



Planning &  
Environment

***ADDENDUM:***

***STATE SIGNIFICANT  
DEVELOPMENT ASSESSMENT  
Mt Thorley Continuation Project  
(SSD-6465)***



Environmental Assessment Report  
Section 89E of the  
*Environmental Planning and Assessment Act 1979*  
May 2015

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## 1. INTRODUCTION

### 1.1 Background

The report has been prepared to consider the recommendations made in the Planning Assessment Commission's (PAC's) review of the Mt Thorley Continuation Project (SSD-6465) (the project), together with additional information received from Mt Thorley Operations Pty Ltd (MTO) and the Department of Planning & Environment's (the Department's) independent noise and economics experts since the PAC review.

The report should be read in conjunction with the Department's Environmental Assessment Report (November 2014) for the project, and the corresponding documents for the related Warkworth Continuation Project (SSD-6464). As outlined in the Assessment Report the Mt Thorley and Warkworth mines share a cross-linked ownership structure, with both mines ultimately managed by Coal and Allied Ltd (a subsidiary of Rio Tinto Ltd).

### 1.2 Chronology of Events

A brief chronology of the key events relevant to this addendum report in the time since the Department's referral of the assessment package to the PAC is presented in the following table.

Table 1: Chronology of Events

Date	Event
14 Nov 14	Department's Environmental Assessment Report referred to PAC
18-19 Dec 14	PAC holds public hearings in Singleton
4 Mar 15	PAC finalises its review and refers the review report to the Department
20 Mar 15	MTO provides its response to the PAC review to the Department (see Attachment A)
9 Apr 15	Department receives independent Bulga mine noise audit report from Wilkinson Murray (see Attachment E)
16 Apr 15	Department's independent economics expert (Deloitte Access Economics) provides economic review report (see Attachment B)
4 May 15	Rio Tinto reaches in-principle agreement with Singleton Shire Council about the terms of a Voluntary Planning Agreement for both the Mt Thorley and Warkworth projects (see Attachment C)
6 May 15	Department's independent noise expert (Dr Norm Broner) provides noise review report (see Attachment D)

## 2. CONSIDERATION OF PAC REVIEW

### 2.1 Review Findings and Recommendations

The PAC review report for the project has the following main conclusion:

*"In conclusion, the Commission has made a number of significant recommendations and requires further information on a variety of matters prior to determination of the subject application. The Commission notes that whilst the current application is very similar to the Mount Thorley part of the previous Warkworth Extension Project (that was refused by the LEC) significant legislative and policy changes have occurred since that time. The Commission is required to consider the current legislative and policy environment in its review of the application. Further, changes have been made to the application to address issues raised in the LEC decision.*

*The Commission recognises that the project (in conjunction with the Warkworth Continuation Project) provides for mining of a major resource and will have very significant direct and indirect economic and social benefits for the State and the Hunter region. It also acknowledges that if the projects were not approved, there would be substantial adverse economic impacts especially to the towns of Singleton and Cessnock. These impacts include the loss of royalties to the NSW government, a reduction in infrastructure projects to the Hunter region and lower wage and salary income for both current employees and contractors.*

*In terms of environmental impacts, the Commission has concluded that the impacts of the project are acceptable subject to additional information as detailed herein and the imposition of stringent conditions of approval.*

*In summary the Commission considers that the project is consistent with government policy and legislation and is capable of being approved."*

The review report contains 15 recommendations grouped into the following categories:

- economic impacts;
- noise;
- air quality;
- rehabilitation; and
- Aboriginal archaeology.

The Department's consideration of these recommendations is provided below. Revised recommended conditions of approval, based on this consideration, are provided in Attachment G.

## **2.2 Economic Impacts**

### **2.2.1 Recommendation 1**

*The Applicant's economic assessment, including the CBA, should be updated to reflect the current economic climate.*

MTO has updated its cost benefit analysis (CBA) for the Mt Thorley and Warkworth Continuation Projects to reflect the most recent consensus forecasts for thermal coal prices and the exchange rate (see Attachment A). This includes a coal price of \$63/tonne and an exchange rate of 78 cents/\$US for 2015.

MTO also noted that the original CBA for the projects included sensitivity analyses that encompass the current economic climate being experienced.

The additional analysis indicates that the net benefit provided by the projects is relatively insensitive to movements in coal prices and exchange rates, with the net present value of the projects reducing by only \$10 million based on the most recent forecasts. This still results in a benefit of \$1.5 billion to NSW associated with the projects.

The Department's independent economics expert Deloitte Access Economics (DAE) has reviewed the additional economic modelling (see Attachment B). DAE concludes that:

*"We maintain our finding that the analysis contained in the original BAEconomics analysis is broadly appropriate. DAE considers that the Secretary's Environmental Assessment Requirements in respect to economic assessment have been met."*

DAE did raise some concerns over the presentation of the CBA and the treatment of environmental externalities, however it noted that neither of these issues would affect the overall findings of the cost benefit analysis.

The Department accepts the independent economics expert's findings and conclusions. Based on the assessments of both BAEconomics and DAE, the Department is satisfied that the CBA indicates that the projects would result in a significant net benefit to NSW of approximately \$1.5 billion based on current forecasts.

## 2.2.2 Recommendation 2

*As part of the determination of the project, DAE should review the additional information provided by the applicant and any updated economic assessment/CBA provided by the applicant and provide updated advice to the Department as required.*

DAE has updated its report having regard to the additional information provided by MTO (see Attachment B), and the Department notes that DAE has concluded that the project would result in a significant net economic benefit to NSW (see above).

