration impact assessment has indicated that these should not be negatively impacted if the vibrations are kept below 10 mm/sec and blast overpressure below 133 dBA. The proponent has undertaken in the EA (Section 8.8.3) to manage the vibration impacts from blasting at Edinglassie and Rous Lench via new management policies in revised Heritage Management Plans for both, however, this undertaking does not form part of the Statement of Commitments for the Project. The Heritage Branch requests that this undertaking be incorporated into the Proponents Statement of Commitments for the project.*

Response

Section 8.3.3 of the EA (Volume 1) (Blasting Assessment) provides a combination of the practical management measures to be implemented as required to ensure blast predictions are met at historic homesteads and at private receivers. The EA notes that “blasting at the Mt Arthur Coal Complex will continue to be operated in accordance with the Mt Arthur Coal EMS including the Blasting Vibration Management Plan which will be revised to incorporate the Project and the additional mitigation measures proposed.” All commitments provided in the EA will be implemented by Mt Arthur Coal and are enforced in the Project Approval.

This is further supported by Statement of Commitment No 7 which states that “Mt Arthur Coal will manage its blasting practices such that the Edinglassie and Rous Lench historic company owned homesteads will not incur blast vibration levels above 10 mm/sec and blast overpressure levels above 133 dBA in the absence of further research and consultation with NSW Heritage. Recommended DECCW guidelines, existing at the time of approval; will be met at all privately owned receivers in the absence of a written agreement facilitating higher levels.”

2.4.5 Comment 5

3. *Furthermore, Heritage Branch considers that it should be overtly specified in the Statement of Commitments that these revisions to manage the vibration impacts should be undertaken by a qualified heritage architect in consultation with a structural engineer.*

Response

The blasting criteria proposed in the EA (Section 8.3 of Volume 1 and Appendix H) were identified by Bill Jordan and Associates who are structural engineers which specialise in the conservation of historical structures. The blasting criteria were developed via detailed monitoring and analysis and structural inspections of Edinglassie and Rous Lench Homesteads.

As noted in Table 26 presented in Section 8.3.2 of the EA (Volume 1), any variation to the blasting criterion proposed for Edinglassie and Rous Lench heritage sites will be subject to further research and future discussion with the Heritage Branch. All commitments provided in the EA will be implemented by Mt Arthur Coal and are enforced in the Project Approval. An individual Statement of Commitment is therefore not required.

2.4.6 Comment 6

4. *The Heritage Branch would like it noted that the SHR listed sites of Edinglassie and Rous Lench Homestead are not covered under the Part 3a Approval as they are outside the project boundary and therefore, any impacts (including vibration) to the items will need to be managed in accordance with the NSW Heritage Act.*

Response

Noted. Mt Arthur Coal is committed to managing its blasting operations to meet the proposed criteria at Edinglassie and Rous Lench Homesteads and implement practical management measures to ensure predictions are met at historic homesteads and at private receivers. No impacts on these sites are therefore anticipated. Mt Arthur Coal will continue to comply with the NSW *Heritage Act 1977* in this regard.

2.4.7 Comment 7

5. *It is also noted that the proposed Edderton Road realignment has the potential to impact on the identified Farm and Farmhouse at 550 Edderton Road, a Windmill, tank-stand and trough and a fence & yards, but that these impacts can be managed via in built flexibilities in the final road design. The Heritage Branch requests that this be stated within the project Statement of Commitments.*

Response

As described in Section 8.8.3 of the EA (Volume 1), Mt Arthur Coal will ensure the Fence and Yards site, Farm and Farmhouse site and 'Ruins' site are not disturbed by the relocation of Edderton Road. All commitments provided in the EA will be implemented by Mt Arthur Coal and are enforced in the Project Approval. An individual Statement of Commitment is therefore not required.

2.4.8 Comment 8

6. *In addition to the above comments which relate to the impacts the works will have on heritage items in and around the project area, the following comments relate to the 'Non-Aboriginal' Heritage Impact Assessment' dated August 2009, which formed part of the Appendices for the EA (Appendix L). It is the consideration of the Heritage Branch that this report contained a number of small inaccuracies which should be rectified in any future reports on this project. These are:*
- The Heritage Branch is continuously referred to as 'Heritage Office'. The correct reference is 'The Heritage Branch, Department of Planning'.*
 - In table 1, the author uses terms such as 'low local' or 'high local'. These terms are erroneous. The degree of significance relates to the assessment of individual elements of the item which are then synthesised into an overall level-local or State.*
 - In Table 1, the author lists the Significance of Edinglassie Homestead and Rous Lench Homesteads as being of 'High Local' next to their listings on the State Heritage Register. The fact that these two items are listed on the State Heritage Register means they are of significance to the state of NSW and their level of significance should be properly recognised as being 'State significance' in this report.*
 - The report quotes outdated sections of the Heritage Act which were amended in September 2008 (Section 3.1.2) as still being in force.*

The Heritage Branch would be happy to review the amended EA once these changes have been incorporated.

Response

Noted. Due to the reasons outlined in the responses above, an amended EA or revised Statement of Commitments is not considered necessary.

2.5 ROADS & TRAFFIC AUTHORITY

The RTA has reviewed the information provided and has no objections in principle to the Project Application subject to following matters being included in the conditions of consent:

2.5.1 Comment 1

Intersection Upgrades

- *The Traffic and Transport Assessment report has recommended upgrading the intersections of Denman Road / Thomas Mitchell Drive and New England Highway / Thomas Mitchell Drive to full seagull type intersections. However, it is considered that inadequate information has been provided with regards to the constructability of the proposed improvements. While the RTA agrees that these two intersections are required to be upgraded as a direct result of the proposed development, further detail is needed to demonstrate that it is practical to provide seagull intersections at these locations. Accordingly, concept design plans of the proposed works showing both horizontal and vertical alignments shall be prepared in accordance with the RTAs Road Design Guide and submitted to the RTA for further review. The RTA advises that it cannot give its concurrence to the proposed intersection upgrades until the information requested above has been completed to RTA satisfaction.*

Response

The SIDRA analysis of the existing Denman Road / Thomas Mitchell Drive and New England Highway / Thomas Mitchell Drive intersections undertaken as part of the EA indicated that both intersections will be operating 'at capacity' / 'unsatisfactory' by 2019 with the additional traffic predicted to be generated by the Project.

However, it should be reiterated that without the Project, the New England Highway / Thomas Mitchell Drive intersection would be operating as 'unsatisfactory' in 2011 (i.e. the inadequacy of the intersections at the either end of Thomas Mitchell Drive are not solely the direct result of the Project). For this reason it is not considered reasonable that the sole responsibility for designing and upgrading the intersections at either end of Thomas Mitchell Drive should become Mt Arthur Coal's sole responsibility. Mt Arthur Coal has committed to consulting with the MSC and RTA regarding over the potential upgrade of these intersections and "will contribute to the upgrading of the intersections at either end of Thomas Mitchell Drive, commensurate with the impacts of the Project (when impacts are anticipated) and as agreed between MSC, RTA and Mt Arthur Coal" (Statement of Commitment No 10 of the EA (Volume 1)).

In regard to the constructability of any proposed improvements, this needs to be considered by the RTA in consultation with MSC and Mt Arthur Coal (in relation to its cost contribution) when any proposal for improvement works are put forward.

2.5.2 Comments 2 to 4

- *The design of the proposed Edderton Road alignment and subsequent relocation and reconstruction of the Denman Road and / Edderton Road intersection shall be undertaken by the applicant in consultation with the RTA and the Muswellbrook Shire Council and in compliance with the RTAs Road Design Guide and relevant standards. The intersection shall be designed to allow through vehicles on Denman Road to pass the vehicles waiting to turn right into Edderton Road to RTA satisfaction.*
- *The location of the proposed Denman Road / Edderton Road intersection shall provide Safe Intersection Sight distance in both directions in compliance with the RTAs Road Design Guide for the prevailing speed limit.*
- *Advance directional, intersection warning signage shall be provided in accordance with RTA and Council requirements and subject to approval from Council's Local Traffic Committee.*

Response

As described in Section 4.2 of the Traffic and Transport Impact Assessment for the EA (Appendix R), the design of the proposed Edderton Road realignment and subsequent relocation and reconstruction of the Denman Road / Edderton Road intersection, will be undertaken in consultation with the RTA and the MSC. All design and construction work associated with the realignment (including installation of advance directional, intersection warning signage) will be undertaken by Mt Arthur Coal in accordance with the RTA Road Design Guide and other applicable design guidelines and standards.

2.5.3 Comments 5, 6 & 7

Works Authorisation Deed

- *The developer will be required to enter into a Works Authorisation Deed (WAD) with the RTA. In this regard the developer is required to submit detailed design plans and all relevant additional information, as may be required in the RTAs Works Authorisation Deed documentation, for each specific change to state road network for the RTAs assessment and final decision concerning the work.*
Comment: It should be noted that the conditions of consent set by Department of Planning do not guarantee the RTAs final consent to the specific road work, traffic control facilities and other structures works on the classified road network. The RTA must provide a final consent for each specific change to the state road network prior to the commencement of any work.
- *The WAD shall be executed prior to the issuance of a construction certificate.*
- *All road works must be completed prior to any occupation certificate being granted. The WAD process, including acceptance of road design documentation and construction, can take a considerable amount of time. The developer should be aware of this and factor in sufficient time within the project to accommodate this process. It is therefore suggested that the developer work through the process as soon as possible.*

Response

Mt Arthur Coal will submit detailed design plans for the relocation of Edderton Road, along with all other relevant additional information as required by RTA guidelines to obtain a Works Authorisation Deed prior to issuance of a construction certificate. Mt Arthur Coal notes the time requirements for obtaining a WAD and a construction certificate and will commence this process at the appropriate time following Project Approval being granted.

2.5.4 Comment 8

Other Requirements

The Road Safety Audit undertaken by the applicant on Thomas Mitchell Drive recommends a reduction in the speed limit from 100km/h to 80km/h. Reducing the speed limit for a short section of road to address deficiencies is not supported. Consideration should be given to upgrade the relevant section of Thomas Mitchell Drive to address any deficiencies. As Thomas Mitchell Drive is a local Road the applicant should liaise with Muswellbrook Council to resolve the matter.

Response

As described in Section 2.8.5 of the Traffic and Transport Impact Assessment for the EA (Appendix R), the Project Approval conditions for the Mt Arthur Coal South Pit Extension required that a night-time road safety audit be undertaken for the Denman Road / Thomas Mitchell Drive intersection and the New England Highway / Thomas Mitchell Drive intersection. The necessary inspections were undertaken in October and November 2008 and the findings were documented in the Mt Arthur Coal Mine Thomas Mitchell Drive Road Safety Audit (January 2009) prepared by Northern Transport Planning and Engineering on behalf of Mt Arthur Coal.

The audit recommended that the speed limit on Thomas Mitchell drive on the western approach to the New England Highway intersection, should be reduced from 100 kph to 80 kph, and that advance direction and intersection direction signposting be provided in accordance with contemporary RTA standards. The responsibility for such work lies with the RTA and MSC. A copy of the report was provided to RTA and MSC. No further action is required or warranted from Mt Arthur Coal in this regard.

As described in Statement of Commitment No 11 of the EA (Volume 1), Mt Arthur Coal "will contribute to MSC \$400,000 per annum for four years (totalling a maximum contribution of \$1,600,000) to the upgrading of Thomas Mitchell Drive and an additional annual contribution of \$64,000 for the life of the consent (a maximum of 21 years)." The funding from this significant contribution will be available to undertake road upgrade works as deemed necessary by MSC & RTA.

2.5.5 Comment 9

All works associated with the proposed development shall be at no cost to the RTA.

Response

The author disagrees with RTAs comment above and has sought to clarify this matter further below.

As described in Statement of Commitment No 10 of the EA (Volume 1), "Mt Arthur Coal will contribute to the upgrading of the intersections at either end of Thomas Mitchell Drive, commensurate with the impacts of the Project (when impacts are anticipated) and as agreed between MSC, RTA and Mt Arthur Coal." Discussions will be held with all relevant parties, including the RTA, in regard to payment proportions.

It should be reiterated that without the Project, the New England Highway / Thomas Mitchell Drive intersection would be operating as 'unsatisfactory' and therefore the full cost of upgrading this intersection is not entirely Project related.

As described in Statement of Commitment No 11 of the EA (Volume 1), Mt Arthur Coal “will contribute to MSC \$400,000 per annum for four years (totalling a maximum contribution of \$1,600,000) to the upgrading of Thomas Mitchell Drive and an additional annual contribution of \$64,000 for the life of the consent for the same (a maximum of 21 years).” It is envisaged that these monies will be used to make additional improvements and ensure a high standard of maintenance of Thomas Mitchell Drive.

Beyond the above, as described in Section 4.8 and 8.17.3 of the EA (Volume 1), Mt Arthur Coal will realign the northern portion of Edderton Road, which will be undertaken consultation with the RTA and MSC.

2.5.6 Comment 10

On the Minister's determination of this matter, it would be appreciated if a copy of the development consent were forwarded to the RTA for record purposes.

Response

Noted. The Project Approval will be publicly available on the Department of Planning's website.

2.6 ENERGY AUSTRALIA

2.6.1 Comment 1

Energy Australia has sub-transmission and distribution power lines adjacent to the mining operation. It is proposed to relocate the 11kV distribution feeder supplying the communication facilities on Mt Arthur to a route adjoining Consolidation Extension Area 2. Because the mining area is moving closer to the powerlines, the blasting management plan should take into account the potential impact of blasting on the powerlines.

Energy Australia has an 11kV distribution feeder along Edderton Road. Relocation of Edderton Rd will also require relocation of this powerline.

Response

As described in Section 8.3.3 of the EA (Volume 1), consistent with current practices at Mt Arthur Coal, consultation will be undertaken with the relevant service providers (including Energy Australia) where blasting has the potential to impact their infrastructure. The Blast and Vibration Management Plan will be revised to incorporate the Project including any potential blasting impacts and required management measures on Energy Australia's powerlines.

Further, Mt Arthur Coal will consult with Energy Australia at the appropriate time in regard to relocating the powerline along Edderton Road.

2.7 MUSWELLBROOK SHIRE COUNCIL

2.7.1 Comment 1

I wish to advise that Council at its meeting held on 21st December 2009 resolved that the following consolidated conditions be confirmed as Council's submission to the Department of Planning in relation to the Mt Arthur Coal Consolidation Project:

- a. Council makes no submission with respect to that part of the application which relates to the realignment of Edderton Road noting that Council will ultimately be the consent authority in respect of that matter;*
- b. Council does not support the use of previously mined or disturbed land as proposed offset areas and submits that offset areas be acquired from existing virgin or green field sites;*
- c. With respect to the balance of the application, Council gives its support to the application submitted by Hunter Valley Energy Coal which seeks approval to consolidate current open cut planning approvals into one contemporary Project approval and to increase approved production levels by 8 million tonnes per annum up to 36 million tonnes per annum run of mine coal subject to the inclusion of the following conditions and advice issues in the determination provided by the Minister for Planning regarding this Project;*
- d. The Project is undertaken in accordance with the Environmental Assessment (EA) for the Mount Arthur Coal Consolidation Project as prepared by Hansen and Bailey dated November 2009.*

Response

Noted. As discussed in Section 4.8 of the EA (Volume 1), the Project includes the realignment of the northern part of Edderton Road in approximately 2019. The two proposed Edderton Road realignment options for Project Approval are shown in the EA and include realignment of both a portion of the Edderton Road and relocation of the Denman Road / Edderton Road intersection.

