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Mr Mike Young
Manager Mining Projects
Department of Planning & Environment
GPO Box 39 Sydney NSW 2001

Dear Mr Young

Warkworth Continuation Project (SSD 6464)
Mt Thorley Continuation Project (SSD 6465)

Thank you for your letter dated 21 November 2014 regarding an additional information request for the above projects (referred to herein as MTW proposals). This letter responds to the request for additional project level cost and benefit information identified by Deloitte Access Economics (DAE) in its peer review of the economic assessment in the EIS.

Rio Tinto Coal Australia welcomes the conclusions of the peer review by DAE that the economic impact assessment conducted by BAEconomics is "broadly sound" and "addresses most of the Secretary's Environmental Assessment requirements". We also note that, while additional information has been requested, the Department recognises in the Assessment Report that "the matters raised by Deloitte would not materially change the broad conclusion that the project would result in a significant net positive benefit for NSW".

We understand that the main purpose of the request for more specific information is to provide a greater breakdown of the underlying project level information and assumptions in the economics assessment. The information requested by DAE is based on an example, non-mandatory table in a guideline. Our view is the Secretary's Environment Assessment requirements in respect of economic assessment have been fully met and that the assessment is robust and generally accords with relevant guidelines and industry practice.

Notwithstanding this, we have sought to respond to the information request in two ways:

1. **Provision of information:** we have provided as much of the requested further detail of information as possible in Tables 1 and 2. However, Rio Tinto is a publicly listed company and as such, has certain legal and commercial responsibilities which mean that information that is commercial-in-confidence cannot be provided. This largely relates to costs which are commercially sensitive, particularly in the difficult economic and highly competitive environment we currently face. We also note that the level of detail and type of information requested in Tables 3.1 and 3.2 of DAE's assessment has never been required before by the Department or been provided by an applicant for development consent for a coal mine in NSW (or, for example, where similar information has been provided, it has only been provided in respect of generic operating costs), presumably for the same reasons we have outlined above.

Mount Thorley and Warkworth Mines have been managed by Coal & Allied since 2004, resulting in a comprehensive understanding of existing economic variables and how these may alter in the future given uncertainty about future market conditions. Project costs are based on known existing costs at the operations, with an allowance for escalation.

DAE has also suggested that some data be provided on an annual basis. The reality is that for a very long term assessment such as that involving a coal mine with a close to fixed yearly production rate there will be very little yearly variability in the expected costs and revenues expressed in real terms.

Long term coal price projections by brokers or in-house economists are typically a fixed real price over the long term with no change over time. That is, the real price is a long run planning price that is used to determine the mine's viability for decision purposes. Thus there is little or no use in tabulating annual results from the Cost Benefit Analysis (CBA) in the present case. Such reporting may be relevant where, for example, there were major fluctuations in output contemplated over time but that is not the case for the MTW proposals.

2. **Benchmarking:** to provide additional evidence that the underlying project information and assumptions used for the assessment of the MTW proposals are reasonable, in Table 3 we compare the conclusions of economic assessments for similar projects. As shown in the table, the net positive benefit of \$1.5b estimated for the MTW proposals is broadly comparable to the conclusions of recent assessments for similar projects. Therefore, there is no reasonable basis for assuming that the outcomes of the economics assessment for the MTW proposals are not reasonable and accurate or that the detailed data and underlying assumptions of the assessment are not in line with those made for similar projects.

In addition, whether the project is economically viable – that is, the extent of the net private benefits - is a matter for the proponent. The financial viability of the proposal is a risk assumed by the private owners of Warkworth Mine and Mount Thorley Operations, and related assumptions concerning the expectations of the owners as to the future financial performance of the mine are commercial-in-confidence.