## 2.2.3 Recommendation 3

*The following options should be considered for the future of Bulga village:*

- a. *Compensating property owners who wish to sell. This compensation would be paid by the Applicant and the compensation amount would be the difference between movements in the average regional/sub-regional property price and that of local property sale prices based on an independent valuation process. A dispute resolution process would also need to be agreed*
- b. *Relocating the village at the expense of the state government and Applicant. The government would be required to deliver all new infrastructure, while the Applicant would be required to pay for the construction of new houses. Any relocation decision and associated planning would need to involve the residents of Bulga*
- c. *Requiring the Applicant to develop a Village Enhancement strategy in consultation with the local community and Council and to fund and implement a program of works or similar via a VPA with the Minister and Council.*

### Compensation and Relocation

The Department's assessment of the Mt Thorley and Warkworth Continuation Projects shows that no privately-owned residences within Bulga village would experience noise and/or dust impacts above the applicable acquisition criteria (although one property affected by the Warkworth project is located on the northern outskirts of Bulga). An additional 5 residences located in or around Bulga would be subject to moderate noise impacts (all of which are affected by the Warkworth Continuation Project).

The Department has recommended conditions that would require Rio Tinto to address these impacts in accordance with established policy, namely the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (December 2014).

In summary, the assessment of the projects indicates that around 95% of the properties in Bulga would be below the acquisition and/or mitigation thresholds in the *Voluntary Land Acquisition and Mitigation Policy* for both dust and noise. These criteria are set by the NSW Government for assessing whether the impacts of a proposed development are acceptable.

Consequently, apart from those with acquisition rights and/or mitigation rights, the Department considers there is no justification for paying compensation to Bulga residents or relocating the village.

### Property Values

The Department's assessment report for the related Warkworth Continuation Project includes consideration of the potential impacts of the project on property values in Bulga, noting that mining is likely to have both positive and negative influences on property values.

The Department also notes that the Mt Thorley and Warkworth mines have been operating since the 1980s, and Rio Tinto has held a valid mining tenement over the area subject to the current application since that time. It would therefore be reasonable to assume that the presence of open cut mining in the vicinity is a long standing factor in the valuation of properties in Bulga village and surrounds.

Further, the Department considers there is no legal basis for guaranteeing property values where an applicant is seeking to develop the site in accordance with a permissible land use.

This is supported by the NSW Land & Environment Court which has commented that if compensation were payable in respect of any development which had some impact in lowering the amenity of

another property (although not so great as to warrant refusal) any applicant could be exposed to claims for compensation<sup>1</sup>. Creating such a right to compensation would be contrary to the relevant objective of the EP&A Act to promote the orderly and economic use and development of land.

#### Community Enhancement

With regard to community enhancement, the project together with the Warkworth Continuation Project would not result in significant additional demand on local services and infrastructure, given that the mines have been operating for more than 30 years and the development essentially represents a continuation of these mining operations, with no significant additional employment generation.

MTO provides for most of its own utilities and services, with limited reliance on Council infrastructure. For example, the major access routes to and from the mine utilise State roads. The Department recognises that employees that live in the Singleton LGA would continue to create ongoing demand for local services and infrastructure. However, these employees would be required to continue to pay rates for the provision of Council services and infrastructure.

Further, the primary responsibility for the provision of key community services resides with the State Government, and Singleton Council has received approximately \$24 million in infrastructure funding through NSW Government programs in recent times.

Nonetheless, in accordance with its previous commitment, Rio Tinto has negotiated 'in-principle' agreement on the terms for a Voluntary Planning Agreement (VPA) with Singleton Shire Council. Under the VPA, Rio Tinto is offering a total of \$11 million over the 21 year life of the development consents for the Warkworth and Mt Thorley projects (see Attachment C).

In accordance with section 93F of the EP&A Act, these contributions must be used for a proper public purpose, such as towards the provision of public services, amenities, affordable housing and/or other infrastructure.

Rio Tinto's offer does not specify how these contributions would be allocated. However, the Department has recommended that the VPA should focus on funding community infrastructure and services in the area surrounding the mine, including Bulga Village.

In terms of the quantum of the offer, the Department notes that the proposed contribution is equivalent to approximately 1.5% of the capital investment value of the two projects, which exceeds the maximum percentage that a consent authority would normally be able to require under a Section 94A fixed levy.

The contribution is also greater than other community enhancement packages offered in the Singleton LGA for contemporary mining projects, such as the recently approved Bulga Optimisation Project (SSD-4960), which was equivalent to 0.44% of capital investment value. Finally, the Department notes that the offer is \$1 million greater than proposed under the now repealed 2012 approval for the Warkworth Extension Project (which included ongoing operations at Mt Thorley).

Given the above, the Department considers that the offer from Rio Tinto is reasonable, and has added a condition requiring MTO to enter into the VPA within 6 months of any approval, in accordance with the terms of its offer (see condition 15 of schedule 2).

### 2.3 Noise

#### 2.3.1 Recommendation 4

*The potential noise impacts associated with the upgrading of the CPP should be addressed prior to the determination of the application.*

In its response to the PAC review, MTO has undertaken additional consideration and modelling of noise impacts associated with the upgrade to the Coal Preparation Plant (CPP) (see Attachment A). The assessment indicates that the upgrade to the CPP would increase the sound power level at the

<sup>1</sup> For example, see *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007].

CPP marginally, by 1dB to 114dBA. This 1dB change does not alter the total 121dBA total sound power level generated from this part of the site.

MTO re-ran the noise model for the worst case year (ie. 2017) based on this revised sound power level, which found that the marginal increase in sound power level resulted in zero increase to predicted noise levels at receivers to the west of the mine. For receivers to the east, the assessment found only marginal differences, with no change to the number of properties marginally, moderately or significantly affected.

The Department is satisfied that the upgrading to the CPP would not result in any significant change to noise impacts associated with the project.

### 2.3.2 Recommendation 5

*The acceptability of setting noise limits above the PSNL should be considered by the NSW government, ideally via a review of the INP.*

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) and the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (December 2014) specifically contemplate and regulate noise impacts where they exceed the PSNLs.

The NSW Government is also currently reviewing the *NSW Industrial Noise Policy* (INP), which is likely to address this matter further.

However, for clarity, an explanation of the application of the PSNLs in the assessment process under the current policy settings is set out below.