As discussed in Section 5.1.8 of the EA (Volume 1), Section 75V of the EP&A Act provides "an authorisation of the following kind cannot be refused if it is necessary for carrying out of an approved project and is to be substantially consistent with the approval under this part..." The authorisations referenced include an approval under Section 138 of the *Roads Act 1993*. An approval under Section 138 of the *Roads Act 1993* will be sought from MSC prior to the realignment and upgrade of Edderton Road, as discussed in Section 8.17 of the EA (Volume 1).

The Proposed Offset Areas for the Project total 1,217 ha in size and includes 495 ha of the Thomas Mitchell Drive Offset Area, 222 ha of the Onsite Offset Area and 500 ha of Proposed Regenerate Woodland. Both the Thomas Mitchell Drive Offset Area and Onsite Offset Area are remnant woodland.

2.7.2 Comment 2

2. Heritage

Prior to any disturbance of the site, the Applicant shall comply with the appropriate requirements regarding works affecting identified Aboriginal sites.

Heritage items as listed in Appendix L of the EA are to be preserved and all significant buildings are to be fully maintained in accordance with the requirements of the Heritage Office of NSW.

The Heritage Office of NSW shall be consulted regarding the need for archaeological surveys of the proposed sites targeted for destruction as identified in the EA for artefact retrieval and storage.

Response

As described in Section 8.7.3 of the EA (Volume 1) and reaffirmed in Statement of Commitment No 19, 'the salvage and the protection of any remaining Aboriginal objects within the EA Boundary will continue to be managed in accordance with a revised Aboriginal Archaeology & Cultural Heritage Management Plan in consultation with the local Aboriginal community and DECCW.' The collection of high significance surface sites will be carried out before all sites are to be disturbed by the Project in consultation with the Aboriginal community.

As described in Section 8.8.3 of the EA (Volume 1) and reaffirmed by Statement of Commitment No 20, Mt Arthur Coal will undertake archival recordings of the Belmont Homestead Complex and Beer Homestead slab hut prior to any disturbance or relocation of these sites. As discussed above, all other heritage sites (Edderton Homestead Complex, Edderton Catena Site, Mills Cottage, the 'Ruins' site and the Hospital Building) will be managed in accordance with the conditions of approval for the Mt Arthur Underground (PA 06_0091).

Mt Arthur Coal will revise the Non-Aboriginal Heritage Management Plan for the Project, in consultation with the Heritage Branch.

2.7.3 Comment 3

3. Landform and Landscaping

The final landform shall not exceed 320 metres AHD, be consistent with natural landforms in shape and contours to those in the adjoining rural areas and not exceed mining landforms of adjacent operations in height.

Rehabilitation of mining and overburden emplacement areas is to be progressively undertaken on an ongoing basis. All stockpiled material is to be appropriately seeded and grassed within 3 months of being stockpiled.

Maintenance, including grass cutting and the provision of appropriate stormwater drainage along the Denman Road and Edderton Road reserves, is to be undertaken on all road reserves which have frontage to the site operations.

The applicant is to construct and maintain a fence in the style of a horse stud fence for the extent of their landholdings along Denman Road.

Response

The author disagrees with some aspects of MSCs comment above and has sought to clarify this matter further below.

As described in Section 4.1 of the EA (Volume 1), the existing overburden emplacement area will be increased to an average upper height of approximately RL 360 m, whilst two additional crests up to height of approximately RL 375 m have been incorporated on the overburden emplacement area for visual amenity and to be consistent with natural landforms in height, shape and contours. The additional height of the overburden emplacement area as proposed in the EA compared to the lower height proposed by Council, does not give rise to any adverse visual effect of the Project.

The height of the overburden emplacement area has been calculated according to the volume of overburden requiring removal as part of the Project, whilst aiming to minimise the amount of land disturbed. Reducing the height of the overburden emplacement areas would result in insufficient overburden emplacement area, and a new mine plan would need to be developed. This is therefore not considered reasonable.

The rehabilitation of land disturbance associated with the Mine Extension Areas will continue to occur progressively as an integral component of the mining operations at the Mt Arthur Coal Complex. The rehabilitation of the site will continue to be undertaken generally in accordance with the Mt Arthur Coal EMS and its associated management documents, which will be revised for the Project, as appropriate (see Section 8.15.4 of the EA (Volume 1)).

As noted in Section 8.9.3 of the EA (Volume 1), the catchment area of Whites and Fairford Creeks has been and will continue to be reduced as a result of Project-related open cut development to the west. As a result of catchment area reductions, flows and local flooding in these creeks will likewise be reduced. Flood bund protection will be installed between Denman Road and the EA Boundary in the areas where topography is less than the 1955 peak flood level in the Hunter River plus 0.5 m freeboard. The installation of this flood bund will alleviate any flood or drainage impacts. The management of stormwater drainage from property not owned by Mt Arthur Coal is not the responsibility of Mt Arthur Coal to manage.

Mt Arthur Coal will continue to maintain its own land holdings within and surrounding the Mining Leases and ensure appropriate fencing for security purposes and drainage is implemented around the mine. The maintenance of road reserves is a responsibility of MSC and should be funded through the substantial local land rates which Mt Arthur Coal pay directly to MSC. In view of this, Mt Arthur Coal does not consider it reasonable to commit to maintaining the Denman Road and Edderton Road reserves or constructing and maintaining a fence on the style of a horse stud fence for the extent of their landholdings.

2.7.4 Comment 4

4. Existing Consent Conditions

With the transfer of those conditions which apply to current operations to the new Project, the stricter conditions and/or limits will be applied.

Response

Mt Arthur Coal has and will continue to work with DoP to identify all existing conditions which would be appropriate to consolidate as part of the Project.

2.7.5 Comment 5

5. Agricultural Productivity

The agricultural productivity of all undisturbed mining land is to be maintained.

Land acquired by the operation through owner initiated acquisition shall be maintained in a condition which allows for the ongoing agricultural productivity potential of the land prior to acquisition.

Response

All available undisturbed agricultural land owned by Mt Arthur Coal or land acquired through owner initiated acquisition is leased to experienced local farmers and graziers, who manage the land in accordance with sound agricultural practices. This practice will continue throughout the Project. No land to be acquired as a result of the zone of affectation of the Project is proposed to be developed as part of the Project and therefore placing constraints on the land as suggested by MSC is not appropriate.

2.7.6 Comment 6

6. Offset areas

The re-establishment of the 500 hectares white box woodlands area (referred to in item 14 of the Statement of Commitments) is to be clearly identified in the MOP for the Project.

Response

Noted. As discussed in Statement of Commitment No 14, the mine rehabilitation program will focus on the re-establishment of 500 ha White Box Yellow Box Blakely's Red Gum Woodland.

This will be detailed in the Rehabilitation and Landscape Management Plan to be prepared for the Project (Statement of Commitment No 3) and the Mining Operations Plan, as required.

2.7.7 Comment 7

7. Acquisition and protection of properties.

Properties are to be listed for acquisition where those properties are affected by established dust exceedances for periods of more than five days in any 12 months period.

Predicted noise levels (tables 22 to 25 in Section 8 and item 6 Statement of Commitments) are considered to be excessive in terms of future residential development, particularly in the South Muswellbrook area and appropriate noise mitigation measures are to be provided by the Applicant to respond to these impacts.

The Industrial Noise Policy is to be applied to all noise level assessments both within and without the site operations.

Response

The author disagrees with some aspects of the MSCs comment above and has sought to clarify this matter further below.

Section 8.2.1 of the EA (Volume 1) provides the results from the air quality dispersion modelling undertaken for the Project. The results indicate that the Project considered alone and with other sources is predicted to contribute to exceedances of the applicable air quality criteria at a number of private receivers. These results include properties which are predicted to experience an exceedance of the 24 hour PM₁₀ goal for periods of more than five days in any 12 month period.

The Noise Impact Assessment completed for the Project was undertaken in accordance with the INP. A review of the background operational noise criteria was completed with seven zones identified (Zones A to Zone G) and incorporated into the model. The background operational noise criterion was developed in consultation with DECCW whom have accepted this methodology as reasonable (see response in **Section 2.1.10** above).

A summary of the predicted modelled noise levels during night conditions for the Project at representative receivers is presented in Section 8.2.2 of the EA (Volume 1). Exceedances of the intrusive night noise criteria at receivers under a night time worst case modelling scenario for all operational years modelled are also shown. No exceedances of the relevant intrusive noise criteria (35 dBA) are predicted in South Muswellbrook (noise assessment Zone C) (see Section 8.2.2 of the EA (Volume 1) and therefore, predicted noise levels are considered reasonable and acceptable.

Section 8.2.3 of the EA (Volume 1) describes the noise mitigation measures to be implemented for the Project, including the South Muswellbrook area. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

2.7.8 Comment 8

8. Contributions for Environmental Assessment

The Applicant shall pay to Council \$20,000 CPI indexed pa for ongoing Environmental Assessment for the life of the project.

Response

A mutual Voluntary Planning Agreement is currently being negotiated with MSC to address the social amenity and community infrastructure and resourcing requirements arising from the additional impacts caused by the Project. Mt Arthur Coal review and report on its environmental impacts annually in the AMER, which includes a comparison against predicted and actual impacts. No additional environmental assessments will be required and therefore this additional payment is not warranted.

2.7.9 Comment 9

9. Air Quality Monitoring

Twenty-four hour seven day real time monitoring is to be utilised and available for public information.

Air quality monitoring shall comply with NEPM guidelines as developed from time to time.

The assessment of dust particulates of PM_{2.5} against applicable health standards and/or prevailing scientific opinions is to be included in the monitoring program

Where the operation's activities can be determined to have contributed to air shed dust concentrations which are above the relevant criteria off site, the operation shall provide information on how dust suppression measures have been implemented at that time.

Response

The author disagrees with some aspects of MSCs comment above and has sought to clarify this matter further below.

Mt Arthur Coal's Environmental Monitoring Program currently includes real-time continuous dust monitors, High Volume Air Samplers (HVAS) PM₁₀, and depositional dust gauges. As described in Section 8.3.1 of the EA, Mt Arthur Coal will undertake a review of the existing air quality monitoring program and revise as appropriate. Mt Arthur Coal publicly reports monitoring results and performance as part of the AEMR, with quarterly monitoring results also available on its website. In view of this, additional mechanisms for publicly reporting monitoring data are not considered necessary.

Current dust minimisation practices onsite will be continued and enhanced to ensure that the limits predicted in the EA (consistent with the NEPM guidelines) are met at private receivers. Mt Arthur Coal will review the existing Air Quality Management Plan (AQMP) for the site to incorporate the practical management measures listed in the EA which may be implemented as required to ensure these predictions are met at private receivers.

The Air Quality Impact Assessment (Appendix F) has been completed in accordance with DECCWs 'Approved Methods for the assessment of air pollution sources using dispersion models' (Approved Methods) and the Director-Generals EARS. The advisory reporting PM_{2.5} standards are not part of the DECCW assessment criteria and as such there is no requirement to assess this parameter.

Mt Arthur Coal, as part of the broader coal industry in the Upper Hunter Valley, is currently working with and supporting DECCW in establishing a regional air quality monitoring program and data analysis. Mt Arthur Coal will continue to support this initiative as a signatory.

Mt Arthur Coal currently has an alarming system that notifies relevant site personnel of potential high dust events so that proactive actions can be implemented. Information on dust suppression could be provided upon request.

2.7.10 Comment 10

10. Water Quality and Maintenance of Supply

The current quality and quantity of bore water (as identified in Section 8 of the EA and item 9 of the Statement of Commitments) within the identified catchment area is to be maintained by the Applicant. The Applicant is to provide a suitable alternate water supply in the event of an interruption, deterioration or reduction of water quantity or quality to the existing supply.

Response

Noted. As reflected in Statement of Commitment No 9 of the EA (Volume 1), Mt Arthur Coal will undertake a census of privately owned groundwater bores to ascertain their current usage and provide a baseline against which to compare any future impacts. In the event of interruption to water supply resulting from the Project, an alternative water supply will be provided, until such interruption ceases.

2.7.11 Comment 11

11. Availability of Results and Reports to the General Public

The Applicant shall provide regular and ongoing access for Council and the general community to the results of mine operations reporting as required under the AEMR (item 22 of the Statement of Commitments).

Response

Noted. Statement of Commitment No 22 provides that 'Mt Arthur Coal will prepare a consolidated AEMR (which summarises monitoring results and reviews performance) for the Mt Arthur Coal Complex and distribute it to the relevant regulatory departments.'

2.7.12 Comment 12

12. Infrastructure

Rail - the Applicant shall undertake an appropriate study regarding the increase in rail traffic movement through the Shire, the affects of such increase on existing mine related operations and the viability of the existing passenger rail system and access and safety issues to existing properties within the rail corridor. This is particularly relevant to the Antiene rail corridor and to those properties which are directly affected within this corridor.

Road network- the Applicant shall undertake an appropriate study to identify traffic generation, affects on the road usage and the upgrading and maintenance of relevant identified Shire roads for the life of the Project.

Response

As described in Section 4.4 of the EA (Volume 1), a total of 24 rail movements per day have previously been assessed and approved from the Mt Arthur Coal Complex (note: each train entering and exiting the Rail Loading Facility is classified as two train movements). The Project will not exceed the currently approved rail movements in any one day.

As there will be no increase in the already approved daily train numbers on the rail network (i.e. 24 rail movements per day), there will be no increase in noise levels compared with those previously assessed and approved. This approach was developed in consultation with DECCW who have accepted this methodology as reasonable (see response in **Section 2.1.10** above).

As described in Section 4.4 of the EA (Volume 1) and Statement of Commitment No 12, Mt Arthur Coal will continue to work with Anglo Coal (Drayton), MSC and Macquarie Generation to address the current access situation for receivers in the Antiene area which may potentially be affected by trains blocking the Antiene Railway Station Road level crossing.

Section 8.17 (Volume 1) and Appendix R of the EA present the results of the Traffic Impact Assessment undertaken for the Project in accordance with the NSW Road and Traffic Authority's (RTA) *Guide to Traffic Generating Developments* (2002). This study identifies predicted traffic volumes for the Project and any necessary mitigation and management measures. In this regard, Statement of Commitment No 10 provides that 'Mt Arthur Coal will contribute to the upgrading of the intersections at either end of Thomas Mitchell Drive, commensurate with the impacts of the Project (when impacts are anticipated) and as agreed between MSC, RTA and Mt Arthur Coal'.

In addition, Mt Arthur Coal has been negotiating a VPA with MSC for the Project which includes contributions for upgrading and maintenance of specific local roads impacted by the Project.

No additional road or rail traffic impact assessments are therefore required.

2.7.13 Comment 13

13. *Contributions and Voluntary Planning Agreement*

The Applicant shall enter into a voluntary planning agreement for a contribution to Council for specified Community Enhancement works which includes road upgrading and maintenance and environmental promotion and education (refer to item 21 of the Statement of Commitments) for the life of the consent.

