MT ARTHUR COAL INDEPENDENT ENVIRONMENTAL AUDIT 2012 PROPONENTS RESPONSE

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1. Proponents Response to Recommendations

The Mt Arthur Coal Independent Audit November 2012 was completed in accordance with Schedule 5 Condition 9 of Project Approval 09_0062.

Recommendations resulting from the findings of the Mt Arthur Coal Independent Environmental Audit November 2012 and the responses by Mt Arthur Coal are provided in Table 1.

Table 1: Recommendations and Proponent's Response

Audit Report Reference	Category	Recommendation	Mt Arthur Coal Response as at 30 November 2012
Section 5.6.1 (page 26)	Noise	It is recommended that the Erosion and Sediment Control Plan be revised and the inclusion of reference to other relevant management plans/sections be inserted to demonstrate consistency with the components of *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries Appendix C.*	The Erosion and Sediment Control Plan will be reviewed to demonstrate consistency with the components of *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries Appendix C.* **Action assigned.**
Section 5.4.5 (page 22)	Erosion and Sediment Control	Although the Air Quality Management Plan and Air Quality Monitoring Program address each requirement in the Project Approval the following administrative matters (that have no direct bearing on environmental impact) are provided as suggestions for Mt Arthur Coal consideration only. Acting on these suggestions is not critical, but may improve Mt Arthur Coal Air Quality Management Plan: o The reporting period for annual average air quality results should be standardised to the calendar year where possible.	Total suspended particulate (TSP) matter and particulate matter < 10ug/m^3 (PM_{10}) are assessed on a rolling annual averaging period. **No further action required.**

Audit Report Reference	Category	Recommendation	Mt Arthur Coal Response as at 30 November 2012
		o It is recommended that any one, or a combination of the following occur in relation to TSP compliance assessment: ➢ Formalise the approach using inferred TSP results based on measured PM10 data with the Department of Planning and Industry (DP&I), in consultation with the Office of Environment and Heritage (OEH);	This approach has since been formalised in the Mt Arthur Coal Air Quality Management Plan, approved by the Department of Planning and Infrastructure in June 2012. **Action completed.**
		➢ Conduct some limited monitoring for TSP; or	Limited monitoring for Total Suspended Particulate (TSP) matter will not be progressed at this stage, given the adequacy of the TSP inference method. **No further action required.**
		➢ Vary the MCoA to remove the TSP criterion.	At this stage, variation to the Minister's Condition of Approval will not be sought by Mt Arthur Coal in relation to removal of TSP impact assessment criterion. **No further action required.**
		o The Mt Arthur Coal assessment approach for analysing 24-hour PM10 impacts could be improved by considering the temporal and spatial elements of the path that dust leaving the site may be subject to. This need only be done for extreme cases, which may warrant specialist assessment.	The audit found that Mt Arthur Coal's compliance assessment approach for 24 hour average PM10 particulate matter was adequate. Time-dependent dust path analysis may be considered for particular scenarios (e.g. low wind speed conditions). **No further action required.**
		o It would appear reasonable to investigate a better bird spike, an alternative perch for the birds or re-location of the DD05 gauge to a nearby site.	Following investigation, no reasonable alternative was identified to prevent contamination by bird droppings. **Action completed.**

Audit Report Reference	Category	Recommendation	Mt Arthur Coal Response as at 30 November 2012
		o Either the Air Quality Management Plan or the Mt Arthur Coal greenhouse gas and energy efficiency plan should make specific provision for reporting total site greenhouse gas emissions per tonne of product coal.	Reporting of greenhouse gas emissions is required by corporate and legislative requirements and meets the suggested metric (emissions relative to production output). **No further action required.**
		o The Air Quality Management Plan should: ➢ Refer to the Mt Arthur Coal greenhouse gas and energy efficiency plan.	The Air Quality Management Plan has been amended to include greenhouse gas management aspects and is now entitled Air Quality and Greenhouse Gas Management Plan. **Action completed.**
		➢ Include a reference to, or insert, the detailed baseline data into the Air Quality Management Plan	Reference to detailed baseline air quality data has been included in the Plan. **Action completed.**
		➢ Provide further detail on a specific procedure, or set of relevant performance metrics against which to assess the effectiveness of management actions	Performance measures are detailed in the Air Quality and Greenhouse Gas Management Plan and include compliance with air quality standards and number of complaints. **Action completed.**
		➢ Incorporate a program for investigating and implementing ways to improve performance over time	Improvement programs and targets are presented in the Mt Arthur Coal annual environmental management report. **No further action required.**
Section 5.7.3 (page 29)	Rehabilitation	It is recommended that the noise monitoring assessment procedure and/or apparatus for attended noise measurements be revised / updated to incorporate temporal analysis so that noise contributions from individual sources (including all intermittent and continuous mine-related sources, regardless of frequency) may be more specifically quantified / identified.	The temporal analysis method is currently undertaken as part of the attended noise monitoring program. The methodology in the attended monitoring report will be updated to provide a more detailed description of this approach. **Action assigned.**