The INP provides that the industrial noise source criteria set down in the policy are best regarded as planning tools and "*are not mandatory, and an application for a noise-producing development is not determined purely on the basis of compliance or otherwise with the noise criteria*" (INP Section 1.4.1).

Section 1.4.7 of the INP further provides:

*"In setting noise limits, the regulatory/consent authorities need to consider the technical practicalities of mitigation, the amount of noise reduction provided, community views, benefits arising from the development and cost of achieving the project specific noise levels recommended here, along with the environmental consequences of exceeding the project-specific noise levels. It is important that the project-specific noise levels are not automatically interpreted as conditions for consent, without consideration of the other factors. In many instances, it may be appropriate to set noise limits for a development above the project-specific noise levels recommended in this document."*

The Department's Assessment Report has considered these matters in detail, and concluded that MTO (together with Warkworth) is proposing all reasonable and feasible mitigation to minimise noise impacts, including spending in excess of \$30 million on noise attenuation of its mining fleet.

The modelling in the EIS indicates that the project would result in exceedances of the PSNLs at 59 privately-owned residences in the areas surrounding the mine.

However, in considering the acceptability of these exceedances, it is important to consider a number of factors.

First, the Department has recommended that the predicted exceedances of the PSNLs are addressed in accordance with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy*, which gives guidance on how exceedances of project specific noise levels should be interpreted.

In this regard, it is important to note that 53 of the 59 residences are predicted to experience noise impacts of between 0 and 2 dBA above the PSNLs. Under the *Voluntary Land Acquisition and Mitigation Policy*, an exceedance of 2 dB is considered to be negligible and the Department's noise

expert (Dr Broner) advises that this would not discernible for most people. Under certain circumstances, 2dB is the 'allowance exceedance' that the EPA applies when determining compliance with statutory noise limits (see Section 11.1.3 of the INP).

Of the remaining 6 residences, 2 would exceed the PSNLs by between 3 and 5 dBA, and the Department has set the limits accordingly. However, the Department has also recommended that the landowners be able to request additional noise mitigation at the residence (such as air conditioning and double-glazing). For the remaining 4 properties, noise levels are predicted to significantly exceed the PSNLs (ie. greater than 5 dBA above the PSNLs), and the Department has recommended that these landowners be afforded acquisition rights under the consent (NB. 3 of these properties are already within the acquisition zone under the existing consent). In accordance with standard practice, no limits have been set for these properties.

Second, the predictions are based on the change in noise levels relative to background noise levels that have not existed for many years, as the Mt Thorley and Warkworth mines have been part of the noise landscape for over 30 years now.

Third, the predictions in the EIS are worst case predictions under adverse weather conditions occurring in the most affected season in the most affected year, so actual impacts are likely to be lower than predicted.

Finally, both the INP and the Mining SEPP deem noise levels from specific projects to be acceptable provided they do not result in exceedances of the recommended amenity (or cumulative) criteria in the INP. In this case, the applicable amenity criteria is 40 dBA over a 9-hour night time period (which equates to an  $L_{Aeq(15min)}$  level of approximately 43 dBA).

Despite the predicted exceedances of PSNLs, cumulative noise levels (which includes the project and all other industrial sources such as the Warkworth and Bulga mines) would remain below the recommended amenity criteria for a rural area in the INP at all privately-owned residences surrounding the mine that do not have existing acquisition rights, and therefore below the non-discretionary standards in the Mining SEPP.

When all these factors are taken into consideration with the social and economic benefits of the project, the Department considers that its decision to set noise limits above the PSNLs is justified and is consistent with the approach adopted under applicable NSW Government policy.

### **2.3.3 Recommendation 6**

*To ensure the benefits of the attenuation program will be fully realised, regular monitoring and audit of the performance of the attenuated fleet and equipment should be carried out.*

The Department has amended the Noise Management Plan condition (ie. condition 5 of schedule 3) to reflect the PAC's recommendation. It has also amended the noise operating conditions (ie. condition 4 of schedule 3) to require that the noise attenuation program be 100% completed by the end of 2016.

### **2.3.4 Recommendation 7**

*A public information briefing session should be held to clarify the operation of the Trigger Action Response Plan.*

The Department agrees that a public information session would assist in clarifying how the noise management and response system on the site operates in practice. Accordingly, the Department has amended the Noise Management Plan condition (ie. condition 5 of schedule 3) to require MTO to include:

*"provisions for keeping the community informed about the operation of the noise management system and monitoring programs, including holding a public information session within 6 months of the granting of this development consent."*

The Department would also be willing to attend the information session to explain its compliance and enforcement role under the conditions of consent and the EP&A Act.

### **2.3.5 Recommendation 8**

*The Applicant should update its Statement of Commitments to provide acquisition and mitigation rights to those properties which were granted such rights under the now repealed approval. The terms of these rights should be similar to those that would be granted under the approval conditions should the application be approved.*

In its response to the PAC review, MTO has reiterated that it would honour its commitment to acquiring properties which were granted such rights under the now repealed 2012 approval for the Warkworth Extension Project, and has clarified that it would acquire these properties on similar terms to those that are within the formal acquisition zone for the development.

It has also clarified that it would be prepared to extend this program to also reinstate mitigation rights under the now repealed 2012 approval.

While the Department acknowledges MTO's commitment to acquiring and/or mitigating these additional properties, it notes that it cannot compel the company to amend its Statement of Commitments to formalise the commitment.

Further, the Department's role is to apply government policy, and under the *Voluntary Land Acquisition and Mitigation Policy*, the impacts of the currently proposed project do not exceed the applicable acquisition or mitigation criteria at these properties. The Department also questions whether there is sufficient nexus between the current project and the impact to warrant such a condition.

The Department also notes that the situation at the time of the 2012 approval is different to the current situation in at least two important respects.

First, there was no clear policy in regard to mitigation and acquisition in 2012, whereas these matters are now regulated under the *Voluntary Land Acquisition and Mitigation Policy* which was gazetted in December 2014.