Mines like Warkworth and Mount Thorley Operations, which have been operating for over 30 years, are large scale businesses built on hundreds of millions of dollars of capital investment. The mines have been able to operate in both the lows and highs of the mining cycle and, therefore, Rio Tinto Coal Australia is best placed to assess questions of financial viability. The owners have already invested significant time and resources on applications to secure the future of this mine, and have done so in the belief, using long-term economic assumptions, that the mine is valuable to its owners.

It is also important to understand that there are robust mechanisms to ensure that the Government is not exposed to any liabilities in the event that the proposals became unviable during their life. These mechanisms include:

- security bond imposed as a condition of the mining lease under the Mining Act 1992 to ensure rehabilitation obligations are met;

- requirement to carry out mining operations in accordance with a mine operating plan which is updated every 7 years and which will require progressive rehabilitation. Again this a condition of a mining lease under the Mining Act 1992; and
- the imposition of offsets for the impacts of the project for its life under the draft consent conditions prior to all the impact occurring. This is further supported by security bonds for some offset requirements.

Given the above it is clear that if the project became unviable during its life, it would not result in all impacts being realised without any of the benefits.

The peer review by DAE also raised some additional queries regarding the economic assessment for MTW. For completeness, these have been addressed in Attachment 1.

In conclusion, given recent history on this and similar projects in NSW, Rio Tinto Coal Australia and BAEconomics were well aware of the level of scrutiny the economic assessment for this project would come under. For this reason, Rio Tinto Coal Australia commissioned a highly experienced economist, Dr Brian Fisher, to undertake the work and the approach taken by Dr Fisher is robust and conservative. The peer review broadly makes the same conclusion.

Should you wish to further discuss this matter, please do not hesitate to contact the undersigned.

Yours sincerely



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Table 1: Data request for CBA

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
Coal product names	Warkworth: the proposal involves extraction of an additional 230Mt ROM coal; approx. 75% is thermal coal and 25% is semi-soft (coking coal) (Section 3.5 Warkworth Continuation 2014 EIS).	N/A	N/A	N/A	N/A
	Mount Thorley: the proposal would enable the extraction of approximately 28.6Mt of ROM coal (Section 2.4.Mount Thorley Operations 2014 EIS).	N/A	N/A	N/A	N/A
Coal product types	Warkworth: the majority of coal is processed in a coal preparation plant (CPP). Some coal (currently assumed at approximately 4%) can be sold without washing and bypasses the CPP (Section 2.4.8 of Warkworth Continuation 2014 EIS)	N/A	N/A	N/A	N/A
	Mount Thorley: as for Warkworth	N/A	N/A	N/A	N/A
Annual price for each coal product	Warkworth / Mount Thorley: coal prices reflect long-term forecasts by independent brokers. Information was sourced from four broker commodity reports published at the time the CBA was prepared ie. January and February 2014 (Goldman Sachs, Deutsche Bank, Macquarie Bank, UBS). Section 3.4.2 of economic assessment and section 3.4.1 of rejoinder).	US\$85/tonne for thermal coal US\$105/tonne for semi-soft coking coal	US\$85/tonne for thermal coal US\$105/tonne for semi-soft coking coal	US\$85/tonne for thermal coal US\$105/tonne for semi-soft coking coal	US\$85/tonne for thermal coal US\$105/tonne for semi-soft coking coal
Production quantities for each coal product	See Table 1a				

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
Other on-site revenue (eg. agricultural output)	There is no additional on-site revenue generated by the proposals, so this has not been included.				
Exploration costs	Exploration costs are included in operating costs.				
Capital expenditure costs (including exploration costs)	The net capital investment value of the two projects has been estimated as NPV A\$719m. The main components are: • Additional and replacement heavy mining equipment over the life of the consent • Mine and communications infrastructure, including workshop and train load out upgrades • Capital expenditure required at the coal preparation plants.				
Operating costs (excluding taxes and royalties)	Operating costs are commercial-in-confidence. They are based on known existing costs at the two operations, with an allowance for escalation.				
Residual value of capital	The residual value of capital at the end of the consent period (21 years) is \$38m (for both Warkworth and Mount Thorley combined).	N/A	N/A	N/A	N/A
Residual value of land	No value ascribed, discounted value small.	N/A	N/A	N/A	N/A
Rehabilitation and decommissioning costs	These costs are commercial-in-confidence. They are based on known rehabilitation costs at the operations, and rehabilitation plans outlined in the MTW Mining Operations Plans (required under the Mining Act 1992).	N/A	N/A	N/A	N/A
Off-site agricultural revenue impacts	The project is expected to have a minimal impact on other surrounding land uses. As a result, no value has been placed on this item.				

