# Final Report

## Independent Environmental Compliance Audit

## Moolarben Coal Operations, NSW

12 JULY 2010

Prepared for

Moolarben Coal Operations Pty Ltd

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Date: **12 July 2010**
Reference: 43207345/01/05
Status: Final

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# Abbreviations

| Abbreviation | Description |
|---|---|
| Acquisition Zone | The privately owned land listed in table 1 to schedule 3 where there are no negotiated agreements in place between the Proponent and the applicable landowner |
| CHPP | Coal Handling and Preparation Plant |
| ARTC | Australian Rail Track Corporation Ltd |
| BCA | Building Code of Australia |
| CCC | Community Consultative Committee |
| AEMR | Annual Environmental Management Report |
| Council | Mid-Western Regional Council |
| Day | The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays |
| DECCW | Department of Environment and Climate Change and Water |
| Department | Department of Planning |
| Director-General | Director-General of Department of Planning, or delegate |
| DII | Department of Industry and Investment NSW |
| DoP | Department of Planning |
| DPI | Department of Primary Industries |
| DWE | Department of Water and Energy |
| EA | The report entitled *Moolarben Coal Project Environmental Assessment, Volumes 1- 5*, dated September 2006, and subsequent modifications |
| EEC | Endangered Ecological Community as defined under the NSW *Threatened Species Conservation Act 1995* |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EP&A Regulation | *Environmental Planning and Assessment Regulation 2000* |
| EPL | Environment Protection Licence |
| Evening | Evening is defined as the period from 6pm to 10pm |
| Land | Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval |
| Mine Water | Water that accumulates within active mining areas, coal rejects emplacement areas, tailings dams and infrastructure areas, synonymous with dirty water |
| Mining Operations | Includes all coal extraction, processing, and transportation activities carried out on site |
| Minister | Minister for Planning, or delegate |
| Mtpa | Million tonnes per annum |
| Night | The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays |
| NOW | NSW Office of Water (adopted certain responsibilities of DWE from July 2009) |
| Offset Strategy | The conservation and enhancement program described in the EA and Response to Submissions |
| Panel | Independent Hearing and Assessment Panel for the Project |
| Privately owned land | Land that is not owned by a public agency, or a mining company (or its subsidiary). |
| Project | The development as described in the EA |
| Proponent | Moolarben Coal Mines Pty Limited, or its successors |
| RCE | River Creek Environment: stream site condition index methodology |
| Response to Submissions | The Proponent's response to issues raised in submissions, submitted to the Department in December 2006, and subsequent submissions on groundwater dated April 2007 and July 2007 |
| ROM | Run of Mine |
| RTA | Roads and Traffic Authority |
| SIGNAL | Stream Invertebrate Grade Number Average Level: site pollution sensitivity index methodology |
| Site | The land referred to in Schedule 1 |
| Statement of Commitments | The Proponent's commitments in Appendix 3 |
| VPA | Voluntary planning agreement under the EP&A Act |

# Executive Summary

Moolarben Coal Operations (MCO) operates the Moolarben Coal Project (MCP), which is located within the western coalfield of the Upper Hunter Valley, approximately 40 kilometres north-east of Mudgee, NSW. The project involves the construction and operation of open cut and underground mining operations with associated infrastructure.

Stage 1 of the MCP was granted Project Approval (Reference 05_0117) on 6th September 2007 by the Minister for Planning. Condition No. 6 (Schedule 5) of this approval requires that MCO undertake an independent environmental audit of the project within two years of the project approval and every three years thereafter. URS Australia Pty Ltd (URS) was engaged by Moolarben Coal to undertake this audit which has been completed according to the requirements of this approval and covers the period September 2007 to November 2009.

The audit comprised two site inspections (in December 2009 and May 2010, which included interviews with key site personnel), a review of project environmental management plans and monitoring programs, an assessment of the environmental performance of the project, and whether it is complying with the relevant requirements of the project approval, the site environmental protection licence (EPL) and mining leases. Implementation of the management plans as submitted to the DoP was also assessed. This report presents the findings of the audit and updates a previous report issued by URS in January 2010, following review of this report by the DoP.

The audit identified that the project faced particular environmental challenges given the extent and nature of the construction works at the time of the audit period. The challenges related mainly to the management of erosion and sedimentation, the control of dust and the management of noise. Contributing factors to these issues was that the audit period included a time of prolonged dry weather conditions and the predominance of soil and subsoils in the area which are particularly vulnerable to erosion and dust generation.

A key area of concern related to the management of erosion and sediment controls and the related uncontrolled discharge of sediment laden water at Bora Creek during June 2009. Several related issues were identified including non compliance associated with surface water discharges, the implementation of components of the Water Management Plan (specifically the Sediment and Erosion Control Plan), incident notification and the submission of written reports to the EPA, and the design and approval of works at the crossing of the rail loop and Bora Creek. The discharge in June 2009 and related concerns are understood to be the subject of an ongoing investigation by DECCW under the site's environmental protection licence. It is further understood that another discharge event occurred in late December 2009. This event was outside of the audit period and has not been considered in detail in this report. In the time between the first and second site inspection (December 2009 to May 2010), it was observed that MCO had conducted significant works to address some of the erosion and sediment control issues identified in this audit report. Section 7 of the report lists some key observations made during the second site inspection in May 2010.

One non compliance was investigated by the Department of Planning (DoP) that related to clearing during the construction of a fence around some sections of the mining lease area. This has since led to a prosecution by the Land and Environment Court.

The implementation of the site environmental management system, including the various management plans and monitoring programs, was also identified as an area where additional improvements could be made.

## Executive Summary

Non compliances with the key regulatory requirements and subsequent recommendations to address the non compliances are listed in Section 8 of this report. A detailed assessment of compliance with the Project Approval and the EPL is provided in Appendix A and B.

Recommendations have not been made in relation to the incidents of clearing for the construction of a fence around the lease area and the discharge events as it is understood that DoP and DECCW have conducted their own investigations into these incidents. This report has not assessed compliance with regulatory requirements outside of the audit period (ending 31 November 2009).

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# Introduction

## 1.1 Background

URS Australia Pty Ltd (URS) was engaged by Moolarben Coal Operations Pty Ltd (MCO) to undertake an independent environmental audit of the construction works associated with the proposed coal mining operations at Moolarben, near Mudgee, NSW.

MCO is required to undertake an independent environmental audit against the requirements of Project Approval 05_0117 Schedule 5, Condition No. 6, within two years of project approval and every three years thereafter.

The audit has been completed according to the requirements of this approval, as detailed in URS' proposal dated 9th September 2009 and as described in Section 1.2 below.

This is the first independent audit to be undertaken at MCO and is for the period 6th September 2007 (the date the Project Approval was issued) to 30th November 2009.

The date of the initial site visit for the audit was 2nd and 3rd December 2009. A report dated January 2010 was prepared by URS and submitted to the Department of Planning (DoP) by MCO. A review of this report by DoP indicated that further verification activities were required to provide clarification on some of the findings of the report. A further two day site visit was conducted on the 11th and 12th May 2010 to carry out further on-site verification works and address comments made by the DoP in its review of the initial report. This report presents the findings of the audit following the completion of further verification activities during the second site inspection.

## 1.2 Scope of Work

The audit was conducted in accordance with the requirements set out in the Project Approval 05_0117, Schedule 5, Condition No. 6, which required the following be undertaken:

> *"Within 2 years of this approval, and every three years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:*
>
> *a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;*
>
> *b) include consultation with the relevant agencies;*
>
> *c) assess the environmental performance of the project, and whether it is complying with the relevant requirements in this approval and any relevant mining lease and environmental protection licence (including any strategy, plan or program under these approvals;*
>
> *d) review the adequacy of strategies, plans and/or programs required under these approvals, and, if necessary;*
>
> *e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals, including changes to the mine plan."*
>
> *Note:*
>
> - *Notwithstanding the timing referred to above, audits must be carried out prior to the completion of longwall panels 4 and 8. The Proponent must liaise with the Department to determine the precise date of these audits.*
> - *This audit team should be led by a suitably qualified auditor, and include experts in the field of subsidence, surface water and groundwater management, noise, ecology and mine rehabilitation.*

The review of environmental monitoring data has generally been limited to data gathered between September 2007 (the commencement of the initial Annual Environmental Management Report period) and November 2009. This timeframe is considered by URS to be indicative of current site operations.

It was agreed with the DoP that the audit period would remain as per the original scope of work. This revised report therefore covers the period from September 2007 to November 2009. Observations made during the second site visit are summarised in Section 7.

## 1.3 Audit Methodology

The audit methodology comprised:

- Initial discussions with MCO to organise the audit, including the provision of documentation, the site visit and timing;
- Initial review of relevant documentation provided by MCO;
- Telephone and e-mail communications with regulatory agencies regarding their concerns and areas for particular focus during the audit;
- A two-day site inspection and interviews with key site personnel, on 2nd and 3rd December 2009. At the end of the site inspection, a closing meeting was held between the auditors and key nominated staff. The main findings of the audit were reported verbally at this time;
- Review of additional documentation provided by MCO after the site inspection;
- Submission of a Draft Report to MCO outlining the audit finding;
- Submission of an initial Final Report following comments made by MCO on the Draft Report;
- Meeting with the DoP on the 21 April 2010 to discuss DoP comments on the initial Final Report;
- A further two-day site inspection and interviews with key personnel, on 11th and 12th May 2010;
- Revision of the initial Final Report and submission to MCO for comments; and
- Submission of this report as a Final Report following comments made by MCO.

## 1.4 Personnel and Timing

A team of in house auditors and technical specialists was approved by the DoP and conducted the audit. This team comprised the following permanent URS staff members:

- Michael Woolley, Principal Environmental Engineer;
- Gary Gray, Principal Geologist;
- Arnold Cho, Associate Acoustic Engineer;
- Saul Martinez, Principal Water Engineer;
- James Grieve, Air Quality Engineer; and
- Helen Pieris, Senior Environmental Scientist.

Michael Woolley is registered by RABQSA as a Certified Lead Auditor for Environmental Management, Site Contamination Assessment and Compliance Auditing.

The first site visit for the audit was conducted by Michael Woolley and Gary Gray on 2nd and 3rd December 2009. A further site visit was conducted by Michael Woolley and Helen Pieris on the 11th and 12th May 2010. Specialist input to the audit was provided for the areas of noise, air and water management by the nominated personnel above.

The audit period comprised construction works only, with no mining or underground mining activities having been undertaken. As such, consideration of the areas of subsidence, groundwater, and ecology was addressed by the auditors listed. It is noted that approval for the Air Quality Engineer was not sought from the DoP, as no Air Quality expert was required to be part of the audit team as per the audit consent condition.

Personnel interviewed during the site visit included the following MCO staff members:

- Steve Peart, Environmental and Community Relations Manager;
- Julie Thomas, Environmental Coordinator;
- Bob Miller, Earthworks Superintendent (Construction);
- Graham Goodwin, Mine Manager;
- Jim McGeachie, Construction Manager;
- Paul Bucan, Project Civil Engineer, Construction;
- Bruce Burchall, Production Superintendent;
- Darren Price, Mining Supervisor;
- John Furner, Senior Project Engineer;
- Ian Livingston-Blevins, General Manager.

## 1.5 Format of Report

The format of this report is as follows:

- Section 1 is introductory and defines the scope and nature of the audit;
- Section 2 describes the MCO operations as observed during the site inspection;
- Section 3 provides an assessment of the environmental performance of the development and its effects on the surrounding environment;
- Section 4 provides an assessment against the relevant standards, performance measures and statutory requirements. Where findings were found to be in non-compliance, these results have been summarised in this Section (Appendix A provides the results of the assessment against the Project Approval Conditions); and
- Recommended measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems are provided in Sections 3 to Section 5.
- Observations made during the May 2010 site visit are documented in Section 7.

Appendix A is a tabulated review of the results of the assessment against the Project Approval Conditions.

Appendix B is a tabulated review of the results of the assessment against the EPL Conditions.

Appendix C includes a selection of photographs from the first and second site inspections.

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# Overview of Operations at Moolarben Coal

This section provides a brief overview of the operations being undertaken at MCO at the time of the first site inspection for the audit.

## 2.1 Site Description and Development

The Moolarben Coal Project (MCP) is located within the western coalfield of the Upper Hunter approximately 40 kilometres north-east of Mudgee. The area covered by Stage 1 of the project is situated within the Moolarben Creek valley, in the headwaters of the Goulburn River catchment. Stage 1 is bordered by the Goulburn River to the north; Goulburn River National Park, mine owned grazing land, Wilpinjong Coal Mine and Munghorn Gap Nature Reserve to the east; privately-owned grazing land to the south; and privately-owned grazing land, Ulan village and Ulan Coal Mine to the west. The dominant land uses in the surrounding area are stock grazing, rural residential, conservation and coal mining. The Ulan village west of the mine comprises 16 residential dwellings, a small rural primary school, two churches and a hotel. All of the residences and vacant freehold land in the village are mine owned. A rural residential development is located approximately 4 km to the southwest of the mine. A small number of farms and scattered homesteads occupy the remainder of the surrounding freehold land. The locality is serviced by the Ulan–Cassilis Road (linking Mudgee and Cassilis), Cope Road (linking Gulgong and Ulan) and Ulan–Wollar Road (linking Wollar and Ulan). The Gulgong–Sandy Hollow Railway provides the transport link for delivery of coal to domestic and export markets (via Muswellbrook). Aerial views of the mine taken in October and December 2009 are presented in Figure 2-1 and Figure 2-2.

The project involves the construction and operation of open cut and underground mining operations with associated infrastructure. Further open cut and underground mines within EL 6288 will be the subject of future staged development. Stage 1 of the MCP was granted Project Approval (Reference 05_0117) on 6th September 2007 by the Minister for Planning pursuant to the provisions of the *Environmental Planning and Assessment Act 1979*. Stage 1 consists of three open cut mines (OC1, OC2 and OC3); one underground mine (UG4); coal handling and preparation plant (CHPP) and raw and product coal stockpiles; a rail loop and rail loader; and office and workshop support facilities. Stage 1 has approval to extract up to 8 Mtpa of run-of-mine (ROM) coal from the open cut mines and up to 4 Mtpa ROM coal from the underground mine, with combined output of up to 10 Mtpa of product coals, which can only be transported from the site by rail. Stage 1 is approved to operate until 20th December 2028. There are over 100 individual conditions which apply to the Stage 1 Project Approval.

At the end of the audit period, MCO had submitted 5 Applications for modification of the project approval. Of these, all had been approved other than Modification 3. The most recent modification prior to the end of the audit period was (MOD 5) approved by DoP during October 2009. During the period from this time to June 2010, a further 3 modifications had been sought bringing the total modification applications to 8, with 6 of these having been approved. MCO are currently reviewing submissions on Stage 2 of the Moolarben development.

The Environment Protection Licence for the mine (No. 12932, anniversary date 18th August, review date 18th August 2013) was issued by the NSW Department of Environment and Climate Change (DECC) to MCO for the following fee based activity:

- Coal mining (>500,000 – 2,000,000 T).

## 2 Overview of Operations at Moolarben Coal

**Figure 2-1** Aerial View (dated 15 December 2009) of site from the south, with the mining workshop building under construction, open cut No.1 mining area in the fore ground, with the Infrastructure area in the distance.

**Figure 2-2** Aerial View (dated 29 October 2009) of site from the south with Open Cut No.1 mining area in the fore ground, with the Infrastructure area in the distance. Ulan Mine coal handling facilities are evident to the west of the site.

## 2 Overview of Operations at Moolarben Coal

Construction activities undertaken at the site since commencement of the Project and proposed for the remainder of the construction phase include the following:

- Coal handling facilities incorporating crushing plants, conveyors, raw coal and product coal stockpiles, coal preparation plant, coal stacking and reclaiming by overhead trippers and reclaim tunnels;
- An “Environmental” bund located adjacent mining areas, principally for noise mitigation;
- Rail spur, rail loop and train loading infrastructure;
- Mine access roads, internal access roads and haul roads;
- Water management infrastructure, including the construction of culverts across Bora Creek;
- Water supply bores, associated pump and pipeline systems, surface water storages and the establishment of a water treatment system and discharge scheme via Bora Creek;
- 66kV transmission line and substation;
- Communication infrastructure, buildings and associated facilities;
- Relocation, closure and temporary closure of public roads within the area to be mined; and
- Relocation of utility infrastructure to be impacted by mining or the location of mine related infrastructure.

Appendix C provides photos of various aspects of the operation as taken during the two site inspections in December 2009 and May 2010.

### 2.2 Environmental Context for the Audit

Key issues providing some context to the audit included the following:

- An investigation by the DECCW into the discharge of sediment laden water in June 2009 was being undertaken at the time of the audit. The impacted area was in the vicinity of the rail loop crossing of the Bora Creek. It is understood that further discharge events occurred, outside of the audit period. These have not been assessed within this report;
- At the time of the first site inspection, the DoP were investigating the clearing of land for a fence around the mining lease with potential for prosecution over the incident. At the time of writing this report, it is understood that MCO had been prosecuted;
- Environmental management between January 2009 and June 2009 had been carried out by two people on a part time basis while recruitment for permanent personnel was underway. Since June 2009, environmental personnel have been full time and the quality of environmental management appears to have improved within this time; and
- Design delays had negatively interacted on construction programming, such that the construction schedule had been impacted. This affected the timing and sequence of various construction activities e.g. construction of various infrastructure prior to drainage of these areas being constructed.

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# Consultation with Regulatory Authorities

Project Approval 05_0117, Schedule 5, Condition No. 6 (b), requires that consultation with regulatory agencies be undertaken as part of the independent compliance audit:

> *This audit must:*
> *b) include consultation with the relevant agencies;*

As part of this audit, URS have consulted with:

- The Department of Environment, Climate Change and Water (DECCW), (formerly Department of Environment and Climate Change – DECC);
- The Department of Planning (DoP),
- Mid-Western Regional Council (MWRC),
- The Department of Industry and Investment NSW (DII), and
- NSW Office of Water (NOW), who have taken over the responsibilities of the former Department of Water and Energy (DWE) from July 2009.

A request was sent to representatives of each of the above agencies for feedback on those issues considered most relevant by their department at the time of the audit. In each case this followed a telephone discussion with those individuals, with the exception of DII, whose representative was unavailable. At the time of reporting responses had been received from DECCW, MWRC and DoP. No responses had been obtained from DWE or DII by the time that this report was being completed.

### *Summary of Consultation*

In an e-mail from Sheridan Ledger (DECCW), reference was made to poor sediment control measures having led to several pollution events involving the discharge of sediment laden water into a creek at the site. The Department's concerns centred on the apparent focus of resources into construction activities rather than environmental compliance, the lack of adequately trained staff, and the poor implementation of environmental management plans.

In a telephone conversation with Sara Wilson (DoP), the key concerns of the Department were stated to be in relation to the construction activities taking place on site. Firstly, was construction being undertaken in accordance with what had been approved; secondly, were construction and environmental management plans being implemented and finally, were environmental monitoring activities being undertaken as required. It was pointed out that construction works had been commenced in certain areas in close proximity to residents, without approval.

In an e-mail from Linda Shreeve (MWRC), the local council were primarily concerned about the potential impact of the mining activities on traffic on the Ulan Road and the possible impact of noise and dust on the local community.

Following submission of an initial audit report to the DoP by MCO in February 2010, further consultation was undertaken to address concerns raised by the DoP. A meeting was held between David Kitto, Howard Reed and Sara Wilson of the DoP and Michael Woolley and Helen Pieris of URS on the 21 April 2010 where the requirement for further verification works was discussed.

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# Environmental Performance

This Section addresses the requirement of the scope of work to "assess the environmental performance of the project, and whether it is complying with the relevant requirements in this approval and any relevant mining lease and environmental protection licence (including any strategy, plan or program under these approvals)".

In general, the relevant consent conditions or requirements of the EPL have guided the auditors in terms of defining "environmental performance" requirements. Where appropriate, other performance parameters have also been considered. It is noted that a detailed assessment of compliance against the approval consent conditions is provided in Appendix A, with a summary of the identified non-compliances provided in Section 8 of this report. As such, for further details relating to compliance, reference should be made to Appendix A.

## 4.1 Noise

The site's EPL No. 12932, provides four conditions with respect to noise generation and monitoring. The Project Approval 05_0117 includes nine conditions relevant to the monitoring and management of noise emissions (Schedule 3, Conditions 2 to 10). These nine conditions incorporate the main elements of the EPL conditions as well as additional details. Project Approval Conditions 3/02, 3/04 and 3/06 relate to noise generation by the project activities:

> ***Condition 3/02***. *The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, or on more than 25% of any privately-owned land.*
>
> ***Condition 3/04***. *The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately owned land, or on more than 25% of any privately owned land, excluding the land listed in Table 1, to the satisfaction of the Director-General:*
>
> - $L_{Aeq(11\ hour)}$ *50 dB(A) - Day;*
> - $L_{Aeq(4\ hour)}$ *45 dB(A) - Evening;*
> - $L_{Aeq(9\ hour)}$ *40 dB(A) – Night*
>
> ***Condition 3/06***. *The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project combined with the traffic noise generated by other mines does not exceed the traffic noise impact assessment criteria in Table 4.*

The performance of MCO with respect to these conditions is discussed below.

## 4 Environmental Performance

### *Noise Management Plans*

Two Project Approval Conditions relate to the preparation and implementation of noise monitoring or management plans, these are as follows:

> ***Condition 3/07***. *The Proponent shall prepare and implement a Construction Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:*
>
> *(a) be prepared in consultation with the DECC by a suitably qualified expert whose appointment has been approved by the Director-General;*
>
> *(b) be submitted to the Director-General for approval prior to carrying out any construction on site;*
>
> *(c) contain noise goals for the construction period;*
>
> *(d) specify the type and location of night time construction activities;*
>
> *(e) describe what measures would be implemented to minimise the construction noise impacts of the project during the first 6 months of construction, with particular emphasis on minimising the impacts on Ulan School and its pupils;*
>
> *(f) describe how the effectiveness of these measures would be monitored;*
>
> *(g) document the procedures that would be followed if an exceedance of the construction noise goals are detected.*
>
> ***Condition 3/10***. *The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:*
>
> *(a) be prepared in consultation with DECC;*
> *(b) be submitted to the Director-General for approval prior to carrying out any construction on site; and*
> *(c) include:*
> *. a combination of real-time and supplementary attended monitoring measures; and*
> *. noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.*
>
> *Note: This program must expressly monitor the modifying factors referred to in the NSW Industrial Noise Policy (such as intermittency, tonality and low frequency).*

A Construction Noise Management Plan (CNMP) was prepared for the construction phase of the project, with approval of the Plan by the DoP provided in December 2008. A Noise Monitoring Program (NMP) was prepared and approved for the construction phase of the project during December 2008. Both real time and attended monitoring methods were proposed in the NMP, as well as a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria stipulated in the approval.

URS review of the monitoring plans (NMP and CNMP) raised several points which are detailed in Section 6.4 of this report. One key finding of the review is that the Plan does not make it clear whether results from the continuous real time noise loggers will be reviewed for the purpose of assessing compliance with the noise criteria. The Plan states that the results will be used as an operational tool to understand noise levels emanating from any one activity and as an early warning tool to inform MCO personnel that noise levels are approaching criteria so that MCO can respond proactively. The Compliance Evaluation and Response Flowchart (Figure 7 within the Plan) specifically refers to analysis of *attended* monitoring data. It is unclear whether the response protocols detailed in the plan including exceedance reporting protocols are applicable to the unattended monitoring results.

## 4 Environmental Performance

**URS Recommendations:**

- In the auditors opinion the continuous noise monitoring results should be used to assist MCO assess compliance with the noise criteria and any results above noise criteria which, following investigation are determined to be attributable to MCO activities and not due to adverse weather conditions, should be considered as exceedances and managed and reported accordingly.
- The Noise Monitoring Plan, in particular the compliance evaluation and response flowchart and the response protocol sections, should be revised to make this clear.

Implementation of the CNMP and NMP is discussed in Section 6.5.

The CNMP has been reviewed internally and revised in anticipation of the commencement of operational activities at the mine in early 2010. The Operational Noise Management Plan was provided to the DoP for approval on the 16th November 2009.

### *Compliance with Noise Criteria*

The Project Approval Conditions (PAC) Schedule 3, Clause 2 (3/2) sets noise criteria for the project which cannot be exceeded however the Condition allows for higher noise limits to be set for the construction phase of the project as outlined in an approved CNMP. The approved CNMP specifies the following noise criteria for 0 to 6 months (Table 4-1) and 7 to 15 months (Table 4-2).

**Table 4-1 Construction Noise Impact Assessment Criteria dB(A) for 0 to 6 months**

| Receiver | Daytime Criterion $L_{Aeq\ (15\ min)}$ [1] |
|---|---|
| 26, 49, 22, 23, 41A, 63, 64, 170, 171, 172 | 43 |
| 169, 173 | 42 |
| All other privately owned land (outside the village of Ulan) | 40 |
| Ulan Primary School | 43 $L_{Aeq\ (15\ min)}$ External When in use and under all weather conditions<br>35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions |
| Ulan Anglican Church<br>Ulan Catholic Church | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions |
| Goulburn River National Park<br>Munghorm Gap Nature Reserve | 50 $L_{Aeq\ (15\ min)}$ |
| Notes | 1. $L_{A10(15min)}$ was used in the CNMP. Consistent with the DECC's Draft Construction Noise Guideline (2008), which was the latest guideline when the CNMP was prepared, noise levels should be assessed using $L_{Aeq(15min)}$. |

## 4 Environmental Performance

**Table 4-2 Noise Assessment Criteria dB(A) for 7 to 15 months**

| Receiver | Day | Evening | Night | |
|---|---|---|---|---|
| | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{A1(1\ min)}$ |
| 26, 49 | 38 | 38 | 38 | 45 |
| 22, 23, 41A, 63, 64, 170, 171, 172 | 38 | 38 | 37 | 45 |
| 169, 173 | 37 | 37 | 37 | 45 |
| All other privately owned land (outside the village of Ulan) | 35 | 35 | 35 | 45 |
| Ulan Primary School | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions | | | - |
| Ulan Anglican Church<br>Ulan Catholic Church | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions | | | - |
| Goulburn River National Park<br>Munghorm Gap Nature Reserve | 50 $L_{Aeq\ (15\ min)}$ | | | - |

It is noted that a noise study conducted at the Ulan school (as discussed in the CNMP) found the difference between the external and internal measurements was 8 dB with windows normally open. The noise criterion *outside* the school classrooms is therefore 43 db(A).

Construction activities commenced at the site in April 2009 therefore the criteria outlined in Table 4-1 above were applicable for the period April to September 2009 and the criteria outlined in

## 4 Environmental Performance

Table 4-2 were applicable for the period from October 2009.

During the audit period, MCO established continuous noise loggers at two locations (Ulan School and a mobile unit). The loggers provide real-time noise data which can be used for the purpose of assessing compliance with the noise criteria in addition to providing a management tool to monitor and mitigate potential noise impacts. Advitech Pty Ltd was engaged by MCO to collate, analyse and report on the continuous noise monitoring results on a quarterly basis. URS reviewed the reports prepared by Advitech for January to March 2009, April to June 2009, July to August 2009 and September to November 2009 and note the following:

- January to March 2009: MCO activities were limited to preparation works including road improvements around the proposed Coal Handling Plant, rail loop and administration centres. Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 36% of the time it was in-use in the absence of any contribution from activities associated with MCO.
- Measured noise levels were above the criterion 28% of the night time period at R26 in the absence of any contribution from mining activities associated with MCO.
- April to June 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 66% of the time it was in-use. Advitech concluded that road noise, meteorological impacts and the operation of the school (i.e. children playing in the school yard) were the dominant noise sources at this location. Construction noise in the form of reversing alarms was observed on one occasion on 8 May, however a review of the recorded audio by Advitech concluded that the school was not in use at the time and the observed impact had diminished to the point of inaudibility by 9:00 am when school operations commenced. The noise criteria for the school is applicable when the school is in use.
- Measured noise levels at R26 were above the 43 dB(A) criterion for approximately 58% of the day period (approximately 22% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the audio files and concluded that road noise and other transportation sources dominated the noise environment at R26 and that noise generating activities consistent with construction works were not identified during the review of audio at this location.
- July and August 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 78% of the time it was in-use. Advitech considered that road noise, meteorological impacts and the operation of the school were the dominant noise sources and that noise generating activities consistent with construction activities, while audible on occasion, were not considered to have contributed to results exceeding the criteria.
- Measured noise levels at R26 were above the 43 dB(A) criteria for approximately 99% of the day period (approximately 13% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the recorded audio and concluded that road noise and other transportation sources dominated the noise environment and that noise generating activities consistent with construction activities, while audible, were not considered to have contributed to results exceeding the criteria.
- September and November 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 89% of the time it was in-use. Advitech considered that road noise, meteorological impacts and the operation of the school were the dominant noise sources and that noise generating activities consistent with construction activities, while audible on occasion, were not considered to have contributed to results exceeding the criteria.
- Measured noise levels at R26 were above the 43 dB(A) criterion for approximately 99% of the day period (approximately 58% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the recorded audio and concluded that road noise and other transportation sources dominated the noise environment and that noise generating activities consistent with

construction activities, while audible, were not considered to have contributed to results exceeding the criteria.

The continuous noise monitoring data could not accurately confirm compliance with noise criteria due to other noise sources dominating at the monitoring locations such as road noise, other transportation noise and school noise.

The real-time unattended noise monitoring was supplemented by attended monitoring for the purpose of assessing compliance as required by the Project Approval Conditions. During the audit period Spectrum Acoustics was engaged to undertake attended noise monitoring at the locations identified in the CNMP to assess compliance with the above noise criteria. The URS noise expert reviewed the monitoring reports prepared by Spectrum Acoustics for the months April 2009 to December 2009 and noted the following:

- There was no monitoring completed in October 2009, hence there is no monitoring report for this period.
- For the period April to September 2009 the monitoring results indicated that noise attributed to the Moolarben coal mine was either below the 0 – 6 month construction criteria or inaudible when measured at the identified sensitive receivers. In each case other noise sources contributed to the measured $L_{eq}$ including traffic (both local traffic near the monitoring site and traffic on Ulan – Mudgee Road), noise from other mines in the area and bird noise.
- For the period November to December 2009 the monitoring results indicated that noise attributed to the Moolarben coal mine was either below the 7 – 15 month construction criteria or inaudible when measured at the identified sensitive receivers. In each case other noise sources contributed to the measured $L_{eq}$.

The monitoring reports provided by Spectrum Acoustics continued to compare measured noise levels with the 0 – 6 month construction criteria post September 2009 instead of applying the 7 – 15 month criteria. Although it is noted that the 0 – 6 month construction criteria was proposed for the construction of the environmental bund and that works on the rehabilitation of the bund continued post the 6 month period the auditors consider that the 7 – 15 month criteria should be applicable from October 2009 as specified in the CNMP.

**URS Recommendation:**

- It is recommended that MCO apply the correct construction noise criteria (7 -15 month) as specified in the CNMP when comparing monitoring results for the purpose of assessing compliance.
- It is recommended that alternative methods of determining compliance are agreed with the DECCW, documented in the Noise Management Plan and implemented.
  The footnotes to PAC 3/2 state that:
  *"Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy)."*
  Chapter 11 of the Industrial Noise Policy (INP) allows for noise measurement closer to the noise source and extrapolation of the noise levels to the sensitive receivers. In the auditors opinion this method would provide a more accurate and transparent determination of the noise levels from the MCO.

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### *Cumulative noise monitoring*

The quarterly Advitech reports also analysed the monitoring data for the purpose of assessing compliance with the cumulative noise criteria specified by PAC 3/4. The reports indicated the following with regard to cumulative noise impacts:

- January to March 2009: Cumulative $L_{AeqLF,period}$ day noise levels exceeded the 50dB(A) cumulative noise criteria at Ulan School on a number of occasions. Advitech reviewed the recorded audio and concluded that the exceedances were attributed to non-mining noise sources including road noise, meteorological influences and maintenance activities in the school yard.
  Cumulative $L_{AeqLF,period}$ noise levels exceeded the 40dB(A) cumulative night time noise criteria at R26. Review of the audio recordings for the time of the exceedances by Advitech indicated the passage of vehicles on Ulan Road was the dominant noise source.
  The $L_{A,1\ minute}$ noise levels exceeded the 45 dB(A) sleep criteria at R26. A review of the audio recordings by Advitech indicated environmental noise sources including road noise, barking dogs and gusting wind were the dominant noise sources. Mangoola reported they were not working during these periods.
- April to June 2009: Cumulative LAeqLF, day noise levels exceeded the 50dB(A) cumulative noise criteria at Ulan School on a number of occasions. Advitech reviewed the recorded audio and concluded that the exceedances were attributed to non-mining noise sources including road noise and meteorological influences.
  Cumulative $L_{AeqLF,period}$ noise levels exceeded the 50dB(A) cumulative noise criteria at R26. Advitech reviewed the recorded audio and indicated that the noise environment was characterised by road noise, meteorological influences and the intermittent passage of trains and aeroplanes.
- July and August 2009: Cumulative $L_{AeqLF,period}$ day noise levels exceeded the 50dB(A) cumulative noise criteria at Ulan School once during the monitoring period. There were no exceedances of the cumulative noise criteria at R26 during the day period.
- September and November 2009: Cumulative $L_{AeqLF,period}$ day noise levels exceeded the 50dB(A) cumulative noise criteria at Ulan School on several occasions during the monitoring period. Review of the audio recording by Advitech indicated the exceedances were attributed to non-mining noise sources including road noise and meteorological influences. The cumulative noise criteria was exceeded once at R26 during the reporting period. Review of recorded audio by Advitech indicated the noise was characterised by meteorological influences at this time.