Response

A mutual Voluntary Planning Agreement is currently being negotiated with MSC to address the social amenity and community infrastructure requirements arising from the additional impacts caused by the Project.

2.7.14 Comment 14

14. *Council encourages the Department of Planning to co-ordinate with other Government Agencies a cumulative impact study to deal with the effect of mining on the community and more particularly:*

- *Health and health services;*
- *Industrial diversity;*
- *Loss of woodland connectivity;*
- *Rail movements (noise, vibration and loss of passenger services);*

- *The labour market and prices;*
- *Social and child care facilities;*
- *Housing;*
- *Local roads and other Infrastructure;*
- *Fatigue and travel times;*
- *Education; and*
- *Greenhouse emissions.*

Response

Noted. Appropriate cumulative impact assessments were included in the EA, in accordance with the EARs. This included cumulative air quality, noise, visual, water, social, economics and traffic and transport assessments (see sections 8.1, 8.2, 8.4, 8.9, 8.10, 8.11, 8.12 and 8.17 of the EA, respectively).

2.7.15 Comment 15

15. *The Applicant is to identify the effects in loss of sunlight as a result of the construction of bund walls and other land forms within the mine site.*

Response

Pegasus Technical completed an assessment of the loss of sunlight due to the Project on neighbouring residential estates, including the Racecourse Road area and the recently approved Ironbark Ridge Estate.

The assessment concluded that an average of 64 seconds per day of direct sunlight may be impacted by the increase in overburden height due to Project at Ironbark Ridge Estate. No impacts were predicted at Racecourse Road. It needs to be appreciated that any naturally occurring cloud cover during this period would further reduce the impact of the Project. Therefore, the identified impacts are considered immaterial and no further mitigation is required.

2.7.16 Comment 16

16. *The applicant indenture at least 12 first year apprentices per year for the life of the project. Such apprentices sourced from within the Shire of Muswellbrook.*

Response

Mt Arthur Coal has been operational since 1966 (the commencement of Bayswater No 2) and during this time has developed and will continue to utilise a local recruitment policy that aims to maximise employment in the local area. The training of local apprentices or trainees is an integral component to this policy. Mt Arthur Coal currently employ four local first year apprentices.

As part of the Project, Mt Arthur Coal intends to continue its local recruitment policy to hire according to the predicted production and economic climate. Where possible, Mt Arthur Coal will provide additional apprenticeship and traineeship programs and engage with MSC in this regard, however it would be inappropriate to commit to fixed numbers of apprentices each year.

2.7.17 Comment 17

17. *In the absence of any external mechanism to place a market price on the emission of Greenhouse Gases it is recommended that the applicant make an appropriate contribution to compensate for the emission of such Greenhouse Gases.*

Response

As discussed in Section 8.1.3 of the EA (Volume 1) and reaffirmed in Statement of Commitment No 5, 'Mt Arthur Coal will undertake regular reviews and monitoring of greenhouse gas emissions and energy efficiency initiatives to ensure that greenhouse gas emissions per tonne of product coal are kept to the minimum practicable level.'

As a member of the coal industry, Mt Arthur Coal have already committed to a voluntary contribution of \$0.20 / tonne of coal to the COAL21 Fund. The COAL21 Fund objective is to develop and demonstrate technologies that can lower greenhouse gas emissions from coal-fired power stations.

Mt Arthur Coal will continue to meet all legislative requirements in regard to monitoring and reporting greenhouse gas emissions throughout the life of the Project. Any additional requirement to make monetary contributions outside of existing processes or future legislative requirements is not considered appropriate or warranted.

2.7.18 Comment 18

18. *The applicant is to provide to Council, at Council's request, such information as the Council reasonably requires, to complete its Annual State of Environment Reporting.*

Response

As described in Statement of Commitment No 22, 'Mt Arthur Coal will prepare a consolidated AEMR (which summarises monitoring results and reviews performance) for the Mt Arthur Coal Complex and distribute it to the relevant regulatory departments.' The AEMR will include all relevant monitoring and reporting data required by MSC for its Annual State of Environment Reporting.

2.7.19 Comment 19

19. *The Applicant shall undertake a review of threatened species as currently scheduled under State and Federal legislation or under determination with both Federal and State Scientific Committees and these species likelihood of presence in the proposed disturbed and undisturbed areas within the Project site.*

Response

Section 8.5 (Volume 1) and Appendix J of the EA present the results of the Ecological Impact Assessment undertaken for the Project in accordance with DECCW's 'Draft *Guidelines for Threatened Species Assessment under Part 3A of the EP&A Act*' and other relevant policies and guidelines. The assessment describes the ecological values within the EA Boundary in consideration of the regional context in which it lies, and assesses the impacts of the Project on flora and fauna, particularly threatened species and communities listed under the *Threatened Species and Conservation Act 1995* (TSC Act). The assessment also addresses impacts on Matters of National Environmental Significance (MNES) as listed under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act).

An additional assessment of the impact of the Project on threatened species is therefore not required.

2.7.20 Comment 20

20. *The applicant shall rehabilitate the Project site back to its original pre-mining condition with specific reference to actions contained within the adopted Synoptic Plan and the provision of commercial forests and vegetated animal movement corridors.*

Response

As noted in Section 8.15.1 of the EA (Volume 1), the overall aim of the rehabilitation program at Mt Arthur Coal is to return the post mining landscape to its pre-mining overall level of land capability, where possible consistent with the EA. Additionally, it is proposed to increase the average percentage of forest to improve the habitat value and to provide shade and shelter for stock, consistent with the Synoptic Corridor. Where possible, rehabilitation planning at Mt Arthur Coal will attempt to maximise opportunities for a diverse post-mining landscape and land-use. It is presently proposed that the final land uses of the rehabilitated site will include pastoral, commercial forestry, recreation and/or wildlife habitat opportunities.

3 NON – GOVERNMENT ORGANISATIONS

3.1 CONSTRUCTION FORESTRY MINING AND ENERGY UNION

The Construction Forestry Mining and Energy Union (CFMEU) provided a detailed submission on the Project. The submission is included in **Appendix A**.

The submission was supportive to all aspects of the EA. As such, it is not considered necessary to identify and support all of the CFMEU's comments within their submission on the EA.

The CFMEU noted the need for further greenhouse gas mitigation measures and commitments. Please refer to the response outlined in **Section 2.1.11** in this regard.

4 COMMUNITY SUBMISSIONS

4.1 DARLEY

4.1.1 Comment 1

Hunter Valley Energy Coal Pty. Ltd. (the Company) has lodged an application for project approval under Part 3A of the Environmental Planning and Assessment Act (1979). The Environmental Assessment (EA) for the project has been placed on public exhibition and submissions on this are sought. In response, Darley Australia Pty. Ltd. (Darley) provides this submission.

Background

Darley owns and operates a number of horse breeding facilities in the Hunter Valley which are a key element in the region's established and integrated thoroughbred horse industry. The capital investment in land and facilities at our two Hunter Valley properties is in the order of \$100 million, annual revenues are in excess of \$50 million, the value of our bloodstock is approximately \$400 million, we directly employ some 150 people and use a large number of local suppliers on a permanent basis.

Our two Hunter Valley properties are known as 'Kelvinside' and 'Woodlands'. The latter is located to the south of the Golden Highway, some 3.2 kilometres to the south of the Mt Arthur Project Application Area. Woodlands is a premium horse stud and also contains offices and residences, servicing approximately 94 employees and their families, with approximately 60 per cent living on site.

Darley's investments have made our facilities in the Hunter Valley world class; their peers are a select group of premium horse studs in areas like Kentucky USA, Newmarket UK, Kildare and Tipperary of Ireland, and Normandy of France. We are understandably determined to protect the capital value of our assets and to ensure a continued secure setting for investment and competitive operations. We believe that the Mt Arthur Project has the potential to adversely affect Woodlands. Of course we accept that other land uses, including mining, can be legally conducted in the surrounding area with approval, but we believe that no use should occur at the expense of another, now and over their full operational lives.

For the above reasons we expect that the environmental assessment process will be properly and professionally conducted, and that all impacts, including cumulative impacts that could affect us, both directly and indirectly, will be addressed. We need assurance that measures will be implemented to mitigate any adverse impacts, and that they are practical and effective. Further, over the life of the Mt Arthur Project, assuming it is approved, we expect that all commitments made by the proponent and conditions imposed on any consent will be fully complied with.

Response

Noted. Mt Arthur Coal has a strong desire to work with all stakeholders to address any issues of concern in a constructive manner. Mt Arthur Coal recognises that their mining operations should co-exist with other land uses in the area, and that the achievement of this outcome requires a co-operative approach to problem solving. For these reasons, Mt Arthur Coal has actively engaged with Darley to address their concerns in regard to the Project. This recently involved the preparation of an extensive response and meeting to discuss and address Darley's concerns where possible (dated 16 December 2009). Further subsequent discussions were held between Mt Arthur Coal and Darley to which Mt Arthur Coal provided further commitments in a letter dated 23 December 2009.

A copy of these responses is presented in **Appendix D** and should be referred to in conjunction with the responses outlined below.

The Environmental Assessment process for the Project has been properly and professionally conducted by independent environmental consultants, Hansen Bailey. The EA has comprehensively addressed all of the Director-Generals EARs and has assessed all potential impacts (including cumulative impacts) of the Project. The EA has also identified the required mitigation measures for the Project. These measures are all practical and achievable and have previously been proven to be effective in the mitigation of environmental and social impacts.

Mt Arthur Coal will ensure that all mitigation measures and commitments both described in the EA and additionally proposed in correspondence dated 16 December 2009 and 23 December 2009 to Darley are implemented and maintained throughout the life of the Project.

4.1.2 Comment 2

To ensure that our participation in the environmental assessment process is effective we have retained the services of Mitchell McLennan Pty Ltd, Dr Glenn Browning, Professor in Veterinary Microbiology, University of Melbourne, and legal counsel. Our advisors have examined the EA and prepared a review. It is given in Annex A and raises a number of concerns about the adequacy of the EA generally and in relation to Woodlands. Our advisors believe that in certain respects the EA fails to meet established standards of adequacy in that it does not provide sufficient (or any) information for affected parties (including Darley) to determine if they would be affected, nor for the Minister to make an adequately informed determination.

We wish to emphasise that our advisors were instructed to undertake a substantive view and not take an overly pedantic approach. The above findings should be seen in this context.

As illustrated by the correspondence between Darley and BHP during the submission period, both parties have sought to work towards mutually agreeable solutions and commitments.

Response

As discussed above, Mt Arthur Coal has actively engaged with Darley to address their concerns in regard to the Project. Please refer to **Appendix D** for further details.

4.1.3 Comment 3

Darley's Position

We reiterate that our objective is to protect the capital value of our assets at Woodlands and provide a secure environment for future investment and commercially competitive operations. We understand that other land uses, including mining, can operate in the area around Woodlands if approved, but we expect that this will only occur in a manner that does not jeopardise our assets.

In this context we request that the proponent makes a number of specific and additional commitments as part of this Project Application. Please refer to the attachments. The proponent has sought to address our concerns before 24 December however it did not provide sufficient legal comfort for Darley not to maintain objects principally in the following terms:

- 1. That the EA for the subject Project Application is inadequate in that it does not provide sufficient, accurate, or in certain circumstances any information about impacts that could affect Woodlands. As such it was not possible for us to judge what impacts could occur on our property nor how its future value and operations might be affected.*

Both parties sought to address this lack of information (that was not submitted in the EA for public exhibition) but were unable to reach a mutually satisfactory conclusion.

2. *That the EA does not provide the Minister with sufficient information to make a properly informed decision about the Project Application.*
3. *That the project could adversely affect the economic value of Woodlands now and in the future, and the mitigation measures proposed in the EA are not sufficient to avoid this.*

In order that these concerns can be appropriately assessed, we request that there be a review by a Planning Assessment Commission.

Response

The EA has been determined by the NSW Government through its review process to be adequate. Further, a review of correspondence received from Darley dated 4 December 2009 and a meeting with Darley and their advisors on 17 December 2009 has confirmed to us that Darley have no cause to suggest otherwise. Darley's Woodlands Stud property is approximately four kilometres from the closest extremity of the Project to the closest extremity of Darley's land holdings and will clearly not be materially impacted by it (see **Appendix D**). In good faith, Mt Arthur Coal has and will continue to work with Darley to alleviate their concerns over the Project. In this regard, Mt Arthur Coal have agreed to a number of measures to monitor and manage its impacts at Darley as outlined in correspondence provided to them dated 16 December 2009 and 23 December 2009 (see **Appendix D**). Many of these commitments are reproduced in this response below.

4.1.4 Comment 4

Undertakings Sought

We seek that the following conditions be incorporated into any approval of the proponent's Project Application. Please note, we understand there is an alternative to these that are acceptable to BHP, refer to Attachment 3.

Visual Amenity

- *Upon Project Approval, the Company will prepare draft plans to screen and filter views of the Mt Arthur Project Area from affected sections of Woodlands. The draft plans will be given to Darley's nominated representative for review. All reasonable requested amendments or additions to the draft plans will be incorporated into a final set of plans. Mt Arthur will then implement the works in the plans to ensure (subject to the next paragraph) that views from Woodlands of the Project are appropriately screened at all times, and ensure that the works are effectively maintained throughout the life of the project, all at no cost to Darley. The plans are to be prepared by a suitably qualified and experienced landscape architect.*
- *The Company will ensure that at all times the area of active workings on the faces of any overburden emplacements exposed to view from Woodlands will not exceed 2.5 % of the 'Primary View'. 'Primary View' has the meaning given in Appendix I of the Mt Arthur Consolidation Project EA.*

Response

As discussed in Section 5.6 of the Visual Impact Assessment (Appendix I of the EA) at varying locations within the southern visual assessment sector, 'the visual effect of the Project may be moderate to high until rehabilitation is completed between 2016 and 2022, when the contrast is reduced and resultant visual effect is low'.

In recognition of these impacts, Mt Arthur Coal is committed to implementing the following Statement of Commitment, as provided to Darley on 23 December 2009:

"Upon Project Approval, Mt Arthur Coal will prepare draft plans to screen and filter views of the Mt Arthur Project Area from affected sections of Woodlands. The draft plans will be prepared in consultation with Darley and submitted for approval by the Director General of the Department of Planning. Mt Arthur Coal will then implement the works in the plans to ensure that views from Woodlands of the Project are appropriately screened to the greatest extent practicable, and ensure that the works are effectively maintained throughout the life of the project, at the cost to Mt Arthur Coal. The plans are to be prepared by a suitably qualified and experienced landscape architect.

Mt Arthur Coal will minimise views from within the Primary View Zone to active overburden faces on emplacement areas of the Project to ensure the extent of any primary view is less than 2.5%, as described in Appendix 1 of the EA Report."

As the visual screening plans would require approval of DoP, it is not appropriate to require all reasonable amendments as stipulated by Darley to be included. The consultation process and the final approval by DoP would safeguard Darley's interests in this regard. The numerical extent of views in the Primary View Zone has been reworded from Darley's suggestion to reflect the approach in the visual assessment technical appendix.