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
Related public expenditure	No additional demand for public services and infrastructure has been identified as a result of the proposals. Any costs associated with construction of an emergency access road between Putty Road and the Golden Highway would be borne by Coal & Allied. Coal & Allied has committed to entering negotiations for a Voluntary Planning Agreement with Singleton Council. Coal & Allied has commenced discussions with Council, however a final quantum and structure is yet to be determined, hence does not form part of the economic analysis.				
Air pollution: particulate matter	Warkworth: Assessed in Chapter 11 of EIS and Appendix G (Table 9.7).	Number of privately-owned properties and days above incremental PM10 24 hour average 0 properties for a total of 0 days	Number of privately-owned properties and days above incremental PM10 24 hour average 3 properties (including 2 non-residential) for a total of 20 days	Number of privately-owned properties and days above incremental PM10 24 hour average 3 properties (including 2 non-residential) for a total of 13 days	* As described in Section 11.3 of EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.
	Mount Thorley: Assessed in Chapter 10 of EIS and Appendix G (Table 9.5).	Number of privately-owned properties and days above incremental PM10 24 hour average 0 properties for a total of 0 days	Number of privately-owned properties and days above incremental PM10 24 hour average 0 properties for a total of 0 days	Number of privately-owned properties and days above incremental PM10 24 hour average 0 properties for a total of 0 days	* As described in Section 11.3 of EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
Air pollution: carbon emissions	Warkworth: annual average emissions 1,038,394 tCO ₂ e each year (Scope 1) reported in Chapter 11 (p196) and Appendix G.	1,038,394	1,038,394	1,038,394	1,038,394
	Mount Thorley: annual average emissions 559,199 tCO ₂ e each year (Scope 1) reported in Chapter 10 (p159) and Appendix G.	559,199	559,199	559,199	559,199
Noise pollution	Warkworth: Table 10.6 of the EIS (p157) shows the noise predictions of the proposal. These results are also shown in Appendix F.	Indicative Year 3 • Marginal (1 to 2dB) = 27 properties • Moderate (3 to 5 dB) = 17 properties • Significant (greater than 5 dB) = 1 property	Indicative Year 9 • Marginal (1 to 2dB) = 73 properties • Moderate (3 to 5 dB) = 15 properties • Significant (greater than 5 dB) = 3 properties	Indicative Year 14 • Marginal (1 to 2dB) = 77 properties • Moderate (3 to 5 dB) = 12 properties • Significant (greater than 5 dB) = 4 properties	* As described in Section 11.3 of EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.
	Mount Thorley: Table 10.2 of the EIS (p153) shows the noise predictions of the proposal. These results are also shown in Appendix F.	Indicative Year 3 • Marginal (1 to 2dB) = 56 properties • Moderate (3 to 5 dB) = 4 properties • Significant (greater than 5 dB) = 0	Indicative Year 3 • Marginal (1 to 2dB) = 5 properties • Moderate (3 to 5 dB) = 2 properties • Significant (greater than 5 dB) = 1	Indicative Year 14 • Marginal (1 to 2dB) = 5 properties • Moderate (3 to 5 dB) = 1 property • Significant (greater than 5 dB) = 1	* As described in Section 11.3 of EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
			property	5 dB) = 0	
Quality of open space	The land is currently not used for any recreation/other activities, therefore, this item has not been included in the CBA.				
Rural amenity and culture	Warkworth: 1. Air quality (EIS p201) - Three privately-owned assessment locations (77, 102, and 264) may experience concentrations above the relevant criteria for 24-hour average and annual average PM10 and the Mining SEPP's cumulative air quality non-discretionary standard. Of these: assessment location 77 is within Wambo Mine's current acquisition zone; assessment location 102 is the Warkworth Hall, a non-residential location; and assessment location 264 is the Anglican Church in Warkworth village, also a non-residential location. 2. Noise (EIS p180) - Of the 221 assessment locations, predictions during adverse weather indicated that operational noise levels from the proposal would likely present significant exceedances (ie greater than 5dB(A)) of the PSNLs at a total of four assessment locations (34, 77, 264 and 102). Of these, one (77) has previously been identified as within a zone of acquisition of Wambo Mine; and other two (102 and 264) have been identified as non-residential (Warkworth Hall and Anglican Church, respectively).	Air = 1 Noise = 1	Air = 3 (including 2 non-residential) Noise = 3 (including 1 non-residential)	Air = 3 (including 2 non-residential) Noise = 4 (including 2 non-residential)	* As described in Section 11.3 of EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.
	Mount Thorley: 1. Air quality (EIS p163-64) – Three privately-owned assessment locations (77, 102 and 264) may	Air = 3 (including 2 non-residential)	Air = 3 (including 2 non-residential)	Air = 1 Noise = 0	* As described in Section 11.3 of