In summary, whilst the Advitech reports indicated instances were the measured $L_{AeqLF,period}$ noise levels exceeded the 50 dB(A) day time cumulative noise criteria at Ulan School and R26, following review of the recorded audio by Advitech the dominant noise sources were identified as non-mining related, including road noise and meteorological influences.

### *Traffic noise monitoring*

Monitoring to assess compliance with the traffic noise impact assessment criteria was not undertaken during the audit period therefore MCO can not demonstrate compliance with traffic noise criteria.

**URS Recommendation:**

- It is recommended that MCO implement monitoring and analysis to assess compliance with traffic noise impact assessment criteria.

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### *Continued improvement*

Project Approval Condition 3/09 provides for the implementation of noise mitigation measures to lead to continued improvement in performance as the project progresses:

> ***Condition 3/09**. The Proponent shall:*
>
> *(a) include in each Annual Environmental Monitoring Report (AEMR) required by Condition 5 (Schedule 5) a review of best practice noise mitigation measures that could be reasonably and feasibly applied to the ongoing operation of the mine;*
>
> *(b) where there is a clear public benefit in the application of such measures, implement these measures to the satisfaction of the Director-General; and*
>
> *(c) ensure that any additional measures implemented as part of this condition are considered in all future AEMR's and Independent Environmental Audit's required under Condition 6 (Schedule).*

The 2008/09 AEMR reported that the following noise mitigation measure was implemented during the reporting period:

- Haul trucks that have noise attenuation systems installed were utilised. These systems consist of two primary silencers and a secondary silencer. The two primary silencers attenuate mid to high frequency noises while the secondary silencer attenuates low frequency noise.

In addition the AEMR reported that the following measure would be undertaken during the next reporting period:

- Investigation into the installation of alarming systems on the real time noise monitoring stations

The AEMR however did not present a detailed review of best practice noise mitigation measures and an assessment of whether these measures could be reasonably or feasibly applied to the ongoing operation of the mine.

In addition to the measures outlined in the AEMR, MCO implemented the following mitigation measures to lead to continued improvement in the noise performance of the mine:

- Additional noise attenuation features in the form of low frequency reversing alarms were fitted onto site trucks.
- A silent alarm system was installed on dozers and excavators to reduce horn use as a means of communication between the dozer and the excavator drivers.
- In March 2010 alarming systems were installed on the real-time noise monitoring stations to alert the ECRM and site supervisors that noise levels are approaching the criteria threshold levels and that additional noise controls such as modifying the operation may need to be implemented.

**URS Recommendation:**

- It is recommended (as required in the Condition 3/09) that MCO undertakes a review of available best practice noise mitigation measures and conducts an assessment of whether they can be reasonably or feasibly applied. The assessment should include a review of the public benefit of the application of such measures. The outcomes of this review should be detailed in the 2009/10 AEMR.

### *Complaints*

Four complaints were received during the AEMR reporting period (1/9/09 to 31/08/09) relating to noise and vibration. Three of the complaints related to noise impacts from vegetation clearing and mulching

and the other related to vibration and noise from grader and roller use. In each instance the complaint was investigated by the ECRM and the complainant contacted with the results of the investigation.

For the period from 1/09/09 to 31/11/09 an additional two noise complaints were received. These were received from the same resident and related to general operational noise from the mine. In the first instance attended monitoring had been undertaken on the morning the complaint was received and the noise levels from MCO activities measured as 34 dB(A) which was below the 42 dB(A) criteria applicable for this receiver. In the second instance the Environmental Coordinator retrieved the noise and audio files from the continuous noise logger located in close proximity to the residence and noted that whilst mining equipment was audible it was below the construction noise criteria. Follow up with the complainant was not documented on the Community Complaints Form.

In general noise complaints were considered by URS to have been adequately addressed for the audit period. In the majority of instances there was no further action to be taken as work was being conducted during standard working hours and within project construction noise limits. Improvements could be made on the level of detail recorded on the Community Complaints Form with regards to complainant follow up (refer to recommendations in Section 4.11).

It is understood that in January 2010 additional plant including an extra excavator was introduced for removing overburden. In April 2010 (after the audit period), MCO moved to an afternoon shift with working hours being extended until 12:30am. These two changes are understood to have led to increased noise impacts and related noise complaints. As they were outside the audit period these issues have not been assessed in this report.

## 4.2 Blasting

The site's EPL No. 12932, provides the following requirements with respect to blasting:

> *L7.1 Blasting in or on the premises must only be carried out between 9.00 hours and 17.00 hours, Monday to Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.*
>
> *L7.2 Blasting at the premises is limited to the following:*
>
> - *A maximum if 2 blasts per day;*
> - *A maximum of 9 blasts per week averaged over a 12 month reporting period; including*
> - *A maximum of 4 blasts per week, averaged over a 12 month reporting period, with a maximum instantaneous charge (MIC) of greater than 650 kg.*
>
> *L7.3 The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period and 120 dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.*
>
> *L7.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period and 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.*
>
> *M8.1 To determine compliance with condition(s) L7.3 and L7.4:*
>
> *a) Airblast overpressure and ground vibration levels must be measured and electronically recorded at the nearest non-mine owned residence, the Ulan Primary School and the Aboriginal rock shelter site S1MC55 and S1MC56 where blasting is undertaken within 2 kilometres; and*
>
> *b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.*

The above requirements are in line with those specified in the site's Mining Leases (1605 and 1606), and are mirrored by the Project Approval Conditions to Project Approval 05_0117 (Schedule 3, Conditions 11 to 14).

Blasting commenced on 7th October 2009, with blasting events anticipated on a weekly basis at the Open Cut 1 location, in association with ground clearing operations and the development of the open cut. During the audit period blast monitoring was undertaken in-house by MCO at the following three locations in closest proximity to the mine site: BM1 (Ulan School), BM3 (Moolarben Dam Wall) and BM4 (Lagoons Road). As the BM2 monitoring location (Rock Shelters) is over 2km from the blast location, no monitoring was undertaken that location.

URS reviewed blast monitoring results for the period 7th October 2009 to 26th November 2009 (presented as an Excel summary table). No exceedances of the stipulated criteria had occurred during any of the seven blast events undertaken to date.

MCO indicated that they had undertaken a risk assessment of the entire blasting process prior to undertaking the first blast. As an extra precaution, the main public road past the site was closed for the event, even though it was outside the 500m zone. In addition, to minimise the potential impact on the surrounding area, the size of the blasts were controlled, by commencing with a small scale and building up slowly, to allow monitoring of conditions steadily as the size of the blast increased.

MCO stated that blasting was normally undertaken around midday on weekdays (Wednesday) and that all blasts to date had taken place within the specified time intervals. A review of records provided and available monitoring results indicated no instances where blasting was undertaken outside of the specified hours and no instances where more than one blast was conducted per day.

Relevant blasting information was provided to the public by the following methods:

- The website (observed by the auditors to list upcoming blasts);
- The blasting hotline (dialled by the auditors and found to be valid);
- Email the day before a blast. This is conducted by the Blast Supervisor and recorded on the Drill and Blast Checklist (example observed by the auditor);
- Telephone call on the day of the audit. This is conducted by the Environmental Coordinator and recorded in the Pre-blast Notification Register (observed by the auditors); and
- Sign at the entrance to the site (observed by the auditors).

In conclusion, URS consider that blasting operations associated with the construction phase of the project have been conducted in accordance with the relevant conditions in the EPL, the Mining Leases and Project Approval.

### *Complaints*

Two vibration complaints were received during the audit period relating to blasting events. In both instances MCO were below the peak particle velocity and overpressure criteria and this was conveyed to the complainant. As a result of one of the complaints the resident was added to the blasting notification register.

## 4.3 Air Quality

The Project Approval 05_0117 includes several conditions relevant to the monitoring and management of air quality in the vicinity of the MCO site. These include the following:

*3/21. The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria in Tables 7, 8, and 9 at any residence on privately owned land, or on more than 25 percent of any privately owned land (excluding the properties listed in Table 1).*

*3/22. If the dust emissions generated by the project exceed the criteria in Tables 10, 11 and 12 at any residence on privately owned land, or on more than 25 percent of any privately owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 10-12 of schedule 4.*

*3/23. The Proponent shall:*

*(a) regularly assess the real time air quality and meteorological monitoring data;*

*(b) relocate, modify and/or stop mining operations in adverse meteorological conditions to minimise the short term air quality impacts of the project on privately-owned land, and in particular on properties 8, 22, 23, 26, 30, 31, 32, 41A, 49, 63, 64, 169, 170, 172 during open cut mining operations;*

*(c) implement all reasonable and feasible measures to minimise the off-site odour and fume emissions generated by any spontaneous combustion on site, to the satisfaction of the Director-General.*

In addition, Conditions 3/24 and 3/25 refer to the preparation of an Air Quality Monitoring Program (AQMP) and the provision of a meteorological station at the site respectively.

The EPL conditions relevant to air quality are as follows:

> *O3.1 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.*
>
> *O3.2 All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust. .*

### *Air Quality Impact Management*

Although the criteria are being met at the receptors, as witnessed by the air quality monitoring data obtained to date and reported in the AEMRs, significant challenges were presented by the conditions that the construction activities were operating under. Specifically, this relates to the nature of the topsoils in the general area of the mine, and also the specific location of the construction areas currently being developed, where the removal of cover and the handling of large volumes of topsoil material which was taking place on a relatively exposed landscape.

The MCO Mine Operations Plan (Section 3.2.3) identifies the fact that the natural topsoils occurring in both the main infrastructure area and the Open Cut 1 area are dominated by soil types which, aside from possessing a very high erodibility hazard, are also characterised by a high fines content, susceptible to the generation of dust on handling. Land clearing and earthmoving practices therefore require careful management to minimise disturbance and the potential for prevent significant dust generation.

At the time of the December 2009 site inspection several water carts were observed to be wetting down internal haul roads to minimise dust impacts. Notwithstanding the dust control measures observed, visible quantities of dust being generated could be observed from beyond the boundary of the site from various site activities such as removal and stockpiling of topsoil and overburden in the OC1 area, clearing activities, and tree mulching activities. In addition, observations were made of dust being generated during excavation and dumping of topsoils and overburden (Photos 6,7,10 and 13, Appendix C). Large surface areas of ground were exposed and the lack of progressive rehabilitation/soil stabilisation works in some areas was likely to have contributed to dusty conditions (refer also to discussion of Erosion and Sediment control in Section 4.4.2).

Each of the staff members interviewed recognised that the site subsoil was very dusty on excavation (‘rock flour’) and that the methodology of excavation and handling constantly required reassessment, with regular consultation to identify high risk areas and possible solutions. Bruce Birchall (Production Superintendent) identified that many site activities possessed the capacity to generate dust, including blasting, excavation, dozing, mulching and the use of scrapers. He stated that work practices were determined by specific conditions for each activity and outlined a range of dust suppression measures which had been introduced, including:

- Wind direction was taken into account when assessing risks;
- Dig sequence, orientation of the face, and modifying the dump method were all addressed,
- Two large water cars and seven to eight road tankers (of various sizes) were available for dust suppression activities;
- Identified the need to minimise multiple handling to reduce dust generation, e.g. scrapers can minimise handling if used appropriately;

- Controls included new trucks having 'go slow' mode, for conditions which demand slower speeds to minimise dust generation, e.g. if water trucks fall behind;
- The use of the 'go slow' mode was also preferred if e.g. 'rock flour' was being handled, even if road was adequately wetted;
- Certain mulching practices were found to be very prone to dust generation, therefore four different methods were trialled to identify best practice to suit prevailing conditions; and
- An exemption from noise related restrictions was gained to allow water carts to start one hour earlier to ensure that all haulage roads were wetted down before work commenced each day.

During the May 2010 site inspection it was observed that dust issues were visibly reduced as compared to the December 2009 visit. Observations made during the May 2010 site inspection are provided in Section 7. This was largely attributed to wetter soil conditions, less excavation in topsoil areas, reduced winds and temperatures, less construction/mine development works being undertaken and the rehabilitation works already undertaken.

The AQMP documents real time response measures to be undertaken when the 24 hour $PM_{10}$ at TEOM 1 or TEOM 3 reaches 40 $\mu g/m^3$, 50 $\mu g/m^3$ and 150 $\mu g/m^3$. These range from reviewing site activities, reviewing weather patterns and weather predictions and ensuring mitigation measures are in place to limiting dumping and construction to unexposed areas and rescheduling all dust generating construction activities.

Alarms have been set up so as to notify the ECRM, Environmental Coordinator and supervisors by SMS to their mobile phones when real time monitors have recorded levels approaching criteria. It was reported that when a notification is received it is investigated by the Environmental Coordinator as described above, however this investigation process was not documented.

### *Air Quality Monitoring*

An Air Quality Monitoring Program (AQMP) for the construction phase of the project has been prepared and approved by the DoP in December 2008, prior to the commencement of construction activities in March 2009. An updated and revised AQMP to cover the initial operational phases of mining was submitted to the DoP for approval in late 2009.

Two types of $PM_{10}$ monitoring are undertaken at MCO. Continuous real-time monitoring is undertaken at three locations using Tapered Element Oscillating Micorbalance (TEOM) units. Two permanent locations are situated at a property at Murragamba and at Ulan School. A mobile unit was also located at a property on Toole Road, although this unit can be moved in response to dust complaints or as mining operations impact on other areas. Two HVAS units are sampled every six (6) days. Both of these units are fixed units with one located in Ulan Village and the other one located on Ridge Road. All monitoring is conducted in accordance with DECCW guidelines and relevant Australian Standards. Data has been available from the three real-time units since late 2008 and from the HVAS unit at Ridge Road from the end of May 2009. Data is available from the HVAS in Ulan Village prior to 2007.

### *Total Suspended Particulate (TSP) and Particulate Matter ($PM_{10}$) Monitoring*

The air quality criteria applicable to Moolarben are specified in Project Approval 05_0117 Schedule 3 Condition No. 21 and summarised below:

- Mean annual TSP concentration – 90 $\mu g/m^3$.
- Mean annual $PM_{10}$ particulate level - 30 $\mu g/m^3$.

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- 24 hour $PM_{10}$ particulate level - 50 $\mu g/m^3$.
- Maximum increase in deposited dust - 2 $g/m^2$/month (annual averaging period).
- Maximum total deposited dust - 4 $g/m^2$/month (annual averaging period).

The monitoring results obtained during the audit period indicated compliance with the annual average criterion.

For assessment of compliance against the 24 hour criterion for $PM_{10,}$ URS performed a review of the MCO monitoring data as presented in the 2008/2009 AEMR and monthly monitoring reports (September 2009 to November 2009 inclusive). There were a total of 14 days in the period after the commencement of significant construction activities, where exceedances of the 50 $\mu g/m^3$ goal were reported at MCO monitoring sites.

The monthly monitoring reports provide explanations where exceedances of the 50$\mu g/m^3$ goal are reported in the monitoring data. Some of these explanations are not adequate for demonstration of compliance with the impact assessment criteria. These include:

- On some occasions MCO report "*MCO's contribution was deemed to be less than 50$\mu g/m^3$ which is not considered to be an exceedance of criteria*". This is not considered appropriate given that the criteria in the approval consent state "*The proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the criteria*". These criteria include the 50$\mu g/m^3$ 24 hour goal.
- Analysis of dust contribution is based on wind direction when winds are light or calm and may vary significantly with location.

In the absence of the availability of 2009 DECCW National Environmental Protection Measure (NEPM) Ambient Air Quality (AAQ) compliance reports, (which provide logs of regional dust events and is yet to be publically issued for the period of interest), the URS air quality specialist reviewed data available at: http://www.environment.nsw.gov.au/AQMS/dailydata.htm to check for the presence of widespread elevated dust levels, for days where exceedances of the 50$\mu g/m^3$ goal were reported at MCO monitoring sites.

Dust storms were present for a large part of 2009, where wind blown dust originating from the dry arid regions near to central Australia was transported across New South Wales.

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Table 4-3 below compares the 24 hour $PM_{10}$ concentrations obtained from MCO's loggers with results obtained from the DECCW website. This comparison indicates that dust levels were likely to be elevated on a regional scale for the majority of days where exceedances of the 50µg/$m^3$ goal were reported at MCO monitoring sites.

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### Table 4-3 Comparison of 24 hour $PM_{10}$ Concentrations

| | MCO Murragamba | MCO Toole Rd | MCO Ulan | DECCW Wallsend | DECCW Beresfield | DECCW Newcastle | DECCW Tamworth | Widespread Dust Present |
|---|---|---|---|---|---|---|---|---|
| 16/04/2009 | 62.0 | NA | 81.4 | 179.5 | 171.8 | 245.4 | 36.2 | Yes |
| 25/042009 | 99.7 | NA | 119.4 | 81.1 | 96.2 | 85.1 | 68.9 | Yes |
| 01/07/2009 | 65.6 | 57.5 | 60.4 | 59.9 | 71.3 | 71.3 | NA | Yes |
| 23/09/2009 | 2805 | 2853 | 3035 | 2150.3 | 1999.0 | 2426.8 | 1791.4 | Yes |
| 26/09/2009 | 104.0 | 100.0 | 112.2 | 173.9 | 211.4 | 211.6 | 227.2 | Yes |
| 02/10/2009 | 51.8 | ~42 | 51.6 | 35.6 | 56.9 | 46.2 | 59.4 | Yes |
| 13/10/2009 | ~24* | 51.9 | 66.1 | 52.8 | 69.7 | 70.9 | 159.0 | Yes |
| 14/10/2009 | 115.8 | 101.4 | 117.5 | 78.9 | 115.2 | 86.6 | 292.1 | Yes |
| 24/10/2009 | ~42 | 56.1 | ~8 | 18.9 | 25.2 | 26.5 | 15.0 | No |
| 16/11/2009 | 60.0 | ~33 | ~30 | 33.7 | 38.2 | 38.7 | 25.0 | Unclear |
| 17/11/2009 | ~41 | 51.8 | ~47 | 23.5 | 28.2 | 31.5 | 35.9 | Unclear |
| 22/11/2009 | 72.3 | 70.6 | 72.3 | 37.7 | 40.1 | NA | 53.6 | Yes |
| 28/11/2009 | 82.5 | 88.8 | NA | 60.7 | 63.1 | NA | 92.5 | Yes |
| 29/11/2009 | 227.4 | 223.9 | NA | 260.8 | 300.6 | NA | 213.4 | Yes |

There were three days (shaded grey in the above table) where it was not clear as to whether MCO's results constitute additional exceedances of the 50µg/$m^3$ goal. For example, dust storms swept across NSW on the week in which the 16/11/2009 and 17/11/2009 exceedances were reported. Figure 4-1 below shows a satellite map of the east coast of Australia from the 20/11/2009 which was sourced from the NSW DECCW Dustwatch report for the week of 23/11/09.

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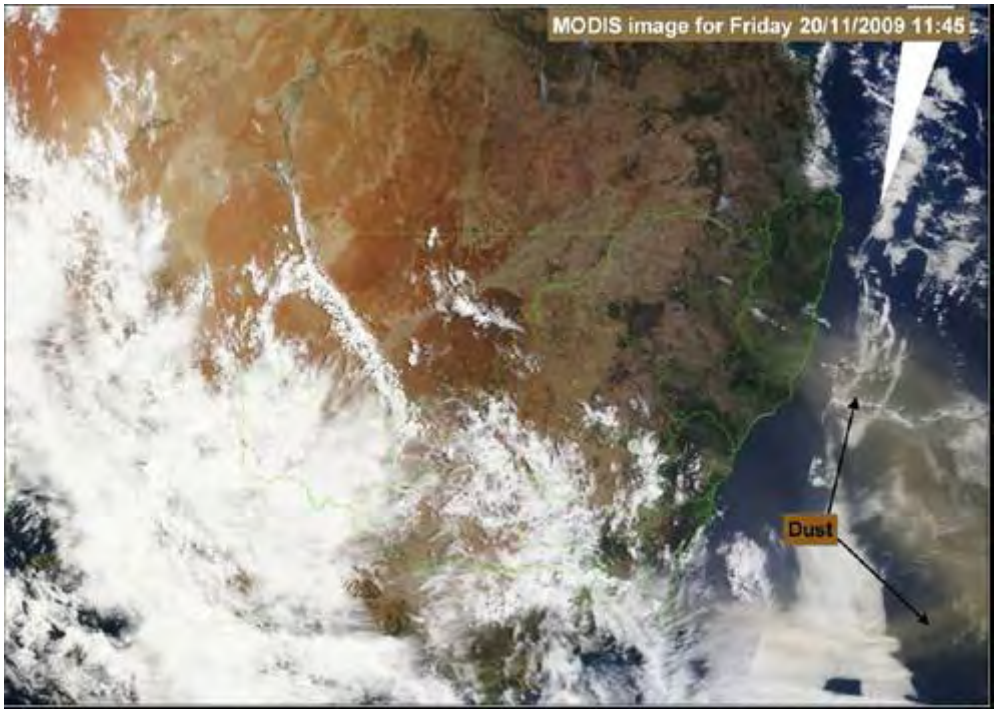


**Figure 4-1 Satellite Map of east coast of Australia from 20/11/2009**
**(sourced from: http://www.environment.nsw.gov.au/resources/dustwatch/DWNL091123.pdf)**

In contrast, on the days on which the 50µg/m$^3$ goal was exceeded, some of the MCO monitoring sites dust levels were well below the goal, whilst other MCO sites were above the goal, indicating the some of the dust was likely to be locally generated.

For assessment of additional exceedances, it is considered that MCO should present further analysis and justification of its contribution, which would ideally include observations of dust sources at the time of the exceedance, and time series charts of dust levels and meteorological conditions throughout the day.

There are also several issues relating to the 24 hour PM10 criterion which are considered to extend beyond the scope of this audit, and are applicable to all projects, to which the 24 hour PM10 criterion applies on a “no additional exceedances” due to “dust emissions from the project” basis. A summary of some of these issues has been included in order to provide additional context to the assessment of the 24 PM10 criterion made in this audit. Some of these issues are:

- The 24 hour PM10 criterion is reliant on establishing incremental impact from the operations, which is not implementable at a technical level at the resolution that is demanded by the criterion. For example, the Australian Standard for high volume air samplers (AS3580.9.6.2003) specifies a measurement uncertainty of 5 µg/m3. Hence presuming that the analytical procedures are in accordance with the standard, for analysis of an upwind sample against a downwind sample, up to 10 µg/m3 of incremental impact (and a potential non-compliance) could be implied by measurement uncertainty alone. In addition, there are likely to be anthropogenically generated spatial variations (e.g. emissions from other industry) and naturally occurring spatial variations in PM10 levels that significantly impair the ability of an upwind/downwind sampling network to establish incremental impact. This is often evidenced in AQIA’s where monitoring data (collected prior to mine establishment) is presented for two different sampling sites for the same sampling periods.

- The criterion would benefit from an established technical framework and guidance for establishing incremental impact, in conjunction with the precision with which the criterion should be enforced.
- The use of a threshold-based criterion is not consistent with the non-threshold based health risks associated with fine particulate exposure. For example, in order to avoid additional exceedances, the allowable contribution from the project approaches 0 µg/m3 as the existing background level approaches 50 µg/m3. Should existing background concentrations be above 50 µg/m3, then there is no restriction on the contribution from the project, despite potential health implications associated with higher levels of particulate exposure.

Hence at present, it is considered that assessment of the compliance with the 24 hour PM10 criterion is not able to be made in a precise manner, and is considered to require judgement and interpretation from an appropriate specialist, with support from regulatory bodies.

**URS Recommendations:**

- Analysis of $PM_{10}$ exceedances would be improved by presenting the data at a higher resolution. $PM_{10}$ levels, wind direction and wind speed will vary significantly within a 24 hour period such that detail (which is valuable to the analysis) is lost if averaged out to 24 hours. In addition, worst case dispersion conditions are likely to occur under calm and stable meteorology, where analysis based on wind direction is of lesser value, and spatial variation in wind direction (e.g. between a dust emission source and the weather station) is greater.
- For days on which the 50 µg/$m^3$ goal is exceeded, a time series of dust levels (at each monitor) against wind direction and wind speed (using a higher resolution dataset, e.g. 10, 30 or 60 minutes) would allow an improved assessment of MCO's potential contribution to $PM_{10}$ levels. This would improve the integrity of the analysis.
- Pending the suitability of the anemometer (siting, instrument type/wind speed and direction starting thresholds) wind direction could also be presented for the calm conditions and this data included in dust roses for the 24 hour period.

### *TSP*

The AEMR does not report or discuss the measurement of TSP or the comparison with TSP criteria obtained from Table 7 of the above Consent Condition. MCO indicated that $PM_{10}$ measurements were collected routinely and they understood that there was correlation between both parameters, based on discussions provided in the EA. The TSP measurement could therefore be calculated by extrapolation from the $PM_{10}$ result. Compliance with the annual average $PM_{10}$ criterion is generally indicative of compliance with the annual average TSP criteria. However, the AEMR should include some consideration of TSP compliance.

**URS Recommendations:**

- MCO should consider TSP compliance and report this in AEMRs.

### *Deposited Dust*

Depositional dust is monitored at nine locations around the operations in accordance with DECCW guidelines and relevant Australian Standards. D9 (Wilga) was installed in October 2008. Samples are collected every 30 days ± 2 days. Results from dust deposition gauges are expressed as insoluble solids, comprising of combustible matter (or organic matter) and ash residue.

## 4 Environmental Performance

During the audit period MCO conducted an investigation in conjunction with DECCW into compliance with *AS3580.10.1:2003 – Method for sampling and analysis of ambient air – determination of particulate matter – deposited matter – gravimetric method* and with *AS3580.1.1:2007 – Methods for sampling and analysis of ambient air – Part 1.1: Guide to siting air monitoring equipment*. This investigation found that all of MCO's dust gauges were in compliance with AS3580.10.1:2003 and the analysis methodology complied with AS3580.1.1:2007.

URS reviewed deposited dust monitoring results for the period to November 2009. Approximately 49% of records were contaminated with organic matter such as bird droppings and leaves (representing an increase over the previous reporting period in which 31% of results were affected). Bird deterrent rings were installed on all dust gauges at the end of July 2009 (after the current Environmental Coordinator commenced on site in June 2009), with a reduction in contamination from bird droppings observed in August 2009. As outlined in the Air Quality Monitoring Program, contaminated results are excluded from the annual average. This is considered to be an appropriate approach for cases where the sample integrity has been compromised. All uncontaminated results were below the annual average dust limit of 4 g/m$^2$/month.

The introduction of control measures resulted in an improvement in quality of data from those monitoring locations which were previously subjected to excessive contamination. For example, at the time of writing (June 2010), it is noted that in the 6 months of reporting (November 2009 to April 2010), 13% of dust deposition samples (7 out of 54 samples) were reported to be contaminated, which is a significant reduction below the contamination rate of 49% reported in the previous monitoring period. This may be due to the success of the bird deterrent rings, or due to variation in seasonal patterns which affect the amount of natural interference present.

The AQMP for the site identifies that due to existing (baseline) dust deposition levels of less than 2g/m$^2$/month, "*In all locations…. …MCM will have a statutory limit of 2 g/m$^2$/month increase in total dust deposition above background dust levels."* Whilst MCO is compliant with the 2 g/m$^2$/month increase (above the baselines identified in the AQMP) at all locations, future reporting should include reference to and assessment against the incremental guideline.

**URS Recommendations:**

- It is recommended that MCO continues to address dust gauge contamination issues through such measures as:
  - The identification of monitoring locations where contamination occurs on a regular basis (e.g. > 4 months in the previous 12 months).
  - The trial of the duplicate sample locations at identified contamination prone monitoring sites. Duplicate gauges could be either co-located (to provide a backup) or placed at a separate location in the near vicinity (e.g. < 250 m) of the original monitoring location. This could be worthwhile if there is an opportunity to avoid a localised contamination influence (e.g. long grass, or areas in which birds or insects are prevalent).
- MCO should ensure that future dust deposition reporting includes reference to and assessment against the incremental criterion of 2 g/m$^2$/month above the baselines identified in the AQMP.

## 4 Environmental Performance

**URS Recommendations:**

- It is recommended that MCO performs a review of the effectiveness of the trigger levels in mitigating dust impacts, and achieving and demonstrating compliance with the 24 hour $PM_{10}$ criteria. The review would consider monitoring data collected to date and address the following:
  - Are the alarms occurring at a time which allows the effective mitigation of dust impacts? It is noted that the use of a 24 hour rolling average may result in significant delays (e.g. several hours) between the occurrence of elevated levels, and the triggering of an alarm and the subsequent responses.
  - Should a short-term (e.g. 30 minute 150 $\mu g/m^3$) alarm be used in addition to existing alarms? The use of a shorter averaging period would also allow the Environmental Coordinator to inspect the monitoring site, and confirm the presence of any nearby sources (e.g. mining activities, agricultural activities, wood heaters, or other fires) in a shorter time frame.
- It is recommended that log sheets are developed to document the outcomes of processes that are undertaken as a result of an alarm notification. This will improve transparency and the ability to retrospectively assess mitigation actions.

### *Complaints*

Five dust complaints were received during the audit period. One of these related specifically to dust generated from a blasting event where as the others related to dust from general site activities. Two of the dust complaints were received on the same day (24th November 2009) and in response site operations were suspended until weather conditions became more favourable.

The following was documented on the Community Complaints Form in response to a complaint received in October 2009:

- The Production Superintendent was immediately contacted to inform them of the dust complaint;
- The ECRM undertook an inspection of the Toole Road area in proximity to the location of the complaint. The ECRM reported that no visible dust or haze was observed;
- The $PM_{10}$ monitoring results from the mobile TEOM located on the corner of Ulan Road and Toole Road were reviewed and noted to be low at the time of the complaint and during the morning leading up to the complaint. These were recorded on the complaint form as 11.5 and 5.2 for 24 hour $PM_{10}$ and instantaneous $PM_{10}$ respectively.
- The ECRM called the complainant the same afternoon and left a message.

The complaint management process for dust complaints received during the audit period appeared to be adequate. Refer also to Section 4.11.

### *Meteorological monitoring*

In association with the regular monitoring of air quality at the Moolarben site, MCO currently operate two weather monitoring stations, the design of which has been determined by the detailed specifications provided in the site EPL (12932). One of these stations (WS01) was relocated from Ulan Village to the site admin office area and the second (WS02) is located in the southern area of the mine. As a result, there was continuous data for the site available throughout the reporting period (although technical difficulties have been experienced on occasions with equipment at one or other of these locations). Furthermore, as station WS01 has since been upgraded to provide real-time data on-line, any data quality issues can be identified quickly and rectified.

The availability of data from two stations allowed some confirmation of data quality and additional data checks and data exchanges were also made with neighbouring mine sites (Ulan Coal) when more information was required.

## 4.4 Water Management

This section reviews the aspects of water management relevant to the site. Project Approval Condition 3/29 covers the supply of water for the project:

> ***29**. The Proponent must ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its water supply.*
>
> *Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or Water Management Act 2000.*

At the time of the audit period MCO considered that sufficient water was available for its operations. Two additional water licences had been received at the end of November 2009 to allow extraction of water from bores around the site (the Northern Borefield). An agreement had also been reached with neighbouring Ulan Mine to supply 1,000 ML of water from their workings per year and this supply was functioning at the time of the audit.

MCO indicated that in the event of water shortages, mining operations would be modified, with examples of actions as follows:

- underground coal would by-pass the washing process to reduce water consumption;
- the use of chemical dust suppressants on haul roads would be investigated.

Project Approval Condition 3/31 covers the impact of the project on the base flow of the surrounding rivers and creeks:

> ***31.** The Proponent shall:*
>
> *(a) offset any loss to the base flow of the Goulburn River and associated creeks caused by the project; and*
>
> *(b) provide suitable compensation or compensatory measures to the owners of any privately owned land whose water supply is adversely affected by the project, to the satisfaction of the Director-General.*

Data on the base flow in the Goulburn River is obtained from Ulan Coal Mines, who have two flow measurement stations. Information from this source has been used by MCO to assist in determining the baseline flow conditions. MCO reported that in the event that a reduction in base flow was measured, a hydrogeologist would be utilised to identify the likely cause. This process is described in the revised Operational Water Management Plan. As mining and dewatering were yet to commence during the audit period it was unlikely that losses to the base flow of the Goulburn River had occurred during the audit period.

Project Approval Condition 3/32 covers the integrity of water storage features at the site:

> ***32**. The Proponent shall ensure that the tailings dam, mine infrastructure dams, groundwater storage and treatment dams, and the Ulan Seam sub-crop line of the most northerly final void are suitably lined to comply with a permeability standard of < 1 x $10^{-9}$ m/s.*

## 4 Environmental Performance

MCO stated that all the water storage features completed to date had been constructed using suitably compacted clays and tested to confirm the permeability of the lining. At the time of the audit, only the emergency tailings dam was incomplete. Macquarie Geotech undertook geotechnical testing and assessment of the emergency tailings dam, western tailings dam, product dam and clear water dam in August 2009. The in-situ soils were tested to determine if lining of the dams was required. The report concluded that the permeability of the emergency tailings dam, western tailings dam and clear water dam met the minimum requirement of 1 X 10-9. Further testing of the permeability of the product dam north wall was recommended however was not undertaken during the audit period.

**URS Recommendation:**

- It is recommended that further testing of the permeability of the product dam north wall is undertaken as recommended in the Macquarie Geotech report dated 14 August 2009.