Audit Report Reference	Category	Recommendation	Mt Arthur Coal Response as at 30 November 2012
Section 5.9.4 (page 41)	Rehabilitation	General improvements to topsoil stockpile management could be achieved by implementing the following actions: • Test the topsoil to determine the chemical and biological amelioration requirements of the topsoil. • Monitor for weed establishment and spray any weeds that have established on the stockpiles. • Shape the stockpiles with a maximum batter grade of 1(v):3(h). • Apply ameliorants (gypsum, compost etc) and rip into the topsoil at the time of stockpiling. • Protect any long term stockpiles by Hydro-seeding with non-invasive grass species and protect the surface stability with hydro-mulching.	Topsoil testing will be undertaking prior to topsoil stockpiling. **Action assigned.** A weed monitoring program is in place to identify areas of weed infestation. Weed spraying is routinely scheduled as part of the site's weed monitoring and management program. **No further action required.** Erosion control will be managed by revegetation and stockpile location selection. **No further action required.** Ameliorants will be applied at time of placement not at the time of stockpiling. **No further action required.** Direct seeding of non-invasive pasture grasses will continue to be applied to topsoil stockpiles. **No further action required.**
Section 5.9.4 (page 42)	Rehabilitation	Recommended suggestions to improve rehabilitation outcomes are: • Mt Arthur Coal develop detailed completion criteria for all rehabilitation types using a modified LFA process that considers agricultural production, stability, drainage and other aspects not addressed by LFA.	Completion criteria for all rehabilitation domains have been provided in the Rehabilitation and Biodiversity Management Plan. **Action completed.**

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		• Rehabilitating areas should be compared with analogue areas with similar vegetation types, slope, soil type and land use etc. This process will be important for demonstrating rehabilitation success and identifying areas requiring maintenance or improvement	Biodiversity and Rehabilitation Management Plan requires rehabilitation areas to be compared to a reference/analogue site. **Action completed.**
		• Consider undertaking spoil erosion modelling and develop a waste dump landform design that avoids the concentration of flow and the need for diversion banks and drop structures.	Biodiversity and Rehabilitation Management Plan includes a requirement for spoil erosion modelling. The majority of rehabilitation slopes at Mt Arthur Coal do not demonstrate excessive erosion. However, for erosive spoil types Mt Arthur Coal is continuing erosion modelling and development of alternative landform designs. **Action completed.**
		• Consider removing contour banks from already vegetated areas to minimise potential for future tunnel erosion/ gully erosion.	Removal of existing contour banks on already vegetated areas may be considered in future if rehabilitation monitoring indicates that vegetation cover on adjacent slopes is providing sufficient erosion protection. **No further action required.**
		• If Mt Arthur Coal propose to continue using diversion banks (channel banks), ensure that they are designed in accordance with Table 6.1 of Volume 2E of the Blue Book. Ensure that they are correctly laid out using survey equipment and then checked prior to and following the application of topsoil.	Contour banks are currently designed and constructed to meet the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries Appendix C*. **No further action required.**

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		• Design and construction details should be recorded using an inspection and test plan form (ITP).	Design and construction details will be documented and retained. **Actioned assigned.**
Section 5.9.4 (page 42)	Rehabilitation	To improve rehabilitation outcomes on the VD1 spoil dump, it is suggested that the following actions be considered: • The most practical way to establish native tree and shrub species on the spoil dumps is direct seeding with a compost blanket. • Weed infested topsoil should be either stripped and buried or covered with 0.5m to 1m on non-dispersive mine spoil. The soil would then need to be ameliorated and contour ripped, then direct seeded with non-invasive cover crop species and native tree, shrub and grass species and with a 15mm to 50mm thick compost blanket. Compost needs to be of a high quality. Normally wetting agents, guar glues and microbial inoculants are applied at the same time to provide optimum growing conditions. (This approach has been used successfully on other coal mines in the Hunter Valley and construction sites in NSW and Queensland). • It was noted that construction of the dump had not been completed. This remaining area would be the ideal location to trial this approach	Current method for remedial establishment of native trees and shrubs in selected area is using tubestock in combination with a weed spraying program as required and surface ripping as ground preparation. **No further action required.** Incorporated as part of abovementioned remedial measures. **No further action required.** Refer to abovementioned remedial approach. **No further action required.**

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Section 5.9.4 (page 42)	Air Quality	General actions suggested to improve rehabilitation areas across the Mt Arthur Coal Complex site (particularly to apply to the steep cut batter behind the Mt Arthur Administrative Office) are: • Test the soil for physical, chemical and biological parameters and determine amelioration requirements prior to reuse for rehabilitation. • Install a lined drain (if necessary) at the top of the slope well away from the edge of the batter to prevent overland flow discharging over the batter. • Remove the topsoil from the batter and roughen the subsoil using the teeth on an excavator bucket. • Apply the soil ameliorants and seed with an Eco-blanket (high quality compost blanket applied with a bark blower truck). • Irrigate until the cover crop establishes.	The area to which this recommendation relates is not final rehabilitation, and has been temporarily revegetated. The area will be reshaped and revegetated as part of final rehabilitation. **No further action required.**
Section 5.4.5 (page 22)		Although the Air Quality Management Plan and Air Quality Monitoring Program address each requirement in the Project Approval the following administrative matters (that have no direct bearing on environmental impact) are provided as suggestions for Mt Arthur Coal consideration only. Acting on these suggestions is not critical, but may improve Mt Arthur Coal Air Quality Management Plan: o The reporting period for annual average air quality results should be standardised to the calendar year where possible.	Total suspended particulate (TSP) matter and particulate matter < 10ug/m^3 (PM_{10}) are assessed on a rolling annual averaging period. **No further action required.**

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		o The Air Quality Management Plan should: ➢ Refer to the Mt Arthur Coal greenhouse gas and energy efficiency plan.	The Air Quality Management Plan has been amended to include greenhouse gas management aspects and is now entitled Air Quality and Greenhouse Gas Management Plan. **Action completed.**
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		➢ Provide further detail on a specific procedure, or set of relevant performance metrics against which to assess the effectiveness of management actions	Performance measures are detailed in the Air Quality and Greenhouse Gas Management Plan and include compliance with air quality standards and number of complaints. **Action completed.**
		➢ Incorporate a program for investigating and implementing ways to improve performance over time	Improvement programs and targets are presented in the Mt Arthur Coal annual environmental management report. **No further action required.**