Second, the 2012 assessment assumed that the Mt Thorley and Warkworth mines were operating as a single complex, and the Department applied complex-wide criteria in its recommended conditions. The application of the complex-wide criteria resulted in stricter limits than would have otherwise been the case. However, the NSW Land & Environment Court has clearly stated that the application of complex-wide criteria to these mines is not appropriate, and the mines must be treated as separate entities. This has resulted in less stringent criteria for local residents, and hence a lower number of residences entitled to mitigation and acquisition than was the case under the 2012 approval.

In the end, MTO is essentially acting in good faith to honour a previous commitment that has been superseded by events, and the Department has no formal power to require MTO to comply with its commitment.

Consequently, the Department does not believe that the commitment can or should be formalised as a specific condition of consent.

### **2.3.6 Recommendation 9**

*The recommended public information briefing session referred to in Recommendation [7] should include a briefing on the application of the LFN modification factor and the purposes of different types of monitoring as well as the operation of the Trigger Action Response Plan.*

The Department agrees with the PAC's recommendation, and has amended the Noise Management Plan condition (ie. condition 5 of schedule 3) accordingly.

### 2.3.7 Recommendation 10

*The concerns raised in the SKM report that insufficient data was collected to enable it to assess the accuracy of ongoing routine noise monitoring carried out by the Applicant should be addressed before determination of the current application.*

The Department's independent noise expert has reviewed the concerns raised in the 2012 SKM report that there was insufficient data collected in SKM's survey to enable it to assess the accuracy of ongoing routine noise monitoring carried out by the Applicant.

Dr Broner notes that (see Attachment D):

*"We note that even if there was insufficient data then (and this is not clear), since that time there is a history of quarterly noise level surveys, the noise management plan execution and data supporting very substantial compliance...Non-compliant noise measurements accounted for only a very small percentage of the monitoring dataset at 0.37 per cent (10 non-compliances measured from 2,689 individual assessments undertaken). Therefore, the Author believes that this concern is no longer valid."*

Dr Broner goes on to conclude:

*"The Author is satisfied that this concern is no longer valid given the significant amount of data available since then."*

The Department accepts Dr Broner's advice on this matter.

However, to further assess noise compliance in Bulga Village, the Department recently engaged specialist acoustics consultants Wilkinson Murray to undertake a 10 day noise audit of noise impacts in Bulga, based on extensive night-time attended monitoring at 5 residences in the village (see Attachment E).

In summary, the monitoring report found:

- there was no non-compliance with intrusive noise limits;
- all measurements were below amenity criteria in the INP;
- only one exceedance (out of the 258 measurements or 0.39%) was identified above the 2 dB(A) tolerance level specified in the INP; and
- the mine complex's real-time management systems triggered operational control measures that reduced noise levels to less than the noise limits within 75 minutes, as required under the approved Noise Management Plans.

The Department will continue to proactively monitor compliance at the Mt Thorley and Warkworth mines, and take any necessary enforcement action to ensure compliance with the noise limits. However, the Department considers this latest monitoring has provided comprehensive and independent confirmation of the findings of Mt Thorley and Warkworth's noise monitoring programs, and that the mines are generally complying with the noise limits in the project approvals.

The results of the monitoring in regard to Low Frequency Noise (LFN) are discussed further below.

### 2.3.8 Recommendation 11

*The conditions in any approval should require the application of an appropriate noise modification factor for LFN during compliance testing if LFN is prevalent before comparison with the PSNL in the approval. However, if a new INP is adopted before the determination of this application, the new INP methodology and criteria should apply.*

The PAC Review Report concludes that the PAC agrees with the EPA and the community that the INP methodology for assessing low frequency noise (LFN) penalties should apply, rather than the alternative methods proposed by MTO (ie. the Broner method and the UK Department of Environment, Food and Rural Affairs (DEFRA) method).

However, the PAC also acknowledges that the EPA has stated that the INP methodology should be applied 'except where it results in perverse outcomes' and 'unless further information is provided', as outlined in the EPA's letter to the Department dated 20 December 2010. This letter also states that:

*"Where these perverse outcomes can be demonstrated in future environmental assessments, it was agreed that [the Department] would apply a 5 decibel penalty to the A-weighted level, if the C-weighted level exceeds 65dB(C), and [EPA] would not specify conditions in relation to low frequency noise in the environment protection licence for the project."*

Notwithstanding its conclusions, the PAC acknowledges that there are issues associated with the LFN methodology in the INP, and recommends that if a new INP is adopted before determination of the project, then the new methodology and criteria should apply.

The current INP provides that a +5dB penalty (or modifying factor) should be applied to the noise source level if the dBC noise level minus the dBA noise level is 15dB or more – that is, where the noise has a significant low frequency component. This methodology is also known as the 'C – A method', and has been around since the introduction of the INP in 2000. It was originally developed for assessing LFN impacts associated with train locomotives in close proximity to the noise source.

The EPA, the Department and the Department's independent noise expert all agree that the C – A method has significant limitations, particularly when assessing LFN impacts in areas distant from the noise source. This is because mid and higher frequencies are naturally attenuated as distance from the noise source increases, resulting in larger differences between dBC and dBA levels due to distance alone.

To illustrate, Dr Broner notes that a C – A difference of 7dB for a nominal noise source at 1 kilometre increases to a difference of 15dB at a distance of 3 kilometres from the noise source (see Attachment D).

Therefore, adopting the C – A method as a threshold for annoyance can result in perverse outcomes where a +5dB modifying factor is required to be applied even where the LFN levels are below or near threshold of hearing levels.