Project Approval Condition 3/33 covers the undertaking of investigations of the regional water supply and related monitoring activities:

> ***33**. Prior to the commencement of mining operations, unless the Director-General agrees otherwise, the Proponent shall carry out a Regional Water Supply/Monitoring Investigation to the satisfaction of the Director-General. This investigation must:*
>
> *(a) be conducted by suitably qualified and independent expert/s whose appointment has been approved by the Director-General;*
>
> *(b) be carried out in consultation with the DECCW, DPI, DWE and owners of the Ulan and Wilpinjong coal mines;*
>
> *(c) assess the feasibility and potential environmental benefits of increased water sharing between the three mining operations in the region;*
>
> *(d) consider the potential for developing regional surface and ground water monitoring programs to:*
>
> - *rationalise the surface and ground water monitoring programs of the three mining operations in the region; and*
> - *improve the monitoring of the individual and cumulative surface and ground water impacts of these mining operations; and*
>
> *(e) recommend measures to reduce the surface and ground water impacts of mining in the region, and any potential changes to existing licences and/or approvals that could facilitate the implementation of these measures.*

In anticipation of the commencement of mining operations in early to mid 2010, a Regional Water Supply and Monitoring Investigation Report has been prepared by Aquaterra, and a draft was submitted to the DoP for review and approval on the 6 November 2009.

Project Approval Condition 3/34 describes the requirement for the preparation and implementation of a Water Management Plan for the project:

## 4 Environmental Performance

***34**. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:*

*(a) be prepared in consultation with DECCW, DPI and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;*

*(b) be submitted to the Director-General for approval prior to carrying out any construction on site; and*

*(c) include:*

- *a Site Water Balance;*
- *an Erosion and Sediment Control Plan;*
- *a Surface Water Monitoring Plan;*
- *a Groundwater Monitoring Plan; and*
- *a Surface and Ground Water Response Plan.*

The Water Management Plan (WMP) for the construction phase of project was approved in December 2008. A revised WMP to cover the initial operational phases of the project was submitted to the DoP for approval on the 16th November 2009. It is noted that feedback from the DWE in the form of written comments received during the consultation process for each constituent of the WMP was incorporated into revised versions of the Operational WMP components.

Implementation of the Construction WMP is discussed in Section 6.5.

### 4.4.1 Site Water Balance

Project Approval Condition 3/35 covers the preparation of a Site Water Balance, as part of the site Water Management Plan:

***35**. The Site Water Balance must:*

*(a) include details of:*

- *sources and security of water supply;*
- *water use on site;*
- *water management on site;*
- *off-site water transfers;*
- *reporting procedures, and*

*(b) investigate and describe measures to minimise water use by the project.*

The Site Water Balance (SWB) for the construction phase of the project was approved by the DoP in December 2008. Feedback obtained from the DWE on the content of this SWB provided critical comment on a number of issues of concern, but allowed for these issues to be addressed during the first 12 months of construction activities. DWE recommended that annual reviews of the actual and predicted yield be undertaken for the first five years of mining.

An updated SWB covering the operational phase of the project was submitted to DoP for approval as part of the Operational Water Management Plan on the 16th November 2009.

No development occurred at MCO during the 2007-2008 AEMR reporting period, and water management activities were reportedly negligible. The site water balance presented in the 2008-2009 AEMR showed that there was 8.3ML of water stored on site at the end of the reporting period. Following submission of the AEMR, the DoP provided comments to MCO dated 24 February 2010 requiring that the AEMR include a review of the water consumption / use within the reporting period

and a validation against predicted use. The auditors were provided with a draft of the text which was to be included in the Site Water Balance section of the revised 2008-2009 AEMR. This stated that the predicted water usage during construction was higher than the actual usage largely due to irrigation of the environmental bund not being undertaken during the reporting period as it was still being constructed.

### 4.4.2 Erosion and Sediment Control

The mining leases relevant to the Moolarben Project (ML1605, ML1606 and ML1628) include a condition relevant to erosion and sediment control:

> ***Condition18***. *- Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, water body or groundwater. The leaseholder must observe and perform any instructions given by the Director-General in this regard.*

Project Approval Condition 3/36 determines the required content of the Erosion and Sediment Control Plan (ESCP) applicable to the project:

> ***36***. *The Erosion and Sediment Control Plan must:*
>
> *(a) be consistent with the requirements of the Managing Urban Stormwater: Soils and Construction Manual (Landcom 2004, or its latest version);*
>
> *(b) identify activities that could cause soil erosion and generate sediment;*
>
> *(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;*
>
> *(d) describe the location, function, and capacity of erosion and sediment control structures; and*
>
> *(e) describe what measures would be implemented to maintain the structures over time.*

The Erosion and Sediment Control Plan for the construction stage of the project was incorporated into the Site Water Management Plan and approved by the DoP in December 2008. At this stage, DWE had reviewed the draft ESCP and highlighted certain issues which were required to be addressed during the revision of the plan, principally with regard to the use of minimal design criteria for site erosion and sediment control, which was to retain run-off from up to a 1:10 year storm event, rather than a 1:20 year, 12 hour storm criterion, which is standard practice in the Hunter/Newcastle coalfields.

MCO addressed these suggestions in the revision of the ESCP for the operational phase of the project. This plan included ongoing monitoring and maintenance requirements of erosion and sediment control structures. At the time of the first site inspection, the revised ESCP had been submitted to DoP for approval, as part of the WMP for the operational phase of the project.

All erosion and sediment control structures were nominated to have been designed in accordance with the guidelines for *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

## 4 Environmental Performance

The MCO Mine Operations Plan (Section 3.2.3) identifies that the natural topsoils occurring in both the main infrastructure area and the Open Cut 1 area are dominated by soil types which possess a very high erodibility hazard. Land clearing and earthmoving practices at the site therefore were known to require careful management to minimise disturbance and to prevent severe land degradation.

During June 2009 there was a discharge of sediment laden water into Bora Creek during a rainfall event which took place over a holiday weekend. This incident was reportedly caused by the failure of primary erosion and sediment control structures and subsequent breaching of secondary control structures in the form of silt fencing by sediment laden water. A large clean water catchment was being managed on a temporary basis through the site's erosion and sediment control structures. In response to this incident additional hay bale sediment control structures were installed and prioritisation was placed on implementing adequate erosion and sediment control structures, including construction of additional sediment containment dams and large storage dams. A review of the site Erosion and Sediment Control Plan in consultation with DECCW was commenced and rehabilitation of disturbed areas was planned as soon as seasonal conditions become favourable. This rehabilitation was intended to include remedial works to remove deposited silt from the bed of Bora Creek. MCO indicated that in response to the incident, large round hay bales were placed within the creek instead of sediment being removed. This is understood to have been under recommendations from an Agronomist. The removal of sediment was deemed to potentially lead to further damage of the creek and hence was not implemented. This discharge incident was subject to an ongoing investigation by DECCW at the time of the inspection. It is noted that further discharge event occurred in late December 2009. As this was outside the audit period, it has not been considered in this report.

At the time of the December 2009 audit site inspection it was noted that the continuing dry weather had inhibited the commencement of reseeding and plant growth in the revegetation of the landscaping activities around the rail loop area and as such most disturbed vegetation remained un-vegetated and hence at risk of erosion. It was also noted that the status of the construction and mining operations were at a critical stage, whereby the relatively large areas of exposed ground, combined with the nature of topsoil, the time of year and prevailing weather conditions contributed to the situation where the risk of soil erosion associated with heavy rainfall events were high.

Key findings made during the site inspections and interviews related to erosion and sedimentation issues included the following:

- The Erosion and Sediment Control Plan is considered high level and generic. Key omissions in the Plan and its implementation were:
    - There was no detailed risk assessment conducted covering erosion and sedimentation (ERSED) risks of the design or of construction activities in the development of the Plan and mitigation activities were not based on outcomes of such an assessment;
    - The Plan did not address the key issues and risks related to the Rail Loop crossing Bora Creek;
    - The Plan did not include key specific controls to the detail that could be easily implemented and audited against e.g. the types of controls required for the steeper sections on the rail loop, timing of implementation of the controls etc;
    - The Plan did not include a process of integration with construction management personnel to allow for ongoing review of the adequacy of ERSED control structures and the defining/design of new structures/ERSED in response to changes in the area of disturbance, construction timeline and activities, changed conditions etc;

## 4 Environmental Performance

— The Plan did not include a process for ongoing, regular independent expert review of the status of ERSED controls and implementation of corrective actions.

- The ERSED Plan was not updated after the detailed design was complete. As the plan was generic, it did not define specific controls in specific areas and was not linked to the design or changes in construction stages. As such, specific controls relative to the design were not constructed and the controls sighted during the audit were not considered effective for the extent and nature of the construction works.
- Implementation of ERSED controls was affected by the above omissions. There did not appear to be a systematic and regular review of the status of ERSED controls throughout the construction timeline in response to changes in the site due to construction activities.
- The implementation of ERSED controls appeared to be affected by design and construction planning issues. It was indicated that some critical designs were delayed, such that construction of some infrastructure commenced prior to the construction of adequate drainage or ERSED controls;
- There were significant clean water catchments being directed to site affecting on site management of “dirty’ water. The ERSED plans and implemented controls/actions did not address this effectively.
- The responsibility of the construction and management of ERSED controls was not clearly stated in documents sighted;
- While planning documents indicated that the Rail Loop was to pass over Bora Creek, there appeared ineffective consideration of the construction methodology of the crossing in the documents. There was no indication provided that appropriate approvals were in place for the construction strategy including the blocking of Bora Creek.
- At the time of the site visit there were numerous drainage lines constructed with rock lining to prevent erosion of the drains. A number of other good ERSED initiatives were in place. However, there remained several areas of high risk of erosion occurring. These included, however were not limited to: steep, unprotected batters around the rail loop, particularly at the crossing of Bora Creek; the large catchment offsite being directed into the rail loop area and hence going through a small onsite dam and then under the rail loop crossing which was blocked for construction purposes; the high area of disturbed soil, much of which had been spray grassed, however had not yet taken due to the dry conditions.
- MCO’s approach has been to use Rhodes grass in the seed mix due to its fast growing and soil binding characteristics. It is acknowledged that the site has had to address erosion and sedimentation issues directly, and that the DPI recommends the use of Rhodes Grass *(Chloris gayana*) as a soil stabilizer and productive pasture grass. However, the DECCW has listed 'Invasion by perennial grasses' as a Key Threatening Process under Schedule 3 of the NSW Threatened Species Conservation Act 1995. Under the final determination Key Threatening Process Rhodes Grass (*Chloris gayana*) is identified as a perennial grass that may invade native plant communities, including habitat for threatened species, communities and populations listed under Schedules 1 and 2 of the Threatened Species Conservation Act 1995. As such Rhodes Grass (*Chloris gayana*) poses a significant risk to native habitats within the locality. There are a number of alternative options to the use of invasive perennial grasses as soil stabilisers. Examples of suitable endemic native grass species that could be used include: *Austrodanthonia sp; Austrostipa sp; Themeda sp.; Echinopogon sp.; Eragrostis sp.; and Poa sp.*

The above summary is limited as the scope of the audit did not include a full assessment of all ERSED issues. URS indicated the above concerns to MCO at a close out meeting before leaving site and indicated that significant risks remained in relation to the management of erosion and sediment controls at this time. It is understood that further events involving erosion, sedimentation and off site discharges has occurred after the time of the site inspection. These have not been assessed or considered in this audit as they were outside the audit period (to 30 November 2009).

It is noted that MCO had conducted significant soil stabilisation and erosion control works since the audit. Observations made during the May 2010 site inspection is provided in Section 7.

**URS Recommendations:**

- The full assessment of risks, causal factors, and management measures to address ERSED issues was not possible in the scope of this audit. URS recommends that a full review of ERSED management and controls is undertaken by a suitable ERSED expert. The review should include:
  - Assessment of the state of the operation and the nature of ERSED related risks. The key area of concern was the construction area for the CHPP and Rail load out, however it should also include mining areas in the assessment;
  - Assessment of existing management processes for ERSED risks;
  - Update of ERSED management controls, practices and documented Plans in light of the identified Risks;
  - Prompt Implementation of effective controls in relation to ERSED;
  - Continued review of the effectiveness of the controls;
  - Regular and ongoing review of ERSED by the nominated expert;
  - Communication of the review and outcomes to relevant government agencies.
- It is recommended that native soil stabilising species are used in preference to Rhodes grass where practicable. URS recommends that native mixes are used in rehabilitation areas e.g. the environmental bund. Where exotic species are required to be used, the use of Rhodes grass should be avoided for rehabilitation works.

### 4.4.3 Surface Water Quality

Project Approval Condition 3/37 stipulates the required content of the Surface Water Monitoring Plan (SWMP), as indicated below:

> ***37**. The Surface Water Monitoring Plan must include:*
>
> *(a) detailed baseline data on surface water flows and quality in creeks and other water bodies that could be affected by the project (including the Goulburn River, Bora Creek and Moolarben Creek);*
>
> *(b) surface water quality and stream health assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; and*
>
> *(c) a program to monitor:*
>
> - *surface water flows, quality, and impacts on water users;*
> - *stream health; and*
> - *channel stability in the Goulburn River, Bora Creek, and Moolarben Creek.*

The Surface Water Monitoring Program for the construction phase of the project was incorporated into the Site Water Management Plan and approved by the DoP in December 2008.

## 4 Environmental Performance

The DWE reviewed the construction SWMP and accepted a 12 month period for revision of the plan, prior to mining operations commencing. A number of issues were highlighted by DWE, which required to be addressed during the revision of the plan, principally with regard to the monitoring of impacts upon base flows in the Goulburn River and the monitoring of creek flows in the Moolarben area.

The revised SWMP was submitted to DoP on the 16th November 2009 for approval, as part of the WMP for the operational phase of the project. The updated Plan incorporated revised Trigger levels, which had been substantiated by a team of approved experts prior to submission. At the time of the second site inspection the Plan had been reviewed by DECCW, NOW and DII however had not yet been approved by the DoP.

An unlicensed discharge to Bora Creek occurred during June 2009 and is referred to elsewhere in this report.

### *Surface Water Monitoring Criteria*

For the audit period there were no surface water quality criteria for surface waters specified in the PAC or EPL except those that relate to water discharges into Bora Creek.

Whilst some ANZECC values may be adopted for the assessment of surface water quality in the surrounding creeks, (to add to those guideline values listed in the SWMP for water quality, including salinity, pH and turbidity), the ANZECC Guidelines recommend that comparison of water quality monitoring data to the baseline water quality data is most appropriate in order to detect changes beyond the natural variability of the receiving waters. MCO reported that water quality will be assessed by the statistical analysis key indicators, which will be developed prior to the commencement of mining (operational phase) when more baseline data is available.

### *Surface Water Monitoring Results*

Approval Condition 3/30 relates to surface water discharges from the site, stipulating that these must meet the relevant ANZECC water quality objectives for the protection of aquatic ecosystems and the water quality of existing receiving waters and must also comply with the discharge limits (both volume and quality) set for the project in the EPL. No licensed discharges have been recorded from the site during the audit period. As no licensed discharges had taken place, no monitoring data or volume and quality discharge levels had been measured.

The site's EPL lists three discharge and monitoring points and two additional water quality monitoring points (both on Bora Creek). The SWMP defines twelve monitoring and sampling points.

During the audit period, monthly monitoring of surface water quality continued at each of the monitoring locations, limited by the presence or absence of water in the creek locations.

The auditors observed a summary spreadsheet of surface water quality results which was consistent with the information provided for the September 2008 to August 2009 period in Appendix 1 of the AEMR. It was reported that the laboratory responsible for the analysis of the samples (ALS) updates the results spreadsheet on a monthly basis and provides it to MCO. A brief review of the surface water quality results for the period October 2008 to August 2009 indicated results were generally consistent over the period with the exception of the following:

- SW11 high levels of Aluminium, copper, electrical conductivity, iron, phosphorus, potassium, total dissolved solids, nitrogen, suspended solids, turbidity and zinc were recorded in June 2009.

- SW12 a high manganese level was recorded in January 2009 and a high electrical conductivity level recorded in June 2009.
- SW9 high total suspended solids levels recorded in February 2009 and July 2009.

The 2008/2009 AEMR presents no discussion or explanation of these results.

High levels of turbidity and TSS recorded in the June 2009 data from Bora Creek (SW11) may or may not reflect impact from the unlicensed discharge in the Creek five days prior to the monitoring visit. Refer to Section 4.4.2 above for discussion of water issues regarding this discharge.

An analysis of the water quality sampling results compared to background water quality levels was not undertaken as part of the AEMR.

**URS Recommendation:**

- It is recommended that MCO conduct further analysis of the water quality sampling results, in particular comparing results obtained during the reporting period with background monitoring results as well as discussing elevated results. This analysis should be presented in AEMRs. Corrective actions, as relevant should be defined and implemented.

### *Environmental Monitoring*

During the audit period environmental sampling including depositional dust monitoring, high volume air sampling, groundwater sampling and surface water sampling was being undertaken by a monitoring contractor engaged by MCO. The monitoring contractor was reported by MCO to have had some training with Ecowise in the past, and uses bottles supplied by ALS who conduct the analysis. MCO Environmental personnel also assist in coordination of the monitoring contractor activities.

In February 2010 MCO engaged a Senior Field Officer from ALS Water Resources Group to accompany the monitoring contractor so as to observe his sampling methodology in the field. An email was provided to MCO dated 3 March 2010 documenting the observations made and included recommendations by the Senior Field Officer. A number of findings were made on how adherence to procedures could be improved and recommendations were made relating to the need for collection of field duplicates, equipment blanks, calibration of the temperature meter and varying the methodology of collecting pH and EC readings from groundwater wells.

Notwithstanding the above, MCO could not provide evidence of the monitoring contractor having had sufficient training for the role.

The use of a qualified person in undertaking environmental sampling is to ensure that sample collection, storage and transportation is in accordance with the necessary standards and MCO procedures such that MCO and all stakeholders can have complete confidence in monitoring results.

**URS Recommendation:**

- It is recommended that MCO ensure that they can demonstrate the competency of the monitoring contractor undertaking environmental sampling on their behalf, through adequate formal training and assessment.

### *Steam Health Monitoring Results*

Stream health surveys were conducted in spring 2008 and autumn 2009 by Marine Pollution Research. At the time of the second site visit the spring 2009 survey report was not available. The auditors reviewed the Autumn 2009 report which compared results obtained in autumn 2009 with those obtained in spring 2008. The report noted the following:

- Due to access restrictions four sites were unable to be sampled (MC4, LC1, BOX1 and BOX2).
- General pool dimensions and pool substrates were similar to spring 2008.
- The distribution of macrophytes was consistent with spring 2008 however at some sites cumbungi and floating pondweed was noted to have died back since the last survey.
- At most sites the best available edge habitat was similar to that sampled during former surveys.
- The dense cumbungi stands that had prevailed at upper Moolarben Creek site MC1 for the spring 2008 survey had been cleared. This clearing was not done as part of MCO works and was assumed to have been done for flood mitigation purposes. As a consequence habitat complexity was poorest at MC1 and the water surface was also affected.
- Surface water dissolved oxygen values were generally good except for MC1.
- Turbidity of surface waters was low for most sites.
- The overall SIGNAL score was 4.71 (compared to 4.59 in spring 2008).
- The Signal score for the putative impact and reference sites were 4.83 and 4.60 respectively (compared to 4.76 and 4.51 respectively in spring 2008).
- The overall species diversity index was 45 (compared to 60 in spring 2008).
- The species diversity index for the putative impact and reference sites were 41 and 38 respectively (compared to 43 and 50 respectively in spring 2008).

The Stream Health Monitoring Program states that the macroinvertebrate data would be used to compile (i) site species diversity indices, (ii) site pollution sensitivity indices (using SIGNAL biotic index) and (iii) a stream condition index, based on the River-Creek-Environment (RCE) method. The survey reports present the species diversity index and SIGNAL index results (as discussed above) however do not present or discuss an RCE index.

The Program states that:

*"Assessments would be made by compiling these three indices for each site at each sample time, then comparing site indices against other site indices within each survey and comparing changes in the indices for each site over time."*

The above assessments have not been comprehensively conducted. Whilst the survey reports present the species diversity indices and SIGNAL indices and some discussion is made in the text comparing Autumn 09 results with Spring 08 results a detailed comparison of the site indices against other site indices and over time is not undertaken. The Summary and Recommendations sections of the reports were very brief.

**URS Recommendation:**

- It is recommended that Marine Pollution Research compile the RCE indices for each site as detailed in the Stream Health Monitoring Program.
- It is recommended that a more detailed assessment of the results of the stream health monitoring is conducted by comparing the three site indices within each survey and comparing changes in the indices for each site over time as required in the Stream Health Monitoring Program.

### *Channel Stability Monitoring Results*

The baseline assessment of channel stability was conducted by GSS Environmental in September 2009. The auditors viewed the report "2009 Channel Stability Monitoring Program" dated November 2009.

The survey identified some sections of Bora Creek and Moolarben Creek were degraded and actively eroding due to natural influences, exacerbated by past land clearing and agricultural practices, not associated with recent MCO construction activities. Some areas of degradation were noted in Bora Creek, and large hay bales were observed as having been put into the creek by MCO to reduce degradation (Photo 17, Appendix C). MCO indicated the placement of the bales was in response to the water discharge event in June 2009, and that the bales were placed at the recommendation of an agronomist. MCO indicated that a number of the large round hay bales had been placed in Bora Creek for stabilisation and to provide a seed source for revegetation within the creek. The survey also recognised some sections of each creek displaying very stable environments, with respect to their low erosion potential.

The next monitoring round is due in September 2010 or following a significant rainfall event.

**URS Recommendation:**

- Given the degradation of Moolarben Creek and Bora Creek (degraded prior to MCO activities), and the potential for exacerbation of this from changes in flows, it is recommended that MCO consider implementation of pro-active remedial actions for the creek. Measures to reduce impacts should be part of a documented process. Assessment of measures already implemented, such as placement of hay bales in the creek, should be part of this consideration.

## 4.4.4 Groundwater

Project Approval Condition 3/38 stipulates the required content of the Groundwater Monitoring Plan (GWMP), as indicated below:

> ***38**. The Groundwater Monitoring Plan must include:*
>
> *(a) detailed baseline data of groundwater levels, yield and quality in the region, and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by mining operations on site;*
>
> *(b) a program to augment the baseline data over the life of the project;*
>
> *(c) groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;*
>
> *(d) a program to monitor:*
>
> *. groundwater inflows to the open cut and underground mining operations;*
>
> *. the impacts of the project on:*
>
> *- the alluvial, Triassic, coal seam and interburden aquifers;*
>
> *- base flows to the Goulburn River and associated creeks;*

*- any groundwater bores, springs and seeps (including spring and seep fed farm dams) on privately-owned land;*

*- any groundwater dependent ecosystems, such as the Drip, and riparian vegetation along the Goulburn River and associated creeks; and*

*. the seepage/leachate from any tailings dams, water storages or backfilled voids on site; and*

*(e) a program to validate the groundwater model for the project, and calibrate it to site specific conditions.*

The GWMP applicable to the construction phase of the project was incorporated into the Site Water Management Plan and was approved by the DoP in December 2008. Implementation of the Plan is discussed in Section 6.5.

The DWE had reviewed the construction phase GWMP and accepted a 12 month period for revision, prior to mining operations commencing. A number of issues were highlighted by DWE, which were required to be addressed during the revision of the plan, including regular annual reviews of the adequacy of the GWMP and annual calibrations of the groundwater impact assessment model. DWE also specified that the proposed method of ongoing recalibration of the groundwater model in response to monthly monitoring data should be revised prior to Open Cut Pit 1 intersecting the local groundwater table.

The revised GWMP was submitted to DoP on the 16th November 2009 for approval, as part of the WMP for the operational phase of the project. Approval of the plan had not yet been received at the time of the audit.

At the time of the audit active groundwater management strategies had not commenced at the site as there had been no activities that MCO considered likely to have significantly impacted on groundwater. For example excavation activities had not progressed to below groundwater levels and underground mining had not yet commenced.

The Groundwater Monitoring Program specifies that the groundwater model be calibrated annually by a qualified hydrogeologist. MCO reported that its expert hydrogeologist, Aquaterra, advised that calibration of the model was not required during the audit period as mining activities were yet to commence. MCO reported that it intends to undertake the model calibration during 2010. Further comments on groundwater impacts would be able to be made after this modelling is completed.

Licence applications were made during 2009 for the extraction of groundwater from the Northern and Southern Borefield.

### *Groundwater Monitoring*

During the 2008 / 2009 reporting period MCO monitored 103 monitoring bores with depths ranging from less than 10m to over 150 m. Groundwater monitoring locations were sampled monthly for standing water level and a full suite of chemical analyses was conducted quarterly. Piezometers were installed to monitor water level and water quality associated with each lithological unit.

Not all of the monitoring outlined in the Groundwater Monitoring Program was undertaken during the audit period for example groundwater extraction volumes from construction sumps and weekly measurements of EC and pH had not been monitored. In addition monitoring bores were not constructed around the perimeters of storage areas. Refer to Section 6.5 for more details.

URS' review of groundwater monitoring data obtained during the audit period indicates that a detailed assessment can now be undertaken to provide a more comprehensive summary of baseline

measurements, in turn allowing accurate comparison of data received and recognition of possible trends. It is noted that some relatively extreme water quality values (e.g. pH measurements of 11 or more) have been recorded at some of the sampling locations.

### 4.4.5 Surface and Groundwater Response

Project Approval Condition 3/39 stipulates the content of the Surface and Ground Water Response Plan, the purpose of which is to describe measures and/or procedures to be implemented to

a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;
b) offset the loss of any base flow to the Goulburn River and/or associated creeks caused by the project;
c) compensate landowners of privately-owned land whose water supply is adversely affected by the project; and
d) mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

A Surface and Ground Water Response Plan (SGWRP) applicable to the construction phase of the project was incorporated into the Site Water Management Plan and was provisionally approved by the DoP in December 2008. Feedback from the DWE review of the draft SGWRP indicated a number of components of the Plan which required to be upgraded prior to the commencement of mining operations. Specific areas identified as requiring rewriting were the development of an effective accounting framework to address issues concerning potential loss of base flow, the need to address impacts within the water sharing regulatory requirements, as well as surface and groundwater availability and quality relative to pre-mining conditions.

An updated SGWRP was submitted to DoP on the 16th November 2009 for approval, as part of the WMP for the operational phase of the project.

At the time of the end of the audit period, it was considered that due to the type of works conducted to that time, it was unlikely that impact due to the construction activities at MCO would have extended to any loss to base flow on the Goulbourn River or associated creeks, detrimental effects on privately owned water supplies or possible impacts on groundwater dependent ecosystems.

Following the discharge of sediment laden water into Bora Creek during a rainfall event during June 2009, site management indicated that measures outlined in the SGWRP would be implemented to gauge the rehabilitation of the creek bed impacted by the quantities of silt deposited by the breach. Rehabilitation of disturbed areas was to include remedial works to remove deposited silt from the bed of Bora Creek, work which was planned as soon as seasonal conditions became favourable. Investigations into stream health and surface water quality and responses to any detectable change would reportedly take place subsequently.

At the time of the December 2009 and May 2010 site visits MCO reported that it had not removed deposited silt from the creek bed as it was considered that this would be detrimental to the creek bed. URS concurred with this approach. The Spring 2009 stream health survey report was not available at the time of the second site visit. MCO reported in July 2010 that a health survey report had been conducted in February and march 2010. This was outside the audit period and not reviewed as part of this report.

### 4.4.6 Contamination of Land or Water

The site EPL Condition L1 (Pollution of waters) provides the following licence condition:

> *L1.1 – Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.*

No contaminated land was reported by MCO to be within the DA area. At the time of the December 2009 and May 2010 site visits no significant areas of potential land or water contamination were observed by URS.

It was noted that the ROM Hopper area under development was located on the site of a former council waste transfer station. Site management indicated that the waste transfer station was remediated by Council and contents of the former waste transfer station excavated and transported to another council landfill. No investigations were available to demonstrate that all impacts from this historical activity had been addressed, however, excavation levels for the construction of infrastructure were reported to have been well below the levels of the waste transfer station, hence it was considered by MCO that the potential for any contamination to exist in the location was very low.

It was noted that the dedicated mining operations fuelling and maintenance areas were nearing completion, and that the temporary facilities in place to provide these services in the meantime were therefore soon to be no longer required. MCO staff was aware that these facilities were locations where subsurface hydrocarbon contamination is characteristic on many mine sites. URS did not conduct a contamination assessment of these areas.

## 4.5 Subsidence

The site's Mining Leases (Nos. 1605, 1606 and 1628) provide the following requirements with respect to subsidence:

**Subsidence Management**

8. (a) The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface.

(b) Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwalls, associated first workings (gateroads, installation roads and associated main headings, etc), and pillar extractions, and are otherwise defined by the *Applications for Subsidence Management Approvals guidelines (EDG17)*

(c) The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the *Coal Mine Health and Safety Act 2002*, or the document *New Subsidence Management Plan Approval Process – Transitional Provisions* (EDP09).

(d) Subsidence Management Plans are to be prepared in accordance with the *Guideline for Applications for Subsidence Management Approvals.*

(e) Subsidence Management Plans as approved shall form part of the Mining Operations Plan required under Condition 2 and will be subject to the Annual Environmental Management Report process as set out under Condition 3. The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document *New Approval Process for Management of Coal Mining Subsidence - Policy.*

The above requirements are mirrored by the Project Approval Conditions to Project Approval 05_0117 (Schedule 3, Conditions 3/26 to 3/28) relating to subsidence management. These conditions also specifically refer to the protection of natural features (including surface features, flora and fauna, threatened species, and any surface water quality and/or flows), the preparation of an appropriate Subsidence Management Plan and End of Panel Reports for each longwall. The above requirements were not applicable for this audit, as underground mining operations had not commenced during the audit period. .

At the time of the audit a Subsidence Management Plan was yet to be submitted for approval as underground mining had not yet commenced. Site management indicated that underground mining at the UG4 area is not anticipated to commence for some 10 to 15 years and that a subsidence Management Plan will be prepared in due course, as required by Condition 3/27.

In conclusion, URS consider that the various conditions in the Mining Leases and Project Approval associated with ground subsidence caused by the proposed mining operations at MCO are not yet applicable and hence that no non-compliances were noted with respect to subsidence.

## 4.6 Landscape Management

Project Approval Conditions 3/40 to 3/48 cover the various requirements relating to Landscape Management and site rehabilitation at MCO.

## 4 Environmental Performance

### *Landscape Management Plan*

Project Approval Condition 3/44 requires the preparation and implementation of a Landscape Management Plan (LMP) for the project.

> ***44**. The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of DPI and Director-General. This Plan must:*
>
> *(a) be prepared in consultation with DECC and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;*
>
> *(b) be submitted to the Director-General for approval prior to starting mining operations on site; and:*
>
> *(c) include a:*
>
> - *Rehabilitation and Offset Management Plan;*
> - *Final Void Management Plan; and*
> - *Mine Closure Plan.*

A Landscape Management Plan was submitted for the approval of DoP and DEWHA on the 16th November 2009. The Plan incorporated the various sub plans (Rehabilitation and Offset Management Plan, Final Void Management Plan and Mine Closure Plan) as specified by Condition.

The Rehabilitation and Offset Management Plan provides some detail but is largely conceptual in nature. The Final Void Management Plan and Mine Closure Plan are essentially conceptual in nature and it was intended by MCO that further work on these Plans would be undertaken when the progress of the mining operations warranted further detail in specific areas.

Implementation of the Landscape Management Plan was not assessed as part of this audit as the Plan was yet to be approved by the DoP at the time of audit.

### *Offsets*

Project Approval Conditions 3/41, 3/41A and 3/42 cover the various requirements relating to Endangered Ecological Community Offsets and Vegetation Offsets at MCO.

> ***41**. Within 12 months of this approval, the Proponent shall make suitable arrangements to:*
>
> *(a) transfer at least 135 hectares of the White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community to the Minister for Climate Change, Environment and Water to offset, on a "like for like" basis, the 65 hectares that would be cleared by the project at an offset ratio of 2:1; and*
>
> *(b) provide DECC with funds (which at the discretion of DECC may include an in-kind contribution) to cover any reasonable costs associated with the transfer and ongoing management of this land.*
>
> ***41A**. By the end of December 2010, the Proponent shall make suitable arrangement to:*
>
> *(a) conserve at least 4 hectares of existing White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community on Property 24;*
>
> *(b) conserve and enhance at least 2.6 hectares of regenerating White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community on Property 24;*
>
> *c) revegetate two cleared areas on Property 46 with at least 10 hectares of endangered ecological community; and*
>
> *(d) make suitable arrangements to protect and manage these offset areas in the long-term, to the satisfaction of the Director-General and DECCW..*

***42**. The Proponent shall:*

*(a) revegetate at least 38 hectares of disturbed land on the "Red Hills" property (see property R14 in Appendices 5 and 8) with Yellow Box White Box Blakely's Red Gum vegetation;*

*(b) revegetate at least 153 hectares of cleared land on the "Red Hills" property (see property R14 in Appendices 5 and 8) and adjoining lands (see properties R12, R13, R15, R16, R17, R18 and R19 in Appendices 5 and 8) with suitable native vegetation to improve wildlife corridor linkages;*

*(c) conserve and enhance at least 1262 hectares of existing native vegetation onsite; and*

*(d) make suitable arrangements to protect these offset areas from development in the long term, to the satisfaction of the Director-General and DECC.*

At the time of the audit MCO had made arrangements to transfer 135 hectares if White Box, Yellow Box Blakely's Red Gum Woodland endangered ecological community to the DECCW. MCO reported that they were awaiting MWR Council to re-zone the land earmarked for transfer to National Parks and that they were waiting for the DECCW to formally accept the transfer. MCO also indicated through documentation that funds had been provided to DECCW.

MCO indicated that they were currently in the early stages of developing an Offset Implementation Strategy, identifying seed sources, a planting and establishment program and a suitable methodology to complete the program. It is noted that no timing for the establishment of vegetation offsets is stipulated in the Consent Condition.