4.1.5 Comment 5

Socio-economic Impacts

Darley is concerned about possible social and local economic effects from increased demand for labour, housing and community services as a result of the Consolidation Project. The key variable will be the success of the Company's training and local recruitment plans with the proportion of in-migrant labour being a good proxy for this. As such the following commitment is sought:

The Company will monitor the proportion of its additional employees ('new employees') needed for the Consolidation Project that are recruited from outside the local area (defined as Muswellbrook and Singleton Local Government Areas) and will report on this in its Annual Environmental Management Reports (AEMRs) for the Project. The company will also include the same information for other new or expanded mining projects in the local area where such information is publicly available. If there is a material exceedance of the Company's estimated 20% in-migrant proportion for these new employees, that is a 30% or above in-migrant proportion over any one calendar year, the Company will review its recruitment and training policies and identify means of improving local employment rates. The results of any such reviews and actions proposed to be undertaken will be provided to Darley and be included in the Project's AEMRs.

Response

As discussed in Section 8.12 of the EA (Volume 1) and the Stakeholder Impact Assessment and Stakeholder Engagement Program (Appendix P), population impacts are likely to be experienced in Muswellbrook, with the Project-specific peak workforce influx likely to result in approximately 746 new community members moving to Muswellbrook. The assessment found that it is unlikely that these impacts will occur concurrently and as such, a more gradual phasing of new personnel into the region will afford local communities and service providers the opportunity to adjust and improve current capacities where required to manage the changing demands of population growth. The assessment also found that it is unlikely that there will be any cumulative construction workforce impacts for the region, particularly on key service sectors such as the temporary accommodation sector.

However Mt Arthur Coal notes Darley's concerns and is committed to implementing the following Statement of Commitment, as provided to Darley on 23 December 2009:

"Mt Arthur Coal will monitor the proportion of its additional employees ('new employees') needed for the Consolidation Project that are recruited from outside the local area (defined as Muswellbrook, Upper Hunter and Singleton Local Government Areas) and will report on this in its Annual Environmental Management Reports (AEMRs) for the Project. If the proportion of employees recruited from outside the local area materially differs from that provided in the EA Report, Mt Arthur Coal shall review its recruitment program if appropriate to encourage local employment."

Mt Arthur Coal will continue to report on its employment levels, where new employees are recruited from and where they reside to DoP and MSC as required, however it is not considered necessary to report this information to Darley.

4.1.6 Comment 6

Water Impacts

Two main concerns were identified in our initial review: competition for water supplies during droughts and contamination of Saddler's Creek and the Hunter River upstream of Woodlands' water supply off-takes. The Company advised that since publication of the Environmental Assessment, it had acquired further water licences on the open market and now had some 5,000 ML of annual drawing rights. About 2,300 ML of these are high security water, with the remainder general security. It was advised that with this additional water entitlement, the mine can operate with sufficient water for a 98 % confidence limit during droughts. Assuming this estimate is correct, competition for water should be minimised. Thus, Darley seeks the following commitments:

The Company will not seek additional water drawing rights except in the event of a 1 in 50 year or greater severity drought.

Response

Despite the fact that Mt Arthur Coal is unlikely to require any additional water entitlements in the near future, Darley's request above is not considered reasonable and is in direct conflict with Government policies to establish a market based system of water rights. As explained in Section 8.9.3 of the EA (Volume 1), Mt Arthur Coal will continue to actively manage all water at its operations via the Water Management System, which is founded upon principles that emphasise water reuse and minimise impacts on the Hunter River and surrounding areas.

4.1.7 Comment 7

Water Quality

To minimise impacts on Woodlands due to water contamination, the Company undertook to install and maintain for the life of the mine a real time surface water monitoring station, downstream of the mine in Saddlers Creek but upstream from any water off-takes, with the following characteristics:

- *The station would continuously monitor in real time the following parameters as a minimum:*
 - *Flows;*
 - *Conductivity; and*
 - *Turbidity.*
- *Agreed trigger levels would be established with Darley for conductivity and turbidity;*
- *If trigger levels are exceeded, nominated Darley staff would be automatically notified by SMS or other agreed alarm protocols; and*
- *Annual water quality reports incorporating raw data and professional interpretation would be provided annually to Darley and the Department of Planning.*

Water Quality Monitoring

A commitment to the above monitoring of water quality in Saddlers Creek is sought.

Response

Mt Arthur Coal is committed to implementing the following Statement of Commitment, as provided to Darley on 23 December 2009:

"Mt Arthur Coal will install and maintain for the life of the mine a real time surface water monitoring station, downstream of the mine in Saddlers Creek but upstream from any water off-takes, with the following characteristics:

- *The station would continuously monitor in real time the following parameters as a minimum:*
 - *Flows;*
 - *Conductivity; and*
 - *Turbidity.*
- *Agreed trigger levels would be established in consultation with Darley for conductivity and turbidity;*
- *If trigger levels are exceeded, nominated Darley staff would be automatically notified by SMS or other agreed alarm protocols; and*
- *Annual water quality reports incorporating raw data and professional interpretation would be provided annually to Darley and the Department of Planning."*

4.1.8 Comment 8

Noise and Vibration

The main concern about potential noise and vibration impacts identified in our review of the EA was that no assessment was presented of any properties south of the mine. In response, the Company's consultants assigned a suitably low background noise value to Woodlands and remodelled noise at dwelling locations on Woodlands inferred from aerial photography. This showed that each dwelling would experience noise levels less than criteria established to protect human amenity.

Two matters arose from an examination of this further modelling. Firstly, the new noise isopleths indicated that Year 2011 would give the highest noise levels at Woodlands, diminishing in Year 2016 and reducing further in Year 2022. It is unclear from the excavation / refill plans (Figures 8, 9 and 10 in Volume 1 of the EA) why that would be the case, given the relative levels of activity in the southern part of the mine in those years. Also, more significantly, the selection of Years 2016 and 2022 substantially omits the construction of the main out-of-pit emplacement, which is the closest activity to Woodlands. This emplacement covers some 680 ha of the mine site.

If there is direct line of sight to the emplacement from Woodlands, as is indicated from the visual assessment, noise impacts from equipment use must be a real possibility.

Secondly, impact assessment continued to use human amenity values, with no further research presented to verify that they are relevant to thoroughbred race horses. In view of this uncertainty, it would be prudent to adopt a conservative stance in setting noise limits.

The supplementary response presented by the Company indicated that cumulative noise from the Project and existing Mt Arthur Coal operations and other existing mining operations will be below 35 dBA at all residences under all weather and day/evening/night scenarios. Indeed, the noise isopleths indicate that the highest noise would be 30 dBA at the northern boundary of Woodlands. Given the uncertainty about noise effects on equine health and well-being, this would therefore be an appropriate limit to adopt for at the northern boundary.

A commitment by the Company agreeing to a 30 dBA _{L_{Aeq}} (15 minute) noise limit from Mt Arthur's operations at the northern boundary is sought. Alternatively, the Company could undertake to fund an appropriate study of noise effects on equine health and propose properly formulated noise criteria at the conclusion of the study. The previously mentioned criterion would apply in the interim.

The Company has offered to undertake blast monitoring at Woodlands for a period of time. This would be a valuable safeguard. However, it should be continued for as long as Darley feels that it is needed. As with noise, vibration monitoring should be accompanied by studies of equine responses and appropriate criteria set as a result. A commitment from the Company giving effect to this is sought.

Response

In accordance with the INP, the intrusive criterion for noise assessment at Woodlands Stud was conservatively established at 35 dBA LAeq, 15 min, that is, the lowest RBL and intrusive noise criteria permitted under the INP.

Noise impact assessment calculations and modelling in the vicinity of Woodlands Stud indicate that noise levels from Mt Arthur Coal (including the Project & existing Mt Arthur Coal operations and other local existing mining operations) will be below 35 dBA at all residences, under all weather and day/evening/night scenarios, considering the influence of any other cumulative noise impact emitters.

No exceedances of blasting criteria were identified south of Mt Arthur Coal as a result of the Project at private receivers.

In recognition of Darley's concerns, Mt Arthur Coal is committed to implementing the following Statement of Commitment, as provided to Darley on 23 December 2009:

"Mt Arthur Coal shall ensure that Project noise at the northern boundary of the Woodlands property does not exceed the lowest intrusive noise criteria provide by the EPA/DECCW's Industrial Noise Policy of an RBL of 30 dBA LA_{eq} (15 minutes) plus 5 dBA."

"Mt Arthur Coal shall undertake blast monitoring at Woodlands in accordance with protocols approved by the Department of Planning for the duration of the Project."

This suggested commitment has been revised to comply with the INP, which establishes an intrusiveness noise criterion of 5 dBA greater than the Rating Background Level (RBL), and in this instance the lowest RBL of 30 dBA has been adopted. Further, blasting monitoring has been included for the life of the Project at Woodlands Stud.

There have been a limited number of studies of the effects of environmental noise on animals, with most concentrating on the effects of aircraft noise. A summary of the most significant studies is provided in K.M. Mancini, D.N. Gladwin, R. Villela and M.G. Cavendish (1988) *"Effects of aircraft noise and sonic booms on domestic animals and wildlife: A literature synthesis"* published by the Engineering and Services Centre U.S. Air Force and the Fish and Wildlife Service, U.S. Department of the Interior. The impacts of subsonic aircraft noise (or general non-impulsive environmental noise) can be assumed to be similar to impacts of general mining noise, and the effects of sonic booms can be assumed to be similar to those of blasting.

In domestic livestock, general noise at levels of about 90 dBA and above has been noted to temporarily increase levels of stress-related hormones and increase heart rate. At higher levels of about 105 dBA, reduced feed consumption was noted in one study. In wild animals, the most thorough going studies have been of arctic caribou and pronghorns in New Mexico. For these animals, startle responses can result from low-altitude over flights at about 70 dBA, with escape or strong panic reactions at higher levels. One study indicates "no reaction" at over flight levels of 60 dBA and "strong reaction" at about 77 dBA. At levels over about 100 dBA, physiological effects including hearing damage have been found in species including laboratory rodents.

The above noise levels are all well above 35 dBA. As noted above, noise impact assessment calculations and modelling in the vicinity of Woodlands Stud indicate that noise levels from Mt Arthur Coal (including the Project & existing Mt Arthur Coal operations and other local existing mining operations) will be below 35 dBA at all residences, under all weather and day/evening/night scenarios, considering the influence of any other cumulative noise impact emitters. General mining noise levels at this location would be comparable to, or lower than, levels due to road traffic or other everyday noise sources.

Noise from sonic booms has been found to cause similar reactions to those described above. However, once again the noise levels that cause them (measured as unweighted peak overpressure) are well above those that which may be experienced due to the Project at Woodlands Stud.

In domestic livestock, increased heart rate has been found due to sonic booms with peak overpressures above 120 dB, and in another study, startle reactions were found at levels approximately 125 dB and above. In wild reindeer, sonic booms at levels of 125 dB resulted in "slight startle responses: raising of head, pricking the ears, scenting the air".

The relevant blast criteria for the Project at Woodlands Stud is that 95% of all blasts should have a peak overpressure of less than 115 dB, and no blast should have a peak overpressure exceeding 120 dB. The assessments undertaken as part of the EA found that no exceedances of this blasting criterion were predicted in the vicinity of Woodlands Stud.

It is therefore concluded that there is no reason to expect the noise levels generated by the proposed Project to have any discernable impact on animals at Woodlands Stud. In view of this, the alternative approaches of further studies on the impacts on livestock are considered unnecessary.

4.1.9 Comment 9

Air Quality Impacts

A number of technical issues were raised about the air quality assessment, including criteria, background monitoring data, meteorological data, scenarios modelled and the use of anthropomorphic criteria in impact assessment. In response, a more refined assessment was made of monitoring air quality, with the conclusion that identified inadequacies were minor and that peak values did not coincide with the December / January period. However, in Table 1 of the Company's response, data lost or rejected accounted for 22 % of the complete data set. Further, peak values recorded in the hottest six months of the year (October to March) accounted for 82 % of peaks in Table 1, 90 % in Table 2 and 87 % in Table 3. In other words, data can be skewed if losses occur in peak deposition periods, leading to underestimations of background dust values.

Likewise, in the absence of a more rigorous statistical analysis, it is not possible to determine from the various wind roses presented that 2008 is either a conservatively harsh or even representative data set for dispersion modelling.

Our review also identified concerns about shortcomings in cumulative dust modelling. Furthermore modelling was carried out to confirm that Mount Pleasant and Mangoola mines would not significantly add to the dust burden at Woodlands. Likewise, modelling of a more adverse scenario during construction of the southern out-of-pit emplacement gave reassuring incremental additions to existing dust levels. Concerns remain about the low assigned background values, though we know acknowledge that a reasonable increase would still provide a fair margin to achieve human based air quality amenity criteria.

The additional information provided by the Company has resolved a number of the issues identified in our EA review. However, no additional information was presented to reassure Darley that human based amenity criteria would protect the health of thoroughbred race horses. Our own expert advice (see Annex C) suggests otherwise. This uncertainty is a major concern for us given that our bloodstock makes up about 80 % of the capital value of our Hunter Valley assets. It is not possible for Darley to accept such significant uncertainty and risks without specific reassurance from the Company that our bloodstock would not be adversely affected. In this context the following commitments are sought:

- *The Company will establish a new real-time Tapered Element Oscillating Microbalances (TEOM) monitoring station near the Southern boundary of the Mt Arthur site, with associated monitoring on Woodlands itself. Data collected is to be published in the Project's AEMRs.*
- *The Company will fund (or jointly fund with other proponents of mining projects in the area) a study of the effects of the airborne dust characteristic of the area on equine health. The study is to be undertaken by suitably qualified and experienced veterinary scientists and air quality experts. The results are to be provided to Darley and published in the Company's AEMR. The Company will then modify its operations, if needed, to achieve dust levels at Woodlands that would reasonably safeguard the health and well being of the types of horses normally kept on the property.*

Response

Mt Arthur Coal is committed to implementing the following Statement of Commitment, as provided to Darley on 23 December 2009:

"Mt Arthur Coal will establish a new real-time Tapered Element Oscillating Microbalances (TEOM) monitoring station for the Mt Arthur site. Data collected is to be published in the Project's AEMRs. Mt Arthur Coal shall in association with Darley submit a proposal to Australian Coal Association for the Australian Coal Association's Research Program (ACARP) to fund a study of the effects of the airborne dust characteristic of the area on an equine health. The study is to be undertaken by suitably qualified and experienced veterinary scientists and air quality experts."

The location of the new real-time Tapered Element Oscillating Microbalances (TEOM) monitoring station will be positioned at the optimal location as determined in association with DECCW to meet the complete range of air quality monitoring needs.

In relation to a proposed study of the impacts of dust on livestock, this is an industry wide issue, and hence an approach for ACARP funding is the appropriate approach, rather than such matters being pursued by individual companies.

4.2 DRAKE

4.2.1 Comment 1

Dear Sir/Madam, I am writing to state my objection to the proposed Mt Arthur Coal Consolidation Project (Project Application 090062). My name is Justin Drake and I live at [REDACTED] on the property known as [REDACTED]. My house is over 150 years old and is listed as of heritage significance. I run a thoroughbred horse farm involving breeding, spelling and training. I also have the adjoining property at [REDACTED] known as [REDACTED].