The limitations of the C – A method are also widely recognised in the scientific literature. The World Health Organisation's *Community Noise Guideline* (1999) states:

*"However, the difference between dBC (or dBlin) and dBA will give crude information about the presence of low-frequency components in noise. If the difference is more than 10dB, it is recommended that a frequency analysis of the noise be performed."*

Further, in a detailed study on LFN annoyance and health, Leventhall HG (2004) found that:

*"The (dBC – dBA) difference cannot be used as an annoyance predictor, but is a simple indicator of whether further investigations may be necessary."*

The NSW Ombudsman also investigated this issue in 2014 in response to complaints from the Bulga Milbrodale Progress Association (BMPA) regarding application of the LFN modifying factor. Details of the Ombudsman's investigation are outlined in the EIS (Section 9.4.4), with the Ombudsman noting that:

*"[T]here appears to be appropriate consideration of professional advice from qualified staff and experts about LFN that casts doubt as to the practicality of strict enforcement of the [C – A methodology in the INP]."*

The two other contemporary approaches identified above (ie. the Broner method and the DEFRA curve method) do not suffer the same distance attenuation limitation as the C – A method.

The Broner method applies simplified absolute level criteria for LFN impact, with these criteria based on extensive peer reviewed scientific study. The Broner method applies night-time criteria of 60dBC (desirable) and 65dBC (maximum), based on external noise levels at the receiver. Day-time criteria

are 5dB higher than the night-time criteria. Dr Broner notes that these criteria were developed for noise sources with a significant LFN imbalance at larger distances.

The DEFRA curve method applies a range of threshold criteria across different low frequencies, again based on extensive scientific study of LFN annoyance. The DEFRA curve applies to internal noise levels (as opposed to external noise levels under the C – A and Broner methods), but can be modified for external assessment (i.e. Modified DEFRA curve). The internal DEFRA curve thresholds are reproduced below.

*DEFRA Internal Noise Levels Leq dB*

	Frequency Hz	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
Noise Source	Fluctuating noise	92	87	83	74	64	56	49	43	42	40	38	36	34
	Steady noise	97	92	88	79	69	61	54	48	47	45	43	41	39

In lieu of the revised INP being finalised, the Department intends to continue to apply a practical approach to the assessment and management of LFN and the application of the modification factors in the INP, based on good science. That is, the Department will apply the LFN modifying factors in the INP (ie. the C – A method), except where this would result in perverse outcomes. This is consistent with the EPA's approach to LFN management, and the NSW Ombudsman's findings.

With regard to LFN associated with the Mt Thorley Continuation Project, MTO has undertaken an assessment of the project using both the C – A and DEFRA methods, as well as the Broner method. The assessment indicates that whilst the C – A would exceed 15dB at some receivers, the LFN levels would not exceed the DEFRA curve thresholds, or the Broner criteria.

In relation to the DEFRA assessment, MTO's assessment was based on monitoring undertaken at a mine-owned residence on Putty Road to the east of Wollombi Brook (ie. 1916 Putty Road), which is considerably closer to the Warkworth and Mt Thorley mines than residences in Bulga Village<sup>3</sup>. Whilst this property experienced dBA noise levels in excess of the applicable acquisition criteria, it did not exceed the INP C – A 15dB threshold or the DEFRA curve thresholds.

Given the natural attenuation of all sound (including low and higher frequencies) with distance, it would be expected that residences in Bulga Village would have lower internal LFN levels than those experienced in the mine-owned residence (which complies with the DEFRA curve thresholds).

As mentioned above, the Department recently engaged specialist acoustic consultants Wilkinson Murray to undertake a 10 day noise audit of noise impacts in Bulga to further assess noise compliance (see Attachment E). The audit report includes LFN analysis using the C – A, Broner and DEFRA curve methods.

The audit indicates that C – A levels do exceed the 15dB threshold levels at all of the monitoring locations in Bulga Village. However, the LFN levels were found to comply with the modified<sup>4</sup> DEFRA curve thresholds at all receivers. An example of the monitoring results against the modified DEFRA curve at one of the key residences in Bulga is shown in Figure 1 below.

The dBC levels were found to comply with the Broner criteria at all receivers, with the exception of some minor (0.3dB) exceedances of the 60dB 'desirable' criterion in a small number of measurements.

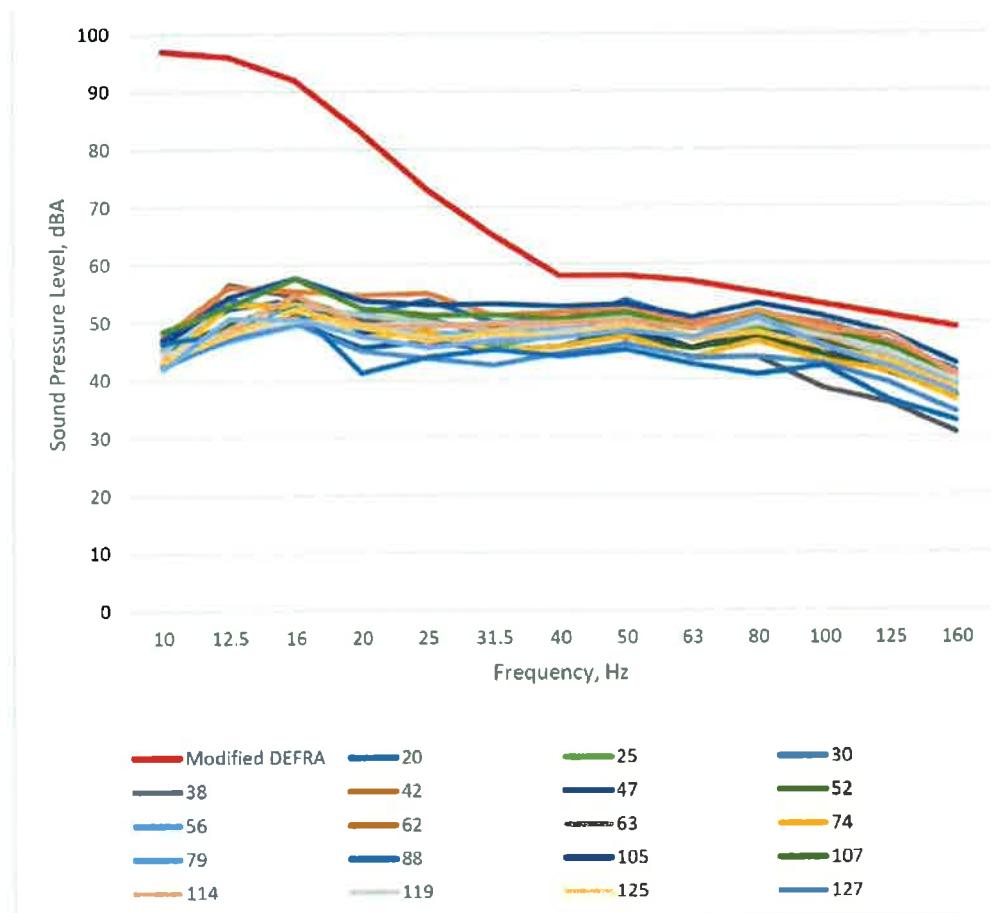
In considering this matter, it is important to note that the dBC levels measured by Wilkinson Murray (and the dB levels used for comparison against the DEFRA curve thresholds) are total noise levels from the all of the mines in the area, including Mt Thorley, Warkworth, Bulga, Wambo and Hunter