The revegetation program specified by Condition 3/42 is yet to be implemented. However MCO indicated that they were in the early stages of developing an Offset Implementation Strategy, identifying seed sources, a planting and establishment program and a suitable methodology to complete the program.

**URS Recommendation:**

- Although no timing is stipulated for progressing the vegetation offset strategy, MCO should actively develop a program to address the conditions relating to the Vegetation Offsets. This would include the pursuit of up to date advice on relevant matters concerning seed sources to be used.

### *Rehabilitation*

Project Approval Condition 3/40 covers the progressive rehabilitation of the site:

***40**. The Proponent shall progressively rehabilitate the site to the satisfaction of the DPI, in general accordance with the proposed rehabilitation and offset strategy shown in Appendix 8.*

Rehabilitation measures in terms of selected soil stabilisation works commenced soon after the construction work commenced on the site. For example spray reseeding of some water storage dam and selected rail loop batters and related exposed surfaces has been undertaken during 2009, although it was noted that the very dry conditions were not conducive to rapid growth of the seeded vegetation and limited re-growth was observed. At the time of the December 2009 site visit many batters, including the majority of many steep sections of the rail loop batters were still to be stabilised /rehabilitated. It was considered that at the construction area, rehabilitation efforts had not kept up with the areas exposed by clearing and construction and significant areas of disturbance remained that were awaiting rehabilitation. Un-rehabilitated surfaces at the construction site represented a risk

of erosion in rain events and were also a potential source of dust generation. This aspect is further covered in the section of this report covering Erosion and Sediment Control.

URS consider that MCO were not in compliance with Condition 40 to progressively rehabilitate some areas of the construction site, particularly the steep batters of the rail loop.

At the time of the December 2009 audit site visit, the environmental bund around the Open Cut 1 area was under construction and no landscaping had commenced other than formation of sediment ponds down gradient of the bunds. Landscaping and re-vegetation was programmed to commence when the bund construction has been completed, some time in late 2010 however MCO had escalated the rehabilitation of the bund and during the May 2010 site visit progress on the construction of the environmental bund had been made. The banks of the bund had been shaped and stockpiles of mixed wood mulch and topsoil placed along the top of the bund in preparation for spreading. Refer to Section 7 for further observations during the May 2010 site visit.

**URS Recommendation:**

- MCO should ensure that disturbed areas of the construction site, particularly the rail loop are rehabilitated appropriately, with input from rehabilitation experts. A key aspect of this rehabilitation is erosion and sediment control as discussed in Section 4.4.2 of this report.

## 4.7 Aboriginal Heritage

MCO developed an Aboriginal Heritage Management Plan in consultation with DECCW and three registered Aboriginal stakeholder groups, as required by Condition 49, Schedule 3 of the Project Approval. It was noted that the Plan was restricted to proposed activities in the infrastructure area and the Open Cut 1 area. An interim approval was issued by the DoP in July 2008 to allow collection works to be initiated. Following additional consultation on the Aboriginal Heritage Plan with the three registered Aboriginal stakeholder groups and DECCW regarding the sub surface excavation works, conditional approval was granted by DoP on 29 August 2008.

***49**. The Proponent shall prepare and implement an Aboriginal Heritage Plan for the project to the satisfaction of the Director-General. The plan must:*

*(a) be prepared in consultation with DECCW and the Aboriginal community;*

*(b) be submitted to the Director-General for approval prior to carrying out any development on site; and*

*(c) include a:*

- *program for the test excavations, intensive recording, salvage, and surface collection of the sites identified in Appendix 9, which includes a suitable lithic analysis of all material collected as part of the salvage operations;*
- *program for the conservation of the site outside the surface disturbance area (see Appendix 9), including measures that would be implemented to secure, analyse and record the sites at risk of subsidence;*
- *program to further assess and document the Aboriginal heritage values of the area;*
- *description of the measures that would be implemented if any Aboriginal skeletal remains are discovered during the project; and*
- *protocol for the ongoing consultation and involvement of the Aboriginal community in the conservation and management of the Aboriginal heritage on the site.*

## 4 Environmental Performance

The Aboriginal Heritage Plan was reviewed by URS and it was noted that the Scope provided (Section 1.1) only briefly described the program for the conservation of the site outside the surface disturbance area. MCO responded that a program for the conservation of the site outside the surface disturbance area is to be addressed subsequently, when operations were to extend in that direction. At the time of the first site inspection, a revision of the Plan was underway to address additional sites identified during modifications to the approval.

A review against the requirements of the Aboriginal Heritage Plan for Stage 1 Development Area (Open Cut 1 and Main Infrastructure Area) was undertaken and its findings are presented in Section 6.5.

A Cultural Heritage Management Report (CHMR) was prepared in May 2010 by ARAS and provided to URS following the May 2010 site inspection. The CHMR was required as part of the implementation of the Aboriginal Heritage Plan and reported on the works undertaken in relation to the identification, protection and management of artefacts in the Stage 1 area (Open Cut 1 and Main Infrastructure Area).

The report should be referred to in full for the details surrounding the management of aboriginal artefacts through the audit period. A detailed review of the report was not completed for this audit.

The report indicates that a total of 74 sites were identified in the Stage 1 Area (Open Cut 1 and Main Infrastructure Area) of which 12 were to be conserved as part of the development. The remaining 62 sites were subject to various “mitigation salvage procedures” prior to impact form mining activities.

The CHMR indicated that a number of sub surface investigations were carried out in the Open Cut 1 and the Infrastructure area. Other investigations carried out during the reporting period included monitoring or due diligence surveys over the areas where the piezometers were installed and more recently where the clean water diversion entered Bora Creek. No aboriginal heritage sites were recorded as a result of this monitoring work.

Extensive salvage works for Aboriginal Heritage artefacts were conducted in the CHPP and rail loop construction areas, and the Open Cut 1 footprint during the reporting period. These works were completed in the presence of local Aboriginal groups (Murong Gialinga, Mudgee LALC and Warrabinga) under the supervision of a qualified archaeologist (Giles Hamm of ARAS). The CHMR describes the processes used in this work and results of analysis of some of the artefacts.

Work in the Bora Creek North area has been completed and additional sites have been identified and salvaged. No further action was indicated as being required by MCO for this area. MCO indicated that that there are no areas of land left within the Infrastructure, Open Cut 1 and Environmental Bund development zone which require any further cultural heritage assessment.

Areas of Bora Creek contain Aboriginal sites and objects which require ongoing conservation and auditing. These areas were inspected during both site visits and the areas were found to be protected from entry by a fence with a locked gate. Signs indicating the presence of Aboriginal heritage artefacts were also observed. No examples of intrusion or damage to Bora Creek area was observed during the site visits.

At the time of both site visits, all artefacts collected for conservation purposes were being held by ARAS. In May 2010, ARAS and MCO were in discussions regarding the transfer of the artefacts to the care of MCO. As of May 2010, MCO were still to develop a place for the safe keeping of the artefacts. MCO indicated that recent verbal agreements with aboriginal groups had been made that artefacts would be kept in the Ulan village or on site.

MCO keep a register of all registered sites including site name, DECCW listing, site type, grid coordinates, numbers of artefacts, management recommendation and current management status. During the audit a number of sites from the register were cross referenced with a Map Info file as to their location, and were assessed for their current management status. For the sites checked, the current management status appeared accurate. It was noted that for some sites, the management recommendation was listed as for conservation, however current status was that surface salvage was complete. In these cases it was reported by MCO that the heritage consultant had identified these sites to be near areas of disturbance (this was checked on the Map Info file for some sites) and consequently considered that salvage was the best strategy. This change in management was reported by MCO to have been agreed between the heritage consultant and relevant aboriginal stakeholders.

In the past MCO had received grid coordinates from the heritage consultant without the extent of scatters where more than one artefact was found. This was problematic as site could not know from the coordinate the areas around the coordinates required for conservation. Site has recently requested and gained the information for each site covering aerial extent. This is to be digitised in GIS for use in further management of the artefacts.

An inspection was undertaken by URS during the May 2010 site visit of the Murrangamba Valley access road in the Stage 2 area. The area was the subject of a complaint regarding the disturbance of aboriginal sites. The complaint had been passed on to the DoP and various correspondence had occurred between DoP and MCO on the issue (letters dated 27 April 2010 and 6 May 2010). Based on this correspondence and site observations it was clear that some grading work on the unsealed access road had occurred and that there was a potential for damage of some areas that contained artefact scatters to have occurred. The observations made in the field were limited to visual inspections of some areas marked on the ground with pegs as being aboriginal sites. The observations made did not identify issues beyond those that MCO presented to DoP in their letter dated 6 May 2010.

As indicated in Section 6.5, there appears to be some areas where communications and relationships with the Aboriginal stakeholder groups could be improved. A regular forum for all relevant groups, appropriately managed, may assist in the development of improved relationships with the groups.

Section 6.5 of this report details specific issues and recommendations in relation to compliance with the management of Aboriginal Cultural Heritage by MCO. These are not repeated in this section, however do cover:

- Plan coverage – at present there is no formal management plan for areas outside of the Stage 1 works;
- Consultation with Aboriginal stakeholder groups;
- Aboriginal awareness training and values programme; and
- Auditing of actions in relation to cultural heritage.

## 4.8 Non-Aboriginal Heritage

Project Approval Schedule 3 Condition 50 requires the preparation and implementation of a Heritage Management Plan (HMP) for the project. An HMP for the construction phase of the project was approved in December 2008.

***50**. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:*

*(a) be prepared in consultation with the Council;*

*(b) be submitted to the Director-General for approval prior to carrying out any development on site; and*

*(c) include a:*

*. program for the archival recording of the sites identified in Appendix 10, in accordance with the relevant NSW Heritage Office guidelines; and*

*. description of the measures that would be implemented to conserve and/or maintain public access to the sites identified in Appendix 10.*

A review of the construction phase Heritage Management Plan noted that some key components were not included, specifically a program for the archival recording of the heritage sites and a description of measures to be implemented to maintain public access to the sites listed in the Project Approval. A delay was requested by MCO for the commencement of an archival recording program until June 2009 and this was documented within the Plan. The construction Heritage Management Plan applied only to items of environmental heritage numbers 13, 14 and 15.

The archival recording program for Stage 1 was completed in September 2009. A report titled "*A Photographic Archival recording of Rural Heritage in the Moolarben Coal Operations Area, NSW Volume 1: Report October 2009*" was produced by heritage consultants, Stedinger Associates Heritage and Archaeology. Two volumes of photographs accompanied the report and were provided with the report to the following parties:

- Mid western Regional Council;
- Mudgee local public library; and
- DoP Heritage Branch Library.

The report was also provided to landowners with heritage sites on their property.

An Operational Heritage Management Plan was prepared and submitted to the DoP on the 16th November 2009. It was noted that this Plan included the archival recording program and measures to maintain public access and encompassed all of the Stage 1 area.

It was reported by MCO that sites 13 and 14 were not disturbed prior to undertaking the archival recording as the sites were outside the construction areas active at the time. The archival recording report did not indicate that these sites had been impacted by construction activities at the time of the survey.

It was reported by MCO that no incidents or new relics were identified during the construction period.

Refer to Section 6.5 for further discussion of the implementation of the Heritage Management Plan.

## 4.9 Energy Savings and Greenhouse Gas Emissions

The energy savings and greenhouse gas requirements applicable to the project are specified in Schedule 3 Condition Nos. 62 to 64 which require Moolarben to:

- Prepare and implement an Energy Savings Action Plan for the project, which will include a program to monitor the effectiveness of measures to reduce energy usage on the site;

- Submit a Greenhouse Gas Minimisation Plan prior to the commencement of underground mining operations; and
- Implement all reasonable and feasible measures to minimise the greenhouse gas emissions from the underground mining operations.

An Energy Savings Action Plan (ESAP) for the construction phase of the project has been prepared and approved by the DoP. This ESAP comprises a technical review which aims to audit the proposed equipment and identify potential improvements in energy performance.

The ESAP has generally not been implemented. Refer to Section 6.5 for further details.

Greenhouse gas emissions associated with the construction phase of the project are discussed briefly in the 2008/2009 AEMR, which states that minor levels of greenhouse gas emissions started being generated by MCO activities due to the consumption of hydrocarbon fuels by generators and mobile plant involved in the construction activities. The AEMR states that no fugitive coal mining emissions were generated during the reporting period.

It was noted that the Greenhouse Gas Minimisation Plan (GGMP) has not yet been completed, however MCO stated that measures to minimise the greenhouse gas emissions from the underground operations would be addressed in more detail when the project progressed towards the development of the underground phase of the work.

In the AEMRs, it was noted that no reference was made to reporting under the National Greenhouse and Energy Reporting (NGER) requirements. The 2008 / 2009 AEMR notes that the greenhouse gas emissions were not actively being quantified at the time of completion of the report (August 2009), but that the ESAP would be finalised and implemented during the next reporting period. It was noted that gas testing of the coal seam to be mined was now underway in the area of the Open Cut 1, to gather data for use in greenhouse gas emission calculations.

Based on the projected annual electrical and diesel energy use presented in Appendix II to the Energy Savings Action Plan, MCO would meet the thresholds required for reporting under NGERS.

**URS Recommendation:**

- It is recommended that MCO determine whether it meets the NGERS reporting thresholds either as a Facility or as a Corporate Group. It is noted that registration for NGERS reporting is required by 31 August 2010 with data reporting required by 31 October 2010.

## 4.10 Waste

Project Approval Condition 65 (Schedule 3) focuses on the requirement to prepare and implement a Waste Management Plan (WMP) for the project.

***65.*** *The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must:*

*(a) be submitted to the Director-General for approval prior to commencing construction;*

*(b) identify the various waste streams of the project;*

*(c) describe what measures would be implemented to reuse, recycle, or minimise the waste generated by the project; and*

*(d) include a program to monitor the effectiveness of these measures.*

*Note: This plan is not required to cover the disposal of tailings or the management of overburden.*

## 4 Environmental Performance

The WMP for the construction phase of the project was approved by the DoP on 17/12/08 and implemented prior to the commencement of construction at the site. A revised WMP has now been submitted for approval, incorporating a number of changes which recognise the move from construction towards the operational phases of the project.

The EPL requires that:

'*the licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment , processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence*.'

It was noted that the initial version of the WMP had not identified the revised waste management legislation which came into force during 2008. URS consider that this omission is unlikely to have had any negative effect on waste management practices at the project site and the legislative changes had been recognised in the revised version of the WMP submitted for the operational phases of the project.

**URS Recommendation:**

- It is recommended that the revised Waste Management Plan references the most up to date waste management legislation.

The following waste streams were reported by MCO to be re-used on site:

- Green waste generated by site clearing works is mulched and used for rehabilitation. Wood chip stockpiles were observed during the May 2010 site inspection awaiting application on the environmental bund.
- Timber pallets which are free from paints and oils are also mulched and used for rehabilitation activities.
- Effluent was being used to irrigate the environmental bund. The irrigation system was observed during the site inspection in May 2010.

MCO engaged JR Richards and Sons to manage waste on site including recycling and disposal. The following waste streams are segregated on site:

- General waste;
- Paper and cardboard;
- Waste oils;
- Waste coolant;
- Oily rags;
- Oil filters;
- Scrap steel; and
- Waste batteries.

Prior to January 2010 MCO's waste contractor JR Richards and Sons would send an email on a monthly basis summarising the type and volume of waste removed from site. An email was sighted dated 7th October 2009 summarising the waste removed during September 2009. This included general waste, recycled cardboard, septic waste and portaloos.

Since January 2010 JR Richards and Sons enter this information into a Waste Register which it updates on a monthly basis and provides to MCO. The Waste Register was sighted and noted to include quantities of different categories of waste recycled and disposed. The final destination of the waste (either landfill or recycling facility) was not recorded on the Waste Register.

**URS Recommendation:**

- It is recommended that the final destination of wastes (both recycled and disposed) and the EPL number for licensed premise are included in the Waste Register.

There was no evidence that formal audits of the progress of waste management or tracking against waste reduction targets was being undertaken during the audit period.

**URS Recommendation:**

- It is recommended that a discussion of waste management including progress in meeting waste reduction targets is incorporated into the Monthly Environmental Monitoring Report.

In December 2009, MCO's waste and recycling contractor JR Richards and Sons commenced undertaking a weekly inspection of waste storage areas. The inspection undertaken on the 16th December 2009 was observed by the auditors and included comment on the following:

- Cleanliness of waste storage areas;
- Waste liquid tank volumes;
- Number of regulated waste receptacles and batteries awaiting collection;
- Evidence of hydrocarbon spills;
- Adequate supply of empty waste receptacles for maintenance;
- Pallet storage and re-use;
- Cleanliness of bunded areas; and
- General comments.

The auditors consider the introduction of the above weekly inspections to be good practice.

Refer to Section 6.5 for further discussion of the implementation of the Waste Management Plan.

## 4.11 Community Consultation and Provision of Information

Project Approval Schedule 5, Conditions 9 to 11 are concerned with the setting up of a Community Consultative Committee (CCC) and the provision of information to the public domain.

***9.*** *The Proponent shall establish a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in general accordance with the Guideline for Establishing and Operating Community Consultative Committees for Mining Projects. This committee must be established within 3 months of this approval.*

***10.*** *Within 3 months of the approval of any strategy/plan/program required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMRs, required under this approval, the Proponent shall:*

*(a) provide a copy of the relevant document/s to the relevant agencies and CCC;*

*(b) put a copy of the document/s on its website.*

***11****. During the project, the Proponent shall:*

*(a) make a summary of monitoring results required under this approval publicly available on its website; and*

*(b) update these results on a regular basis (at least every 3 months).*

## 4 Environmental Performance

MCO indicated that a Community Consultative Committee (CCC) had been established in mid 2008, in line with the guidelines, and was composed of an independent chairperson, representatives from MCO, a representative from MWRC, and ten community members. MCO stated that the CCC typically meets every two to three months.

Copies of strategies, plans, programs and audits required under the Project Approval must be provided to the CCC within three months of the strategy/plan/program or audit (as required by Schedule 5, Condition 10). It was noted that the CCC were on the list of recipients for distribution of the various annual reports and management plans produced by MCO.

The MCO Website was noted to include a page on the CCC. with various general information and minutes of CCC meetings for meetings held on the 26/06/08, 28/08/08 and 8/10/08. Minutes from meetings post 8/10/08 were not posted on the website. It is a requirement of the guidelines that CCC meeting minutes are available on the Company's website and in another public place agreed to by the Committee within 28 days of each meeting.

The following CCC meeting minutes were viewed:

- 26 June 2008;
- 28 August 2008;
- 28 October 2008;
- 23 April 2009;
- 28 July 2009;
- 29 September 2009; and
- 24th November 2009.

**URS Recommendation:**

- Ensure all minutes of the CCC meetings are posted on MCO's website within 28 days of each meeting. MCO should update the website to include all missing CCC meeting minutes.

### *Provision of Information*

Following approval by the relevant agencies, MCO post copies of each management plan or monitoring program on to the website as soon as possible, however some difficulties had been experienced as the service provider was remote form the mine site (in Brisbane). This situation was in the process of being rectified during the audit period by making direct access to the website possible for mine based staff.

Evidence provided during the course of the audit has confirmed that in general, copies of plans, programs and reports were made available to the various agencies (both in electronic format and hard copy) and to the CCC members within the required time period. It was noted that hard copies of these documents were often distributed to CCC members by hand.

At the time of the audit, copies of each of the approved plans, strategies and programs were observed to be posted on the MCO website including the Aboriginal Heritage Management Plan, Air Quality Management Plan, AEMR (2008/2009), Blasting Management Plan, Construction Noise Management Plan, Energy Savings Management Plan, Environmental Management Strategic Plan, Environmental Monitoring Plan, Heritage Management Plan, Noise Management Plan, Waste Management Plan and Water Management Plan. Monthly monitoring reports were available on the website for the months August 2009 to January 2010.

# 4 Environmental Performance

## *Complaints Management*

MCO has developed a Community Complaints Procedure which details how to receive, respond to, and record and action any community complaints. Moolarben maintains a 24 hour Community Response Line (1800 556 484) to respond to any complaints from neighbouring residents or interested stakeholders. The Community Response Line is advertised in the local media on at least a quarterly basis and is also available on the MCO website and in the community newsletters.

Complaints are recorded by MCO on a "Complaint / Enquiry Notification Form". This form includes the name, contact number, address, date and time, nature of the complaint / inquiry, how received or recorded, the nature of any investigation undertaken, corrective measures initiated and the outcome of these investigations. During the audit period calls to the designated complaints line were reportedly diverted to a mobile held by the ECRM or Environmental Coordinator. Since April 2010 complaints are received initially by a call centre and the ECRM and Environmental Coordinator are notified via an SMS message to their mobile phones. This enables the ECRM and Environmental Coordinator to better prepare to respond to the complainant.

Complaints recorded by MCO during the AEMR reporting period (December 2007 – August 2009) following the AEMR period but within this audit period (to 30 November 2009) are summarised as follows:

| Period | Complaints received | Nature of complaint |
|---|---|---|
| Sept 2007 to Aug 2008 | 2 | Odour from piezometer (1)<br>Personal details provided in Newsletter (1) |
| Sept 2008 to Aug 2009 | 7 | Insufficient erosion / sediment controls on road (1)<br>Clearing of vegetation (1)<br>Noise associated with plant operation (1)<br>Noise associated with vegetation clearing (3)<br>Sediment discharge into Bora Creek (1) |
| Sept 2009 to Nov 2009 | 7 [1] | Blast did not go off within 5-10 minutes of notified time (1)<br>Dust associated with blasting (1)<br>Vibration associated with blasting (2)<br>Dust from general activities (4)<br>Noise from general activities (2) |
| Notes: 1. One complaint may relate to more than one issue | | |

Eleven of the complaints had been made to the designated complaints line, three directly to the DECC/EPA hotline number, one by e-mail directly to the ECRM and two by telephone calls to the mine administration office.

URS reviewed the complaint summary presented in the 2008/09 AEMR and copies of the completed Community Complaints Forms for the complaints received from September 2009 to November 2009.

Of the seven complaints received from September 2009 to November 2009, four were from a resident on Toole Road and two were from a resident on Ulan Road within the land acquisition zone (receiver R25). The Environmental Assessment identified that this residence would be impacted by mining activities. During the May 2010 site inspection it was noted that this resident was in close proximity and had a direct line of site to the construction activities on the environmental bund.

A review of the complaints presented in the 2008/2009 AEMR and those from the period September to November 2009 indicated that during the audit period the complaints management process appeared to be effective. In general complaint investigation involved reviewing available monitoring data (noise and dust from the continuous loggers), reviewing operational activities and responding to the complainant with the results of the investigation. In some instances the ECRM visited the complainant to discuss their concerns or inspected the area in proximity of the residence to better understand the reported impacts. There was one instance on the 24th November 2009 where following the receipt of two complaints regarding dust, (from different residents) site operations were suspended until weather conditions became favourable.

In some instances it is considered appropriate that further details be documented on the Community Complaints Form relating to the follow up with the complainant. For example where the follow up action indicates that a meeting with the complainant has been scheduled, details of the outcome of the meeting should be documented.

MCO reported that there has since been a significant increase in the number of complaints triggered by the introduction of a second excavator in January 2010 and the commencement of an afternoon shift in April 2010.

**URS Recommendation:**

- Given the significant increase in complaints received following the audit period and the likelihood that these will further increase once MCO commence night time activities, MCO should consider employing a full time community relations person who would be responsible for managing community consultation and complaints.
- Improvements can be made by documenting on the Community Complaints Form the follow up with the complainant in more detail. For example including details of the outcomes of meetings with complainants or follow up phone calls.

## 4.12 Dangerous Goods

Condition G3.1 of the site EPL (12932) requires that:

*G3.1 - All chemicals, fuels and explosives must be handled and stored in a bunded area which complies with the specifications of the relevant Australian Standard and legislative requirements.*

A complete audit of Dangerous Goods storage against the relevant regulations and standards was not conducted as part of this audit, however the following points were noted:

- The AEMR (2008-2009) states that no licensable quantities of dangerous goods were stored or used by MCO during the reporting period. However, as blasting has since commenced (October 2009) explosives are now required to be brought onto site. URS understands that explosives are brought onto site by specialist contractors for specific blasting events as required, and that no explosives are stored on site.
- At the time of the December 2009 site visit, the on-site hydrocarbon storage and refuelling facility at the Open Cut 1 mining area was nearing completion. This infrastructure will comprise seven above ground self bunded diesel tanks and designated concrete bunded area for refuelling of mobile equipment. In the interim, plant and vehicles are fuelled by mobile fuelling trucks and all hydrocarbons are stored in accordance with *AS1940 – The storage and handling of flammable and combustible liquids*.

- The EPL Condition relevant to the handling of dangerous goods indicates that the handling of fuels should be conducted in a designated area. It does not currently appear to allow the refuelling of larger mining plant which cannot realistically be undertaken at the designated refuelling station.

The following recommendation is made with regards to Dangerous Goods management:

**URS Recommendation:**

- Consider a modification be made to the EPL to reflect the need to permit the refuelling of larger mining equipment in-situ, rather than confining all fuelling operations to the designated storage and handling area. MCO would have to discuss this with DECCW for resolution.

5

# Compliance with Relevant Statutory Requirements

This Section fulfils the requirement to assess whether the project is complying with the relevant standards, performance measures, and statutory requirements. Schedule 5, Condition 6 of the Project Approval states that the Independent Environmental Audit must:

*(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant mining lease and environment protection licence (including any strategy, plan or program under these approvals)*

*(d) review the adequacy of strategies, plans and/or programs required under these approvals; and, if necessary,*

*(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals, including changes to the mine plan. ;*

Table 5-1 below identifies the leases, licences and approvals in place for the Moolarben Coal Project, with relevant information and comments.

It is noted that the Approval Conditions (05_0117) incorporate the majority of the requirements of the site's Environment Protection Licence (EPL) (Ref 12932) and the requirements of the Mining Leases (ML1605, ML1606 and ML1628).

A review of the Water Licence requirements was not undertaken as part of this audit.

**Table 5-1 Approvals and Licences**

| Issuing / Responsible Authority | Type of Lease, Licence, Approval | Date of Issue | Expiry | Comments |
|---|---|---|---|---|
| Department of Primary Industries (DPI) | Exploration Licences EL 6288<br>EL7073<br>EL7074 | <br>August 2004<br>12/02/2008<br>12/02/2008 | <br>August 2012<br>12/02/2010<br>12/02/2010 | |
| Minister for Infrastructure and Planning (Department of Planning – DoP). | Project Approval (05_0117)<br>Stage 1 modification and subsequent modifications | 06/09/2007<br><br>26/11/2008<br>December 2008<br>June 2009<br>October 2009 | 21 years after issue | |
| Department of Environment, Conservation, Climate and Water (DECCW) | Environment Protection Licence No. 12932 | 18/08/2008 | Anniversary date: 18 August<br>Next review: 18/08/2013 | Refer Section 4.2 |
| Department of Primary Industries - Mineral Resources | Mining Leases (ML)<br>1605<br>1606<br>1628<br>MLA 316 to 318 | <br>20/12/2007<br>20/12/2007<br>24/02/2008<br>pending | <br>2028 – for 21 years<br><br>24/02/2030 | Refer Section 4.3 |
| Department of Primary Industries - Mineral Resources | Construction Mining Operations Plan (MOP)<br>Operational MOP | April 2009<br><br>November 2009 | <br><br>2011 | (On completion of Construction)<br>To be obtained prior to mining commencing |
| Department of Natural | Surface Water Licence | | | |

## 5 Compliance with Relevant Statutory Requirements

| Issuing / Responsible Authority | Type of Lease, Licence, Approval | Date of Issue | Expiry | Comments |
|---|---|---|---|---|
| Resources (DNR)<br>Department of Water and Energy (DWE)<br><br>now the NSW Office of Water (NOW) | - 20SL 060286<br>Water Licences<br>- 20BL171923 to 28<br>- 20BL169899<br>(and others)<br><br><br>Extraction & Evacuation<br>a (20BL171992 to 94)<br>b (20BL171998, 2001)<br>c (20BL172003)<br>d (20BL171999)<br>e (20BL172002) | 04/09/2007<br><br>14/07/2008<br>08/11/2005<br>14/07/2008<br>20/03/2009<br><br><br>20/03/2009<br>27/01/2009<br>06/05/2009<br>27/11/2009 | 5 years<br><br>Nil<br><br><br><br><br><br><br>26/11/2014 | <br><br>(For groundwater monitoring purposes) |
| DSC | Approval to mine within a Dam Notification Area | Draft Approval | 5 years after approval | Draft conditions only |
| Department of the Environment, Water, Heritage and the Arts (DEWHA) | EPBC Approval | 24/10/07 | 31/12/2027 | |
| Department of Land (DoL) | Licence to occupy Lot 31<br>Licence to occupy vacant land | pending | | |

## 5.1 Project Approval Conditions (PAC) Compliance

The status of MCO's performance during URS's audit, in respect of each of the Project Approval Conditions is presented in Appendix A. Conditions considered to be not complied with, or indeterminate, have been listed in Section 8 of this report.

Performance categories in respect of compliance are defined as follows:

- Compliant - currently in compliance;
- Non-compliant - currently not in compliance;
- Not applicable - condition of consent not applicable at time of audit;
- Indeterminate - it has not been possible to determine whether compliance exists.

Comments are listed beside each condition to explain aspects of the audit review. Where considered relevant, observations have been made regarding specific compliance issues.

Where compliance with a condition had not been achieved during the audit period, but the site could demonstrate current compliance, this has been recorded as such.

In general, no specific or rigorous assessment of documents required as part of meeting the PAC has been undertaken during the assessment, particularly where they have been signed off by other parties (for example DoP).

## 5.2 Environmental Protection Licence Conditions

Environmental Protection Licence (12932) applies to the Moolarben Coal Project, with 27 conditions specified. A number of conditions directly compare with conditions in the Project Approval. The table below summarises the main licence requirements relevant to this audit. Appendix B provides a detailed assessment of compliance against each of the EPL requirements and should be referred to for the basis of the assessment presented below.

| Condition | Subject | Compliance |
|---|---|---|
| **Administrative Conditions** | | |
| A1.1 | Licence Authorisation and Regulation | Compliant |
| A2.1 | Premises | Compliant |
| A3 | Other Activities | Compliant |
| A4.1 | Supply of Information | Compliant |
| **Discharges to Air and Water** | | |
| P1.1 | Location of Discharge / Monitoring Points | Compliant |
| P1.2 | Note about Monitoring Table | Not Determinate – Licence discharge points as defined in the EPL Application do not exist as defined, and MCO indicated that there is no defined discharge location for water. |
| P1.3 | Note about Monitoring Table | Not Applicable |
| **Limit Conditions** | | |
| L1.1 | Pollution of Waters | Non-Compliant – High suspended solids in water discharge event in June 2009 |
| L2.1 | Load Limits | Not Applicable |
| L3.1 | Concentration Limits | Not Determinate – As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| L3.2 | pH Quality Limit | Compliant |
| L3.3 | No authorisation of pollution of waters by any other pollutant | Compliant |
| L4.1 | Volume and Mass Limits | Not Determinate – As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| L5.1 | Waste | Compliant |
| L6.1 | Noise Limits | Compliant |
| L6.2 | Definition | Noted |
| L6.3 | Noise Measurement locations | Compliant |
| L6.4 | Exceptions of noise emission limits | Compliant |
| L7.1 | Blasting Hours | Compliant |
| L7.2 | Blast Frequency | Compliant |
| L7.3 | Overpressure level not to exceed limits | Compliant |
| L7.4 | Ground Vibration | Compliant |

## 5 Compliance with Relevant Statutory Requirements

| Condition | Subject | Compliance |
|---|---|---|
| **Operating Conditions** | | |
| O1.1 | Carrying Out Activities in a Competent Manner | Compliant, subject to note below. |
| O2.1 | Maintenance of Plant and Equipment | Compliant |
| O3.1 | Dust | Compliant |
| O3.2 | Maintain Trafficable Areas | Compliant |
| O4.1 | Effluent Application not to cause surface runoff | Not Applicable |
| O4.2 | Effluent Spray not to drift beyond boundary | Not Applicable |
| O4.3 | Quantity of Effluent not to exceed capacity | Not Applicable |
| **Monitoring and Recording Conditions** | | |
| M1.1 | Monitoring Results Recorded as per licence | Compliant |
| M1.2 | Records to be legible and kept for 4 years | Compliant |
| M1.3 | Records kept for samples | Compliant |
| M2.1 | Requirement to Monitor Pollutant Concentrations | Compliant |
| M3.1 | Testing Methods – Monitoring Requirements | Compliant |
| M3.2 | Monitoring in accordance with approved methods | Not Applicable |
| M4.1 | Recording of Pollution Complaints – legible record | Compliant |
| M4.2 | Details of Records to be kept | Compliant |
| M4.3 | Keep records for 4 years | Compliant |
| M4.4 | Produce records for authorised officer | Compliant |
| M5.1 | Operate Telephone Complaints Line | Compliant |
| M5.2 | Notify Public of Complaints Line | Compliant |
| M5.3 | Above don't apply until 3 months after issue of licence | Compliant |
| M6.1 | Requirement to Monitor Volume or Mass | Not Determinate – As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| M7.1 | Requirement to Monitor Weather | Compliant |
| M8.1 | Blasting Monitoring | Compliant |
| **Reporting Conditions** | | |
| R1.1 | Annual Return Documents | Compliant |
| R1.2 | Annual Return reporting period | Compliant |
| R1.3 | Transfer of Licence to new licensee | Not Applicable |
| R1.4 | Surrender of Licence | Not Applicable |
| R1.5 | Deadline for Annual Return | Compliant |
| R1.7 | Maintain copy of annual return for 4 years | Compliant |
| R1.8 | Certifying Statement of Compliance | Compliant |
| R1.9 | Approval to certify | Compliant |
| R2.1 | Notification of Environmental Harm by telephone EPA Pollution Line | Compliant |
| R2.2 | Provide written details of the notification within 7 days of the incident | Compliant that details were provided, however Non Compliant within 7 day period of reporting. |
| R3.1 | Authorised Officer may request written report | Compliant |
| R3.2 | Investigate and Supply report to EPA within specified time | Non Compliant – MCO report was provided outside of timing required by DECCW in their notification letter. |
| R3.3 | Information in the requested report | As above |

| Condition | Subject | Compliance |
|---|---|---|
| R3.4 | Request for further information | Compliant |
| R4.1 | Quarterly Report | Compliant |
| **General Conditions** | | |
| G1.1 | Copy of Licence Kept at the Premises | Compliant |
| G2.1 | Signage | Compliant |
| G3.1 | Chemicals and Dangerous Goods | Compliant |

MCO are assessed as non-compliant with regard to Condition L1.1 as a result of the discharge incidents at Bora Creek in June 2009.