When I first looked at buying [REDACTED] and setting up my horse farm BHP had an environmental assessment on display for their current Mt Arthur mine. After pouring through its content I was pleased to see that I would not be affected, other than by a possible breach of 1 decibel of noise occasionally at night. This has proven to be grossly underestimated over the years. Therefore I ask whether that previous assessment is compared to the current conditions to see the difference between the forecast environmental impact and the actual environmental impact. I would argue that the differences would be startling. Hence I must query any future environmental assessments funded by the company requesting the lease.

Since I have been here I have experienced significant damage to both houses in the formation of large cracks as well as repeated breaking of underground pipes. The dust has become more than a nuisance factor causing serious health concerns for my family and horses. I have submitted reports to attest to this.

At a recent seminar Dr Dick Van Steenis gave further cause for concern with evidence to suggest a high percentage of asthma in children living in mining communities.

It is therefore extremely disappointing to read in Mt Arthur's latest environmental assessment that "blasting will remain within the blasting criteria at all privately owned residences. Blasting will be managed so it does not affect the heritage buildings or local residences."

After years of experiencing the affects of blasting I decided to get an assessment on my houses done as this is in accordance with Mt Arthur's current mining lease. An independent company was agreed to by both Mt Arthur and myself and Golder Associates submitted a report in May 2009. This report was preceded by reports:

1. Parsons Brinckerhoff 2007
2. PPK 1997
3. Barker Harle 2004
4. Barker Harle 2004 ([REDACTED])

which all presented numerous photos for comparison. In many cases the cracks are much wider and bigger as confirmed in the discussion section of the report "in a large number of cases in [REDACTED] house the displacement has increased significantly since the initial report in 1997" it then concludes with "while nearby mine works have the potential to have contributed to cracking in [REDACTED] house it is not possible to ascertain the extent of impact derived from this source without an assessment of the levels of ground vibrations received at [REDACTED] house resulting from blasting and other mining activities and advice from a structural engineer" From my perspective the report shows that my concerns are validated but is loathe to come to a more direct conclusion, instead proffering possible alternatives such as drought and tree roots. Given that the house has stood for over 150 years I do not find that very plausible, the common denominator is obviously mining.

The response to this report from Mt Arthur personnel was disappointing; they were extremely averse to concede any possibility of responsibility and instead proffered another consultant in Bill Jordan and Associates, who I note is responsible for the latest environmental assessment. I hope you can therefore understand my disappointment in the process.

Every time we have lodged a complaint when feeling a blast the standard reply is that it was "within the limits". Herein lies the problem, if we want to be open and honest, you cannot have a system whereby the mines measure their own blasts and submit the data. No matter how authentic their measuring stations are. Getting independent and reputable work done in this field is hard given the influence of big companies such as BHP but it is a must if one is serious about ensuring mines adhere to the conditions of their respective leases, which are put in place to protect private properties and the environment in general.

I have taken my problem to our local member Mr George Souris and to your department (see attachments) and as yet to no avail. I am also sourcing an independent assessor to install a monitoring station on my farm in the hope that the results will be given the same credence as those proffered by Mt Arthur.

I trust you will look seriously at the effect mining has already had on my farm before granting approval for any further expansion.

Response

The author notes Mr Drake's comments provided above in regard to blasting structural inspections and provides the following points of clarification:

- Mr Drake organised an Independent Structural Inspection of his property with Golders & Associates as his nominated consultant;
- Mt Arthur Coal agreed to commission Golders & Associates to undertake an Independent Structural Inspection of [REDACTED] as requested by Mr Drake and approved by DoP. Mt Arthur Coal did not develop the scope of work of Golder & Associates and at no time, directed their work requirements;
- Golders & Associates then completed the Independent Structural Inspection of [REDACTED] and produced a 'Condition Report'. Both Mt Arthur Coal and Mr Drake requested further clarification in the report to address whether blasting was the cause of any damage at [REDACTED]. Specific detail could not be provided by Golder & Associates in this regard;
- Mt Arthur Coal personnel then met with Mr Drake to discuss the report and in particular, its inconclusive nature;
- At this time, Mt Arthur Coal discussed with Mr Drake that an Independent Structural Engineer who specialises in the conservation of historical structures (Bill Jordan & Associates) had been commissioned as part of the Mt Arthur Coal Consolidation Project EA to assess the potential impacts of blasting from the Project on heritage structures; and
- Mt Arthur Coal suggested that Mr Drake and Bill Jordan & Associates meet to consider having [REDACTED] assessed. Mr Drake was also shown a copy of the draft report from Bill Jordan & Associates to be included in the EA. Mr Drake did not proceed with this suggestion.

As summarised in Section 8.3.1 of the EA (Volume 1), Mt Arthur Coal is predicted to continue to meet blasting and vibration limits for the Project at privately owned residences. Mt Arthur Coal is committed to implementing some changes in blasting practices to ensure blasts are continued to be managed in a way to ensure all the relevant criteria are met at private receivers.

Mt Arthur Coal notes that the Golders report, while identifying issues in relation to [REDACTED], did not indicate whether these issues were likely to be result of impacts from Mt Arthur Coal's activities. If an Independent Structural Assessment identifies any impacts on [REDACTED] likely to be mine related, such issues will be addressed by Mt Arthur Coal. Mt Arthur Coal is committed to work with Mr Drake and appropriate authorities to address the concerns in relation to any impacts on [REDACTED] in this manner.

In regard to Mr Drake's concerns over additional noise impacts from the Project, the noise impact assessment completed for the Project (Appendix G of the EA) was undertaken in accordance with the INP. A review of the background operational noise criteria was completed with seven zones identified (Zones A to Zone G) and incorporated into the model. This review incorporated: 1) the establishment of receiver zones; 2) a review of previous noise survey results for the MAN EIS and MAU EA; 3) a review of long term noise monitoring (BarnOwl) data; 4) additional monitoring during spring of 2008; and 5) reviewing all monitoring data and results to revise background noise levels where appropriate. Further, the background operational noise criterion was developed in consultation with DECCW who have accepted this methodology as reasonable (see response in **Section 2.1.10** above).

A summary of the predicted modelled noise levels during night conditions for the Project at representative receivers is presented in Section 8.2.2 of the EA (Volume 1). Receiver No 8 (Drake) is predicted to experience up to 2 dBA above the intrusive criterion of 37 dBA (_{15 min}) during 2011 during worst-case prevailing night conditions. The intrusive criterion is predicted to be met throughout the remainder of the Project life. Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded.'

Independent air quality consultants PAE Holmes completed an air quality and greenhouse gas impact assessment for the Project (see Appendix F of the EA) in accordance with the DECCW guidelines. The assessment considered the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area. As summarised in Section 8.1.2 of the EA (Volume 1), no exceedances of the relevant criteria have been predicted at Receiver No 8 (Drake).

As discussed in Section 8.1.3 of the EA (Volume 1), current onsite dust minimisation practices will be continued and enhanced. In particular Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

4.3 HALLORAN

4.3.1 Comment 1

I act for Robert and Loretta Halloran who own and reside at [REDACTED], Muswellbrook and request you accept this submission on their behalf in relation to this Project.

Mr and Mrs Halloran's property is situated in close proximity to the Mt Arthur South Mine and its facilities. At present they are disadvantaged by the coal processing and rail movements associated with this mine. They note that it is intended to expand its operations considerably and realise that will result in more rail movement and coal processing to occur than that which is at present underway. The current operations of the Mine result in them being subject to consistent, regular and unacceptable noise and they fear that an expansion of the Mine will add to that problem. Mr and Mrs Halloran acknowledge the advantages that the Mine may bring to others, however, believe it unreasonable that they should suffer as a result, and further, that it is within the Project operator's ability to take steps to ensure that existing problems are reduced and most certainly not increased as a result of its plans.

On my clients' behalf I request that the Department take steps to ensure that unreasonable intrusions into the ambiance of their life cease and most certainly not increase.

Response

Mr & Mrs Halloran concerns in regard to rail noise are noted, however it needs to be appreciated that a total of 24 rail movements per day have previously been assessed and approved from the Mt Arthur Coal Complex (as described in Section 4.4 of the EA (Volume 1)). The Project will not exceed the currently approved rail movements in any one day. As there will be no increase in the already approved daily train numbers on the rail network (i.e. 24 rail movements per day), it is predicted that there will be no increase in noise levels compared with those previously assessed and approved. This approach was developed in consultation with DECCW who have accepted this methodology as reasonable (see response in **Section 2.1.10** above).

As summarised in the Section 8.2.2 of the EA (Volume 1) and presented in Table 24, it is predicted that noise levels at Receiver No 87 (Halloran) will be 1 dBA ($L_{Aeq, 15 \text{ min}}$) above the intrusive noise criteria during worst-case prevailing night conditions for years 2011, 2016 and 2022.

Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

4.4 HAMILTON

4.4.1 Air Quality

Comment 1:

We bought our property in July 1989 and commenced residing there in March 1991. Over the last 18 years we have been subjected to an enormous increase in the amount of dust that is visible in the air and that settles on our property. We accredit this increase to the cumulative effect of the great number of Open Cut Mines that have been approved and opened, in very close proximity to our home over this period of time, particularly from the mines to the East and South East of us.

We have enclosed a copy of Figure 3.1 and Figure 6.1 from Volume 3 with our home marked on them (Attach 1 & 2) as an example of how many mines there are to the East, South East of us, that we can see. We refer to Section 2.1.4 and Figure 2 in the EA, that shows that the winds in summer, blow over the top of Mt Arthur Mine and all the other mines in that area, predominantly from the East south east, when the land is at its driest and dust is more prevalent. This dust is continually visible and can be so heavy in episodic events and when blasting takes place that we are unable to see any of the distant landforms. (Photos enclosed) (A).

Response

Noted. The air quality impact assessment completed for the Project (Appendix F of the EA) considered the background air quality environment (which includes the dust generated by all other activities in the area, for example, agriculture and more distant coal mines), meteorological conditions (including prevailing weather conditions), the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area.

Comment 2:

We disagree with the actual measurements and estimates in the EA for dust deposition Volume 2, Section 9.3, Table 9.1 showing our property (No 250) as having an annual average dust deposition in 2011 as 1.7 g/m²/month).

We enclose copies of Annual rolling average dust gauge results for Dust gauge No 25 and DA from Bengalla Mine's monitoring, from Sept 2003 through to Oct 2009, a copy of the position of Bengalla's monitoring sites and wind roses from 2008. (Attach 3-8).

You will note that the annual rolling average of D25, which is directly opposite our home on [REDACTED] starts at (1.8 in Sept 03 and only increases to 1.9 by Oct 05).

From Nov 05 it increases from 2 up to 2.5 by April 07 and by Oct 09 is listed as 2.6.

Also the levels shown in DA which is located on our property at the rear of our home to the West, shows levels starting at 2 in Sept 03 and by Oct 09 is 3.3.

It does not seem possible that our levels will drop back to 1.7 next year as estimated in the EA. So what and who do we believe, it appears that the modelling used for this information is faulty. Common sense tell us that the more ground that is uncovered the higher the level of dust produced and this proposed project is going to clear and open a lot more ground area, to bare earth by either open pits or overburden emplacements.

Response

The author disagrees with some aspects of the Mr & Mrs Hamilton's comment above and has sought to clarify this matter further below.

It is important to note that deposited dust gauges receive dust from a variety of sources, including dust generated by coal mining activities, road dust and agricultural dust. This is a particularly important consideration for data collected at the Bengalla two gauges (DA and D25) located close to Receiver No 250 (Hamilton). Both monitors are likely to be affected by dust from the surrounding paddocks, and D26 may also be affected by dust from Roxburgh Road.

Whilst specific details of the monitoring data collected by Bengalla are not publicly available, it is noted that there are several elevated readings at all the gauges; this could be due to contamination from leaves and/or bird droppings. Most notably, a value of 13.1 g/m²/month was recorded at gauge DA in September 2009 and is unlikely to accurately reflect representative dust in this area. Further, there was an extensive dust storm that swept across NSW on 23 September 2009 causing elevated levels of particulate matter state-wide. As this sample is likely to be contaminated, the data should be removed from the calculation of the rolling annual average. Without this value, the rolling annual average at dust gauge DA is 2.4 g/m²/month.

As noted above, measurements at deposited dust gauges are heavily influenced by local dust producing activities, and this can be seen in the large variation in levels over small distances. Mt Arthur Coal's closest dust deposition gauge to Receiver No 250 (Hamilton) (DD14, located approximately 2.5 km south west of Receiver No 250) on Roxburgh Road has maintained an average of 1.1 g/m²/month over a six year period (as discussed in Section 5.3 of Appendix F of the EA).

The predicted air quality impacts of the Project should also be considered in light of the proposed disturbance areas at Mt Arthur Coal moving to the west / south - west of the current operation, away from prevailing wind direction to Receiver No 250.

As part of the Project, Mt Arthur Coal is committed to minimising its impact on the local air quality environment. Current onsite dust minimisation practices will be continued and enhanced to ensure that the limits predicted in the EA are met at private receivers. In particular, Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

Comment 3:

Apart from the annoyance of continually having to clean everything that the dust settles on, (Photos enclosed) (for these photos this chair was not cleaned on the seat area) another problem that we experience from degraded air quality and high dust deposition, is the contamination to our only water supply, which we collect from our roofs. If we look at the amount of deposited dust, that has to be cleaned, from the surface of any item exposed to the open air, e.g. cars, outdoor furniture and open verandas and equate that, to the amount of dust would cover the area of our roof, and then, knowing that this is washed into our tanks when we get rain, is a real worry. We know how this accumulated dust has detrimentally affected our hot water services by the amount of black sludge that has collected in their base. What must it be doing to our health?

Response

No exceedances of the relevant air quality criteria provided by DECCW are predicted to be exceeded at Receiver No 250 (Hamilton) as a result of the Project, including 24 hour PM₁₀ concentrations. Recent research conducted in Queensland (in close proximity to the Dalrymple Bay Coal Terminal) investigated the potential health risks as a result of elements contained in coal dust deposited on rooftops entering rainwater tanks systems used for potable supply (Lucas et. al., 2009).

Leaching tests were conducted on numerous coal types to identify the potential for trace element release into rainwater in the tank. In addition, rainwater samples were collected from both the rainwater tanks and taps of three homes within the dust deposition zone of Dalrymple Bay area.

The leaching tests indicated that negligible amounts of trace elements in coal dust were released in the rainwater, and all trace elements were below the Australian Drinking Water Guidelines (ADWG). The ADWG provide the threshold levels considered safe for human consumption. The analysis of the rainwater from homes also showed that no trace element exceeded the ADWG. The research concluded:

“.....tank and tap samples were all below ADWG and indicated a minimal likelihood of coal dust being an issue with respect to human health. Regardless of this, as per advice from NSW Health (2007) it is good practice for any rain water system in any location to install a simple first flush system to prevent particulate matter (or any other undesirable materials) that have collected on the roof being washed into the rain water tank.”

As noted above, Mt Arthur Coal is committed to minimise its impact on the local air quality environment. Current onsite dust minimisation practices will be continued and enhanced to ensure that the limits predicted in the EA are met at private receivers.