Input	Comments	2014 – 2018 (average annual)	2019 – 2023 (average annual)	2024 – 2028 (average annual)	2029 – 2035 (average annual)
	experience concentrations above the criterion for annual average PM10 and the Mining SEPP's cumulative air quality non-discretionary standard. Of these: assessment location 77 is within Wambo Mine's current acquisition zone, assessment location 102 is Warkworth Hall, a non-residential location; and assessment location 264 is the Anglican Church in Warkworth village, also a non-residential location. 2. Noise (EIS p144) – Predictions during prevailing meteorological conditions indicated that, of the 221 assessment locations, operational noise levels from the proposal would result in significant noise level exceedances (ie greater than 5dB(A)) at one assessment location (149) to the east of the mine. This location is in MTO's 'acquisition on request' list contained in its current development consent (as modified in 2012).	Noise = 0	Noise = 1		EIS (p176), worst case impacts were assessed in Years 3, 9 and 14.

Notes: N/A refers to not applicable (only one-off values were requested).

* The study considers three indicative mine plan years (Year 3, 9 and 14) chosen to represent a range of potential impacts over the 21 year life of the proposal by reference to the location of the operations and the potential to generate dust in each year. It is noted that later years were not modelled as, between Year 14 and Year 21, the mining footprint would not extend any further west and would only deepen which would shield plant from assessment locations more than in any previous years.

Table 1a: Production profile of the MTW Continuation Project

	Without approvals (reference case)	With approvals
	(average annual ROM coal production)	(average annual ROM coal production) ¹
Warkworth Mine	12.3Mt for 8 years	14.9Mt for 22 years
Mount Thorley Mine	4.4Mt for 4 years	5.7Mt for 5 years

Notes: Based on Year 1 of 2014 but noting outcomes will not change if Year 1 commenced later: this is because production (and associated operating costs and revenue) for Year 1 are approximately the same under both cases, so incremental (net) difference is minimal or zero.

1. Maximum annual production from the two mines approximately 18Mtpa in any one year as outlined in EIS's.

Table 2: Mount Thorley Warkworth spend on suppliers

RTCA analyses procurement spend based on the postcode on supplier invoices as a proxy for location of spend. Breakdowns of MTW's total procurement spend for the last two years provide an indication of the location of future spend.