Conditions L3.1, L4.1 and M6.1 were considered indeterminate, on the basis that the Discharge locations as submitted by MCO in their EPL application, were not constructed and hence there is uncertainty over the licenced discharge points and hence if these conditions were not complied with.

Condition R3.2 was not complied with on the basis that the written MCO response (30 September 2009) to the EPA Notice dated 27 August 2009 was submitted after the deadline date set in the Notice (28 September 2009).

Condition O1.1 requires that licensed activities must be carried out in a competent manner. While the condition has been assessed as generally compliant, some incidents have occurred within the audit period (described throughout the report) which led to regulatory action by the DoP and DECCW and hence may be considered examples of MCO not acting in a competent manner.

**Recommendation:**

It is recommended that MCO complete discussions with DECCW to confirm the location of the discharge points and that the licence be updated as appropriate to reflect these locations.

## 5.3 Mining Lease Conditions

Three Mining Leases (1605, 1606 and 1628) are relevant to MCO, with 29 conditions specified. A number of the conditions are concerned with issues considered to be beyond the scope of this audit. The table below summarises the main issues relevant to this audit.

| Condition | Subject | Comment |
|---|---|---|
| 1 | Notice to Landowners | N/A |
| 2 | Environmental Harm | Covered by EPL and/or Project Approval and addressed elsewhere in this report. |
| 3 | Mining Operations Plan | Moolarben had just submitted a Mine Operations Plan for approval. |
| 4 - 6 | Environmental Management Reporting | Sighted AEMRs. Covered by EPL and/or Project Approval |
| 7 | Rehabilitation | Defined in the MOP. Also covered in this audit by EPL and/or Project Approval |
| 8 | Subsidence Management | Not yet relevant |
| 9 | Working Requirement | Compliant |
| 10 | Control of Operations | Not yet Relevant |
| 11 | Reports | Exploration Report not yet requested |
| 12 | Licence to Use Reports | Noted |

## 5 Compliance with Relevant Statutory Requirements

| Condition | Subject | Comment |
|---|---|---|
| 13 | Confidentiality | Noted |
| 14 | Terms of the Non-exclusive Licence | Noted |
| 15 | Blasting | Covered by EPL and/or Project Approval |
| 16 | Safety | Not part of this assessment. Concerns safety and hence was not within scope of audit. |
| 17 | Exploration Drilling | Not fully assessed. Issues concerned with rehabilitation are assessed as compliant. |
| 18 | Prevention of Soil Erosion and Pollution | Covered by EPL and/or Project Approval. See relevant comments elsewhere in report. |
| 19 | Transmission Lines, Communication Lines and Pipelines | No issues sighted. Not covered directly by EPL or Project Approval. |
| 20 | Fences and Gates | Compliant |
| 21 - 22 | Roads and Tracks | No issues of non-compliance identified. |
| 23 | Trees and Timber | The DA Approval requires that timber is mulched or stockpiled for rehabilitation hence the requirement is inconsistent with the DA. As per Schedule 2 Condition 3 regarding inconsistencies, the Approval Condition will prevail. |
| 25 | Resource Recovery | (Not yet relevant ) |
| 26 | Indemnity | Noted |
| 27 | Security | Compliant |
| 29 | Prescribed Dam (Licences 1606 and 1628 only) | Dam Safety Committee approval was obtained. |
| 30 | Suspension of Mining Operations (1628 only) | Not yet relevant |
| 31 | Cooperation Agreement (16628 only) | Not yet relevant |

In summary, the majority of the requirements of the Mining Lease are being complied with. Some areas of overlapping requirements with the EPL and Project Approval conditions exist where non-compliances have been noted and are discussed under the relevant areas in this report. In particular, Conditions 2 and 18 have not been complied with on the basis of erosion and sediment control and other issues as highlighted throughout the report.

### 5.4 December 2009 Site Visit Closing Remarks

A closing meeting was held at the completion of the December 2009 site visit. This meeting was attended by each of the MCO management staff members who had been interviewed during the audit (Section 1.4). The following paragraphs summarise the issues raised at this meeting.

Overall, compliance with the various approval and licence conditions was noted generally. However, a number of issues had been identified in relation to the events early in the construction phase of the works (the Bora Creek discharge incident and the vegetation clearance without approval). In addition, non-compliance was noted in one or two other areas, such as Council approval for building construction, where failure to gain approval was in part due to resourcing issues at the Council. Three key areas were considered worthy of special mention:

## 5 Compliance with Relevant Statutory Requirements

- Dust – Although the criteria were essentially being met at the receptors / monitoring points, dust generation was clearly an issue which presented serious challenges with the existing status of the construction and mining operations. The prolonged dry conditions, the very dust-prone nature of the soils and subsoils at the site and the relatively exposed nature of the main construction areas all contributed to the existing situation where very sound management was required to maintain compliance;
- Noise – Noise generation presented a number of challenges at the present stage of the operations, although it was recognised that there were concerted and ongoing efforts to obtain meaningful data on the actual impact of the site operations;

Erosion and sediment control – Following the incidents of June 2009, it was recognised that serious risks remained relating to controls for erosion and sedimentation. Further points regarding Erosion and Sediment controls were made as detailed in Section 4.4.2

6

# Review of the Environmental Management System

This Section fulfils the requirement to assess the adequacy of the proponent's Environmental Management Strategy and Environmental Monitoring Program. Schedule 5, Condition 6 of the Project Approval states that the Independent Environmental Audit must:

> *(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant mining lease and environment protection licence (including any strategy, plan or program under these approvals)*
>
> *(d) review the adequacy of strategies, plans and/or programs required under these approvals; and, if necessary,*
>
> *(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals, including changes to the mine plan. ;*

Section 6.5 includes an assessment of the implementation of the environmental management plans as required by the conditions of consent.

## 6.1 Environmental Management Overview

Moolarben Coal Project is operated by Moolarben Coal Operations (MCO). Environmental responsibilities at the Moolarben site are allocated to the Environmental and Community Relations Manager (ECRM), Steven Peart. Julie Thomas, Environmental Coordinator, also has environmental responsibilities. Both Steve and Julie commenced work at the site in June 2009. From January 2009 until then, environmental management was coordinated by contract personnel while the recruiting of permanent staff members was underway. Steve and Julie have been focussing on improving environmental management systems and their implementation since arriving on site.

During the audit period, responsibilities for the MCO organisation were separated for Mining Operations and Construction operations.

Construction operations were undertaken by MCO personnel and their contractors. The day to day operational responsibilities were allocated to the Construction Manager, Jim McGeachie. Mining operations were managed by the Mine Manager, Graham Goodwin.

It was observed that the mining section of MCO had a longer term focus, with key initiatives in place to develop a positive environmental culture such as employment of personnel who demonstrated an interest in a positive culture through agreement with a visions statement; managers being very aware of environmental issues and mitigation methodology; and a wider understanding by managers of environmental management initiatives and plans.

This culture was not so clearly demonstrated by the construction team.

The key environmental management system documents on site are generally derived from consent conditions and other legislative requirements. These mainly comprise:

- Environmental Management Strategy; and
- Environmental Monitoring and Management Plans.

MCO have not developed a formal, robust Environmental Management System such as would be developed, for example, to comply the requirements of ISO14001:2004 Environmental Management Systems.

Implementation of the management strategy and plans has been informal, and generally compliance driven rather than risk based. Monitoring for example, is generally undertaken as required by the site's EPL or Project Approval, rather than based on the environmental risks of the project as defined by MCO.

As MCO has not developed a systematic Environmental Management System based on identified environmental risks (or aspects and impacts), there are potential gaps in the identification and management of some environmental risks.

MCO has not undertaken internal audits against their systems to assess compliance with the Environmental Strategy or Plans/Programs, or to assess the adequacy of their systems/plans to address the site's environmental risks.

MCO has developed and implemented some environmental management processes outside of regulatory requirements. These have included:

- Ground Disturbance Permit: before ground disturbance occurs a permit is required to be signed off by the Environment Department. This will examine the extent of impact and assessment of controls. This process was identified to be well understood by most managers interviewed;
- Environmental Inspections: The Environmental Department manage inspections with other personnel to assess specific areas against a checklist of requirements. The inspections are, however, informal, in that they are not documented and the completion of actions to address issues are not tracked. The current lack of documentation does not enable MCO to demonstrate an effective system is in place to assess ongoing environmental performance against the consent; plans or environmental risks.;
- Inductions: Inductions include a section on Environmental Management and is delivered by the ECRM; and
- Legislation Register: A register has recently been developed to track relevant environmental legislation.

## 6.2 Environmental Management Strategy

An Environmental Management Strategy (EM Strategy) was approved by the DOP in December 2008. This EM Strategy was developed in accordance with Schedule 5, Condition 1 of the Project Approval and specifically applies to the construction phase of the Moolarben Operations.

As part of this audit a review of the EM Strategy was undertaken, including an assessment of adequacy of the objectives and key performance outcomes for each environmental issue. The EM Strategy appears to be written to address the requirements of the Project Approval Conditions.

The EM Strategy is a high level document outlining MCO's proposed strategy (objectives and key performance outcomes) to manage environmental issues. However, the EM Strategy does not appear to be based upon a formal risk assessment of the specifics of the environmental issues to be encountered during the early construction and mining phases of the project. A formal risk assessment would assist MCO prioritise environmental issues and enable management effort to be directed to the higher risk areas.

In the EM Strategy structure mud map, the EM Strategy is central to all the Management Plans and Monitoring Programs.

A review of the EM Strategy and its implementation indicated the following:

- The document is relatively high level, and appears written from an approval standpoint rather than as a document readily able to be implemented on site;
- Evidence of the EM Strategy being a "living" document, was limited. During management interviews there was little knowledge displayed by MCO managers of the EM Strategy and its specific requirements within various departments;
- Section 7.1 of the EM Strategy defines that a risk register is to be developed. None was provided, however one was indicated as having been completed for mining activities. MCO indicated that a Broad Brush Risk Assessment had been planned and costs had been obtained, however it had not been conducted during the audit period;
- The aspects register in the EM Strategy is high level only and does not define risks in any detail;
- A full legislation register has been developed. A compliance register is in place but requires updating;
- The incident reporting process was observed to be implemented;
- No internal audits of the adequacy or implementation of the EM Strategy had been undertaken;
- The roles and responsibilities section is high level and not accurate for the organisation. For example there is no mention of mining operations in the structure section and responsibilities are generic and limited in scope;
- Section 7.2 defines training activities that to a large extent had not been implemented. These included:
  - Toolbox talks on an as-needs basis and may be in response to a near miss, risk assessments or legislative change;
  - Training in the implementation of specific environmental procedures and associated forms;
  - Presentation of Environment Performance and general information at the site Safety, Health, Environment and Community Committee;
  - Internet and/or Intranet based programs; and
  - The production of newsletters and/or information sheets;
- The EM Strategy had not been updated to reflect changes in activities, personnel or following management review;
- Section 10 describes compliance monitoring procedures. Mostly these had not been implemented e.g. Internal and External Audits, with the exception of regular inspections, although these were not documented; and
- Section 11 indicates that the EM Strategy would be reviewed by December 2009. No review of the EM Strategy was sighted, however evidence was sighted of review of some of the Management Plans.

Based on the above, it is considered the EM Strategy was considered largely ineffective for its purpose as a key process document driving environmental performance on the site.

**URS Recommendation:**

- It is recommended that Moolarben develop an Environmental Management System that is generally compliant to the requirements of the International Standard ISO14001: Environmental Management Systems.

## 6.3 Environmental Monitoring Program (EMP)

An Environmental Monitoring Program and a suite of Environmental Management Plans have been prepared for the construction phase of MCO. These are listed in the table below. These Plans were all submitted to DoP originally for approval. At the time of the first site inspection in December 2009, MCO was in the process of reviewing the operational management plans and submitting them to DoP as detailed below.

| Program / Plan | Date Approved | Update for Mining Due |
|---|---|---|
| Environmental Monitoring Program | December 2008 | Submitted to DoP 16th November 2009 |
| Construction Noise Management Plan | December 2008 | Not required for mining |
| Noise Monitoring Program | December 2008 | Submitted to DoP 16th November 2009 |
| Blasting Monitoring Program | December 2008 | Submitted to DoP 16th November 2009 |
| Air Quality Monitoring Program | December 2008 | Submitted to DoP 16th November 2009 |
| Water Management Plan, including<br>Site Water Balance<br>Erosion & Sediment Control Plan<br>Surface Water Monitoring Plan<br>Groundwater Monitoring Plan<br>Surface and Groundwater Response Plan | December 2008 | Submitted to DoP 16th November 2009 |
| Aboriginal Heritage Plan | August 2008 | Revision under way |
| Heritage Management Plan | December 2008 | Submitted to DoP 16th November 2009 (this review is based on approval modification requirements) |
| Subsidence Management Plan | Not yet submitted | SMP specifically for operational phase of project. Required prior to mining operations. |
| Landscape Management Plan, including<br>Rehabilitation & Offset Management Plan<br>Final Void Management Plan<br>Mine Closure Plan | Awaited | Submitted to DoP 16th November 2009 |
| Energy Savings Action Plan | December 2008 | Submission anticipated later in 2010 |
| Greenhouse Gas Minimisation Plan | Not yet submitted | GGMP specifically for the underground operational phase of project |
| Waste Management Plan | December 2008 | Submitted to DoP 16th November 2009 |

In addition to the above, a number of Plans have been developed specifically for mining activities as required by the DII. These are separate to Plans as required by DoP, are mainly Health and Safety focussed and cover aspects including Transport; Airborne Dust and Explosives. These plans have not been reviewed as part of this audit.

## 6.4 Review of Management Plans and Monitoring Programs

The following documents were reviewed by URS:

- Air Quality Monitoring Program (AQMP) for the construction phase of works;
- Aboriginal Heritage Plan (AHP);
- Energy Savings Action Plan (ESAP) for the construction phase of works;
- Waste Management Plan for the construction phase of works;
- Noise Monitoring Program (NMP) for the construction phase of works; and
- Construction Noise Management Plan (CNMP) for the construction phase of works.

These were the Plans in place during the audit period. Since this time, many plans have been reviewed to cover the operational phase of the project. URS has not in general reviewed the revised plans developed for the Operation Phase.

The revision of the Plans has generally been undertaken by the mine environmental staff. The reviews have been based on a more detailed understanding of the specific site conditions observed during the first year of construction works at the site.

The following general points are made regarding the adequacy of the Management Plans:

- The basis of the plans from a risk point of view is not present in most Plans i.e. the Plans are not generally based upon the outcomes of a risk assessment process. As such, the Plans do not demonstrate an assessment of risks related to the area of the plan and management measures specified in the Plan may therefore not address all actual risks that exist.
- The majority of the initial construction stage management plans and monitoring programs were prepared by external consultants prior to the commencement of work at the site. Demonstrated site ownership of the Plans, particularly outside of the Environmental Department, was inconsistent and for some plans very limited based on discussions with various people throughout the audit.
- In a number of cases, feedback and suggested modifications that were received from regulatory agency reviews of the documents was to be incorporated in the revisions of these plans for the mining stage of the project. DoP indicated that many plans were originally submitted in a relatively poor or inadequate state, and hence had to go through significant revisions prior to approval.
- The requirements and mitigation measures are often embedded or lost in volumes of text making the plans hard to implement and audit. The Plans could be greatly improved by having a table listing of all of the management/mitigation measures required as part of the Plan. This could then be the basis of site's internal and external audit/review process for implementation of the Plans. Currently, the management measures are not clearly specified in the Plans and a detailed search through each document is required to extricate the Plan's required management measures.

**Recommendations to address General Comments on Plans:**

The following recommendations are made to address the issues above:

- MCO should develop and implement risk assessment methodologies across all aspects of environmental management and compliance with relevant environmental legislation. This should be the basis of the development of management mechanisms outlined in the Plans.
- MCO should ensure effective ownership of the site's management plans by all MCO personnel. MCO should develop and implement a programme to ensure all site have awareness of the plans to the extent appropriate for their roles and responsibilities on site. A training needs analysis may

help define the extent of training required for each person on site. MCO personnel should be held accountable for their responsibilities under the Plans;
- Plans should be updated based on the findings of this report and relevant feedback from DoP and other agencies;
- All Plans should have a section that provides a list of all required management mechanisms relating to the Plan to enable staff to effectively implement plans and to enable effective internal and external auditing of the Plans.

### *Construction Noise Management Plan and Noise Monitoring Program*

In the case of the CNMP and the NMP, the following points were noted:

- Some minor inconsistencies between the CNMP and the NMP were noted (as described in Appendix A), however, MCO pointed out that these issues had been addressed in the revised plans which were submitted to the DoP for approval on the 16th November 2009.
- Since completion of the initial CNMP, DECCW have released the Interim Construction Noise Guideline in August 2009 and now a descriptor $L_{Aeq}$ is used for construction noise monitoring which replaces $L_{A10}$. Both the NSW Draft Construction Noise Guideline and Environmental Noise Control Manual have been superseded by this new guideline. The revised Operational Noise Management Plan was noted to reflect this change.
- The CNMP is not clear whether results from the continuous real time noise loggers will be reviewed for the purpose of assessing compliance with the noise criteria. The Plan states that the results will be used as an operational tool to understand noise levels emanating from any one activity and as an early warning tool to inform MCO personnel that noise levels are approaching criteria so that MCO can respond proactively. The Compliance Evaluation and Response Flowchart (Figure 7 within the Plan) specifically refers to analysis of attended monitoring data. It is unclear whether the response protocols detailed in the plan including exceedance reporting protocols are applicable to the unattended monitoring results.

**URS Recommendations:**

- In the auditors opinion the continuous noise monitoring results should be used to assist MCO assess compliance with the noise criteria and any results above noise criteria which, following investigation are determined to be attributable to MCO activities and not due to adverse weather conditions, should be considered as exceedances and managed and reported accordingly.
- The Noise Monitoring Plan, in particular the compliance evaluation and response flowchart and the response protocol sections, should be revised to make this clear.
- As the attended noise monitoring results indicated that that noise from MCO activities was either inaudible or not measurable at the sensitive receivers the majority of the time, it is recommended that alternative methods of determining compliance are agreed with the DECCW, documented in the Noise Management Plan and implemented.
  The footnotes to PAC 3/2 state that:
  *"Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy)."*
  Chapter 11 of the Industrial Noise Policy (INP) allows for noise measurement closer to the noise source and extrapolation of the noise levels to the sensitive receivers. In the auditors opinion this method would provide a more accurate and transparent determination of the noise levels from the MCO.

Review of the following plans indicated some more significant deficiencies in the content. However, MCO were in the process of resubmitting these for approval, based on feedback previously received from regulatory agencies:

- Water Management Plan (WMP) and component sub-plans for the construction phase of Works (comments specific to the Erosion and Sediment Control Plan have been made in Section 4.2 of the report);
- Heritage Management Plan (HMP).

Further details on the specific issues identified are provided in Section 6.5. Note that URS have not reviewed the adequacy of the revised plans for Operations as these were still under preparation or had not been approved or implemented at the time of the audit.

## 6.5 Review of Implementation of Management Plans and Monitoring Programs

This Section provides a review of the implementation of actions identified in MCO's management plans and monitoring programs.

Implementation of the following Plans and Programs was assessed. :

- Construction Noise Management Plan and Noise Monitoring Program;
- Air Quality Monitoring Program;
- Water Management Plan;
- Waste Management Plan;
- Aboriginal Heritage Management Plan;
- Heritage Management Plan; and
- Energy Savings Action Plan.

General comments regarding implementation of the Plans are as follows:

- The Environmental Department demonstrated detailed knowledge of the Plans, and had rewritten/updated the Plans recently for the Operational phase of the mine;
- There appeared to be an emphasis on the Environmental Department's responsibility to oversee implementation of the Plans, with little ownership of the Plans demonstrated by the various departments;
- Evidence of training of specific aspects of the Plans across the organisation was limited. Some Toolbox talks are held on specific issues, and inductions include general environmental awareness training. However, detailed training on the specifics of the Plans was limited, informal or non-existent;
- As for the EM Strategy, there was little evidence of personnel knowledge regarding the details of the Plans or the activities around their implementation, based on the interviews conducted. However, amongst the Mining personnel, there was a high level of awareness of the issues as discussed in the Plans, particularly for the controls in place for Air and Noise emissions;
- No formal processes had been implemented by MCO to track compliance with the requirements of the Plans;
- Notwithstanding the above, many mitigation measures as outlined in many plans were being implemented on an informal basis e.g. mitigation measures as outlined for dust and noise management were observed to be occurring on site and some key staff interviewed demonstrated knowledge of appropriate controls; and

- Implementation and continuous review of the Erosion and Sediment Control Plan was poor as is discussed in Section 4.4.2.

Some comments as made for the implementation of the EM Strategy are also relevant for the Plans.

### *Construction Noise Management Plan and Noise Monitoring Program*

The following table summarises the findings of the assessment of the implementation of the Construction Noise Management Plan. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| CNMP-1 | Communication<br>Internal environmental reporting will be conducted on a monthly basis by the ECRM | A monthly Board Report which includes a summary of environmental issues is prepared by the ECRM.<br>The January 2010 Monthly Board Report was viewed and noted to include a discussion of the following issues: incidents, complaints, non compliances, audits and inspections, rehabilitation noise, dust and water management. | Compliant |
| CNMP-2 | A community information number (1800 556 484) has been established to provide a central number for enquires and complaints for the Project. | The phone number was dialled and found to be valid. | Compliant |
| CNMP-3 | Environmental monitoring results will be made publicly available on the internet on a quarterly basis. | Monthly environmental monitoring reports were available on the website for the months August 2009 to January 2010. | Compliant |
| CNMP-4 | The ECRM will be responsible for undertaking the following consultation:<br>Ulan school Principal: Monthly or as requested by principal during construction of environmental bund.<br>Closest private landowners: monthly or as requested by relevant neighbour during construction.<br>Ulan Coal and Wilpinjong Coal Mines: As required if monitoring shows non MCO related mine impacts at receptors. | It was reported that the Principal of the School is happy with the level of consultation provided by MCO.<br>It was reported that initial consultation with landowners was undertaken at the commencement of construction activities but that consultation now occurs at the request of landowners mostly in response to complaints.<br>There has been no formal consultation with Ulan and Wilpinjong coal mines. | Compliant |
| CNMP-5 | Monitoring<br>MCO will install two continuous real time noise monitors. The first at Ulan public school and the second as a mobile unit positioned at the closest sensitive receiver to construction works. | The continuous logger at Ulan School was observed during the site visits.<br>At the time of the audit the mobile unit was positioned at resident R26 (as defined in the Project EA). | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| CNMP-6 | The units will enable near continuous review of the noise levels at the monitoring sites and provide triggers to modify construction activities. Data will be interpreted by software providing onscreen and SMS alerts to the ECRM when response triggers are reached. | Since January 2009 the Environmental Coordinator receives a daily email summarising the continuous noise monitoring results in graphical form. Examples of these emails were viewed during the May 2010 site visit.<br>SMS alerts to the Environmental Coordinator and ECRM commenced in March 2010. | Compliant |
| CNMP-7 | Attended noise monitoring will be conducted monthly during the initial six month construction period reverting to 3 monthly for the remainder of the 15 month construction period. | Monthly attended noise monitoring was undertaken at the specified locations by Spectrum Acoustics for the period April 2009 to December 2009. MCO reported that no monitoring was conducted in October 2009. | Compliant |
| CNMP-8 | Attended monitoring will be conducted at the following locations:<br>- Ulan primary school<br>- R26 Robinson<br>- R169 Primo Park<br>- R22 Aiton<br>- R170 Roberts | The attended monitoring was conducted at the specified locations. | Compliant<br><br>**Recommendation:**<br>Consideration of alternative monitoring locations. Refer to Section 4.1. |
| CNMP-9 | Traffic noise monitoring will be conducted at the nearest non-mine related residence to MR568 (Ulan-Gulgong) and MR 214 (Ulan-Mudgee) during a shift change to determine compliance with traffic noise criteria. | Traffic noise monitoring was not undertaken during the audit period. | Non Compliant<br><br>**Recommendation:**<br>Undertaken traffic noise monitoring as per Noise Monitoring Program. |
| CNMP-10 | <u>Ambient Noise</u><br>MCO will establish a control noise site to provide information on the ambient noise variability free of the effects of emissions from mining. The location of the control site will be representative of the Ridge Road, Spring Creek Road and Winchester Crescent rural residential precincts. The monitor will be installed in the first quarter of 2009. | The control noise site was established in 2008. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| CNMP-11 | Compliance Evaluation and Data Review<br>Where monitoring indicates a potential non compliance against Project Approval Criteria it is necessary to assess the potential for the influence of the following factors:<br>- meteorological conditions<br>- assessment of noise sources for annoying characteristics<br>-irregular monitoring site activities (e.g. non-mining related construction activities, agricultural activities, residential activities etc)<br>-Mining activities – UCML or WMCL<br>-reasonableness of data | During the reporting period the continuous noise monitoring results and attended monitoring results indicated no exceedances of the Project Approval Criteria attributed to MCO activities. Refer to Section 4.1 for further discussion of results. | Compliant<br><br>**Recommendation:**<br>In the auditors opinion the continuous noise monitoring results should be used to assist MCO assess compliance with the noise criteria and any results above noise criteria which, following investigation are determined to be attributable to MCO activities and not due to adverse weather conditions, should be considered as exceedances and managed and reported accordingly.<br>The Noise Monitoring Plan, in particular the compliance evaluation and response flowchart and the response protocol sections, should be revised to make this clear. |
| CNMP-12 | Real time response protocols<br>Real time response measures will be implemented where reasonable and feasible. Examples include:<br>-Noise impact criteria less 2dBA: review current activities, review wether patterns for proceeding hour, review weather predictions, ensure standard mitigation measures are in place and monitor changes in noise levels at noise monitor.<br>- Noise impact criteria less 1dBA: dumping and constriction of bund to be restricted to un-exposed areas.<br>- Noise impact criteria: reschedule or relocate all identified noise generating construction activities. | SMS alerts to the Environmental Coordinator and ECRM commenced in March 2010. An SMS is received when the noise loggers record noise levels approaching the criteria which allows the Environmental Coordinator to investigate.<br>The Environmental Coordinator, ECRM and Site Supervisor are able to download the recorded audio for any time period and identify dominant noise sources. This enables site management to modify activities if required. | Non compliant during audit period.<br>Compliant as at May 2010. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| CNMP-13 | Complaints<br>Complaints will be managed as per the Community Complaints Procedure. This includes lodging complaints on the Complaints form, investigating the complaint and reporting. | Completed complaint notification forms were observed for complaints received on the 22/10/09 and 30/10/09. The forms included the following:<br>- Complainant details (name, phone number, address);<br>- complaint details (date and time);<br>- method of complaint;<br>- Nature of complaint;<br>- Description of the initial comment / conversation;<br>- monitoring results (weather conditions, dust results, noise results, blast results;<br>- Site investigation comments;<br>- Site activities and activity changes (where required);<br>- Description of the call back and further discussion; and<br>- Actions required (including completion date, person responsible and sign off). | Compliant |
| CNMP-14 | Training<br>Provide awareness and understanding of construction noise issues through site inductions for all staff, contractors and visitors to MCO highlighting work practices including:<br>-avoiding shouting/ yelling unless required for safety;<br>-reducing or avoiding use of stereos outdoors<br>-avoiding of slamming vehicle doors; and<br>-avoiding dropping materials from height | The Environmental and Community Relations induction was viewed and included work practices to reduce noise impacts. | Compliant |
| CNMP-15 | Use and operation of equipment such as:<br>- Reduction of throttle settings and turn off equipment when not being used.<br>- Avoid metal to metal contact on equipment<br>- Where possible use quieter equipment (e.g. rubber wheeled tractors instead of steel tracked tractors), in situations where either piece of equipment will suit the purpose. | The Environmental and Community Relations induction outlines these measures.<br>A rubber tracked dozer has been purchased by MCO and is reportedly used in place of the steel tracked dozer where noise impacts are of particular concern. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| CNMP-16 | During purchase of key equipment:<br>-install grid box silencers and modified mufflers to dump trucks<br>- Install modified mufflers to excavators; and<br>- Install broadband reverse alarms to machinery that regularly reverses (e.g. bull dozers and front end loaders) | Haul trucks with noise attenuation systems installed were purchased by MCO. These systems consist of two primary silencers (to attenuate mid to high frequency noise) and a secondary silencer (to attenuate low frequency noise).<br>Broadband reverse alarms have been installed on mining trucks. | Compliant |
| CNMP-17 | Sound power level (SPL) measurement of plant and equipment prior to working on site or within one week of machinery being used on site. | SPL measurement is not being undertaken on new plant as it arrives on site.<br>It was reported that SPL measurement of plant and equipment were recently undertaken and are intended to be undertaken annually. | Non Compliant<br><br>**Recommendation:**<br>Implement sound power level measurement of plant and equipment as per CNMP or approved Operational Noise Management Plan. |
| CNMP-18 | On a daily routine a morning meeting will be held and will include the following:<br>- Identify daily activities and review previous day activities;<br>- The ECRM will present a noise summary for the previous day activities and response actions followed with regards to activities carried out during the previous day;<br>- Understand weather conditions;<br>- Noise control requirements;<br>- Noise control implementation<br>- Review of noise; and<br>- Continuous monitoring alarms are to be investigated and noise controls as well as weather conditions reviewed. | A daily communication meeting is held however the meeting does not go into the level of detail described in the Plan. The meeting is used as a general briefing of the day's activities. The Daily communication meeting record for the 11 May 2010 was observed. On this day environmental and community comments were limited to stating that tree clearing was to occur.<br>It is noted this requirement has been deleted from the Operational Noise Management Plan. | Non compliant |