Comment 4:

Even though we have not been listed in Table 20 of Section 8 on page 78 of Vol 1 as a private residence that will be affected by predicted air quality exceedances, we ask that you look at Vol 1 section 8 Figure 17, (copy enclosed, with our home marked on it.) (Attach 9) and ask why there appears to be a definite dip in this line which makes it go through our home and not beyond it. Our home is right on the line marked 30 in this diagram, the same as property No. 264 which has been included in that table. We also enclose a copy of the 21 year envelope annual average PM₁₀ from Mt Arthur's original application EIS, also with our home marked on it, well inside the line marked 30. (Attach 10). We feel that we should also be included as a receiver that will experience exceedances, in Volume 2, Section 9.5 Table 9.6 page 64, if the Consolidation Project is approved.

Response

No exceedances of the relevant air quality criteria provided by DECCW are predicted to be exceeded at Receiver No 250 (Hamilton) as a result of the Project. As noted in Section 8.1.2 of the EA (Volume 1) and on Figures 16, 17 and 18 of the EA, the air quality contours presented are indicative only. However, as reiterated in Section 8.1.2 of the EA (Volume 1), Table 20 of the EA should be referred to directly for results of the detailed air quality impact predictions for all receivers. The air quality impact assessment presented in Appendix F of the EA also provides predictions for all receivers throughout the life of the Project.

4.4.2 VISUAL AND LIGHTING

Comment 1:

In the EA, in Volume 1, the views from our home have been listed as Location 3 which is shown in Figure 22 to be in the Northern visual sector, but on page 97 of the EA, Roxburgh Road has been listed for sensitivity under the Western Sector Sensitivity in Section 8.4.2 (Impact Assessment), this is another error, which can be confusing when anyone is trying to read and understand the meanings of this EA.

All we know is that we look at the whole of the pit and overburden emplacement and will continue to do so while the mine continues to operate. The view we see is shown in Figure 5.1a in Volume 3 and our (enclosed photos) and the view of what is proposed for the future that we will see, is in Site 3 of Figure 23B on page 99 of Volume 1 and Figure 5.1e in Volume 3. In Volume 3 Visual impact assessment, Section 5 Paragraph 5.2 says it all, particularly the last sentence as follows "The visual effect of Mt Arthur Coal is currently high at this location and will remain high as a result of the Project and throughout the life of the Project".

In paragraph 5.10 it has been stated that our area "will retain a high visual effect created by the colour and form contrast, of the active face of OEA. Any reduction of the resultant impact of this type of visual effect must be carried out at the point of viewing". We do not want our views to be blocked out by a forest or any other means of construction, as we built our home to take advantage of the wonderful views, particularly the view to the East South East over the river valley as is stated in Section 6.5 Paragraph 6.5.5 "The homesteads are often located on hills and take advantage of views in various directions".

Section 6.7 mentions that the Visual sensitivity of the Northern sector is clearly illustrated in Figure 6.4 but we are not even identified by the black dot shown in the legend as a sensitive receptor in the 2.5 – 7.5 km zone, another error, copy enclosed with our home marked on it (Attach 11), even though photos taken for the EA to depict the views from this area, such as Figure 6.5 have been taken from in front of our home.

It has been stated in Section 8.3 "Off site treatment will be required where on site treatments cannot achieve a meaningful reduction in visual effect levels. Landscape treatments will focus on planting schemes to reduce visibility but may also involve planting or other works established to create elements that enhance local landscape settings without necessarily fully removing views to Mt Arthur Coal." This is a whole lot of words that has no substantial meaning to us. Again they say in Section 9 of volume 3 that their only means of amelioration for a residence such as ours is off site landscape treatments. We were not satisfied with what was provided for us previously and so do not expect that it will be any different this time.

We already experience impacts from the lighting at the existing mine site, particularly the portable daymakers on vibrating generators and we know that the expansion of the pits and overburden emplacement areas proposed in this new project will only increase this annoyance. As mentioned in the EA Volume 1 Section 8 page 103 under Lighting Impact Summary, we are the elevated location on Roxburgh Road, that overlooks the screening topography and vegetation but unlike what is said in the EA we know from experience that distance does not mitigate these effects. We also know from experience that the Lighting Mitigation and Management suggested in the EA does not work effectively, so the only thing that is left for us, is to put up with being impacted in this way, which seems extremely unfair, or to continually complain, which is another annoying hassle and does not solve the problem.

Summary

We are sick and tired of being subjected to the approval process, of every new Open Cut Coal Mine in our area and the Expansions or Erection of new infrastructure for the ones that have already been approved over the last 18 years.

We are cumulatively impacted by dust, noise, lighting, blasting, vibration and visual degradation, from Drayton Mine, Bayswater Mine, Mt Arthur Mine and Bengalla Mine that are full working mines and are all visible to the East South East of our home.

Mt Pleasant Mine to the North of us has been approved but has not yet actively started and Mangoola Coal to the West of us has just begun their construction phase.

We are the ones who are left, to have to live with each new problem as it presents itself and this creates a physical and emotional drain that can become all consuming. See Figure 4 Volume 1 page 13, copy enclosed with our property marked on it (Attach 12). It shows that 99% of all the property to the East South East of our property and the property next door on the Northern side is owned by mines because those properties all came under a Zone of Affection. We find it very hard to understand that the width of a narrow road at the front of our home lessens any impacts on our property.

When we bought this property we had no intention of ever selling and moving. But we have found that since all our family has moved from the area and we do not have the help to look after the property we will have to consider selling.

We need reassurance that our life's total property ownership has not been made worthless because of all the adverse impacts from Coal mining. Our anxiety, about the value of our property, is, if it is not listed as affected in this Consolidation Project of Mt Arthur Coal, is that we will be left in a small no-mans land of unwanted property surrounded by Open Cut Coal Mines. Who from our experience will take no responsibility for the situation we will be left in.

We request that some representatives from your Department, on the decision making panel come and visit us at our home and see the many adverse impacts we experience and we will want to attend any Planning Assessment Commission before any final decision is made to approve Mt Arthur Coal's Consolidation Project. We await your reply.

Response

As stated in Section 8.4.2 of the EA (Volume 1), Mt Arthur Coal acknowledges that elevated rural receivers, such as the Hamilton property (Receiver No 250) located in the Northern Sector with a strong orientation toward mine site, will have a high visual sensitivity and experience high visual effect as a result of the Project. These impacts are created as a result of views onto the outer and active faces of Overburden Emplacement Areas proposed for the Project.

Mt Arthur Coal is committed to minimising visual impacts of the Project. As described in Section 8.4.3 of the EA (Volume 1) and reaffirmed in Statement of Commitment No 16, 'upon Project Approval, guidelines will be prepared to include: treatment methods for primary and secondary view areas from affected residences; consultation requirements with residents in those key areas of high sensitivity, and action plans to mitigate visual impacts of the Project (depending on extent of visibility and its sensitivity).' Should the Project be approved, Mt Arthur Coal will consult with the Hamilton's regarding options for the establishment of visual treatments at their property to mitigate visual and lighting impacts for the Project.

In regard to the effectiveness of previous visual treatments provided by Mt Arthur Coal at Mr & Mrs Hamilton's property, it should be clarified that a Landscape Plan was previously developed specifically for the property and was accompanied with monetary compensation from Mt Arthur Coal to undertake the works described in the Landscape Plan. The works were not fully implemented by Mr & Mrs Hamilton.

In regard to lighting impacts of the Project, as noted in Section 8.6.2 of the EA (Volume 1), the only locations that will have direct line of sight to the Mt Arthur Coal Complex lighting are elevated locations such as Roxburgh Road [where Mr & Mrs Hamilton reside] that overlook the screening topography and vegetation. These locations are considerably distant, which will provide mitigation of these effects. Mt Arthur Coal will continue to manage lighting impacts from the Project to ensure that the minimum level necessary for operational and safety needs.

The author notes Mr & Mrs Hamilton's concerns about cumulative mining impacts. Appropriate cumulative impact assessments were included in the EA, in accordance with the EARs. This included cumulative air quality, noise, visual, water, social, economics and traffic and transport assessments (see sections 8.1, 8.2, 8.4, 8.9, 8.10, 8.11, 8.12 and 8.17 of the EA, respectively) and considered the impacts of the approved activities of Drayton Mine and Bengalla Mine as well as those predicted for Mt Pleasant Mine and Mangoola Mine, where appropriate.

4.5 LANE

4.5.1 Comment 1

We would like to object to the proposed expansion to Mt Arthur. The mine currently has a large area of exposed land directly south east of our property and we are continually bombarded with dust, noise and blasting when the wind comes from that direction. Being residents of [REDACTED] before any mine developments how is it that after Bengalla, Mt Arthur, Mt Pleasant, Anvil Hill and now Mt Arthur expansion there is still NO impact on residences on [REDACTED]. Let me put you in the picture.

Noise – constantly just the degree varies.

Dust – house is continually bombarded with dust from South east direction always washing outside walls and vacuuming inside.

Blasting – shakes house.

Water bore – does not produce the same output as pre mining and is now so unproductive that windmill pump and rod have been removed and running cattle is a waste of time.

We have attended most of the commissions of enquiry into these developments all have conditions that are supposed to protect private citizens. So far all weighed in favour of the company. Trying to prove impact is near impossible.

The mining industry has a host of experts to tell us that there is almost no impact from mine sites. Experts that are relied upon for others to make judgement. Because there have been no studies done on the impacts of mining in Australia the tide may be turning I have including some information (Coals Assault on Human Health, Coal Health Study by Dr Dick van Steenis). We were here before mining. Very shortly we will cop all of the above from the West when Mangoola Coal starts production.

Response

As summarised in the Section 8.2.2 of the EA (Volume 1) and presented in Table 24, it is predicted that the Project will not result in any exceedances of the intrusive noise criteria at the Lane property (Receiver No 241) during worst-case prevailing night conditions for years 2011, 2016 and 2022. Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

Independent air quality consultants PAE Holmes completed an air quality and greenhouse gas impact assessment for the Project (see Appendix F of the EA) in accordance with the procedures outlined in DECCW guidelines. The assessment considered the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area. As summarised in Section 8.1.2 of the EA (Volume 1), no exceedances of the relevant criteria have been predicted at Receiver No 241 (Lane).

As discussed in Section 8.1.3 of the EA (Volume 1), current onsite dust minimisation practices will be continued and enhanced. In particular Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

The blast impact assessment summarised in Section 8.3.2 of the EA (Volume 1), found that Mt Arthur Coal will continue to meet blasting and vibration limits for the Project at privately owned residences. To ensure that blasting impacts are minimised in future operations, the Mt Arthur Coal EMS and associated Blast and Vibration Management Plan will be updated for the Project and subjected to ongoing review as new blast management techniques and technology become available. Section 8.3.3 of the EA provides a summary of the additional management measures which will be implemented for the Project to ensure blasting and vibration predictions will continue to be met.

Potential groundwater impacts of the Project were assessed in the groundwater impact assessment presented in Appendix N of the EA. A search of the NOW database of registered bores and wells indicate that there are approximate about 32 registered bores within a 5 kilometre radius of the EA Boundary. The majority of which are licensed for stock use with 20 on Mt Arthur Coal owned land. The NOW database indicates that those bores to be impacted by the depressurisation of the coal seam aquifers are located on Mt Arthur Coal land.

Groundwater will continue to be managed in accordance with the Mt Arthur Coal EMS and the existing Site Water Management Plan which will be reviewed as needed to include findings from this assessment and to ensure that it meets the changing requirements of the Project. Furthermore, as stated in Section 8.101.4 of the EA (Volume 1), in the unlikely event that water levels in existing landholder bores declines as a consequence of the Project, leading to an adverse impact on water supply, Mt Arthur Coal will substitute this supply in consultation with the landholder either by modifying the existing bore, constructing a new bore, or providing comparable water from an external source.

4.6 MOORE

4.6.1 Comment 1

During a consultation with Julie McNaughton on Monday, 21/12/09 the extent of the project, involving consolidation of Mt Arthur Coals open cut planning approvals and the seeking of approval to extend its mining footprint within its current mining lease was explained to us in detail.

As a result of this meeting it made clear to us that the key EA findings on air quality show that predictive modelling has indicated that guidelines for dust levels will be exceeded at our home (████████████████████) and at the second residence on our property where Mrs Mary Moore lives. (████████████████████)

Modelling of Cumulative affect, Indicative Air Quality Contours for PM₁₀ in 2016 (Fig 17) shows that both of these homes on the grazing property known as ██████ will have a high potential for being within their Zone of Affection.

As modelling shows that these two residences will be affected by exceedances of dust particles PM₁₀ we would like Mt Arthur Coal to:

- 1. Acknowledge that we, and Mrs Mary Moore are in their Zone of Affectation when the project has been approved;*
- 2. Continue to liaise with us once approval for this project has been granted; and*
- 3. Acknowledge on all future documentation, maps etc the existence of two residential dwellings within our property on the ██████████.*

We would also like it to be noted that prior to Friday 18/12/09 we had:

- 1. Not been contacted by Mt Arthur Coal with regards to this application to the DoP;*
- 2. Not been sent any information by way of published newsletters about the project or its updates (We have copies of them as of Monday); and*
- 3. Only recently Mt Arthur Coal discovered that we were a residence that needed to be approached and that in fact there were two residences to be considered on our property.*

Response

As stated in Section 8.1.2 of the EA and presented in Table 20, the author can confirm that the Moore property (Receiver No 264) and the residences located thereon are predicted to be impacted by dust levels of 31 µg/m³ in 2016, above the DECCW annual average PM₁₀ criterion from the Project and other sources. Mt Arthur Coal is committed to ongoing liaison with the Moore's in regard to the Project Approval and further, will ensure that the existence of their dwellings is acknowledged on all future documentation.

4.7 MUSHALIK

4.7.1 Comment 1

Chapters 12 describes the science of global warming. But follow this logic:

a) **Precautionary principle**

For the purpose of this report, the ESD principles have been taken to be those defined by the Department of Planning (DUAP, 2000), which are as follows:

1. The precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
2. Inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
3. Conservation of biological diversity and ecological integrity; and
4. Improved valuation and pricing of environmental resources.

Page 70

b) **Global warming is not linear**

Because the relationship between global warming and greenhouse gas concentrations is not linear there is no accepted method to determine the contribution that a given emission of greenhouse gases might make to global warming.

Page 72

c) **But a proportional calculation is done regardless**

At any point in time, it would be reasonably simple to compare the estimated emission of CO₂-equivalent from the various activities with the estimated equivalent global CO₂ emissions of 3,000 Gt. On this basis, average annual emissions over the lifetime of Mt Arthur Coal from the mining and burning of coal (including mining, transporting the coal to the Port of Newcastle and overseas, and usage of the coal) are estimated to be 0.0024% of the global CO₂ load. Thus, Mt Arthur Coal could be considered to contribute 0.0024% to the increase in global temperatures caused by the increase in greenhouse gas emissions as they are currently. This invites the question as to what temperature rise might be attributed to the GHG emissions from Mt Arthur Coal.

Based on the IPCC estimate that a doubling of the CO₂-equivalent concentration in the atmosphere would lead to a 2.5°C increase in global average temperature (see Section 12.3), and that the current global CO₂ load is approximately 3,000 Gt, we can estimate that the annual average emissions during the life of Mt Arthur Coal (including mining, transporting the coal to the Port of Newcastle and overseas, and the usage of the coal) are predicted to lead to an increase in global temperature of 0.00006°C $[(7.42 \times 10^7 / 3,000 \times 10^9) \times 2.5^\circ\text{C}]$.