	2012	2013
Local*	29%	33%
Rest of NSW	37%	26%
Rest of Australia	33%	41%
International	1%	<1%
	100%	100%

Source: Rio Tinto Coal Australia Sustainable Development Report 2013

Notes: * Local defined as Upper Hunter, Singleton, Muswellbrook, Cessnock and Maitland LGAs.

Table 3: Results of the cost benefit analysis compared to other recent coal projects in NSW

Project	Author, date	Consent tonnes (ROM)	Net positive benefit (NPV) to NSW	Royalties (NPV)
Warkworth Continuation*	BAEconomics, June 2014	18mtpa (21 years)	\$1.34b	\$567m
Bengalla Continuation	Gillespie Economics, June 2013	15mtpa (24 years)	\$1.77b (Australia)	\$778m
Bulga Optimisation	Deloitte Access Economics, August 2013	12.2mtpa (21 years)	\$869m	\$565m
Watermark Coal	Gillespie Economics, October 2012	10mtpa (30 years)	\$1.32b (Australia)	\$565m
Stratford Extension	Gillespie Economics, June 2012	2.6mtpa (11 years)	\$145m (Australia)	\$84m

Notes: Other economic variables (eg. operating costs, capital costs etc) not included; the way in which data are presented is not comparable.

* Does not include Mount Thorley; approximately 90 per cent of the total direct (net) economic benefit of the proposals can be attributed to Warkworth Mine.

Attachment 1: Additional responses to comments made in the peer review by DAE

Coal prices

DAE has suggested that more details around the derivation of coal prices should be provided.

Coal price and exchange rate assumptions were provided in the Economic Impact Assessment, and further clarification was provided in the Response to Submissions. A summary follows.

BAEconomics' coal price and exchange rate assumptions reflect long-term forecasts by independent brokers. Information was sourced from four broker commodity reports published in January and February 2014 (Goldman Sachs, Deutsche Bank, Macquarie Bank, UBS). It is worth noting that despite the recent low levels of the spot price of thermal coal, the longer term expectations of thermal coal prices recently released by the four brokers mentioned above have not materially changed.

For the purpose of an economic evaluation of a mining project with a mine life of a further 21 years, it is appropriate to apply coal price and exchange rate expectations over the term of the investment, that is, long-term projections.

This distinction has also been recognised by the Bureau of Resources and Energy Economics (BREE 2014, p.12):

New South Wales has 10 coal projects at the Feasibility Stage; however, as these are mainly expansions to existing mines they are generally lower in cost than the greenfield developments in Queensland. While current market conditions are not supportive of these projects being approved, it should be noted that most of them have very long operating lives and decisions to commence will be based more on long term assessments of market conditions rather than today's prevailing market prices. [emphasis added]

It should also be noted that NSW Government budget estimates are based on a thermal coal price of US\$90 per tonne, higher than the long-term figure of US\$85 per tonne assumed by BAEconomics based on broker forecasts (NSW Government 2014-15, pp. 6-28).

The peer review recognises the importance of coal prices to the impact of the project, including on taxes and royalties. It was for this reason that a sensitivity analysis was conducted using different coal prices (US\$75/tonne and US\$95/tonne) and exchange rates. The conclusion of the sensitivity analysis was that the net benefits of the project to NSW remain substantial even if a materially lower long run thermal coal price is assumed.

Treatment of externalities

The detailed technical assessment of the nature and magnitude of any external costs appears in the MTW EIS. The approach taken by BAEconomics in the EIA is to divide negative externalities into two categories: those costs that can be internalised; and those costs that cannot be internalised but that are measurable.

To evaluate costs that can be internalised BAEconomics has relied on market-based and revealed preference techniques for valuing the external effects associated with the proposals. The unifying characteristic of both techniques is that they aim to value non-market impacts by observing actual behaviour, and are therefore considered to be a more reliable indicator of people's preferences. In a democratic society, the acceptance by government (on behalf of the people), of an environmental offset is the 'revealed' valuation of the resources needed to offset the particular external cost. That is, the government on behalf of society has accepted that the external cost is exactly compensated for.