## 6 Review of the Environmental Management System

### *Air Quality Monitoring Program*

The following table summarises the findings of the assessment of the implementation of the Air Quality Monitoring Plan. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AQMP-1 | Air quality monitoring<br>MCO will undertake the following air quality monitoring:<br>- $PM_{10}$ by TEOM in real-time at:<br>- TEOM 1 Ulan school<br>- TEMO 2 Property 16 Murragamba Road / Ulan-Woller Road<br>- TEOM 3 mobile<br>- $PM_{10}$ by HVAS at:<br>- $PM_{10}$ – village<br>- $PM_{10}$ – control / background site<br>- Dust gauges DM1 to DM9<br>- Weather station WS1 in Ulan Village<br>- Weather station WS2 at property 36 on Moolarben road | The auditors confirmed that monitoring was being undertaken as per the plan.<br>The TEOM at Ulan school, the $PM_{10}$ HVAS at Ulan village and a number of dust gauges were sighted. Results were reviewed indicating that monitoring data was being captured. | Compliant |
| AQMP-2 | Real time response<br>The following will be undertaken when winds emanate from between NE and SSE vectors and proceeding 24 hour $PM_{10}$ at TEOM 1 or TEOM 3 reaches 40 $\mu g/m^3$:<br>- Review current activities (what activities are happening);<br>- Onsite review of performance activities;<br>- Review weather patterns for proceeding hour;<br>- Review weather predictions;<br>- Ensure Standard mitigation measures in place;<br>- Monitor changes in $PM_{10}$ | Alarms have been set up so as to notify the ECRM, Environmental Coordinator and supervisor by SMS to their mobile phones when real time monitors have recorded levels approaching criteria.<br>It was reported that when a notification is received it is investigated by the Environmental Coordinator. This includes looking at weather data and reviewing activities occurring on site.<br>This investigation process is not documented. | Compliant<br>**Recommendation:**<br>It is recommended that MCO performs a review of the effectiveness of the trigger levels in mitigating dust impacts, and achieving and demonstrating compliance with the 24 hour $PM_{10}$ criteria. Refer to Section 4.3.for further details.<br>**Recommendation:**<br>Document real time response investigation even if investigation determines exceedance was not attributed to MCO activities. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AQMP-3 | The following will be undertaken when winds emanate from between NE and SSE vectors and proceeding 24 hour $PM_{10}$ at TEOM 1 or TEOM 3 reaches 50 $\mu g/m^3$:<br>-dumping and construction of bund to be restricted to unexposed areas | As above | As above |
| AQMP-4 | The following will be undertaken when winds emanate from between NE and SSE vectors and proceeding 24 hour $PM_{10}$ at TEOM 1 or TEOM 3 reaches 150 $\mu g/m^3$:<br>-reschedule all dust generating construction activities | As above | As above |
| AQMP-5 | <u>Exceedance investigation and response</u><br>Investigate MCP activities to determine activity which caused exceedance of environmental criteria. Complete Environmental Incident Report Form | MCO do not consider that there have been any exceedances of the air quality criteria therefore no environmental incident reports were sighted.<br>As stated above the process of investigating a potential exceedance is not documented. | Indeterminate<br><br>**Recommendation:**<br>For dust exceedances, ensure further investigation is conducted in order to determine whether exceedances constitute additional exceedances as a result of dust generated by MCO.<br><br>**Recommendation:**<br>Document real time response investigation even if investigation determines exceedance was not attributed to MCO activities. This will improve transparency and the ability to retrospectively assess mitigation actions. |
| AQMP-6 | Report any exceedance caused by MCO to DoP, relevant agency and affected landowners. | A number of results were recorded above the daily $PM_{10}$ criteria. These results were not reported to the DoP or relevant agencies at the time as following investigation MCO determined that the exceedances were not as a result of MCO activities.<br>As discussed in Section 4.3, analysis of MCO's contribution and subsequent determination of exceedances is on some occasions inadequate. There are instances where further investigation is required in order to determine whether exceedances constitute additional exceedances as a result of dust generated by MCO. | Indeterminate |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AQMP-7 | On a daily routine a morning meeting will be held and will include the following:<br>- Identify daily activities and review previous day activities<br>- The ECRM will present an air quality summary for the previous day activities and response actions followed with regards to activities carried out during the previous day<br>- Understand weather conditions<br>- Air quality control requirements<br>- Air quality control implementation<br>- Review of air quality<br>- Continuous monitoring alarms are to be investigated and air quality controls as well as wether conditions reviewed | A daily communication meeting is held however the meeting does not go into the level of detail described in the Plan.<br>The meeting is used as a general briefing of the days activities. The Daily communication meeting record for the 11 May 2010 was observed. On this day environmental and community comments were limited to stating that tree clearing was to occur.<br>It is noted this requirement has been deleted from the Operational Air Quality Monitoring Plan. | Non Compliant<br><br>Operational Air Quality Monitoring Plan does not list requirement. It is expected that MCO would ensure sufficient communications to all personnel on issues that would impact on dust generation on site e.g. special meteorological conditions. |
| AQMP-8 | Calibration, maintenance and effective operation of a real time environmental monitoring. | The high volume air sampler is reportedly calibrated every two months by the Ecowise Environmental. The calibration report prepared by Ecowise Environmental was viewed dated 30 March 2010 for the two units.<br>The dust TEOM units are calibrated by contractors (Novecom) on a monthly basis. The Sentinex Dust (TEOM) Unit Service Report dated 20 January 2010 was viewed.<br>In addition to the monthly maintenance, the TEOM units also undergo an annual service. The service reports prepared by Lear Siegler Australasia for the three units (including the mobile unit) were viewed dated 5 November 2009. | Compliant |
| AQMP-9 | Maintain equipment and machinery in good working order. | Maintenance Schedules were established for MCO plant / equipment. In addition the '1 Week Production Plan' includes a weekly snapshot of the upcoming equipment maintenance for the week. The 1 Week Production Plan for the 7 May 2010 was observed showing the scheduled maintenance of drills, excavators, trucks and dozers. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AQMP-10 | Soft mudstone, clay stone or shale not to be used to surface roads. | Soft mudstone, clay stone or shale was not observed on road surfaces during the site visits. | Compliant |
| AQMP-11 | Maintain all trafficable areas in a good condition and maintain appropriate moisture levels.<br>Use water carts on all trafficked areas to minimise dust generation as necessary.<br>Maintain construction areas and stockpiles in a moist condition using water carts and water sprays. | During the December 2009 and May 2010 site visits, several water carts were observed to be wetting down trafficable areas. | Compliant |
| AQMP-12 | Disturb only the minimum area necessary for construction.<br>Adoption of progressive rehabilitation of mining operations, to minimise exposed soils. | Observations made during the December 2009 site visit indicated that some areas had been spray seeded. However, many areas remained disturbed and did not appear to have been subjected to any efforts of rehabilitation e.g. steep batters of the rail loop.<br>During the May 2010 site visit substantial progress had been made on soil stabilisation measures around the construction areas, and also in commencement of rehabilitation activities at the environmental bund. | Non compliant<br><br>**Recommendation:**<br>Ensure all affected/disturbed areas are stabilised through revegetation or other means directly after disturbance occurs or construction completed. |
| AQMP-13 | Use of constructed roads only, minimisation of access roads and removal of obsolete access roads | During the site inspections traffic appeared to be limited to constructed haul roads. | Compliant |

## 6 Review of the Environmental Management System

### *Water Management Plan*

The following table summarises the findings of the assessment of the implementation of the Water Management Plan and appendices. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

Comments regarding the implementation of the erosion and sediment controls plans are made in Section 4.4.2.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| **Water Management Plan** | | | |
| WMP-1 | A summary of the surface and groundwater monitoring will be provided in the AEMR. The results will be compared against the impact assessment criteria in the WMP, EPL and PAC limits to assess the effectiveness of the mine water management system on an ongoing basis. | The AEMR includes a summary of surface water and groundwater monitoring results however there is little discussion comparing the results to the impact assessment criteria. It is noted that the EPL criteria only apply to licensed discharges. | Non Compliant<br><br>**Recommendation:**<br>The AEMR should be improved by including analysis / discussion of the results and their relevance. The Surface Water quality section of the AEMR should also detail licensed and unlicensed discharges. |
| WMP-2 | A summary of water monitoring will be presented at the CCC meetings and will be available on the website. | A monthly summary of environmental monitoring results is provided on MCO's website.<br>With the exception of the CCC meeting held on the 28 July 2009 where MCO conducted a presentation on environmental monitoring, monitoring results are generally not presented at the CCC meetings. | Non compliant<br><br>**Recommendation:**<br>Present a summary of water monitoring at CCC meetings. |
| WMP-3 | The DECCW will be notified by telephoning the EPA pollution line of any incidents causing or threatening to cause material harm. | During the audit period two incidents occurred which required reporting to the DECCW. These incidents were reported to the DECCW as required.<br>On the day of the May site visit an incident occurred relating to the discharge of process water into a sediment dam on Bora Creek. No water discharged from the sediment dam. This incident was reported to the DECCW on the same day. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| **Surface Water Monitoring Program** | | | |
| SWMP-1 | A new stream flow and water quality monitoring gauging station is to be installed (SW 11). Instrumentation comprising a data logger will be installed to monitor hydrometric and water quality data including flow, level, salinity, temperature, turbidity, pF and DO. | A data logger has not been installed at this location. Grab samples are taken on a monthly basis and analysed for physical and chemical parameters.<br>Stream flow monitoring has not been undertaken at this location. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan. |
| SWMP-2 | Three new stream flow and water quality monitoring gauging stations are to be installed (SW 12, SW 13 and SW 14). Instrumentation comprising a data logger will be installed to monitor hydrometric and water quality data including flow, level, salinity, temperature, turbidity, pF and DO. | Data loggers have not been installed at these locations. Grab samples are taken on a monthly basis and analysed for physical and chemical parameters.<br>Stream flow monitoring has not been undertaken at these locations. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan including installation of data loggers. |
| SWMP-3 | The baseline water quality monitoring program that has occurred over recent years at points along the stream network upstream and downstream from the mine site will be continued. Data loggers will be installed at each of SW 1, SW 2 and SW 5 monitoring sites to record pH, temperature, salinity and turbidity. | Data loggers have not been installed at these locations. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan including installation of data loggers. |
| SWMP-4 | A new water quality site SW 10 will be trialled throughout construction. The site will be monitored in accordance with other water quality sampling. | Water quality site SW 10 was established however no water samples were taken during the audit period as the site was dry on all monitoring occasions. | Compliant |
| SWMP-5 | Stream flows and physical water quality constituents will be logged continuously at each of SW 11, SW 12, SW 13 and SW 14 monitoring points. Water quality data (pH, DO, temperature, conductivity and flow) will be downloaded on a monthly basis. | As loggers were not established at these locations continuous monitoring data is not available. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| SWMP-6 | Water quality sampling will be undertaken on a fortnightly basis at each of SW 1, SW 2, SW 5, SW 11, SW 12, SW 13 and SW 14 monitoring sites. Sampling will be carried out as a combination of a manual grab sample and direct read measurements. Samples will be tested for standard metals and physical characteristics. | Water quality sampling in the form of grab samples has been carried out at the specified locations however on a monthly basis as opposed to fortnightly as specified in the Plan.<br>The samples were tested for the analytes specified in the Plan. | Non compliant<br><br>**Recommendation:**<br>Ensure the frequency of future surface water monitoring is implemented as per the approved Water Management Plan. |
| SWMP-7 | Episodic water quality monitoring will also be undertaken at SW 1, SW 2, SW 5, SW 11, SW 12, SW 13 and SW 14 following significant rainfall events. | It was reported that water quality monitoring is being undertaken following significant rainfall events at the listed locations with the exception of locations SW 13 and SW 14. It was reported that locations SW 13 and SW 14 are difficult to access due to steep banks and pose a safety hazard for the sampler.<br>Alarms have been established which send an SMS to the Environmental Coordinator when 28 mm of rain has been recorded at the MCO weather station and again when 30 mm of rain has been recorded. This enables the Environmental Coordinator to organise water samples to be collected.<br>The auditors reviewed the excel workbook ('Moolarben_2010_SW database') containing all the surface water quality results. A tab titled 'non routine' was observed. The reason for the non routine sampling or the mm of rain which fell is not recorded. | Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented at the locations specified by the approved Water Management Plan.<br><br>Include the reason for the non routine sampling and the amount of rain in the 'non routine' spreadsheet. |
| SWMP-8 | Water levels will be recorded in all on-site water treatment ponds / dams (including sedimentation dams. | Monthly surveys are undertaken of storage dams. The auditors reviewed the excel workbook 'DAM VOLUMES' which included survey results (RL readings) and volume (ML) measured on a monthly basis since 1 September 2009 for the clean water dam, dirty water dam, sediment dam 1, emergency tailings dam, borrow pit and OC10. | Compliant |
| SWMP-9 | Periodic water quality sampling will be undertaken at all water treatment ponds / dams (including sedimentation dams) | Monthly water quality sampling is undertaken at Dam 6 and Dam 7. | Compliant<br><br>**Recommendation:**<br>Include more specific requirements for water treatment pond water quality monitoring in the revised Water Management Plan. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| SWMP-10 | Surface water quality monitoring and sample collection, storage and transportation will be undertaken in accordance with the procedures outlined in the relevant parts of AS/NZS 5667-1998 (AS 5677) Water Quality Sampling. | During the reporting period no written procedures were available for water quality monitoring.<br>A written procedure 'Environmental Guidelines for Surface Water Monitoring' was prepared in January 2010.<br>MCO could not demonstrate that water quality sampling conducted during the audit period was being undertaken by a suitably qualified person. Refer to discussion below. | Non Compliant<br><br>Refer to recommendation below regarding requirement for MCO to demonstrate monitoring contractor has undertaken appropriate training and is suitably competent. |
| SWMP-11 | Laboratory analysis for turbidity and sulphate will be undertaken by a laboratory which has relevant accreditation by NATA. | Laboratory analysis is undertaken by ALS which is a NATA accredited laboratory. | Compliant |
| SWMP-12 | Stream Health Monitoring program<br>A comprehensive Stream Health Monitoring Program has been prepared by Marine Pollution Research (included as Appendix C2 of the Water Management Plan). | Stream health monitoring is undertaken by Marine Pollution Research.<br>The Spring 2008 and Autumn 2009 stream health monitoring reports were reviewed by the auditor. Whilst the reports indicate monitoring was generally being undertaken as per the Stream Health Monitoring Program the following were not being conducted:<br>- RCE stream condition indices were not compiled; and<br>- A detailed comparison of the species diversity and SIGNAL indices against other site indices within the survey and over time was not undertaken. | Non Compliant<br><br>**Recommendation:**<br>Marne Pollution Research should compile the RCE indices for each site as detailed in the Stream Health Monitoring Program.<br><br>**Recommendation:**<br>MCO should ensure it or its consultants conduct a more detailed assessment of the results of the stream health monitoring by comparing the three site indices within each survey and comparing changes in the indices for each site over time as detailed in the Stream Health Monitoring Program. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| SWMP-13 | Channel Stability Monitoring Program<br>Channel stability monitoring will be undertaken for the Goulburn River, Bora Creek and Moolarben Creek.<br>At each of these locations the following will be undertaken prior to the commencement of mining operations, then on an annual basis or following significant rainfall events:<br>- documenting locations and dimensions of significant erosive or depositional features, establishing photographic points, written descriptions of the stream at each of the photographic points focussing on evidence of erosion and exposed soils and cross sections at strategic locations. | The baseline assessment of channel stability was conducted by GSS Environmental in September 2009. The auditors viewed the report: "2009 Channel Stability Monitoring Program" dated November 2009.<br>The survey identified some sections of Bora Creek and Moolarben Creek were degraded and actively eroding due to natural influences, exacerbated by past land clearing and agricultural practices, not associated with recent MCO construction activities. The survey alternately recognised some sections of each creek displaying very stable environments, with respect to their low erosion potential.<br>The next monitoring round is due in September 2010 or following a significant rainfall event. | Compliant<br><br>**Recommendation:**<br>It is recommended that the Plan is revised to further define 'significant rainfall events so as to provide a more definite trigger for additional channel stability monitoring.' |
| SWMP-14 | Photographic monitoring sites will be established at Bora Creek confluence, Moolarben Creek confluence, Ulan Creek confluence and "the Drip" and "corner Gorge". | It was reported that photographic monitoring sites have been established at all the listed locations with the exception of Ulan Creek confluence, "The Drip" or "Corner Gorge". | Non Compliant<br><br>**Recommendation:**<br>Ensure future photographic monitoring is implemented at the locations specified by the approved Operational Water Management Plan. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| **Groundwater Monitoring Program** | | | |
| GMP-1 | The groundwater model will be calibrated annually by a qualified hydrogeologist. Annual predicted drawdown levels for each piezometer will be determined as part of this annual groundwater model calibration. Groundwater monitoring will be compared against these values to determine compliance with trigger levels. | MCO reported that its expert hydrogeologist, Aquaterra, advised that calibration of the model was not required during the audit period as mining activities were yet to commence.<br>MCO reported that it intends to undertake the model calibration during 2010. | Compliant |
| GMP-2 | Groundwater extraction volumes – weekly totals from all pumping bores and construction sumps. Total pumped volumes from the pits will be measured by means of in-line flow meters associated with in-pit sumps pumps. | Pumping volumes from pumping bores were reportedly being monitored weekly.<br>Pumped volumes from pits were not measured during the audit period. | Non compliant<br><br>**Recommendation:**<br>Ensure future groundwater monitoring is undertaken in accordance with revised Operational Water Management Plan. |
| GMP-3 | Groundwater discharge quality – weekly measurements on site of the EC and pH of each groundwater extraction including bores, open cut pit sumps and underground pumping stations. | It was reported that this was not undertaken during the audit period and has been taken out of the revised Operational Water Management Plan. | Non Compliant<br><br>**Recommendation:**<br>Ensure future groundwater monitoring is undertaken in accordance with revised Operational Water Management Plan. |
| GMP-4 | Quarterly sampling from all pumping bores and any groundwater make from construction sumps for comprehensive laboratory analysis will be carried out to assess changes to groundwater hydrochemistry. | The excel spreadsheet 'Moolarben_2010_GW database' was observed. 103 monitoring bores have been established and are monitored on a quarterly basis. The samples are analysed for a suite of parameters as outlined in the Plan. | Compliant<br><br>**Recommendation:**<br>The Groundwater Monitoring Plan can be improved by including summarising the groundwater monitoring requirements in a table listing all monitoring locations, frequency and parameters to be analysed. |
| GMP-5 | Monthly water level measurements from the network of monitoring bores. This data will be used to assess depressurization through the measurement of prevailing groundwater levels in the rock strata and alluvial aquifers which will be compared with pre-mining levels. | Monitoring of water levels of monitoring bores is undertaken on a monthly basis. The spreadsheet summarising the water level measurements "Groundwater Levels operational program up to date" was observed. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| GMP-6 | All storage areas shall have a network of monitoring bores constructed around their perimeters. The number will be determined on a site specific basis however a minimum of one hydraulically up gradient and two down-gradient bores would be installed. | Monitoring bores were not installed around the perimeters of storage areas. It was reported that this requirement was taken out of the revised Operational Water Management Plan. | Non Compliant<br><br>**Recommendation:**<br>Consult with groundwater expert as to whether this requirement should be implemented. |

### General Recommendations

- It is recommended the surface water monitoring requirements are summarised in a table which clearly shows what parameters are to be monitored at which locations and at what frequency. The construction phase Surface Water Management Plan has this information embedded in text making it difficult to read and therefore implement.

- The use of a qualified person in undertaking environmental sampling is to ensure that sample collection, storage and transportation is in accordance with the necessary standards and MCO procedures such that MCO and others can have complete confidence in monitoring results. It is recommended that MCO ensure that they can demonstrate the competency of the monitoring contractor undertaking environmental sampling on their behalf, through adequate formal or on the job training.

### *Waste Management Plan*

The following table summarises the findings of the assessment of the implementation of the Waste Management Plan. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| WstMP-1 | Waste Minimisation<br>Weekly monitoring of waste generation will be used to identify wastage of resources | There was no evidence that weekly monitoring of waste generation to identify wastage of resources was undertaken during the audit period.<br>In December 2009, MCO's waste and recycling contractor JR Richards and Sons commenced undertaking a weekly inspection of waste storage areas. The inspection undertaken on the 16 December 2009 was observed and included comment on the following:<br>• Cleanliness of waste storage areas;<br>• Waste liquid tank volumes;<br>• Number of regulated waste receptacles and batteries awaiting collection;<br>• Evidence of hydrocarbon spills;<br>• Adequate supply of empty waste receptacles for maintenance;<br>• Pallet storage and re-use;<br>• Cleanliness of bunded areas; and<br>• General comments. | Non compliant<br><br>**Recommendation**<br>Include section on identified wastage of resources on MCO Waste Management Inspection Sheet completed by waste and recycling contractor JR Richards and Sons. |
| WstMP-2 | The ordering of stock during construction will be reviewed monthly to avoid wastage. | During construction, contractors were responsible for ordering their own stock.<br>MCO stores were reportedly only recently established.<br>There was no evidence that monthly reviews of stock ordering are being undertaken. | Non Compliant<br><br>**Recommendation**<br>Implement monthly reviews of stock ordering to avoid wastage. Outcomes of the reviews should be documented. |
| WstMP-3 | Re-use of waste materials<br>Construction timbers are to be re-used where possible | It was reported by MCO that construction timbers were re-used were possible. Where reuse was not possible it was reported that clean timber (free from paints / oils) was mulched and used for rehabilitation activities.<br>The Waste Management Inspection Sheet completed by JR Richards and Sons includes a comment on the re-use of pallets.<br>Green waste generated by site clearing works is mulched and used for rehabilitation. Stockpiles were observed during the May 2010 site inspection awaiting application on the environmental bund. | Compliant |
| WstMP- | Office and bathhouse | Effluent was being used to irrigate the | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| 4 | effluent will be treated and reused as irrigation water on rehabilitated and landscaped areas associated with the environmental bund. | environmental bund. The irrigation system was observed during the site inspection in May 2010. | |
| WstMP-5 | Recycling<br>Material that is suitable for recycling will be collected and segregated including office paper, metal and oil. | MCO has engaged JR Richards and Sons to manage waste on site including recycling and disposal.<br>JR Richards and Sons commenced weekly inspection of waste receptacles in December 2009.<br>Separate bins for paper and general waste were observed during the site inspection in May 2010.<br>Waste oil is collected in 205 L drums, 1,000 L pallacons and a waste oil tank (42,000L).<br>Scrap steel is collected in 15 metre skip bins. | Compliant |
| WstMP-6 | Waste disposal<br>All hazardous waste will be removed from site by an approved contractor. | JR Richards and Sons has been approved as the waste and recycling contractor.<br>It was reported that waste batteries have yet to be removed from site. This was reflected in the Waste Register. | Compliant |
| WstMP-7 | Only transporters that are licensed will be contracted to remove waste from site. | JR Richards and Sons is contracted to remove waste from site. JR Richards and Sons has an Environmental Protection Licence (EPL -No. 10415) for waste transporting. | Compliant |
| WstMP-8 | Waste materials which can not be either re-used or recycled are to be sent to a licensed landfill that can accept that category of waste. | JR Richards and Sons removes the waste from site and stores it at its premises prior to its landfill and recycling destination.<br>JR Richards and Sons has an EPL (No. 4995) for waste storage and recovery of general waste.<br>The final destination of the different waste streams was requested by the auditor. A table showing the destination for each waste stream and EPL number for the receiving premises was provided by MCO. | Compliant<br><br>**Recommendation:**<br>It is recommended that the final destination of wastes (both recycled and disposed) and the EPL number for licensed premise are included in the Waste Register. |
| WstMP-9 | Training<br>The site induction program will include waste management training. | Waste management was included in the Environmental and Community Relations induction during construction and is also included in the current induction. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| WstMP-10 | Waste management system monitoring<br>Conduct weekly waste assessment of all waste storage areas and containers to identify correct segregation. | MCO's waste and recycling contractor JR Richards and Sons commenced undertaking a weekly inspection of waste storage areas in December 2009.<br>The inspection undertaken on the 16th December 2009 was observed. | Non Compliant during audit period.<br>Compliant since December 2009. |
| WstMP-11 | Maintain a register of waste removed from the site.<br>This register will detail the type of waste removed from site, the quantity, the contractor who removed the waste and the destination of the particular waste. | Prior to January 2010 MCO's waste contractor JR Richards and Sons would send an email on a monthly basis summarising the type and volume of waste removed from site. An email was sighted dated 7 October 2009 summarising the waste removed during September 2009. This included general waste, recycled cardboard, septic waste and portaloos.<br>Since January 2010 JR Richards and Sons enter this information into a Waste Register which it updates on a monthly basis and provides to MCO. The Waste Register was sighted and noted to include quantities of different categories of waste recycled and disposed. The final destination of the waste (either landfill or recycling facility) was not recorded on the Waste Register. | Non Compliant<br>**Recommendation:**<br>It is recommended that the final destination of wastes (both recycled and disposed) and the EPL number for licensed premise are included in the Waste Register. |
| WstMP-12 | Waste management system reporting requirements<br>The ECRM will formally audit the progress on waste management to ensure waste reduction targets are met. | There was no evidence that formal audits on the progress of waste management or tracking against waste reduction targets was being undertaken during the audit period.<br>The Waste Register included the percentage of waste recycled. | Non Compliant<br>**Recommendation:**<br>Incorporate a discussion of waste management including progress in meeting waste reduction targets in the Monthly Environmental Monitoring Report |
| WstMP-13 | The results of waste management system implemented at MCP will be reported in the AEMR including quantities of waste removed from site either for recycling or disposal and details on the success of the implementation of the waste management system. | The 2008/2009 AEMR states that the project started generating small quantities of general waste, cardboard and effluent during the reporting period and that all waste was removed off-site and disposed of at licensed facilities.<br>It also states that during the next reporting period, MCO will implement a Total Integrated Waste Management Service to monitor and manage all waste streams generated on site, which will include general waste, cardboard and paper recycling, co-mingled recycling, waste oil and steel.<br>Quantities of wastes removed from site were not reported in the 2008/2009 AEMR. | Non compliant<br>**Recommendation:**<br>Ensure future AEMRs include quantities of wastes removed from site either for recycling or disposal as well as details on the success of the implementation of the waste management system. |

### *Aboriginal Heritage Management Plan*

The following table summarises the findings of the assessment of the implementation of the Aboriginal Heritage Management Plan. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

A key finding of the review is that the actual actions of the Plan are difficult to distinguish from the general text of the document. Hence, ensuring that actions have been completed as per the plan requirements, or auditing whether actions are completed, requires detailed reading of the whole document. As such, the document is considered problematic to implement and hence difficult to internally or externally review progress of implementation of the plan.

Other general findings include:

- The plan does not cover areas outside the construction and open cut works associated with Stage 1, hence there is no management plan covering open cut areas 2 and 3, nor Stage 2 areas.
- A Cultural Heritage Management Report (CHMR) was in Draft form and had only recently been provided to Moolarben. It was hence not available during the audit period.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AHMP-1 | 2.1 Prepare a Cultural Heritage Management Report (CHMR) | A CMHR was sighted in the second inspection in May 2010. This was recently supplied to Moolarben. As such it had not been developed at the time of the first site visit. URS has not assessed the adequacy of the CHMR. | Non compliant during audit period.<br><br>Compliant as at May 2010. |
| AHMP-2 | 2.1.2 Assessment and reporting of salvage works to DoP, DECCW and Aboriginal Community Stakeholder groups. | As the CHMR document was still in Draft this was yet to be undertaken. | Not Compliant<br><br>**Recommendation:**<br>Upon finalisation of CHMR ensure it is submitted to the DoP, DECCW and Aboriginal Community Stakeholder groups. |
| AHMP-3 | 2.2 Conservation of Sites | Conservation of the Stage 1 sites in the Bora Creek area was sighted. These included fences, locked gates and some signs indicated that Aboriginal artefacts were present. No disturbance of the Stage 1 area was noted other than piles of dirt from sampling/sieving activities made during survey work. | Compliant |
| AHMP-4 | 2.3 Monitoring of Construction Impacts | Site indicated that for the recent works of the clean water diversion entering Bora Creek (outside the audit period), monitoring was conducted to specifically investigate the excavated areas. Other areas monitored included the Rail Lop and the Northern borefield. | Compliant |
| AHMP-5 | 2.4 Aboriginal Awareness Training | Induction Training course was sighted and did include a brief section on Aboriginal Heritage Items and their protection. It did not cover cultural heritage awareness.<br>Site indicated they have spoken to some members of the aboriginal stakeholder groups about making an aboriginal cultural awareness programme for staff. | Non-compliant. Current works limited to brief induction. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AHMP-6 | 2.5 Salvage | The salvage of artefacts has been managed by ARAS (Giles Hamm). The CHMR does indicate general compliance, however, URS has not assessed it for full compliance with the EMP. | Not fully assessed. The CHMR demonstrates general compliance but has not been reviewed in full by URS. |
| AHMP-7 | 2.6 Assessment of aboriginal heritage values programme. | Not conducted as of May 2010. | Not compliant<br><br>**Recommendation:**<br>An aboriginal heritage values programme should be developed and used for training of all relevant staff and contractors. |
| AHMP-8 | 2.7 Discovery of skeletal remains. | None identified so requirements of Plan not tested. | Not Applicable. |
| AHMP-9 | 2.8 Aboriginal Consultation Protocol | The exact requirements for the consultation are not detailed in the Plan. Moolarben do not have a formal strategy or protocol for consultation with aboriginal stakeholder groups and no formal process for consultation appeared to be in place for the construction period.<br>Based on review of some complaints and correspondence from some aboriginal stakeholder groups, there are poor relationships between site and some groups.<br>Site have recently (April 2010) held a consultation meeting with aboriginal stakeholder groups which was indicated to be a commencement of improved consultation with aboriginal stakeholder groups | Not Compliant.<br><br>**Recommendation:**<br>Moolarben should develop and implement a strategy for communication with Aboriginal stakeholder groups. This should form part of the Plan.<br><br>**Recommendation:**<br>All comments from LALC's and interested parties should be assessed as being complaints and managed through a formal process such as a complaints process to ensure the adequate and documented response to issues identified by the communities.<br><br>**Recommendation:**<br>Consultation and formal conversations with aboriginal groups and the general community should be documented systematically for future reference and compilation of commitments made. |
| AHMP-10 | 2.9 Native Title | No action was reported on native title claims. | Not Applicable. |
| AHMP-11 | 3 Aboriginal Non Compliance Reporting Procedure | A brief flow chart has been develop in the Plan. Other processes are generally used, as the process flow chart is relatively basic. | Compliant<br><br>**Recommendation:**<br>The non compliance reporting flow chart should be updated to reflect the detail of actual MCO processes undertaken. |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| AHMP-12 | 3.1 Standard work practices | Aboriginal sites were observed to be kept intact on Stage 1 area and managed to avoid impacts.<br>Aboriginal sites along a road in the Stage 2 area were observed to have been damaged to some extent. This damage has been communicated to the DoP in various correspondence in April and May 2010.<br>Work practices do not spell out clearly the roles and responsibilities of all staff in managing aboriginal cultural heritage resources as required in the Plan.<br>Some aboriginal sites were identified in the field, but not if they were suitably remote. Stage 2 works were not covered in the Plan.<br>Supervisors and plant operators, nor recently Moolarben management were aware of the aerial extent of the sites. All sites have been recorded with an X-Y grid coordinate. Site indicated that the management of many sites with greater than one artefact was difficult without knowing the extent of the location of the artefact. Outside of site management and surveyors, there is limited knowledge on exact locations of sites.<br>Plans and operation notes do not show the location of known aboriginal sites – the sites are located on Map info and can easily be assessed if required. | Non Compliant (Some aspects)<br><br>**Recommendation:**<br>It is recommended that Moolarben:<br>- Ensure all relevant people are aware of the location and extent of sites;<br>- all staff are adequately trained for their roles and responsibilities for the management of aboriginal artefacts;<br>- all relevant plans include locations of the sites (as appropriate) |
| AHMP-13 | 3.2 Notification | No known artefacts were encountered, hence this requirement not tested. | Not Applicable |
| AHMP-14 | 3.3 On site Auditing and Monitoring | No audits have been conducted. | Not Compliant.<br><br>**Recommendation:**<br>It is recommended that the site's approach to managing aboriginal artefacts and aboriginal stakeholders is reviewed and audited as per the requirements of the Plan. |
| AHMP-15 | 3.4 Emergency Response Procedure | None identified, so requirement not tested. | Not Applicable |
| AHMP-16 | 4 Record Management | Cultural Heritage site records are on one site register. CHMR provides information/records on many aspects of the requirements of the CHMP. | Compliant, although MCO is working towards better collation of information on Aboriginal sites from the heritage consultant. |

**General Recommendations:**

- It is recommended that an overall review of the management of heritage aspects including stakeholder consultation is undertaken. This could be done as part of the audit requirements as

detailed in Section 3.3 of the Plan. Of particular note in the review should be: there is no plan covering stage 2 works; and the issues facing aboriginal group stakeholder management.

- Site should ensure that artefacts identified in Stage 2 works are managed proactively, even in the absence of a management plan that covers these areas. Consultation should continue with DoP regarding formalising a plan for these areas and in addressing aspects of the potential for impact to sites in Stage 2 areas.

It is noted that Aboriginal Cultural Heritage experts were not part of this audit, and further specific review is required to fully assess the site's compliance with its Aboriginal Cultural Heritage responsibilities under the Plan and Project Approval Conditions.

### *Heritage Management Plan*

The following table summarises the findings of the assessment of the implementation of the construction phase Heritage Management Plan. The list of requirements is not exhaustive but represents a sample of the key requirements / commitments specified in the plan.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| HMP-1 | The site induction program will include heritage management training. | Heritage management was included in the Environmental and Community Relations induction during construction and is also included in the current induction.<br>The induction included a map showing locations of known heritage items and a description of the protocol for new / uncovered heritage items. | Compliant |
| HMP-2 | Sites 13 and 14 will have a star picket fence with four strands of wire erected around the cartilage of the item to prevent vehicular access and restricting pedestrian access to authorised personnel only.<br>Signage will be erected on the fences at each of the sites advising "Heritage Site – no unauthorised entry" | It was reported that sites 13 and 14 were not fenced and signposted as the sites were outside the construction areas active at the time. | Non compliant<br><br>No further recommendations as sites have been captured by the archival recording program. |
| HMP-3 | Conduct site inspections of site 13 and 14 to verify no unauthorised access or impacts / damage has occurred to the sites and that fencing and signage is secure and in place. | Sites 13 and 14 were not actively inspected during the construction period as the sites were outside the construction areas active at the time.<br>The Environmental Coordinator escorted the heritage consultants to the sites at the time of archival recording and did not note any disturbances to the sites. | Non compliant<br><br>No further recommendations as sites have been captured by the archival recording program. |
| HMP-4 | Accompany any member of the public to the site, following a site induction, to view the items. | It was reported that no members of the public requested to see heritage sites 13, 14 or 15. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| HMP-5 | Prepare a report on the conditions and structural integrity of sites 13 and 14. | The archival recording program for Stage 1 was completed in September 2009. A report titled "*A Photographic Archival recording of Rural Heritage in the Moolarben Coal Operations Area, NSW Volume 1: Report October 2009*" was produced by heritage consultants, Stedinger Associates Heritage and Archaeology. | Compliant |
| HMP-6 | Recordings undertaken in accordance with Heritage Office of NSW by approved heritage consultant | Refer above.<br>The report was prepared by Heritage consultants, Stedinger Associates Heritage and Archaeology. | Compliant |
| HMP-7 | Discovery of previously undocumented items of European heritage during construction phase to be managed in accordance with the Heritage Management Incident Protocol. | It was reported by MCO that there were no new relics identified during the construction period. | Compliant |

### *Energy Savings Action Plan*

The following table summarises the energy management actions that had completion dates within the audit period and summarises the status of implementation of these actions.