There will clearly be no measurable environmental effect due to the emissions of GHGs from Mt Arthur Coal, even when the customer's use of the coal is taken into account. Any environmental assessment would conclude that the effects of the emissions from Mt Arthur Coal are unable to be measured. Given this, it is clear that Mt Arthur Coal will comply with the principles of ESD.

Comments:

1. *It is unbelievable that a professionally responsible consultant can come up with such an illogic sequence of arguments. I am a structural engineer (MA on stability of skyscrapers) and if I had followed such a methodology in my assignments I would be sitting in a jail house by now. Imagine I had written in my thesis that buckling is non linear but that an extra eccentric load is minor and does not need to be considered. My supervising Professor would not even have accepted my paper. So why did the Department of Planning even allow such flawed documents into the public consultation stage and waste our time?*
2. *Compensation claims due to global warming (sea level rises, famine due to drought, victims from storms etc) as well as the genocide component of it (disappearance of whole nations) will end up in international courts. There is no way anyone can foresee how courts will apportion blame. The above calculation, taking Mt Arthur's CO2 emissions and compare them with total, historically accumulated emissions may not be the metric judges will take as a basis of their decisions. Defendants responsible for earlier emissions may claim the CO2 problem was not known to them. How if a court decides that only accumulated emission after the IPCC report 2007 will be used for compensation claims at a pro rata basis? It could be argued that only this report gave the certainty that global warming was caused by human CO2 emissions. The consultant's calculations is therefore on the low side and thus does not follow precautionary principle.*
3. *Regardless how courts will decide and irrespective of the non-linearity, a percentage of 0.0024 is NOT trivial. Let us assume 634 million people will have to be resettled¹ at half million dollar each. That alone is 634 million x 0.5 million = \$317 trillion. So the (arbitrarily and conveniently defined) share is $0.000024 \times 317 \text{ trillion} = 24 \times 317 \text{ million} = \7.6 bn . Associated transport infrastructure and industrial, commercial. Educational, recreational etc facilities will multiply this figure to astronomical amounts. It would bankrupt the proposer and the NSW government in nano seconds.*
4. *A 2.5 degree warming if HALF the temperature difference between a warm period and an ice age, kicking planet Earth out of the range of the natural Milankowitch cycles. This warming is unacceptable and actually means a different planet Earth. It is NOT in the interest of the consultant, the proposer, the department or the approving Minister and their children and grandchildren.*

Recommendation:

The applicant should not be approved because:

- A. *The consultant presented a contradictory logic (0.0024% calculation);*
- B. *The proposed project violates the precautionary principle; and*
- C. *It is not clear what the future compensation claims arising from CO2 emissions will be and whether the proposer is still a going concern by the time the compensation claims are brought before courts. There is no reason why the tax payer should foot these bills only because a private company wants to make temporary profits now.*

The proposer should provide calculations on future compensation claims, applying various percentages obtained from legal advice. An insurance cover on this amount is to be furnished with a resubmission of the application. For macro-economic planning purposes the net present value of 1 ton of coal should be calculated.

As a matter of principle, coal production for export should only be allowed if carbon capture and storage is physically and safely in place at the destination power plant. Period.

This is the latest on how YOUR OWN future and that of YOUR children looks like if the NSW government continues to approve one coal mine after the other (and everyone else argues they contribute only 0.00XX%).

Response

As outlined in Section 8.1.1 of the EA, the National Greenhouse Accounts Factors (Department of Climate Change, 2008) were adopted for the calculation of greenhouse gas emissions for operations at the Mt Arthur Coal Complex. This methodology is consistent with internationally applied methods for the calculation of greenhouse gas emissions factors and was applied to estimate the average annual emissions for the Mt Arthur Coal Complex operations being approximately 0.0024% of current global carbon dioxide emissions. The conclusion that there will be no increase or measureable impact on climate change as a result of the Project, when applied against the principles of Ecologically Sustainable Development, was based on this methodology.

Under accepted national guidelines for greenhouse gas assessment, there is currently no methodology or requirement to consider any future compensation or insurance liability arising from development generating greenhouse emissions. Any requirement for such an assessment is considered to be an issue for determination outside the scope of this EA.

Section 8.1.3 of the EA (Volume 1) also outlines Mt Arthur Coal's commitments in relation to the continued monitoring and management of greenhouse gas. This will be an ongoing process of review and the implementation of practical responses with the objective of attempting to ensure that greenhouse gas emissions per tonne of coal produced are as low as possible. Further details on additional greenhouse gas mitigation measures proposed for the Project are outlined in the response to **Section 2.1.11**.

4.8 PAULSEN

4.8.1 Comment 1

I am notifying you of our objection to the above project based on the following grounds:

Dust concerns: -

- Increase of dust due to the amount of disturbed ground;*
- The increase of dust entering our drinking water which is collected off the roofs on our property; and*
- Inability to leave doors and windows open for natural ventilation which increases the use of air conditioning.*

Please view attached photographs taken from our back door facing the mine, as an example of the poor air quality due to dust and wind. At the time of the photo the wind speed was 5-6 m/s.

Noise concerns: -

- Due to the extra production required there will be an increase in earth moving equipment which will increase the amount of noise generated, especially when there is a temperature inversion present and on still nights.*

Visual Impact: -

- With the mine development working toward our property the surrounding landscape will deteriorate which will affect the value of our property.*

Lighting Impact: -

- The extra lighting which will be required during the hours of darkness to make the working environment safe at the mine will progressively affect us as the mine moves closer.*

Underground water supply concerns: -

- Is that the underground aquifers will be disturbed and our supply diminishing, which we rely on for stock and some domestic purposes.*

Response

Independent air quality consultants PAE Holmes completed an air quality and greenhouse gas impact assessment for the Project (see Appendix F of the EA) in accordance with the procedures outlined in DECCW guidelines. The assessment considered the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area. As summarised in Section 8.1.2 of the EA (Volume 1), no exceedances of the relevant criteria have been predicted at Receiver No 181 & 182 (Paulsen).

As discussed in Section 8.1.3 of the EA (Volume 1), current onsite dust minimisation practices will be continued and enhanced. In particular Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

As summarised in the Section 8.2.2 of the EA (Volume 1) and presented in Table 24, it is predicted that the Project will not result in any exceedances of the intrusive noise criteria at the Paulsen properties (Receiver No 181 & 182) during worst-case prevailing night conditions for years 2011, 2016 and 2022. Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

As stated in Section 8.4.2 of the EA, rural receivers such as Paulsen located in the Western visual assessment sector on [REDACTED] will experience medium to high visual sensitivity and high visual effect due to close proximity to the Project and the potential for views onto the outer and active faces of Overburden Emplacement Areas. As described in Section 8.4.3 of the EA (Volume 1) and reaffirmed in Statement of Commitment No 16, 'upon Project Approval, guidelines will be prepared to include: treatment methods for primary and secondary view areas from affected residences; consultation requirements with residents in those key areas of high sensitivity, and action plans to mitigate visual impacts of the Project (depending on extent of visibility and its sensitivity).' Should the Project be approved, Mt Arthur Coal will determine the effect on the residences at receiver 181 and 182 and consult with the Paulsen's regarding options for the establishment of visual treatments at their property to mitigate visual and lighting impacts for the Project if required.

Potential groundwater impacts of the Project were assessed in the groundwater impact assessment presented in Appendix N of the EA. A search of the NOW database of registered bores and wells indicate that there are approximate about 32 registered bores within a 5 kilometre radius of the Environmental Assessment Boundary. The majority of these bores are licensed for stock use, with 20 on Mt Arthur Coal owned land. The NOW database indicates that those bores to be impacted by the depressurisation of the coal seam aquifers are located on Mt Arthur Coal land and there are no private registered bores on the southern side of the Hunter River within the predicted cone of depression for the Project.

Groundwater will continue to be managed in accordance with the Mt Arthur Coal EMS and the existing Site Water Management Plan which will be reviewed as needed to include findings from this assessment and to ensure that it meets the changing requirements of the Project. Furthermore, as stated in Section 8.101.4 of the EA (Volume 1), in the unlikely event that water levels in existing landholder bores declines as a consequence of the Project, leading to an adverse impact on water supply, Mt Arthur Coal will substitute this supply in consultation with the landholder either by modifying the existing bore, constructing a new bore, or providing comparable water from an external source.

4.9 PEEL

4.9.1 Comment 1

Reasons why I object are as follows:

- 1. Air Quality – We live North to north west of Mt Arthur coal mine in the main wind direction from the mine which brings dust to our property. This will increase greatly with an increase of an extra 8 million tonnes of production annually. The mine is moving in a westerly direction, we asked for a high volume air sampler and were refused by the mine.*
- 2. Noise – As the mine moves west noise will increase on our property.*
- 3. Blasting – As we already have damage from blasting to cement tanks and house. When we ask for blast monitoring results from the closest monitoring site which Mount Arthur own at Constable property for years I was told the monitor was not working or being serviced. Just lately I was told it only worked on Bayswater No 3 pit blast, it has now been removed altogether and we don't have a close monitor at all.*
- 4. Cumulative Affects – I would like Department of Planning to investigate the First E.I.S. Mount Arthur proposed stating the cumulative affects between Bengalla mine and Mount Arthur mine some properties would be affected by cumulative affects, on Bengalla mine west of their lease. As years have gone by Bengalla has got much bigger and moved west also. Mount Arthur intends to mine west and increase coal production by 8 million tonnes a year. By using Mount Arthur original E.I.S. calculations would move the cumulative affect line west to [REDACTED] where I live, that's not allowing for what Mangoola Coal affects. I would like Department of Planning to come and see the affects of coal mining has on my property before they pass this project.*

Response

Independent air quality consultants PAE Holmes completed an air quality and greenhouse gas impact assessment for the Project (see Appendix F of the EA) in accordance with the procedures outlined in DECCW guidelines. The assessment considered the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area. As summarised in Section 8.1.2 of the EA (Volume 1), no exceedances of the relevant criteria have been predicted at Receiver No 222, 225 and 238. As discussed in Section 8.1.3 of the EA (Volume 1), current onsite dust minimisation practices will be continued and enhanced. In particular Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

As summarised in the Section 8.2.2 of the EA (Volume 1) and presented in Table 24, it is predicted that the Project will not result in any exceedances of the intrusive noise criteria at the Peel properties (Receiver No 222, 225 and 238) during worst-case prevailing night conditions for years 2011, 2016 and 2022. Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

The blast impact assessment summarised in Section 8.3.2 of the EA (Volume 1), found that Mt Arthur Coal will continue to meet blasting and vibration limits for the Project at privately owned residences. To ensure that blasting impacts are minimised in future operations, the Mt Arthur Coal EMS and associated Blast and Vibration Management Plan will be updated for the Project and subjected to ongoing review as new blast management techniques and technology become available. Section 8.3.3 of the EA provides a summary of the additional management measures which will be implemented for the Project to ensure blasting and vibration predictions will continue to be met.

It should also be noted that closest Mt Arthur Coal High Volume Air Sampler and Blast Monitor to the Peel properties are located approximately 1.5 and 4.3 km away, respectively, and are situated at the optimal location as determined in association with DECCW to meet the complete range of air quality and blast monitoring needs.

Appropriate cumulative impact assessments were included in the EA, in accordance with the EARs. This included cumulative air quality, noise, visual, water, social, economics and traffic and transport assessments (see sections 8.1, 8.2, 8.4, 8.9, 8.10, 8.11, 8.12 and 8.17 of the EA, respectively) and considered the impacts of the approved activities of Drayton Mine and Bengalla Mine as well as those predicted for Mt Pleasant Mine and Mangoola Mine, where appropriate.

4.10 WOLFGANG

4.10.1 Comment 1

We wish to register our concerns with this project and recommend additional controls to improve the outcomes for us and our community.

Please provide written confirmation that you have received this communication.

Given the 4 week period that we had to review the proposal (Mt Arthur alerted us to the EA on public display on 3/12/09) to review the many hundreds of pages of information, we have only been able scan over this information as there are many concepts to understand. Therefore we have attempted to use this information where we can; however much of the following are big picture observations that clearly do not fit the modelling and discussion in the EA document as we understand it.

The issues relate to:

- Air pollution;*
- Noise pollution;*
- Light pollution (sky glow); and*
- Increased burden on local resident funded (via local council) roads, infrastructure requiring increased taxes and or loss of amenity and economic benefit to the local community.*

Dust Pollution and Air Quality

Existing recent mining expansion / projects in the valley (Bengalla, Mt Arthur, Wambo) have dumped and are dumping thousands of tonnes of dust on our community properties and our families. I notice in my own family increased coughing up of phlegm, increased hay fever of my wife, the now daily cleaning and dusting of our house (10 years ago this was not necessary) as a result of the increases of airborne dust all year round. Almost every morning when we wake we see the still sky above both Bengalla and Mt Arthur thick with dust and diesel smoke due to their night time operations that obviously do not apply the same controls for dust suppression as the daytime (that is they run less water trucks and drilling operations are not as tightly controlled as it can not be seen in the dark). During the day the winds come and blow this and the daytime loading of dust over us.

Existing controls of dust are not improving. Mt Arthur has not made improvements to drilling practises during the last 6 years. In fact, their practises have deteriorated since the mines approval. For example, drill cuttings are no longer wetted (water sprayed on the completed drill chip pile to form a hard crust to resist wind). When the wind picks up the drilling dust is picked up and blown over the neighbours, significantly contributing to the choking dust problems we have today. More stringent government controls on dust must be placed on these mines as they have demonstrated that, when left to their own processes, standards slip and controls fall away (this is also evident in the area of noise control discussed later).

Mt Arthur currently produces about 14 Mtpa of ROM coal, the proposed consolidation is to produce up to 36 Mtpa. The current dust load on our community is already unacceptable even before more than double the amount of machinery is installed, all increasing the dust load on our community.

We have also seen the dust emissions from other previously irrigated farms increase, as competition from the mines have purchased the water once used to irrigate the farms and produce food, leaving the farms to become dry and dusty.

Regulatory practical controls must be imposed on the mining activities as Mt Arthur Coal as they will not impose them on themselves as demonstrated by the last 6 years of their operation. Controls should include:

- Statutory limits and incentives to minimise uncovered and bare ground (revegetation as soon as practical, even if it is temporary for a few months/years while final rehabilitation is being conducted;*
- Haul road treatments to reduce dust output especially in high use, long term roads;*
- Drilling operations improvements (down hole water, drill chip size, drill chip crusting, etc);*
- Mandatory requirements to study and improve dust emissions and dust emissions reduction technologies; and*
- Use of more enclosed conveyor based technology that is not dependent on dusty diesel powered trucks to transport the overburden and coal.*

Response

The author disagrees with some aspects of the Wolfgang's comment above and has sought to clarify this matter further below.

Independent air quality consultants PAE Holmes completed an air quality and greenhouse gas impact assessment for the Project (see Appendix F of the EA) in accordance with the procedures outlined in DECCW guidelines. The assessment considered the potential air quality impacts directly associated with the Project and the cumulative air quality impacts associated with the Project combined with other major approved or proposed developments in the area. As summarised in Section 8.1.2 of the EA (Volume 1), no exceedances of the relevant criteria have been predicted to the west of the Project beyond the Mt Arthur Coal Mining Lease. As discussed in Section 8.1.3 of the EA (Volume 1), current onsite dust minimisation practices will be continued and enhanced. In particular Mt Arthur Coal will introduce a dust suppressant product (or other comparably effective alternative) on all permanent active coal and overburden haul roads to minimise the generation of dust.