BAEconomics has treated all external costs that can be internalised in this way. In doing so BAEconomics has been conservative in its assessment in the sense that it has not counted any flow-on benefits from environmental mitigation work in its CBA. BAEconomics has not double counted offsetting 'benefits' as suggested by DAE – it has simply assumed that the external costs have been fully offset by the agreed mitigation expenditure that will be undertaken by Rio Tinto. In other words, in the CBA the externalities that have been 'internalised' have a net zero impact in the CBA.

DAE suggest that an attempt should be made to estimate the value of all external costs, including health impacts, regardless of whether the effects (noise or dust for example) exceed threshold levels or not. This implies that the government has set the thresholds at a level that is insufficiently stringent. In a democratic society the government will use the scientific evidence available to it to set threshold levels that are acceptable to society. Given the information available at a particular time, regulators may make mistakes about threshold levels but BAEconomics can see no argument to attempt to justify theoretical costs that may or may not be imposed below threshold levels.

Demand for provision of local infrastructure and services

DAE suggested that there is no discussion on whether the continuation may result in additional demand for local infrastructure and services.

The EIS provided an overview of existing local infrastructure and services, with a summary provided in Section 21.3.1 and a further detailed overview provided in Appendix P. For example, Table 21.5 of the Warkworth EIS concluded:

There would be no increase in the use of local infrastructure and demand for health and allied services, emergency services and emergency departments under the proposal, as the intention is to retain the current level of employment.

Traffic would remain similar to current levels and safety levels would be unaffected.

The proposal would aim to maintain current average workforce levels across MTW operations, helping to stabilise population levels across the Singleton LGA. Subsequently, the contribution of MTW employees to council land rates would be maintained, helping to support the viability of current council services.

The continued MTW workforce and their families would also help maintain the use of local businesses and services, particularly shops, services, schools and child care facilities.

Voluntary Planning Agreement

DAE suggest that there is no discussion as to whether a Voluntary Planning Agreement (VPA) will be entered into with the local government.

Coal & Allied is committed to seeking to negotiate with Singleton Council to develop a mutually agreeable voluntary planning agreement (VPA) and this was clearly outlined in the EIS's, for example:

A VPA would be negotiated with Singleton Council. The VPA presents an opportunity to ensure a proportion of the funds are dedicated to maintaining and / or improving facilities and services in Bulga, other local neighbouring communities, and the Singleton LGA as a whole (Table 21.5 of the Warkworth EIS).

Coal & Allied has commenced discussions with Council, however a final quantum and structure is yet to be determined, hence does not form part of the economic analysis.

Under current legislation, mining companies seeking development approval are required to negotiate with councils over infrastructure contributions. There are three mechanisms by which a consent authority can require the payment of a financial contribution:

- S94 development contributions;
- S94 fixed levies;
- Voluntary Planning Agreement's.

In the absence of a VPA, the Singleton Development Contributions Plan 2008 (DCP) sets out the administrative framework for levying of development contributions under section 94 of the Environmental Planning and Assessment Act 1979 (EP&A Act) by identifying infrastructure and facilities requirements to meet the needs of the future population of the Singleton local government area (LGA). The DCP attributes costs towards provision of infrastructure/facilities and identifies how these costs will be apportioned. The DCP includes a Contributions Rates Schedule, which requires new coal mining development application contributions towards rural roads and Council's Community Enhancement Program (CEP). Whilst Council has a DCP which sets out contribution requirements from coal mining developments in its LGA, there is no specific contribution rate or formula that can be applied to a development proposal. Applying the broad principles of the DCP, the likely contribution of Warkworth Continuation 2014 towards community infrastructure can be estimated at approximately 0.44% of the capital investment value of the proposal.