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| ESAP-1 | Investigate corporate policy for energy management and respect to energy savings. Example are targets set and reported on website? | A corporate policy for energy management or energy savings is yet to be developed.<br>Energy savings targets are yet to be established. | Non compliant<br><br>**Recommendation:**<br>Develop corporate policies for energy management and energy savings.<br>Set energy savings targets and report progress against these targets. |
| ESAP-2 | Include energy efficiency information in tender specifications. | Energy efficiency information has not been included in tender documents | Non compliant<br><br>**Recommendation:**<br>Include energy efficiency information in tender specifications. |
| ESAP-3 | Investigate how to monitor diesel consumption, energy consumption. | Diesel consumption and energy consumption are monitored using information provided on supplier invoices. | Compliant |

## 6 Review of the Environmental Management System

| Ref No. | Requirement | Evidence of implementation | Compliance Status |
|---|---|---|---|
| ESAP-4 | Comply with EEO and NGER legislation | Based on the projected annual electrical and diesel energy use presented in Appendix II to the Energy Savings Action Plan, MCO would meet the thresholds required for reporting under NGERS. | Indeterminate<br><br>**Recommendation:**<br>Assess whether NGERS reporting thresholds have been met for the 2009-10 reporting period based on actual energy and greenhouse gas emissions.<br>If required register for reporting by 31 August 2010 and provide data report by 31 October 2010. |
| ESAP-5 | Include energy efficiency awareness in induction procedures and ongoing training. | Energy efficiency awareness is not included in the Environment And Community Relations Induction. | Non compliant<br><br>**Recommendation:**<br>Include energy efficiency awareness in induction procedures and ongoing training. |
| ESAP-6- | Continue awareness of legislative requirements. | It was reported that the environmental department receive regular email updates from DECCW, which include information on legislative changes.<br>It was reported that investigations into establishing an automated alert system will be conducted during the next reporting period. | Compliant<br><br>**Recommendation:**<br>Ensure that awareness extends to requirements with national legislation (e.g. NGERs) and not just State legislation. |
| ESAP-7 | Develop and Energy Management System | The Energy Action Savings Plan establishes the foundations of an Energy Management System. The Plan outlines objectives and actions for achieving energy reductions. The Energy Management System has not been implemented. | Non compliant<br><br>**Recommendation:**<br>Implement Energy Management System |
| ESAP-8 | Further investigate the potential use of hybrid diesel/LNG engines for mining fleet. | No investigations have been undertaken. | Non compliant<br><br>**Recommendation:**<br>Investigate the potential use of hybrid diesel/LNG engines for mining fleet. |
| ESAP-9 | Investigate the efficiencies of the specified transformers and look at cost/benefits of upgraded equipment. | It was reported that MCO has purchased reputable, quality Wilson transformers and will be installing Power Factor Correction equipment. | Compliant |
| ESAP-10 | Moolarben Coal will specify the use of energy efficiency equipment and will ensure that pumps are sized correctly for the production throughput of the CPP | It was reported that MCO has installed high efficiency motors, where available, and have sized the pumps correctly to the production requirements of the process. | Compliant |

## 6.6 Environmental Management Systems Recommendations

The following recommendations for improvement in environmental management were identified by URS during the site visit:

- It is recommended that MCO conduct a site wide Environment and Community Risk Assessment to identify and assess such risks and assess current management mechanisms for these risks. The risk assessment should be repeated at suitable intervals, which, given the current levels of change due to construction and new mining activities, should be frequent;
- It is recommended that MCO investigate the need for a more formal and structured Environmental Management System. It is recommended that MCO further develop their environmental management systems to be compliant with the requirements of ISO 14001. At minimum, the EM Strategy should be reviewed and updated against the requirements of ISO14001:2004;
- Part of the above recommendation would be the development of a regular process to assess compliance of the operations with consent conditions, other legal requirements and to assess the level of implementation of the relevant plans as required by legislation;
- Current Environmental Inspections should be documented through a formal process to record dates, findings, actions required and responsibilities. The outcomes should be auditable, so as to demonstrate a continuous improvement process and close out process for all corrective actions;
- The site has developed and implemented an Air Quality Monitoring Program, but not an *Air Quality Management Plan*. This was recognised as an oversight in the planning requirements. An Operational Air Quality management Plan has been prepared and was submitted to the DoP for approval on the 16th November 2009;
- Further and more specific training be given to employees on the contents and requirements of management plans regarding specific controls, as relevant;
- The responsibilities for Environmental Management should be distributed across all relevant staff; not focussed on the Environmental Management team, who may be more effectively employed in an overseeing/review role rather than implementation role;
- The EM Strategy, once reviewed and updated, should be implemented, and observations on the implementation of the EM Strategy addressed.

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# Observations, Site Inspection May 2010

As indicated in Section 1, a second site visit by URS was conducted in May 2010 to conduct further verification activities. While the audit period did not change (ending in November 2009), some observations made during the May site visit were considered worthy of inclusion in this report. These are listed below. In addition, some of the photos in Appendix C provide a comparison of the site condition between both site visits. Photos 16 to 28 were taken in May 2010.

### *Noise*

During the audit period, site hours of operation were limited to daytime hours. In January 2010 a second excavator was commissioned and in April 2010, an afternoon shift was added, with the afternoon shift ending at 12:30am. Mining and rehabilitation activities were being undertaken to the south, closer to some sensitive receivers. These events corresponded to an increase in noise complaints and led to various compliance issues. These have not been assessed in this report as they are outside the audit period.

### *Air*

During the May 2010 site visit, dust issues were visibly reduced as compared to the December 2009 visit due to a number of factors. These included that: works in May 2010 were now mostly below the surface soils which had high dust generating characteristics not unlike those of “flour”; significant rehabilitation works having been completed, particularly in the construction area; progress in rehabilitation and soil stabilisation works (as described below) and wetter weather having improved the dusty conditions encountered in the previous site visit.

### *Rehabilitation and Erosion and Sedimentation Controls*

Moolarben have been proactive in improving the management of erosion and sediment controls through conducting rehabilitation and soil stabilisation works. Various initiatives have been put in place including:

- An audit of the previous extent of erosion and sediment control issues and development of an action plan to address issues;
- The laying of 100,000 $m^2$ of jute mesh over bare ground with seeding of these areas;
- Establishment of clean water diversions to avoid mixing with “dirty” waters;
- Improvement of rock lined drains and general drainage;
- Commencement of rehabilitation works on the environmental bund;
- Review of sedimentation dam capacity and installation of significantly more volume for retention of waters on site;
- Various other works.

Given the above initiatives, it is considered that the site’s risks relating to erosion and sediment issues have decreased since the previous site visit in December 2009. Areas with improved soil stabilisation works (as compared to December 2009) can be seen in photos 18, 19 and 20 (Appendix C).

### *Aboriginal Cultural Heritage*

During the May 2010 site inspection, URS observed the areas around Bora Creek where some aboriginal artefacts are located. The areas were observed to be fenced off, signed, and a locked gate restricted access. No recent disturbance was noted, other than disturbance due to the original sampling of the area for artefacts. Other artefact areas were noted to be in remote areas to east of

the Open Cut No. 1. These areas were not visited by URS, and were indicated by the site to be protected by their remoteness.

Following the first site visit in December 2009, and prior to the second site visit in May 2010, complaints were made to the site and DoP regarding disturbance of aboriginal artefacts due to the grading of an unsealed access track within the Stage 2 Area in April 2009. The issue has been the subject of communication between site and the DoP. URS did not make observations that contradicted the communications from site to DoP on the issue.

### *Water*

Some commissioning activities relating to the use of pumps from the process water dam to the Coal Handing Plant were observed during the May site inspection. At the time, water was observed to be discharging from a pipe to ground and to a sediment pond in Bora Creek. On noting the discharge, site management turned off the pumps and pumped out the sediment pond in Bora Creek to a dirty water pond on site. The discharge was reported to DECCW on the day and in the form of a report within one week of the event. URS did not conduct a review of the underlying causes of the discharge, however, potential causes could have included:

- Lack of effective training of all staff and contractors involved in construction, commissioning and operations on the environmental sensitivities of the site including water management;
- Lack of formal procedures on change management such as conduct of a risk assessment for the commissioning task;
- Lack of the defining of responsibilities in relation to checking operations were in line with site requirements.

The introduction of more formal systems of environmental management (as outlined in the recommendations section of this report) could minimise the potential for further discharge events to occur.

### *Waste*

MCO has engaged JR Richards and Sons to manage waste on site including recycling and disposal.

In December 2009 JR Richards and Sons commenced conducting weekly inspection of waste receptacles. The inspection includes comment on; cleanliness of waste storage areas; waste liquid tank volumes; number of regulated waste receptacles and batteries awaiting collection; evidence of hydrocarbon spills; adequate supply of empty waste receptacles for maintenance; pallet storage and re-use and cleanliness of bunded areas.

Prior to December 2009 MCO's waste contractor JR Richards and Sons would send an email on a monthly basis summarising the type and volume of waste removed from site. Since December 2009 JR Richards and Sons enter this information into a Waste Register which it updates on a monthly basis and provides to MCO.

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# Summary of Non Compliances and Recommendations

A number of non compliances have been indentified with the Project Approval Conditions, EPL conditions and implementation of the Management / Monitoring Plans. These non compliances as well as the requirements assessed as indeterminate and the associated recommendations have been consolidated and are summarised in Table 8-1 below. Additional recommendations made throughout the report not necessarily associated with non compliances are summarised in Table 8-2.