<sup>3</sup> The mine-owned residence is also of light-weight timber-clad construction with standard glazing, and is elevated on brick piers with timber flooring – thereby representative of relatively poor noise insulation.

<sup>4</sup> As the compliance monitoring was undertaken externally, the analysis has been undertaken against modified DEFRA curve thresholds.

Valley Operations. Unlike higher frequency noise, it is not technically feasible to accurately distinguish contributions of LFN from individual noise sources that are in relatively close proximity to each other.

As a result of this limitation, the Department accepts that the actual contribution from the Mt Thorley mine would be significantly less than the total LFN levels measured during the monitoring program.



**Figure 1: Measured low frequency noise spectra compared to modified DEFRA curve**

In consideration of the above, the Department is satisfied that measured and predicted LFN levels associated with the existing mine and the Mt Thorley Continuation Project are below the annoyance thresholds based on contemporary LFN assessment methods, and therefore that LFN is unlikely to result in any unacceptable noise impacts in the surrounding area.

The Department is also satisfied that MTO's LFN assessment and the Department's noise audit demonstrate that strict application of the C – A method in the INP would result in perverse outcomes. This is because such application would require the modifying factor to be applied for receivers in Bulga (which exceed the C – A 15dB threshold), but not for receivers closer to the mine that experience greater noise impacts (but do not exceed the C – A 15dB threshold due to the differential attenuation of noise frequencies over distance).

Notwithstanding all of the above, the Department acknowledges that many residents in Bulga are very concerned about this issue, and that LFN should continue to be thoroughly assessed and managed during operation of the project.

In this regard, the recommended conditions require that noise generated by the development be measured in accordance with the requirements of the INP (as may be updated from time-to-time) or an equivalent NSW Government noise policy. This includes using the C – A method to calculate LFN during compliance monitoring.

However, given the limitations of the current approach outlined under the INP, the Department has amended the recommended conditions (Appendix 6 of the conditions) to clarify that the modifying factor for LFN is to be applied, except where it can be demonstrated that this is only as a result of differential attenuation over distance.

In practice, this would mean the C – A method would act as a screening tool for further investigations using more accurate and scientifically robust methodologies. This is consistent with the EPA's and Department's approach to LFN management, and would accommodate any revisions to the INP which are likely to adopt an alternative approach to this issue.

### **2.3.9 Recommendation 12**

*Up-to-date information should be provided on both the Rio Tinto website and hotline with respect to blasting schedule.*

The Department has amended condition 12 of schedule 3 to reflect the PAC's recommendation.

## **2.4 Air Quality**

### **2.4.1 Recommendation 13**

*Prior to any approval conditions 15-17 should be amended to require compliance with established criteria.*

Conditions 15 to 17 relate to air quality criteria, and the current recommended conditions require MTO to:

*"ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria..."*

The Department understands that the PAC is recommending that these conditions be amended to require strict compliance with the air quality criteria, rather than a requirement to employ 'all reasonable and feasible avoidance and mitigation measures' to avoid exceedances of the criteria.

However, the Department sees a number of significant problems with amending the condition in the manner suggested.

First, the Department notes that the air quality criteria are cumulative ambient air quality goals and are not project-specific criteria.

Second, any condition that applies a strict liability for a cumulative standard would be unenforceable as it would be very difficult to establish causation where an exceedance occurs.

Third, it could result in a situation where a mine is only contributing a small proportion of the overall concentrations of dust, but is held liable for any exceedances.

To overcome these issues, both the Department and the EPA focus on source control to minimise dust emissions to the greatest extent practicable.

To this end, the EPA has been implementing the 'Dust Stop' program across the mining industry in NSW for some years to drive improvements in dust management practices. It can also impose 'Pollution Reduction Programs' on the Environment Protection Licences where there is a particular issue with dust emissions leaving the site.

While the Department does not have the flexibility to retrospectively alter conditions of consent for mining projects, it does require mining companies to prepare and implement detailed Air Quality Management Plans. These plans must be prepared in consultation with the EPA, incorporate best practice dust avoidance and mitigation measures, and be regularly reviewed and updated to drive improvements in environmental performance over time.

Given the above, the Department considers that the conditions should retain the requirements previously recommended.

## 2.5 Rehabilitation

### 2.5.1 Recommendation 14

*Recommended Condition 36 (Schedule 3) should be amended to include timeframes for achieving specified rehabilitation benchmarks with penalties to be enforced if these benchmarks are not met.*

The Department recognises that specific timeframes for achieving rehabilitation benchmarks are complex and subject to a range of factors associated with the progression of mining operations. Accordingly, the Department believes that it is appropriate that such timeframes are developed as part of the mine's detailed Mining Operations Plans (MOP) required under the *Mining Act 1992*, which must be prepared by Warkworth prior to mining commencing in the extension area.

As outlined in the PAC review report, until recently progressive rehabilitation at the MTW mine complex has been hampered by a number of legacy issues, however these constraints have now been removed with a simplified mine plan, which has been evidenced by the improvement in rehabilitation at the complex in recent years.