Mt Arthur Coal actively manage and control dust from their operations for a number of reasons, including the minimisation of environmental dust levels, the health of people working in and around equipment and operations, and safety and visibility issues. Water trucks operate on a 24 hour basis and have been modelled as part of the Project accordingly. Internal operating procedures at Mt Arthur Coal for water trucks and drills draw no definition between day and night operations, with the equipment operating on an as-needs basis.

Mt Arthur Coal is currently trialling a number of options for dust minimisation on drills and drill patterns in order to maintain high standards of dust management and to continue compliance with all air quality criteria set in consent conditions and Environmental Protection Licences. This will include investigating treating drill cuttings to minimise dust impacts.

All agricultural land owned by Mt Arthur Coal is leased to experienced local farmers and graziers, who manage the land in accordance to sound agricultural practices.

As discussed in Section 4.12 of the EA (Volume 1), several environmental constraints analyses were undertaken during the mine planning stages to refine the mine plan and minimise social and environmental impacts. In particular, detailed planning work was undertaken to increase available rehabilitation areas and reduce exposed areas, to ultimately minimise air quality impacts of the Project. Mt Arthur Coal is committed to achieving these levels of rehabilitation throughout the Project and will comply with all commitments outlined in the EA.

4.10.2 Comment 2

Noise Pollution

We live 12 km from the mining equipment. We are currently affected by the noise of the trucks and excavators every night, which has detracted from our peaceful rural home lifestyle. The consolidation project plans to:

- Increase the amount of equipment by more than double;*
- Bring it to within 8 km of our home; and*
- Remove successful noise suppression standards from that equipment.*

The above 3 points will significantly increase our noise pollution dose and loss our standard of life.

Mt Arthur Coal has proven to be unwilling to meet the past commitments made and agreed to in their existing consent. For example, noise suppression development of D11R bulldozers (one of the most complained about noisy equipment types) was completed in early 2008. However the mine has chosen not to implement the improvements on their dozer fleet due to pre-emption that the consolidation project EA will be approved and the noise standards relaxed. The mine has recently purchased 3 x D11R dozers and 2 x R996 excavators without sound suppression to be used on the consolidation project in anticipation of the approval of the relaxation noise pollution requirements.

We believe that noise attenuation and noise pollution controls must become more stringent to drive the improvement of technology in this area to try and maintain a balance. This is especially important to us and the community, as the amount of equipment is doubled at Mt Arthur Mine, and this approval will no doubt set a precedent to the many other projects planned for the Hunter Valley (Bengalla expansion, Mount Pleasant, Mangoola, Spur Hill, Saddlers Creek etc).. This is not reflected in the current submission and must be corrected.

Mt Arthur Coal has chosen not to maintain noise attenuation packages fitted to trucks, excavators, drills and dozers. For example, the noise packages have been removed piece by piece from the R996 excavators (louvers, engine pans, mufflers) and substituted with ineffective/untested materials, and in some cases not replaced at all in a bid to improve equipment operating costs and performance. This has been justified that the noise standards applied to Mt Arthur Coal will be relaxed when the Mt Arthur Coal Consolidation project is approved.

Drill noise package components have also been removed (dust collector louvers).

Our big picture logic is that if we are already disturbed by the noise of the operations at Mt Arthur Coal and they plan to more than double their fleet, remove sound attenuation from these machines and put them 30 % closer to us, then we will be significantly impacted by an increase of noise from this mine.

Therefore the noise controls that must be imposed on Mt Arthur (and future developments) include:

- Meeting existing maximum noise targets of individual equipment types as per their existing Version E commitments of the mines previous approval;*

- *If technology does not currently meet version E then programs must be established to develop the technology to meet these requirements in a timely manner (Mt Arthur has halted development of improved noise pollution standards in anticipation of approval of this EA as it stands);*
- *Requirements to demonstrate, via 12 monthly compliance testing of equipment, to the community and to government regulators that noise emissions meet the above standards;*
- *Commitment not to remove noise packages after testing and to use best endeavours to operate the equipment at all times with noise packages intact;*
- *Commitment to improve overall equipment noise pollution contribution especially as other mines are approved and the amount of equipment operating in the valley increases;*
- *Trains that carry the additional coal must be improved with respect to noise pollution emissions. Currently this applies to new trains only and existing trains need to be upgraded as their utilisation increases – this has not been considered; and*
- *A mechanism that binds all future (and perhaps existing) mining operations (inclusive of trains and railway) to achieving a common cumulative area result as opposed to deflecting blame to other mining companies in the area for both dust and noise.*

Response

The author disagrees with some aspects of the Wolfgang's comment above and has sought to clarify this matter further below.

The Noise Impact Assessment presented in Section 8.2 (Volume 1) and Appendix G of the EA was undertaken in accordance with the INP and other relevant guidelines and included an assessment of predicted construction and operational mining noise, road noise and rail noise against DECCW criteria. The modelling included train noise (using current best practice, quiet QR locomotives) and best practice quiet mobile equipment.

As summarised in the Section 8.2.2 of the EA (Volume 1) and presented in Table 24, it is predicted that the Project will not result in any exceedances of the intrusive noise criteria to the west of the Mining Lease during worst-case prevailing night conditions for years 2011, 2016 and 2022. Operational noise will continue to be actively managed at Mt Arthur Coal throughout the life of the Project. This is further reaffirmed in Statement of Commitment No 6 which states that 'Mt Arthur Coal will implement the necessary noise control and management measures to ensure that the modelled noise levels at private receivers as listed in Section 8.2.2 of the EA (Volume 1) are not exceeded'.

Mt Arthur Coal is currently meeting and will continue to meet all regulatory criteria for noise emissions. The existing Noise Management Plan currently states:

*To achieve these criteria, significant levels of control will be necessary on **most** equipment. The aim of these specifications is to enable the large fleet of mobile equipment required for production on site to be able to operate in compliance with the Development Consent and EPA Licence criteria set at surrounding residences.*

It should be noted that the existing noise criteria may be met in a number of ways, and should not necessarily be met solely through sound power levels of equipment. The ability to operate some equipment without noise suppression must be retained, as noise attenuation equipment often leads to reduction in productivity and heating problems, particularly in the summer, when noise management is not as difficult as through winter months (when temperature inversions increase the level of management required).

4.10.3 Comment 3

Light Spillage

Existing controls can be substantially improved with little cost or imposition on mining operations with regard to light spill and sky glow. We are fast losing our ability to look up into the night sky and see stars as additional mining expansions are approved. With regard to the Mt Arthur Coal Consolidation proposal of more than doubling of the equipment and the moving closer to us, this will be exacerbated unless corrected.

The following controls must be applied:

- Light louvres to fitted and maintained to eliminate upward light;*
- Training, Auditing and commitment to lighting plant set up to ensure they are not pointed at the night sky. Currently the mine aims lighting plants away from Muswellbrook and nearby residences, which often means the plants are pointing into the night sky towards the West (towards Denman and our property); and*
- Minimisation of lighting plant usage through mandatory and demonstrate improvements in technology.*

Response

The author disagrees with some aspects of the Wolfgang's comment above and has sought to clarify this matter further below.

As discussed in Section 8.4.2 of the EA (Volume 1), the only locations that will have direct line of sight to the Mt Arthur Coal Complex lighting are elevated locations such as Roxburgh Road and Roxburgh Vineyard that overlook the screening topography and vegetation. These locations are considerably distant, which will provide mitigation of these effects. The Wolfgang property is located on low lying rural lands to the immediate west of the Project (approximately 4 km west of the Project) and will not experience any direct lighting impacts.

The visual effect of diffuse night lighting associated with the Project will be at a similar level to that currently approved and experienced by receivers surrounding the Mt Arthur Coal Complex. Lighting at the Mt Arthur Coal Complex will continue to be managed to ensure that the minimum level necessary for operational and safety needs is maintained and all lighting shall continue to be implemented in accordance with the EMS.

Existing light plants at Mt Arthur Coal are fitted with directional light hoods and/or louvres to minimise light spill. Current specifications used to purchase new lighting plants will include this requirement. Where possible, lights will be utilised at the lowest effective level and directed away from incoming views. All lighting will be directed to the ground and work areas and avoid being cast skyward or over long distances. Mt Arthur Coal employees will continue to be trained in the management of night time lighting, in accordance with current practice.

4.10.4 Comment 4

Community Amenities

In the 1980s Denman had 3 banks, a police station with 4 officers, a pool, fully functional hospital, 2 doctors, town hall and the list goes on. Since then many billions of dollars of mining has been conducted, and many billions of dollars of additional taxes have been collected. However Denman now has no police station, no banks, the same schools, same town hall (however it is run down and disgracefully maintained), same pool etc in fact no additional infrastructure with the exception of the hospital and town water supply has been provided.

There is very little evidence of benefit to the community due to the massive wealth extracted from the ground by mining.

Currently use of global supply contracts and strategic sourcing policies by Mt Arthur Coal discriminates against the local community and unnecessarily prevents them from participating in the prosperity of their area from mining activities to which must make so many concessions.

Concessions for example include, their rents, food prices, utility prices go up due to competitive pressure from mining operations. They are subjected to dust, noise, increased rates needed to pay for local infrastructure all with little return to them unless they happen to get employment with the mine. This is made more difficult due to the Hunter Valley being a preferred place to work in mining hence there is much competition from experienced mining personnel from other interstate areas and even countries over the local community.

There is an unacceptable trend for those who do work in the mines (especially decision makers at the mines responsible for protecting the local community from their operations) to live in Newcastle, Nelson Bay, Maitland and commute each day. This is easily observed by the traffic gridlock everyday between 4 am and 7 am and then again between 4 pm and 7 pm between Maitland and Muswellbrook. This creates increased risk of fatigue related traffic accidents as many of these employees are doing 12 hour shifts with 1 to 2 hours drives on each end of the day (totalling up to 16 hours a day). They do this because the pollution and amenities available to them when living in the valley is unacceptable to them and their families and they can afford to live in a cleaner environment. This does not help the local communities of the area at who have had to give so much to afford these people of their irresponsible and selfish lifestyles and who do not contribute to the community. The local community are alienated from the mining community who do not appreciate or are compassionate to their situation and hence do not try to do the right thing by them with regard to dust, noise, light pollution and contribution to community. If more miners (especially decision makers in mining areas) lived in the community where they work, the community would benefit, the standards of living and community compassion and participation would vastly improve. It is wrong to pollute to the detriment of those who live there.

The following controls must be applied to this EA:

- Positive discrimination must be implemented to ensure the local community who has to suffer from the pollution created by the mine shares in some of the benefits from the mine, that is mandatory requirements for the mine to train and use local people (same postcode) in their operations;*
- Mandatory requirement to utilise local business wherever that local business is available and that business can provide the service or supply the goods within 25 % of the price of business outside of the local postcode.*

- *Where a service or supply can be provided by a local business then 75 % or more of this service by value must be supplied locally (i.e. within the same postal code);*
- *This must include working with or supporting these businesses to improve their service to meet the mines expectations. It is not acceptable for the mine to side step the above requirement by categorising the business as unable to supply the service. There must be a fair and impartial process for determining whether a local business can supply the service e.g. list the services and supplies required on a web page for at least 4 weeks and allow local business to express their interest. If local supply capability exists, then the mine must do all that is necessary to achieve the 75 % supply target; and*
- *75 % of mining employees (and 100 % of decision makers at mines) must have their principle place of residence in the local postcode and live in what they create with their families.*

Substantial penalties to Mt Arthur Coal must exist and be enforced to encourage the above objectives to be met. It is clear that without this, the objectives will not be effective.

Given the short timeframe for us to consider this proposal, we have only been able to afford to devote this much time and consideration to this problem as we also work our own businesses, go to school and go to work.

Response

The author disagrees with some aspects of the Wolfgang's comment above and has sought to clarify this matter further below.

Mt Arthur Coal has been operational since 1966 (the commencement of Bayswater No 2) and during this time has developed and will continue to utilise a local recruitment policy that aims to maximise employment in the local area. The training of local apprentices or trainees are an integral component to this policy.

The assessment scenarios presented in the Social Impact Assessment (Appendix P of the EA) were based on recruitment data which shows that 80% of new employees were recruited from the local area (i.e. Singleton, Muswellbrook and Upper Hunter Shires) and only 20% of employees were recruited from outside the local area. The majority of those recruited from outside the local area were generally professional or specialist roles that could not be filled from the local workforce. As part of the Project, Mt Arthur Coal intends to continue its local recruitment policy to hire according to the predicted production and economic climate.

Mt Arthur Coal conducts its business in accordance with BHP Billiton corporate standards and policies. Consideration is given to local suppliers; however any suppliers working for BHP Billiton must be competitive in a commercial environment.

A mutual Voluntary Planning Agreement is currently being negotiated with MSC to address the social amenity and community infrastructure requirements arising from the additional impacts caused by the Project. It should be noted that significant Section 94 Community Contributions have previously been provided by Mt Arthur Coal for the existing operations. This included the establishment and maintenance of new heated indoor pool at Muswellbrook.

Mt Arthur Coal is also actively involved in supporting community initiatives via direct involvement and/or monetary support of projects that benefit a cross section of the community.

5 CONCLUSION

We trust that this response meets your requirements. Please do not hesitate to contact myself on 02 6575 2000 if you have any questions.

Yours faithfully

HANSEN BAILEY

A handwritten signature in dark ink, appearing to read 'James Bailey', is written over a light blue rectangular background.

James Bailey
Director

6 REFERENCES

- Department of Environment & Conservation NSW (2004) *Interim Community Consultation Requirements for Applicants*.
- Department of Environment & Conservation (2008) *National Greenhouse Accounts Factors*
- Environmental Protection Authority (1999) *Environmental Criteria for Road Traffic Noise*.
- Environmental Protection Authority (2000) *NSW Industrial Noise Policy*.
- Lucas S A, Coombes P J, Planner J and Welchman S (2009) "Rainfall harvesting and coal dust: the potential health impacts of trace elements in coal dust in rainwater", Air Quality and Climate Change Vol. 43 No. 2 May 2009 pp23-30.
- Mancini (KM), Gladwin (DN), Villela (R) and Cavendish (MG) (1988) *Effects of aircraft noise and sonic booms on domestic animals and wildlife: A literature synthesis*. Published by the Engineering and Services Centre U.S. Air Force and the Fish and Wildlife Service, U.S. Department of the Interior.
- NSW Health (2007) Rainwater tanks brochure:
http://www.health.nsw.gov.au/pubs/2007/pdf/rainwater_tanks.pdf
- Roads & Traffic Authority (2002) *Guide to Traffic Generating Developments*.
- URS Australia Pty Limited (1997) *Mt Arthur North Environmental Impact Statement*. Prepared for Mt Arthur Coal Pty Limited.

Appendix A

EA Submissions

Appendix B

Noise Predictions in the absence of Mt Arthur Coal Rail Noise

Appendix C

Revised Greenhouse Gas Assessment Tables

Appendix D

Darley Response