The Department has amended condition 36 to reflect the PAC's recommendation, by requiring MTO to include timeframes for achieving the specified rehabilitation objectives as part of the Rehabilitation Management Plan.

The Department notes that the recommended conditions also require MTO to:

- progressively rehabilitate the site;
- meet a range of rehabilitation objectives;
- define detailed performance and completion criteria in the Rehabilitation Management Plan; and
- include interim rehabilitation where necessary to minimise dust emissions.

With regard to penalties, it is noted that any failure to meet the performance and completion criteria would constitute a breach of the development consent, which could result in enforcement actions and penalties under the *Environmental Planning and Assessment Act 1979*. Penalties for failing to meet rehabilitation requirements could also be brought under the provisions of the *Mining Act 1992*.

## 2.6 Aboriginal Archaeology

### 2.6.1 Recommendation 15

*Prior to the determination of application further information is to be provided that details the Aboriginal cultural heritage values of the proposed Loders Creek Aboriginal Cultural Heritage Conservation area, ensures that significant extant Aboriginal Cultural heritage locations on site are included in the ACHCA (and therefore protected) and provides a mechanism for establishment and conservation of the ACHCA including land not currently within the subject site.*

In its response to the PAC review, MTO has provided additional information on the Aboriginal heritage values of the proposed Loders Creek Aboriginal Cultural Heritage Conservation Area (ACHCA), including details of additional Aboriginal sites surveys undertaken in September 2014 (see Attachment A).

The additional surveys, undertaken in consultation with the Mt Thorley Warkworth (MTW) mine complex's Cultural Heritage Working Group (CHWG), identified 66 Aboriginal sites within the ACHCA, including isolated stone artefacts, artefact scatters and 2 knapping floors each comprising hundreds of artefacts. Ten sites identified in previous surveys (conducted in 1983 and 1995) were also re-recorded to update their details. The recorded sites are shown on Figure 1 below.

The Department's recommended conditions require MTO protect and secure the ACHCA in perpetuity via a conservation agreement or agreements under the *National Parks & Wildlife Act 1974*. The Department is satisfied that such an agreement would provide for the long-term conservation of the area. Whilst management measures would be facilitated under such an agreement(s), the Department has amended the Aboriginal Heritage Management Plan condition (ie. condition 28 of schedule 3) to require the plan to include measures to protect the Aboriginal cultural heritage values of the ACHCA.

The PAC also noted that part of the proposed ACHCA is outside the site boundary for the project. MTO's response confirms that whilst outside the site boundary, the entire area of the proposed ACHCA is located on land owned and managed by Rio Tinto (Coal & Allied).

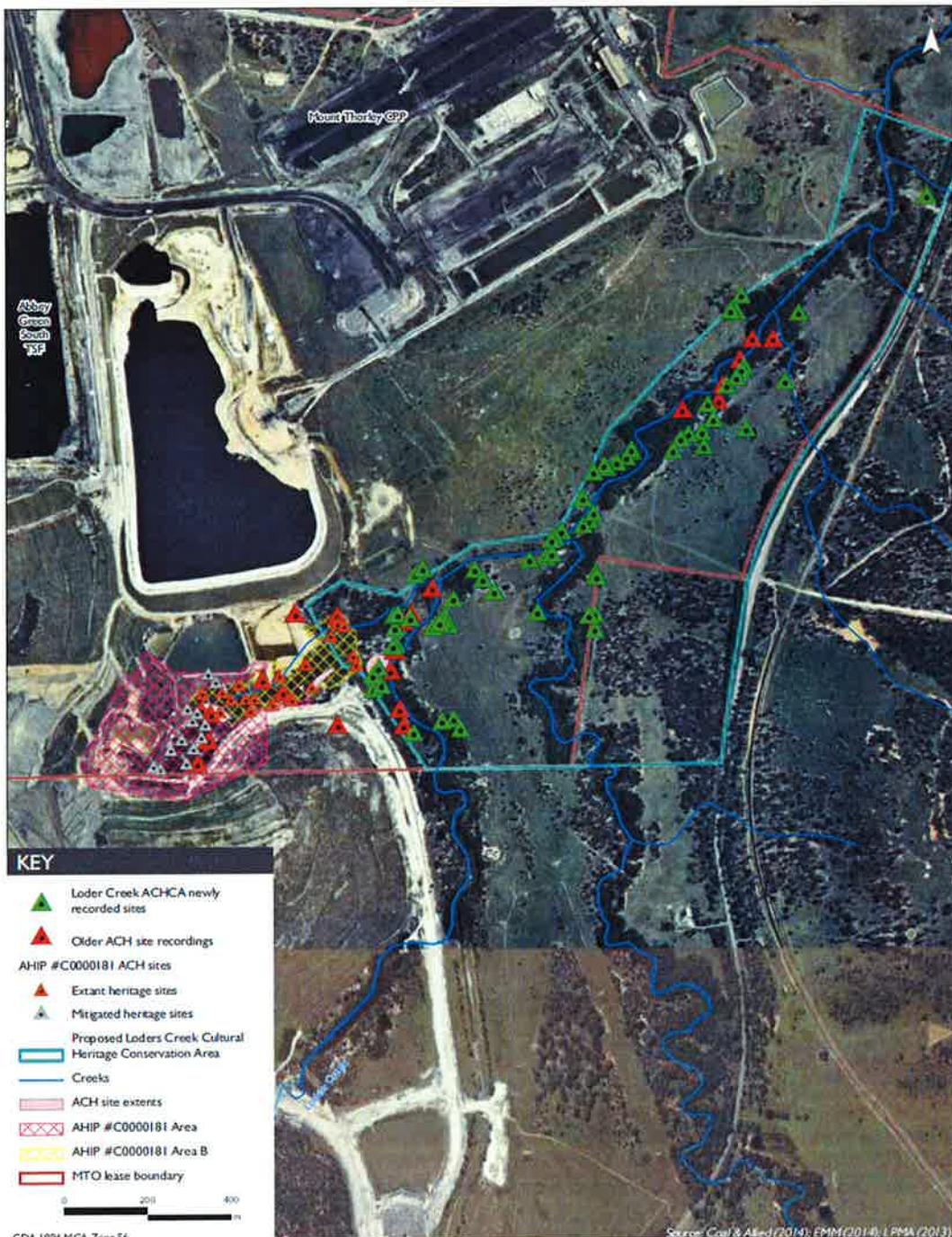


Figure 1: Loders Creek Aboriginal Cultural Heritage Conservation Area

### 3. RECOMMENDED CONDITIONS

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The Department has made a number of amendments to the recommended conditions of approval for the project in response to the PAC review as discussed above (see Attachments F and G).

A number of additional amendments have been made following review by key government agencies (DRE, EPA, OEH), as well as comments received from Rio Tinto. The amendments are shown in the tracked version of the recommended conditions (see Attachment F).

### 4. SECTION 79C

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Section 79C(1) of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters can be summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, the EP&A Regulations and any coastal zone management plan;
- the impacts of the development;
- the suitability of the site;
- any submissions; and
- the public interest.

Section 5 of the Act also outlines a range of objects that must be considered when making decisions under the Act, and Sections 5A to 5D further outline provisions to be considered with regard to threatened species (including species, populations and ecological communities) and their habitats.

The Department has considered all of these matters in its assessment of the development. In summary, the Department believes that:

- the development can be undertaken in a manner that is consistent with the aims, objectives and provisions of the applicable environmental planning instruments, other applicable planning documents and the EP&A Regulations (see Section 2.4 and Appendix B of the Assessment Report);
- the development can be undertaken in a manner that is generally consistent with the objects of the Act;
- the impacts of the development can be adequately minimised, managed, or at least compensated for, to an acceptable standard;
- the site is suitable for the development, as it contains a State significant coal resource in a long established coalfield, and is a permissible development on the land. The Department has carefully considered the potential impacts of the project on the site and surrounds in its assessment of the development and is satisfied that the impacts of the development on the environment and the local community can be adequately minimised, managed, or at least compensated for, to an acceptable standard; and
- whilst there is strong opposition to the development from local landowners and special interest groups (most of which is more specifically related to the Warkworth Continuation Project), the development is in the wider public interest, particularly as it would:
  - assist in shoring up society's continued demand for coal for basic energy and steel making purposes;
  - provide for the improved rehabilitation of the Mt Thorley mine, including the backfilling of existing approved voids; and
  - facilitate continued employment for approximately 1,300 people across the Mt Thorley Warkworth mine complex.

## 5. CONCLUSION

The Department has considered the PAC review report, MTO's response to the review, and other relevant information in accordance with the requirements of the EP&A Act.

Based on this consideration, the Department reaffirms the conclusions of the Department's Assessment Report for the project.

That is, whilst the Mt Thorley resource is not significant in either absolute or relative terms, together with the related Warkworth Continuation Project the projects would generate royalties of around \$617 million for the NSW Government, and the continued employment of around 1,300 workers. This includes the continued employment of about 120 people at the Mt Thorley mine. Economic assessment estimates that the two projects would have a net economic benefit of approximately \$1.5 billion.

The Department acknowledges that the project would result in some amenity impacts, including noise, air quality, blasting and visual amenity. However, these impacts would be similar to those associated with the existing mine, with only 1 additional residence predicted to experience significant noise impacts and a further 2 residences predicted to experience moderate noise impacts. Dust levels are predicted to comply with the applicable criteria at all privately-owned residences, apart from one residence in Warkworth village which is principally affected by the Warkworth and Wambo mines.

The Department has recommended conditions that would require MTO to address the predicted noise impacts in accordance with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy*.

With regard to visual amenity, the Department is satisfied that the short to medium term impacts of the project would be similar to those associated with the existing mine, and that the proposed final landform at Mt Thorley would represent a significant improvement over the current approved final landform for the mine.

The Department is also satisfied that other impacts associated with the project, including impacts on heritage, water resources, transport and socio-economics, are acceptable and can be appropriately managed subject to conditions.

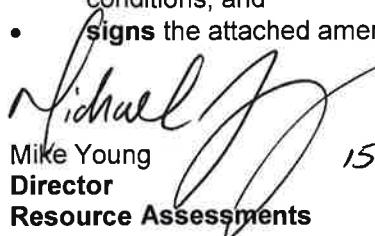
In this regard, the Department has drafted a detailed set of conditions to ensure that the project complies with applicable criteria and standards, and to ensure that the predicted residual impacts are effectively minimised, mitigated and/or compensated for. The Department believes that these conditions reflect current best practice for the regulation of coal mining projects in NSW and the Hunter Valley.

The Department has carefully assessed the project in accordance with the requirements of the EP&A Act. On balance, the Department believes that the project's benefits outweigh its residual costs, and that it is in the public interest and should be approved, subject to stringent conditions.

## 6. RECOMMENDATION

It is recommended that the Planning Assessment Commission:

- **considers** the findings and recommendations of this addendum report together with the Department's Environmental Assessment Report and the PAC Review Report;
- **approves** the development application for the Mt Thorley Continuation Project, subject to conditions; and
- **signs** the attached amended recommended conditions of approval (see Attachment G).

  
Mike Young  
Director  
Resource Assessments

15.5.15.

  
Marcus Ray  
Deputy Secretary  
Planning Services  
15/05/2015

## **ATTACHMENTS:**

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- A MTO's Response to PAC Review – March 2015
- B Deloitte Access Economics' Independent Economic Review – 16 April 2015
- C Rio Tinto's VPA Offer Letter – 4 May 2015
- D Dr Broner's Independent Noise Review – 6 May 2015
- E Wilkinson Murray Independent Bulga Village Mine Noise 10 Day Audit Report – 9 April 2015
- F Recommended Conditions of Consent (tracked changes)
- G Recommended Conditions of Consent