# 8 Summary of Non Compliances and Recommendations

**Table 8-1 Summary of non compliances and recommendations of Independent Environmental Audit**

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Project Approval Conditions** | | | |
| PAC 2/1 | The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project. | Several non compliances have been recorded relating to the two environmental incidents referred to elsewhere in the report. Other than where issues have been identified, in general the site appeared to be compliant with most conditions of consent in the Project Approval and associated with the site's EPL and MLs.<br>Key areas of concern related to the management of erosion and sedimentation risks and the implementation of effective controls. These and other non-compliances observed are further discussed in relevant sections of this compliance table. | Non Compliant<br><br>**Recommendation:**<br>As per specific recommendations made throughout the report and Appendices. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 2/2 | The Proponent shall carry out the project generally in accordance with the:<br>(a) EA;<br>(b) statement of commitments; and<br>(c) conditions of this approval. | MCO have constructed the Rail Loop across Bora Creek and as part of this work had effectively blocked the Creek. This situation arose as a result of the design and construction methodology of installation of culverts in the creek. At the time of the December 2009 site visit, the culverts were in place, but boarded up by wooden panels, aimed at preventing sediment laden water passing through the culverts in the event of heavy rain. That the creek was blocked formed the part of the incident in June 2009. Site staff indicated that the barricade remained in place as they saw this as the best means of sediment control of the creek below.<br>URS could not sight any approval to block the creek, and did not sight in the EA documents an approach that involved blocking the creek. As such, URS could not sight approvals for this construction methodology.<br>An incident of unauthorised clearing occurred along the Mining Lease boundary, not in accordance with the Project Approval. Approximately 4 Ha of vegetation was cleared to facilitate the installation and ongoing maintenance of a fence along the mining lease boundary line. An investigation into this incident was undertaken by DoP with a subsequent prosecution occurring in March 2010.<br>The above comments were observed during the audit process and assessment of the Conditions of Approval. URS has not completed a detailed assessment against all of the specific requirements as stated in the EA or the Statement of Commitments. | Non compliant in respect of issue indicated above.<br><br>**Recommendation:**<br>As per specific recommendations made throughout the report and Appendices. |
| PAC 2/8 | The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA. | At the time of the end of the audit period to November 2009, MCO stated that no Construction Certificates (CCs) or Occupation Certificates (OCs) were in place for any of the structures present or under construction at the site. A visit from MWRC was planned for early December, in order to obtain some certification for buildings and structures already in place, and for those planned and under construction. MCO pointed out that much of the delay in obtaining these lay with Council.<br>MCO indicated that they were very confident that there were no shortcomings in the design of the buildings and structures on the site. | Non Compliant<br><br>**Recommendation:**<br>MCO should endeavour to accelerate the Construction Certificate process to comply with Council building requirements. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/6 | The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project combined with the traffic noise generated by other mines does not exceed the traffic noise impact assessment criteria in Table 4 of the PAC. | Monitoring to assess compliance with the traffic noise impact assessment criteria was not undertaken during the audit period therefore MCO can not demonstrate compliance with the above criteria. | Non Compliant<br><br>**Recommendation:**<br>Implement traffic noise monitoring and analysis to enable assessment of compliance with the traffic noise impact assessment criteria. |
| PAC 3/7 | The Proponent shall prepare and implement a Construction Noise Management Plan for the project to the satisfaction of the Director-General. | The CNMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.5of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |
| PAC 3/10 | The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. | The NMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Program. These are discussed in Section 6.5of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/21 | The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria in Tables 7, 8, and 9 at any residence on privately owned land, or on more than 25 percent of any privately owned land. | ***$PM_{10}$***<br>For assessment of compliance against the 24 hour criterion for $PM_{10}$, URS performed a review of the MCO monitoring data as presented in the 2008/2009 AEMR and monthly monitoring reports (September 2009 to October 2009 inclusive). There were a total of 14 days in the period after the commencement of significant construction activities, where exceedances of the 50 µg/$m^3$ goal were reported at MCO monitoring sites.<br>The monthly monitoring reports provide explanations where exceedances of the 50µg/$m^3$ goal are reported in the monitoring data. Some of these explanations are not adequate for demonstration of compliance with the impact assessment criteria.<br>URS air quality expert reviewed data available at: http://www.environment.nsw.gov.au/AQMS/dailydata.htm to check for the presence of widespread elevated dust levels, for days where exceedances of the 50µg/$m^3$ goal were reported at MCO monitoring sites.<br>Dust storms were present for a large part of 2009, where wind blown dust originating from the dry arid regions near to central Australia was transported across New South Wales. The 24 hour $PM_{10}$ concentrations obtained from MCO's loggers was compared with results obtained from the DECCW website and indicated that dust levels were likely to be elevated on a regional scale for the majority of days where exceedances of the 50µg/$m^3$ goal were reported at MCO monitoring sites. | Indeterminate for 24 hour $PM_{10}$ criteria<br><br>**Recommendations:**<br>Analysis of $PM_{10}$ exceedances would be improved by presenting the data at a higher resolution. $PM_{10}$ levels, wind direction and wind speed will vary significantly within a 24 hour period such that detail (which is valuable to the analysis) is lost if averaged out to 24 hours. In addition, worst case dispersion conditions are likely to occur under calm and stable meteorology, where analysis based on wind direction is of lesser value, and spatial variation in wind direction (e.g. between a dust emission source and the weather station) is greater.<br><br>For days on which the 50 µg/$m^3$ goal is exceeded, a time series of dust levels (at each monitor) against wind direction and wind speed (using a higher resolution dataset, e.g. 10, 30 or 60 minutes) would allow an improved assessment of MCO's potential contribution to $PM_{10}$ levels. This would improve the integrity of the analysis.<br><br>Pending the suitability of the anemometer (siting, instrument type/wind speed and direction starting thresholds) wind direction could also be presented for the calm conditions and this data included in dust roses for the 24 hour period. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/21 | | There were three days where it was not clear as to whether MCO's results constitute additional exceedances of the 50µg/$m^3$ goal. Dust storms were present across NSW around the times of the exceedances. For example, dust storms swept across NSW on the week in which the 16/11/2009 and 17/11/2009 exceedances were reported. In contrast, on the days on which the 50µg/$m^3$ goal was exceeded, some of the regional monitoring sites dust levels are well below the goal, indicating the some of the dust was likely to be locally generated.<br>For assessment of additional exceedances, MCO need to present further analysis and justification of its contribution, which would ideally include observations of dust sources at the time of the exceedance, and time series charts of dust levels and meteorological conditions throughout the day.<br>Refer to Appendix A for further details.<br>***TSP***<br>No evidence of monitoring of TSP was observed. It was noted that the EPL did not require the measurement of this parameter, although it was included in Table 7 of the Approval Condition. MCO stated that the EA had discussed the direct correlation between $PM_{10}$ and TSP results and that the $PM_{10}$ data obtained by monitoring allowed the comparison with TSP criteria to be undertaken by extrapolation. MCO considered that they were undertaking the monitoring activities in line with the approved AQMP. Compliance with the annual average $PM_{10}$ criterion is generally indicative of compliance with the annual average TSP criteria. However, the AEMR should include some consideration of TSP compliance. Otherwise, MCO should seek to have the TSP criterion removed from the condition if they do not intend to undertake TSP monitoring. | |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/21 | | ***Deposited Dust***<br>URS reviewed deposited dust monitoring results for the period to November 2009. Approximately 49% of records were contaminated with organic matter such as bird droppings, leaves (representing an increase over the previous reporting period in which 31% of results were affected). Bird deterrent rings were installed on all dust gauges at the end of July 2009, with a reduction in contamination from bird droppings observed in August 2009. As outlined in the Air Quality Monitoring Program MCO (2008), contaminated results are excluded from the annual average. This is considered to be an appropriate approach for cases where the sample integrity has been compromised. All uncontaminated results were below the annual average dust limit of 4 $g/m^2$/month.<br>The introduction of control measures resulted in an improvement in quality of data from those monitoring locations which were previously subjected to excessive contamination. For example, at the time of writing, it is noted that in the previous 6 months of reporting (November 2009 to April 2010), 13% of dust deposition samples (7 out of 54 samples) were reported to be contaminated, which is a significant reduction below the contamination rate of 49% reported in the previous monitoring period. This may be due to the success of the bird deterrent rings, or due to variation in seasonal patterns which affect the amount of natural interference present.<br>The AQMP for the site identifies that due to existing (baseline) dust deposition levels of less than $2g/m^2$/month, "In all locations…. …MCM will have a statutory limit of 2 $g/m^2$/month increase in total dust deposition above background dust levels." Whilst MCO are compliant with the 2 $g/m^2$/month increase (above the baselines identified in the AQMP) at all locations, future reporting should include reference to and assessment against the incremental guideline. | |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/24 | The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. | The AQMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Program. These are discussed in Section 6.5of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |
| PAC 3/30 | The Proponent shall ensure that all surface water discharges from the site:<br>(a) meet the relevant ANZECC water quality objectives for the protection of aquatic ecosystems and the water quality of existing receiving waters; and<br>(b) comply with the discharge limits (both volume and quality) set for the project in any EPL. | Prior to the date of the first site inspection the site had experienced long periods of dry weather, and MCO stated that no licensed discharges had taken place to the end of the audit period.<br>Unlicensed discharges to Bora Creek occurred during June 2009 and are referred to in an incident report and in the AEMR. Measurements undertaken at the time indicated that the water discharged would not have met the criteria, due to the high sediment loading. Elevated turbidity and TSS measurements were observed from Bora Creek approximately one week after the first two discharge events.<br>The source of the high sediment content of the discharges is attributable to the extensive areas of disturbance from construction activities and the limited effectiveness of erosion and sediment controls in place. This is discussed in detail in the main section of the report. | Non Compliant<br><br>**Recommendation:**<br>Refer to Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/32 | The Proponent shall ensure that the tailings dam, mine infrastructure dams, groundwater storage and treatment dams, and the Ulan Seam sub-crop line of the most northerly final void are suitably lined to comply with a permeability standard of < 1 x $10^{-9}$ m/s. | MCO stated that all the water storage features completed to date had been constructed using suitably compacted clays and tested to confirm the permeability of the lining. At the time of the end of the audit period, only the emergency tailings dam was incomplete.<br>The permeability of the final void linings would be addressed when appropriate.<br>The clay lining could be observed on the base of several of the water storage features under construction in the rail loop area at the time of the December 2009 site visit.<br>Macquarie Geotech undertook geotechnical testing and assessment of the emergency tailings dam, western tailings dam, product dam and clear water dam (report dated 14 August 2009). The in-situ soils were tested to determine if lining of the dams was required. The report concluded that the permeability of the emergency tailings dam, western tailings dam and clear water dam met the minimum requirement of 1 X $10^{-9}$. Further testing of the permeability of the product dam north wall was recommended. There was no evidence to demonstrate that this further testing had been undertaken. | Non Compliant<br><br>**Recommendation:**<br>Under take further testing of the permeability of the product dam north wall as per recommendations in Macquarie Geotech report. |
| PAC 3/34 | The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. | The WMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Program. These are discussed in Section 6.5of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/40 | The Proponent shall progressively rehabilitate the site to the satisfaction of the DPI, in general accordance with the proposed rehabilitation and offset strategy shown in Appendix 8. | Rehabilitation measures commenced soon after the construction work commenced on the site. For example spray reseeding of some water storage dam and selected rail loop batters and related exposed surfaces was undertaken during 2009, although it was noted that the very dry conditions were not conducive to rapid growth of the seeded vegetation and limited re-growth was observed at the time of the first site visit in December 2009. At the time of the December 2009 site visit many batters, including the majority of many steep sections of the rail loop batters were still to be rehabilitated. It was considered that at the construction area, rehabilitation efforts had not kept up with the areas exposed by clearing and construction and significant areas of disturbance remained that was awaiting rehabilitation. Un-rehabilitated surfaces at the construction site represented a risk of erosion in rain events and were a potential source of dust. This is further covered in the section on Erosion and Sediment Control.<br>URS consider that MCO were not in compliance with Condition 40 (at the time of the first site inspection) to progressively rehabilitate some areas of the construction site, particularly the steep batters of the rail loop.<br>Observations made during the December 2009 site visit indicated that some areas had been spray seeded. However, many areas remained disturbed and did not appear to have been subjected to any efforts of rehabilitation e.g. steep batters of the rail loop. | Non Compliant<br><br>**Recommendation:**<br>Ensure all areas of the Rail Loop and other affected/disturbed areas are adequately rehabilitated directly after disturbance occurs or construction completed. See other recommendations regarding soil and erosion controls. |
| PAC 3/40 | | During the May 2010 site visit substantial progress had been made on soil stabilisation measures around the construction areas, and also in commencement of rehabilitation activities at the environmental bund. Observations made during the May 2010 site visit are summarised in Section 7 of this report. | |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/42 | The Proponent shall:<br>(a) revegetate at least 38 hectares of disturbed land on the "Red Hills" property (see property R14 in Appendices 5 and 8) with Yellow Box White Box Blakely's Red Gum vegetation;<br>(b) revegetate at least 153 hectares of cleared land on the "Red Hills" property (see property R14 in Appendices 5 and 8) and adjoining lands (see properties R12, R13, R15, R16, R17, R18 and R19 in Appendices 5 and 8) with suitable native vegetation to improve wildlife corridor linkages;<br>(c) conserve and enhance at least 1262 hectares of existing native vegetation onsite; and<br>(d) make suitable arrangements to protect these offset areas from development in the long term, to the satisfaction of the Director-General and DECCW. | MCO indicated that they were in the early stages of developing an Offset Implementation Strategy, identifying seed sources, a planting and establishment program and a suitable methodology to complete the program.<br>MCO indicated that a strategy for revegetating areas of MCO land with White Box Yellow Box Blakely's Red Gum vegetation will be developed during the next AEMR reporting period.<br>It was noted that no timing for the establishment of vegetation offsets is stipulated in the Project Approval Condition. | Indeterminate (on basis that there is no timing on the Condition for this to be achieved and as yet limited works have been conducted to meet this requirement)<br><br>**Recommendation:**<br>Although no timing is stipulated for progressing the vegetation offset strategy, MCO should actively develop a program to address the conditions relating to the Vegetation Offsets. This would include the pursuit of up to date advice on relevant matters concerning seed sources to be used. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/42 | The Proponent shall:<br>(a) revegetate at least 38 hectares of disturbed land on the "Red Hills" property (see property R14 in Appendices 5 and 8) with Yellow Box White Box Blakely's Red Gum vegetation;<br>(b) revegetate at least 153 hectares of cleared land on the "Red Hills" property (see property R14 in Appendices 5 and 8) and adjoining lands (see properties R12, R13, R15, R16, R17, R18 and R19 in Appendices 5 and 8) with suitable native vegetation to improve wildlife corridor linkages;<br>(c) conserve and enhance at least 1262 hectares of existing native vegetation onsite; and<br>(d) make suitable arrangements to protect these offset areas from development in the long term, to the satisfaction of the Director-General and DECCW. | MCO indicated that they were in the early stages of developing an Offset Implementation Strategy, identifying seed sources, a planting and establishment program and a suitable methodology to complete the program.<br>MCO indicated that a strategy for revegetating areas of MCO land with White Box Yellow Box Blakely's Red Gum vegetation will be developed during the next AEMR reporting period.<br>It was noted that no timing for the establishment of vegetation offsets is stipulated in the Project Approval Condition. Therefore compliance with this Condition can not be determined. | Indeterminate<br><br>**Recommendation:**<br>Although no timing is stipulated for progressing the vegetation offset strategy, MCO should actively develop a program to address the conditions relating to the Vegetation Offsets. This would include the pursuit of up to date advice on relevant matters concerning seed sources to be used. |
| PAC 3/44 | The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of DPI and Director-General. | At the time of the December 2009 site visit, MCO stated that during the audit period a Landscape Management Plan was prepared for consultation with DECCW, NOW and DII. This LMP was submitted for the approval of DoP and DEWHA on the 16th November 2009. The Plan was still in consultation at the end of the audit period.<br>Implementation of the Plan was not assessed as the Plan was not approved at the end of the audit period. | Indeterminate (implementation)<br><br>**Recommendation:**<br>MCO should ensure that future revision of the LMP and its component Plans should take on board the various critical comments received in correspondence from DII and DECCW. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/49 | The Proponent shall prepare and implement an Aboriginal Heritage Plan for the project to the satisfaction of the Director-General. | The AHP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.5 of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5of the report (summarised in later sections of this Table). |
| PAC 3/50 | The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. | The HMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.5 of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5 of the report (summarised in later sections of this Table). |
| PAC 3/53 | Within 3 years of this approval, the Proponent shall construct the proposed diversion of the Ulan-Wollar Road to the satisfaction of Council. | MCO stated that the diversion had been completed and the new road was now in use. Work was still required to remove the old road surface.<br>MCO also indicated that no feedback had been received from the Council regarding the completed works, hence Council satisfaction is yet to be demonstrated. As Council satisfaction cannot be demonstrated, the condition has been deemed non-compliant. | Non Compliant<br><br>**Recommendation:**<br>Seek confirmation from Council that the Ulan-Woolar Road diversion has been constructed to Council's satisfaction. |
| PAC 3/62 | The Proponent shall prepare and implement an Energy Savings Action Plan for the project to the satisfaction of the Director-General | The ESAP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.5 of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5 of the report (summarised in later sections of this Table). |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 3/65 | The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. | The WMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.5 of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.5 of the report (summarised in later sections of this Table).<br><br>**Recommendation:**<br>It is recommended that the revised Waste Management Plan references the most up to date waste management legislation. |
| PAC 4/1 | The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must be submitted to the Director-General prior to carrying out any development on site, | The EM Strategy was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the Plan. These are discussed in Section 6.2 of this report and summarised in later sections of this Table. | Non Compliant (implementation)<br><br>**Recommendation:**<br>Refer to specific recommendations in Section 6.2 of the report (summarised in later sections of this Table). |
| PAC 4/2 | The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements of this approval into a single document, and be submitted to the Director-General with the submission of the relevant monitoring programs. | The EMP was assessed as being prepared in compliance with the Condition however a number of non compliances were identified relating to the implementation of the various programs/plans. These are discussed in tables for each program/plan within Section 6.5 of this report and summarised in later sections of this Table | Non Compliant (implementation)<br><br>**Recommendation:**<br>There are no specific recommendations to the EMP itself as recommendations are made to the individual plans subordinate to the EMP.<br>Refer to specific recommendations under the various monitoring programs/plans in Section 6.5 of the report (summarised in later sections of this Table). |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 4/3 | Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department and other relevant agencies of the exceedance/incident. | Two incidents (or groups of incidents) had occurred at the site during the audit period which necessitated reporting to the DoP and other agencies. These are described in the AEMR and summarised below.<br>MCO stated that four separate discharge events are referred to in correspondence with the agencies, relating to events which took place on the 8th, 9th and 22nd of June 2009. It was pointed out that due to the fact that the first set of events (Discharges 1 to 3) took place during a long weekend, there had been some confusion regarding the actual date of Discharge Events 1 and 2, although it was now agreed that these had occurred on the 8th June, not on the 7th, as had been reported in some correspondence.<br>The discharge incidents which occurred during June 2009 are also summarised in a Notification to Provide Information issued by EPA (dated 27/08/2009).<br>DECCW refer to four separate discharge events involving sediment laden water being released from the site:<br>• Discharges 1 and 2 – into Bora Creek at two separate locations on 07/06/09 (which MCO subsequently confirmed actually occurred on the 08/06/09, which was a public holiday;<br>• Discharge 3 – into Bora Creek on 09/06/09 (community complaint received on 09/06/09 (10/06/09 reported to DECC);<br>• Discharge 4 – into Bora Creek on 22/06/09. | |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 4/3 (continued) | | The following information summarises the relevant aspects for this condition:<br>• Discharges 1/2 – into Bora Creek approx 13.00 on 08/06/09, reported to DECC and DoP at approx 12.30 on 10/06/09;<br>• Discharge 3 – into Bora Creek at approx 14.00 on 09/06/09 (arising from community complaint at that time) reported to DECC and DoP at approx 12.30 on 10/06/09;<br>• Discharge 4 – into Bora Creek at 10.15 on 22/06/09. Reported by telephone to EPA on same morning, and subsequently by letter on 23/06/09.<br>Available evidence therefore indicates that Discharges1/2 were not notified to the Department within 24 hours of the incident being detected as required by this Condition.<br>The second incident relating to the unauthorised clearance of vegetation was reported by a neighbour, and followed up by the DoP. MCO were not aware of the incident until notified by the DoP. The incident reporting condition is therefore not relevant in this case.<br>Incidents outside of the reporting period (November 2009) have not been assessed against this condition as part of this audit. | Non Compliant<br><br>**Recommendation:**<br>Develop and implement systems to ensure that notification of any future incidents is undertaken within the required 24 hours. |
| PAC 4/5 | Within 12 months of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and relevant agencies. | MCO indicated that Annual Environmental Monitoring Reports (AEMR) have been submitted for both 2007/2008 and 2008/2009 and that copies had been forwarded to each of the following agencies or committees – DoP, MWRC, NSW Water, DII, DECCW and the CCC.<br>A response to the 2008/2009 AEMR was provided by the DoP dated 24 February 2010 and provided detailed comments on where the AEMR had not met the expectations of the DoP. As of 15 June 2010, MCO were still updating the AEMR based on the comments received from DoP. | Non Compliant<br><br>**Recommendation:**<br>Continue to revise the AEMR as required by the DoP. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| PAC 4/9 | The Proponent shall establish a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in general accordance with the *Guideline for Establishing and Operating Community Consultative Committees for Mining Projects*. This committee must be established within 3 months of this approval. | MCO indicated that a Community Consultative Committee (CCC) had been established in mid 2008, in line with the guidelines, and was composed of an independent chairperson, representatives from MCO, a representative from MWRC and ten community members.<br>It is a requirement of the guidelines that CCC meeting minutes are available on the Company's website and in another public place agreed to by the Committee within 28 days of each meeting.<br>A letter was viewed approving Mr O'Brien as independent chairperson of CCC (from DoP, dated 26/05/08). Mr O'Brien stepped down as independent chairperson in September 2009 and was temporarily replaced by Esme Martens.<br>The MCO Website was noted to include a page on the CCC – with various general information and attaching minutes of CCC meetings for meetings held on the 26/06/08, 28/08/08 and 8/10/08.<br>Minutes from meetings post 8/10/08 were not posted on the website.<br>The following CCC meeting minutes were viewed:<br>• 26 June 2008;<br>• 28 August 2008;<br>• 28 October 2008;<br>• 23 April 2009;<br>• 28 July 2009;<br>• 29 September 2009; and<br>• 24th November 2009. | Non Compliant<br><br>**Recommendation:**<br>Ensure minutes of the CCC meetings are posted on MCO's website within 28 days of each meeting. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Environmental Protection Licence** | | | |
| L1.1 | Except as may be expressly provided in any other condition of this licence, the licensee must comply with Section 120 of the POEO Act 1997 | Evidence gained during the audit indicated that the discharge incidents which impacted the Bora Creek during June 2009 (and described elsewhere in this report) were classified as pollution events, in contravention of the legislation described in this condition. | Non Compliant |
| R3.2 | The licensee must make all reasonable inquires in relation to the event and supply the report to the EPA within such time as may be specified in the request. | Written response to the non compliance (relating to the discharge event in June 2009) was provided to the EPA on the 30/09/09 after the EPA requested timeframe (28/09/09). | Non Compliant |
| P1.2 and related points in licence | Location of Discharge Points | Ponds 2B and 2D as indicated discharge points on the EPL were not constructed as per the original EPL Application. Moolarben stated in July 2010 that the exact discharge point was still to be agreed between the EPA and Moolarben. Also, at the time of the audit, the effluent discharge point had not yet been completed.<br>As such conditions L3.1, L4.1 and M6.1 are also indeterminate. | Indeterminate<br>**Recommendation:**<br>It is recommended that MCO complete discussions with DECCW to confirm the location of the discharge points and that the licence be updated as appropriate to reflect these locations. |
| **Construction Noise Management Plan and Noise Monitoring Program** | | | |
| CNMP-9 | Traffic noise monitoring will be conducted at the nearest non-mine related residence to MR568 (Ulan-Gulgong) and MR 214 (Ulan-Mudgee) during a shift change to determine compliance with traffic noise criteria. | Traffic noise monitoring was not undertaken during the audit period. | Non Compliant<br>**Recommendation:**<br>Undertaken traffic noise monitoring as per Noise Monitoring Program. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| CNMP-12 | Real time response protocols<br>Real time response measures will be implemented where reasonable and feasible. Examples include:<br>-Noise impact criteria less 2dBA: review current activities, review wether patterns for proceeding hour, review weather predictions, ensure standard mitigation measures are in place and monitor changes in noise levels at noise monitor.<br>- Noise impact criteria less 1dBA: dumping and constriction of bund to be restricted to un-exposed areas.<br>- Noise impact criteria: reschedule or relocate all identified noise generating construction activities. | SMS alerts to the Environmental Coordinator and ECRM commenced in March 2010. An SMS is received when the noise loggers record noise levels approaching the criteria which allows the Environmental Coordinator to investigate.<br>The Environmental Coordinator, ECRM and Site Supervisor are able to download the recorded audio for any time period and identify dominant noise sources. This enables activities to be modified onsite if required. | Non compliant during audit period.<br>Compliant as at May 2010. |
| CNMP-17 | Sound power level (SPL) measurement of plant and equipment prior to working on site or within one week of machinery being used on site. | SPL measurement is not being undertaken on new plant as it arrives on site.<br>It was reported that SPL measurement of plant and equipment were recently undertaken and are intended to be undertaken annually. | Non Compliant<br><br>**Recommendation:**<br>Implement sound power level measurement of plant and equipment as per CNMP or approved Operational Noise Management Plan. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| CNMP-18 | On a daily routine a morning meeting will be held and will include the following:<br>- Identify daily activities and review previous day activities;<br>- The ECRM will present a noise summary for the previous day activities and response actions followed with regards to activities carried out during the previous day;<br>- Understand weather conditions;<br>- Noise control requirements;<br>- Noise control implementation;<br>- Review of noise; and<br>- Continuous monitoring alarms are to be investigated and noise controls as well as weather conditions reviewed. | A daily communication meeting is held however the meeting does not go into the level of detail described in the Plan. The meeting is used as a general briefing of the days activities. The Daily communication meeting record for the 11 May 2010 was observed. On this day environmental and community comments were limited to stating that tree clearing was to occur.<br>It is noted this requirement has been deleted from the Operational Noise Management Plan. | Non Compliant |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Air Quality Monitoring Program** | | | |
| AQMP-5 | Exceedance investigation and response<br>Investigate MCP activities to determine activity which caused exceedance of environmental criteria.<br>Complete Environmental Incident Report Form | MCO do not consider that there have been any exceedances of the air quality criteria. As stated above the process of investigating a potential exceedance is not documented. No environmental incident reports were sighted. | Indeterminate<br><br>**Recommendation:**<br>For dust exceedances, ensure further investigation is conducted in order to determine whether exceedances constitute additional exceedances as a result of dust generated by MCO.<br><br>**Recommendation:**<br>Document real time response investigation even if investigation determines exceedance was not attributed to MCO activities. This will improve transparency and the ability to retrospectively assess mitigation actions. |
| AQMP-6 | Report any exceedance caused by MCO to DoP, relevant agency and affected landowners. | A number of results were recorded above the daily $PM_{10}$ criteria. These results were not reported to the DoP or relevant agencies at the time as following investigation MCO determined that the exceedances were not as a result of MCO activities.<br>As discussed in Section 4.3, analysis of MCO's contribution and subsequent determination of exceedances is on some occasions inadequate. There are instances where further investigation is required in order to determine whether exceedances constitute additional exceedances as a result of dust generated by MCO. | Indeterminate |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| AQMP-7 | On a daily routine a morning meeting will be held and will include the following:<br>- Identify daily activities and review previous day activities<br>- The ECRM will present an air quality summary for the previous day activities and response actions followed with regards to activities carried out during the previous day<br>- Understand weather conditions<br>- Air quality control requirements<br>- Air quality control implementation<br>- Review of air quality<br>- Continuous monitoring alarms are to be investigated and air quality controls as well as wether conditions reviewed | A daily communication meeting is held however the meeting does not go into the level of detail described in the Plan.<br>The meeting is used as a general briefing of the days activities. The Daily communication meeting record for the 11 May 2010 was observed. On this day environmental and community comments were limited to stating that tree clearing was to occur.<br>It is noted this requirement has been deleted from the Operational Air Quality Management Plan. | Non Compliant<br><br>Operational Air Quality Monitoring Plan does not list requirement. It is expected that MCO would ensure sufficient communications to all personnel on issues that would impact on dust generation on site e.g. special meteorological conditions. |
| AQMP-12 | Disturb only the minimum area necessary for construction.<br>Adoption of progressive rehabilitation of mining operations, to minimise exposed soils. | Observations made during the December 2009 site visit indicated that some areas had been spray seeded. However, many areas remained disturbed and did not appear to have been subjected to any efforts of rehabilitation e.g. steep batters of the rail loop.<br>During the May 2010 site visit substantial progress had been made on soil stabilisation measures around the construction areas, and also in commencement of rehabilitation activities at the environmental bund. | Non Compliant<br><br>**Recommendation:**<br>Ensure all affected/disturbed areas are stabilised through revegetation or other means directly after disturbance occurs or construction completed. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Water Management Plan** | | | |
| WMP-1 | A summary of the surface and groundwater monitoring will be provided in the AEMR. The results will be compared against the impact assessment criteria in the WMP, EPL and PAC limits to assess the effectiveness of the mine water management system on an ongoing basis. | The AEMR includes a summary of surface water and groundwater monitoring results however there is little discussion comparing the results to the impact assessment criteria. It is noted that the EPL criteria only apply to licensed discharges. | Non Compliant<br><br>**Recommendation:**<br>The AEMR can be improved by including analysis / discussion of the results and their relevance. The Surface Water quality section of the AEMR should also detail licensed and unlicensed discharges. |
| WMP-2 | A summary of water monitoring will be presented at the CCC meetings and will be available on the website. | A monthly summary of environmental monitoring results is provided on MCO's website.<br>With the exception of the CCC meeting held on the 28 July 2009 where MCO conducted a presentation on environmental monitoring, monitoring results are generally not presented at the CCC meetings. | Non Compliant<br><br>**Recommendation:**<br>Present a summary of water monitoring at CCC meetings. |
| SWMP-1 | A new stream flow and water quality monitoring gauging station is to be installed (SW 11). Instrumentation comprising a data logger will be installed to monitor hydrometric and water quality data including flow, level, salinity, temperature, turbidity, pF and DO. | A data logger has not been installed at this location. Grab samples are taken on a monthly basis and analysed for physical and chemical parameters.<br>Stream flow monitoring has not been undertaken at this location. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan. |
| SWMP-2 | Three new stream flow and water quality monitoring gauging stations are to be installed (SW 12, SW 13 and SW 14). Instrumentation comprising a data logger will be installed to monitor hydrometric and water quality data including flow, level, salinity, temperature, turbidity, pF and DO. | Data loggers have not been installed at these locations. Grab samples are taken on a monthly basis and analysed for physical and chemical parameters.<br>Stream flow monitoring has not been undertaken at these locations. | Non Compliant<br><br>**Recommendation:**<br>Install data loggers to continue baseline water quality monitoring as per Surface Water Management Plan including installation of data loggers. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| SWMP-3 | The baseline water quality monitoring program that has occurred over recent years at points along the stream network upstream and downstream from the mine site will be continued. Data loggers will be installed at each of SW 1, SW 2 and SW 5 monitoring sites to record pH, temperature, salinity and turbidity. | Data loggers have not been installed at these locations. | Non Compliant<br><br>**Recommendation:**<br>Install data loggers to continue baseline water quality monitoring as per Surface Water Management Plan including installation of data loggers. |
| SWMP-5 | Stream flows and physical water quality constituents will be logged continuously at each of SW 11, SW 12, SW 13 and SW 14 monitoring points. Water quality data (pH, DO, temperature, conductivity and flow) will be downloaded on a monthly basis. | As loggers were not established at these locations continuous monitoring data is not available. | Non Compliant<br><br>**Recommendation:**<br>Ensure future surface water monitoring is implemented as per the approved Water Management Plan. |
| SWMP-6 | Water quality sampling will be undertaken on a fortnightly basis at each of SW 1, SW 2, SW 5, SW 11, SW 12, SW 13 and SW 14 monitoring sites. Sampling will be carried out as a combination of a manual grab sample and direct read measurements. Samples will be tested for standard metals and physical characteristics. | Water quality sampling in the form of grab samples has been carried out at the specified locations however on a monthly basis as opposed to fortnightly as specified in the Plan.<br>The samples were tested for the analytes specified in the Plan. | Non compliant<br><br>**Recommendation:**<br>Ensure the frequency of future surface water monitoring is implemented as per the approved Water Management Plan. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| SWMP-10 | Surface water quality monitoring and sample collection, storage and transportation will be undertaken in accordance with the procedures outlined in the relevant parts of AS/NZS 5667-1998 (AS 5677) Water Quality Sampling | During the reporting period no written procedures were available for water quality monitoring.<br>A written procedure 'Environmental Guidelines for Surface Water Monitoring' was prepared in January 2010.<br>The monitoring contractor was reported by MCO to have had some training with Ecowise in the past, and uses bottles supplied by ALS, with some ALS supervision provided. MCO Environmental personnel also assist in coordination of the contractor activities.<br>However MCO could not provide evidence of the monitoring contractor having had sufficient training for the role. The use of a qualified person in undertaking environmental sampling is to ensure that sample collection, storage and transportation is in accordance with the necessary standards and MCO procedures such that MCO and others can have complete confidence in monitoring results. Refer to Section 6.5 implementation of SWMP. | Non Compliant<br><br>**Recommendation:**<br>It is recommended that MCO ensure that they can demonstrate the competency of the monitoring contractor undertaking environmental sampling on their behalf, through adequate formal or on the job training. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| SWMP-12 | Stream Health Monitoring program<br>A comprehensive Stream Health Monitoring Program has been prepared by Marine Pollution Research (included as Appendix C2 of the Water Management Plan). | Stream health monitoring is undertaken by Marine Pollution Research.<br>.<br>The Spring 2008 and Autumn 2009 stream health monitoring reports were reviewed by the auditor. Whilst the reports indicate monitoring was generally being undertaken as per the Stream Health Monitoring Program the following were not being conducted:<br>- RCE stream condition indices were not compiled; and<br>- A detailed comparison of the species diversity and SIGNAL indices against other site indices within the survey and over time was not undertaken. | Non Compliant<br><br>**Recommendation:**<br>Marne Pollution Research should compile the RCE indices for each site as detailed in the Stream Health Monitoring Program.<br><br>**Recommendation:**<br>A more detailed assessment of the results of the stream health monitoring should be conducted by comparing the three site indices within each survey and comparing changes in the indices for each site over time as detailed in the Stream Health Monitoring Program. |
| SWMP-14 | Photographic monitoring sites will be established at Bora Creek confluence, Moolarben Creek confluence, Ulan Creek confluence and “the Drip” and “corner Gorge”. | It was reported that photographic monitoring sites have been established at all the listed locations with the exception of Ulan Creek confluence ”The Drip” or Corner Gorge”. | Non Compliant<br><br>**Recommendation:**<br>Ensure future photographic monitoring is implemented at the locations specified by the approved Operational Water Management Plan. |
| GMP-2 | Groundwater extraction volumes – weekly totals from all pumping bores and construction sumps. Total pumped volumes from the pits will be measure by means of in-line flow meters associated with in-pit sumps pumps. | Pumping volumes from pumping bores were reportedly being monitored weekly.<br>Pumped volumes from pits were not measured during the audit period. | Non compliant<br><br>**Recommendation:**<br>Ensure future groundwater monitoring is undertaken in accordance with revised Operational Water Management Plan. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| GMP-3 | Groundwater discharge quality – weekly measurements on site of the EC and pH of each groundwater extraction including bores, open cut pit sumps and underground pumping stations. | It was reported that this was not undertaken during the audit period and has been taken out of the revised Operational Water Management Plan. | Non Compliant<br><br>**Recommendation:**<br>Ensure future groundwater monitoring is undertaken in accordance with revised Operational Water Management Plan. |
| GMP-4 | Quarterly sampling from all pumping bores and any groundwater make from construction sumps for comprehensive laboratory analysis will be carried out to assess changes to groundwater hydrochemistry. | The excel spreadsheet 'Moolarben_2010_GW database' was observed. 103 monitoring bores have been established and are monitored on a quarterly basis. The samples are analysed for a suite of parameters as outlined in the Plan. | Compliant<br><br>**Recommendation:**<br>The Groundwater Monitoring Plan can be improved by including summarising the groundwater monitoring requirements in a table listing all monitoring locations, frequency and parameters to be analysed. |
| GMP-6 | All storage areas shall have a network of monitoring bores constructed around their perimeters. The number will be determined on a site specific basis however a minimum of one hydraulically up gradient and two down-gradient bores would be installed. | Monitoring bores were not installed around the perimeters of storage areas. It was reported that this requirement was taken out of the revised Operational Water Management Plan. | Non Compliant<br><br>**Recommendation:**<br>Consult with groundwater expert as to whether this requirement should be implemented. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| ESCP | Prepare and implement an Erosion and Sediment Control Plan. | • The Erosion and Sediment Control Plan is considered high level and generic. Key omissions in the Plan and its implementation were:<br>— There was no detailed risk assessment conducted covering erosion and sedimentation (ERSED) risks of the design or of construction activities in the development of the Plan and mitigation activities were not based on outcomes of such an assessment;<br>— The Plan did not address the key issues and risks related to the Rail Loop crossing Bora Creek;<br>— The Plan did not include key specific controls to the detail that could be easily implemented and audited against e.g. the types of controls required for the steeper sections on the rail loop, timing of implementation of the controls etc;<br>— The Plan did not include a process of integration with construction management personnel to allow for ongoing review of the adequacy of ERSED control structures and the defining/design of new structures/ERSED in response to changes in the area of disturbance, construction timeline and activities, changed conditions etc;<br>— The Plan did not include a process for ongoing, regular independent expert review of the status of ERSED controls. | Non Compliant<br><br>**Recommendation:**<br>• The full assessment of risks, causal factors, and management measures to address ERSED issues was not possible in the scope of this audit. URS recommends that a full review of ERSED management and controls is undertaken by a suitable ERSED expert. The review should include:<br>— Assessment of the state of the operation and the nature of ERSED related risks. The key area of concern was the construction area for the CHPP and Rail load out, however it should also include mining areas in the assessment;<br>— Assessment of existing management processes for ERSED risks;<br>— Update of ERSED management controls, practices and documented Plans in light of the identified Risks;<br>— Prompt Implementation of effective controls in relation to ERSED;<br>— Continued review of the effectiveness of the controls;<br>— Regular and ongoing review of ERSED by the nominated expert;<br>— Communication of the review and outcomes to relevant government agencies. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| ESCP | | • The ERSED Plan was not updated after the detailed design was complete. As the plan was generic, it did not define specific controls in specific areas and was not linked to the design or changes in construction stages. As such, specific controls relative to the design were not constructed and the controls sighted during the audit were not considered effective for the extent and nature of the construction works.<br>• Implementation of ERSED controls was affected by the above omissions. There did not appear to be a systematic and regular review of the status of ERSED controls throughout the construction timeline in response to changes in the site due to construction activities.<br>• The implementation of ERSED controls appeared to be affected by design and construction planning issues. It was indicated that some critical designs were delayed, such that construction of some infrastructure commenced prior to the construction of adequate drainage or ERSED controls;<br>• There were significant clean water catchments being directed to site affecting on site management of “dirty’ water. The ERSED plans and implemented controls/actions did not address this effectively.<br>• The responsibility of the construction and management of ERSED controls was not clearly stated in documents sighted; | |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| ESCP | | • While planning documents indicated that the Rail Loop was to pass over Bora Creek, there appeared ineffective consideration of the construction methodology of the crossing in the documents. There was no indication provided that appropriate approvals were in place for the construction strategy including the blocking of Bora Creek.<br>• At the time of the site visit there were numerous drainage lines constructed with rock lining to prevent erosion of the drains. A number of other good ERSED initiatives were in place. However, there remained several areas of high risk of erosion occurring. These included, however were not limited to: steep, unprotected batters around the rail loop, particularly at the crossing of Bora Creek; the large catchment offsite being directed into the rail loop area and hence going through a small onsite dam and then under the rail loop crossing which was blocked for construction purposes; the high area of disturbed soil, much of which had been spray grassed, however had not yet taken due to the dry conditions.<br>• MCO's approach has been to use Rhodes grass in the seed mix due to its fast growing and soil binding characteristics. It is acknowledged that the site has had to address erosion and sedimentation issues directly, and that the DPI recommends the use of Rhodes Grass *(Chloris gayana*) as a soil stabilizer and productive pasture grass. However, the DECCW has listed 'Invasion by perennial grasses' as a Key Threatening Process under Schedule 3 of the NSW Threatened Species Conservation Act 1995. Under the final determination Key Threatening Process Rhodes Grass is identified as a perennial grass that may invade native plant communities, including habitat for threatened species, communities and populations listed under Schedules 1 and 2 of the Threatened Species Conservation Act 1995. As such Rhodes Grass poses a significant risk to native habitats within the locality. There are a number of alternative options to the use of invasive perennial grasses as soil stabilisers.<br>• | **Recommendation:**<br>It is recommended that native soil stabilising species are used in preference to Rhodes grass where practicable. URS recommends that native mixes are used in rehabilitation areas e.g. the environmental bund. Where exotic species are required to be used, the use of Rhodes grass should be avoided for rehabilitation works. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Waste Management Plan** | | | |
| WstMP-1 | Waste Minimisation<br>Weekly monitoring of waste generation will be used to identify wastage of resources | There was no evidence that weekly monitoring of waste generation to identify wastage of resources was undertaken during the audit period.<br>In December 2009, MCO's waste and recycling contractor JR Richards and Sons commenced undertaking a weekly inspection of waste storage areas. The inspection undertaken on the 16 December 2009 was observed and included comment on the following:<br>• Cleanliness of waste storage areas;<br>• Waste liquid tank volumes;<br>• Number of regulated waste receptacles and batteries awaiting collection;<br>• Evidence of hydrocarbon spills;<br>• Adequate supply of empty waste receptacles for maintenance;<br>• Pallet storage and re-use;<br>• Cleanliness of bunded areas; and<br>General comments. | Non compliant<br>**Recommendation**<br>Include section on identified wastage of resources on MCO Waste Management Inspection Sheet completed by waste and recycling contractor JR Richards and Sons. |
| WstMP-2 | The ordering of stock during construction will be reviewed monthly to avoid wastage. | During construction, contractors were responsible for ordering their own stock.<br>MCO stores were reportedly only recently established.<br>There was no evidence that monthly reviews of stock ordering are being undertaken. | Non Compliant<br>**Recommendation**<br>Implement monthly reviews of stock ordering to avoid wastage. Outcomes of the reviews should be documented. |
| WstMP-10 | Waste management system monitoring<br>Conduct weekly waste assessment of all waste storage areas and containers to identify correct segregation. | MCO's waste and recycling contractor JR Richards and Sons commenced undertaking a weekly inspection of waste storage areas in December 2009.<br>The inspection undertaken on the 16 December 2009 was observed. | Non Compliant during audit period however currently in compliance. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| WstMP-11 | Maintain a register of waste removed from the site.<br>This register will detail the type of waste removed from site, the quantity, the contractor who removed the waste and the destination of the particular waste. | Prior to January 2010 MCO's waste contractor JR Richards and Sons would send an email on a monthly basis summarising the type and volume of waste removed from site. An email was sighted dated 7 October 2009 summarising the waste removed during September 2009. This included general waste, recycled cardboard, septic waste and portaloos.<br>Since January 2010 JR Richards and Sons enter this information into a Waste Register which it updates on a monthly basis and provides to MCO. The Waste Register was sighted and noted to include quantities of different categories of waste recycled and disposed. The final destination of the waste (either landfill or recycling facility) was not recorded on the Waste Register. | Non Compliant<br>**Recommendation:**<br>It is recommended that the final destination of wastes (both recycled and disposed) and the EPL number for licensed premise are included in the Waste Register. |
| WstMP-12 | Waste management system reporting requirements<br>The ECRM will formally audit the progress on waste management to ensure waste reduction targets are met. | There was no evidence that formal audits on the progress of waste management or tracking against waste reduction targets was being undertaken during the audit period.<br>The Waste Register included the percentage of waste recycled. | Non Compliant<br>**Recommendation:**<br>Incorporate a discussion of waste management including progress in meeting waste reduction targets in the Monthly Environmental Monitoring Report |
| WstMP-13 | The results of waste management system implemented at MCP will be reported in the AEMR including quantities of waste removed from site either for recycling or disposal and details on the success of the implementation of the waste management system. | The 2008/2009 AEMR states that the project started generating small quantities of general waste, cardboard and effluent during the reporting period and that all waste was removed off-site and disposed of at licensed facilities.<br>It also states that during the next reporting period, MCO will implement a Total Integrated Waste Management Service to monitor and manage all waste streams generated on site, which will include general waste, cardboard and paper recycling, co-mingled recycling, waste oil and steel.<br>Quantities of wastes removed from site were not reported in the 2008/2009 AEMR. | Non compliant<br>**Recommendation:**<br>Ensure future AEMRs include quantities of wastes removed from site either for recycling or disposal as well as details on the success of the implementation of the waste management system. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Aboriginal Heritage Management Plan** | | | |
| AHMP-1 | 2.1 Prepare a Cultural Heritage Management Report (CHMR) | A CMHR was sighted in the second inspection in May 2010. This was recently supplied to Moolarben. As such it had not been developed at the time of the first site visit. URS has not assessed the adequacy of the CHMR. | Non compliant during audit period.<br><br>Compliant as at May 2010.<br><br>No further action required. |
| AHMP-2 | 2.1.2 Assessment and reporting of salvage works to DoP, DECCW and Aboriginal Community Stakeholder groups. | As the document is still in Draft this is yet to be undertaken. | Not Compliant<br><br>**Recommendation:**<br>Upon finalisation of report ensure it is submitted to the DoP, DECCW and Aboriginal Community Stakeholder groups. |
| AHMP-5 | 2.4 Aboriginal Awareness Training | Induction Training course was sighted and did include a brief section on Aboriginal Heritage Items and their protection. It did not cover cultural heritage awareness.<br>Site indicated they have spoken to some members of the aboriginal stakeholder groups about making an aboriginal cultural awareness programme for staff. | Non-compliant. Current works limited to brief induction.<br>**Recommendation:**<br>An aboriginal heritage values programme should be developed and used for training of all relevant staff and contractors. |
| AHMP-7 | 2.6 Assessment of aboriginal heritage values programme. | Not conducted as of May 2010. | Not compliant<br><br>**Recommendation:**<br>An aboriginal heritage values programme should be developed and used for training of all relevant staff and contractors. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| AHMP-9 | 2.8 Aboriginal Consultation Protocol | The exact requirements for the consultation are not detailed in the Plan. Moolarben do not have a formal strategy or protocol for consultation with aboriginal stakeholder groups and no formal process for consultation appeared to be in place for the construction period.<br>Based on review of some complaints and correspondence from some aboriginal stakeholder groups, there are poor relationships between site and some groups.<br>Site have recently (April 2010) held a consultation meeting with aboriginal stakeholder groups which was indicated to be a commencement of improved consultation with aboriginal stakeholder groups | Not Compliant.<br><br>**Recommendation:**<br>Moolarben should develop and implement a strategy for communication with Aboriginal stakeholder groups. This should form part of the Plan.<br><br>**Recommendation:**<br>All comments from LALC's and interested parties should be assessed as being complaints and managed through a formal process such as a complaints process to ensure the adequate and documented response to issues identified by the communities.<br><br>**Recommendation:**<br>Consultation and formal conversations with aboriginal groups and the general community should be documented systematically for future reference and compilation of commitments made. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| AHMP-12 | 3.1 Standard work practices | Aboriginal sites were observed to be kept intact on Stage 1 area and managed to avoid impacts.<br>While the Plan does not cover Stage 2, Aboriginal sites along a road in the Stage 2 area were observed to have been damaged to some extent. Information about this has been communicated to the DoP in various correspondence in April and May 2010. It is understood that DECCW is investigating the matter.<br>Work practices do not spell out clearly the roles and responsibilities of all staff in managing aboriginal cultural heritage resources as required in the Plan.<br>Some aboriginal sites were identified in the field, but not if they were suitably remote. Stage 2 works not covered here.<br>Supervisors and plant operators, nor recently Moolarben management were aware of the aerial extent of the sites. All sites have been recorded with an X-Y grid coordinate. Site indicated that the management of many sites with greater than one artefact was difficult without knowing the extent of the location of the artefact. Outside of site management and surveyors, there is limited knowledge on exact locations of sites.<br>Plans and operation notes do not show the location of known aboriginal sites – the sites are located on Map info and can easily be assessed if required. | Non Compliant (for some aspects)<br>**Recommendation:**<br>Moolarben should ensure all relevant people are aware of the location and extent of Aboriginal sites.<br>**Recommendation:**<br>All staff should be adequately trained for their roles and responsibilities for the management of Aboriginal artefacts.<br>**Recommendation:**<br>All relevant plans need to be updated to include the locations of the Aboriginal sites (as appropriate). |
| AHMP-14 | 3.3 On site Auditing and Monitoring | No audits have been conducted. | Not Compliant.<br>**Recommendation:**<br>The site's approach to managing aboriginal artefacts and aboriginal stakeholders should be reviewed and audited as per the requirements of the Plan. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| **Heritage Management Plan** | | | |
| HMP-2 | Sites 13 and 14 will have a star picket fence with four strands of wire erected around the cartilage of the item to prevent vehicular access and restricting pedestrian access to authorised personnel only.<br>Signage will be erected on the fences at each of the sites advising "Heritage Site – no unauthorised entry" | It was reported that sites 13 and 14 were not fenced and signposted as the sites were outside the construction areas active at the time. | Non compliant<br><br>No further recommendations are sites have been captured by the archival recording program. |
| HMP-3 | Conduct site inspections of site 13 and 14 to verify no unauthorised access or impacts / damage has occurred to the sites and that fencing and signage is secure and in place. | Sites 13 and 14 were not actively inspected during the construction period as the sites were outside the construction areas active at the time.<br>The Environmental Coordinator escorted the heritage consultants to the sites at the time of archival recording and did not note any disturbances to the sites. | Non compliant<br><br>No further recommendations as sites have been captured by the archival recording program. |
| **Energy Savings Action Plan** | | | |
| ESAP-1 | Investigate corporate policy for energy management and respect to energy savings. Example are targets set and reported on website? | A corporate policy for energy management or energy savings is yet to be developed.<br>Energy savings targets are yet to be established. | Non compliant<br><br>**Recommendation:**<br>Develop corporate policies for energy management and energy savings.<br>Set energy savings targets and report progress against these targets. |
| ESAP-2 | Include energy efficiency information in tender specifications. | Energy efficiency information has not been included in tender documents | Non compliant<br><br>**Recommendation:**<br>Include energy efficiency information in tender specifications. |

## 8 Summary of Non Compliances and Recommendations

| Condition / requirement No. | Summary of Condition / Requirement | Comment | Compliance Status & Recommendation |
|---|---|---|---|
| ESAP-4 | Comply with EEO and NGER legislation | Based on the projected annual electrical and diesel energy use presented in Appendix II to the Energy Savings Action Plan, MCO would meet the thresholds required for reporting under NGERS. | Indeterminate<br><br>**Recommendation:**<br>Assess whether NGERS reporting thresholds have been met for the 2009-10 reporting period based on actual energy and greenhouse gas emissions.<br>If required register for reporting by 31 August 2010 and provide data report by 31 October 2010. |
| ESAP-5 | Include energy efficiency awareness in induction procedures and ongoing training. | Energy efficiency awareness is not included in the Environment And Community Relations Induction. | Non compliant<br><br>**Recommendation:**<br>Include energy efficiency awareness in induction procedures and ongoing training. |
| ESAP-7 | Develop and Energy Management System | The Energy Action Savings Plan establishes the foundations of an Energy Management System. The Plan outlines objectives and actions for achieving energy reductions. The Energy Management System has not been implemented. | Non compliant<br><br>**Recommendation:**<br>Implement Energy Management System |
| ESAP-8 | Further investigate the potential use of hybrid diesel/LNG engines for mining fleet. | No investigations have been undertaken. | Non compliant<br><br>**Recommendation:**<br>Investigate the potential use of hybrid diesel/LNG engines for mining fleet. |

# 8 Summary of Non Compliances and Recommendations

**Table 8-2 Summary of Additional Recommendations from Independent Environmental Audit (not related to non compliances)**

| Reference | Recommendation |
|---|---|
| Noise<br>PAC 3/2 & Section 4.1 | It is recommended that MCO apply the correct construction noise criteria (7 -15 month) as specified in the CNMP when comparing monitoring results for the purpose of assessing compliance. |
| Noise<br>PAC 3/2 & Section 4.1 and CNMP-8 | As the attended noise monitoring results indicated that that noise from MCO activities was either inaudible or not measurable at the sensitive receivers the majority of the time, it is recommended that alternative methods of determining compliance are agreed with the DECCW, documented in the Noise Management Plan and implemented.<br>The footnotes to PAC 3/2 state that:<br>*"Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy)."*<br>Chapter 11 of the Industrial Noise Policy (INP) allows for noise measurement closer to the noise source and extrapolation of the noise levels to the sensitive receivers. In the auditors opinion this method would provide a more accurate and transparent determination of the noise levels from the MCO. |
| Noise<br>PAC 3/9 and Section 4.1 | It is recommended that MCO undertakes a review of available best practice noise mitigation measures and conducts an assessment of whether they can be reasonably or feasibly applied. The assessment should include a review of the public benefit of the application of such measures. The outcomes of this review should be detailed in the 2009/10 AEMR. |
| Noise<br>Section 4.1 and CNMP-11 | In the auditors opinion the continuous noise monitoring results should be used to assist MCO assess compliance with the noise criteria and any results above noise criteria which, following investigation are determined to be attributable to MCO activities and not due to adverse weather conditions, should be considered as exceedances and managed and reported accordingly.<br>The Noise Monitoring Plan, in particular the compliance evaluation and response flowchart and the response protocol sections, should be revised to make this clear. |
| Air Quality<br>PAC 3/21 and Section 4.3 | MCO should consider TSP compliance and report this in AEMRs. Otherwise, if MCO do not intend to undertake TSP monitoring, it should seek to have the TSP criterion removed from the Approval Condition. |
| Air Quality<br>PAC 3/21 and Section 4.3 | It is recommended that MCO continue to address dust gauge contamination issues through such measures as:<br>• The identification of monitoring locations where contamination occurs on a regular basis (e.g. > 4 months in the previous 12 months).<br>• The trial of the duplicate sample locations at identified contamination prone monitoring sites. Duplicate gauges could be either co-located (to provide a backup) or placed at a separate location in the near vicinity (e.g. < 250 m) of the original monitoring location. This could be worthwhile if there is an opportunity to avoid a localised contamination influence (e.g. long grass, or areas in which birds or insects are prevalent). |
| Air Quality<br>PAC 3/21 and Section 4.3 | MCO should ensure that future dust deposition reporting includes reference to and assessment against the incremental criterion of 2 g/m$^2$/month above the baselines identified in the AQMP. |

## 8 Summary of Non Compliances and Recommendations

| Reference | Recommendation |
|---|---|
| Air Quality<br>Section 4.3 and AQMP-2 | It is recommended that MCO performs a review of the effectiveness of the trigger levels in mitigating dust impacts, and achieving and demonstrating compliance with the 24 hour $PM_{10}$ criteria. The review would consider monitoring data collected to date and address the following:<br>• Are the alarms occurring at a time which allows the effective mitigation of dust impacts?<br>It is noted that the use of a 24 hour rolling average may result in significant delays (e.g. several hours) between the occurrence of elevated levels, and the triggering of an alarm and the subsequent responses.<br>• Should a short-term (e.g. 30 minute 150 $\mu g/m^3$) alarm be used in addition to existing alarms?<br>The use of a shorter averaging period would also allow the Environmental Coordinator to inspect the monitoring site, and confirm the presence of any nearby sources (e.g. mining activities, agricultural activities, wood heaters, or other fires) in a shorter time frame. |
| Endangered Ecological Community Offset PAC 3/41 | Endeavour to accelerate formal acceptance of the transfer (of the land as required by the consent) from DECCW. |
| Landscape Management Plan PAC 3/44 | Ensure that future revision of the LMP and its component Plans should take on board the various critical comments received in correspondence from DII and DECCW. MCO indicated that in the process of review, these comments were taken into account. |
| Lighting Impacts PAC 3/61 | Monitor off-site lighting impacts following commencement of afternoon and night shift work and implement mitigation measures as required. |
| Incident reporting PAC 5/4 | Develop and implement systems to ensure that any future incidents are supported by the submission of a written report to the relevant agencies, as required by the condition, within six days of notification of the event. |
| Access to information PAC 5/10 | Ensure the website is kept up to date and amended plans and new plans are included on the website. The 2007/2008 AEMR report should be provided on the website: |
| Surface Water Quality<br>Section 4.4.3 | It is recommended that MCO conduct further analysis of the water quality sampling results, in particular comparing results obtained during the reporting period with background monitoring results as well as discussing elevated results. This analysis should be presented in the AEMR. Corrective actions, as relevant should be defined and implemented. |
| Surface Water Quality<br>SWMP-7 | Ensure future surface water monitoring is implemented at the locations specified by the approved Water Management Plan. |
| Surface Water Quality<br>SWMP-7 | Include the reason for the non routine sampling and the mm of rain which fell in the 'non routine' spreadsheet. |
| Surface Water Quality<br>SWMP-9 | Include more specific requirements for water treatment pond water quality monitoring in the revised Water Management Plan. |
| Channel Stability<br>Section 4.4.3 | Given the degradation of Moolarben Creek and Bora Creek (degraded prior to MCO activities), and the potential for exacerbation of this from changes in flows, it is recommended that MCO consider implementation of pro-active remedial actions for the creek. Measures to reduce impacts should be part of a documented process. Assessment of measures already implemented, such as placement of hay bales in the creek, should be part of this consideration. |
| Channel Stability<br>SWMP-13 | It is recommended that the Plan is revised to further define 'significant rainfall events so as to provide a more definite trigger for additional channel stability monitoring.' |
| Groundwater<br>GMP-4 | The Groundwater Monitoring Plan can be improved by including summarising the groundwater monitoring requirements in a table listing all monitoring locations, frequency and parameters to be analysed. |

## 8 Summary of Non Compliances and Recommendations

| Reference | Recommendation |
|---|---|
| Water Management General Recommendations | It is recommended the surface water monitoring requirements are summarised in a table which clearly shows what parameters are to be monitored at which locations and at what frequency. The construction phase Surface Water Management Plan has this information embedded in text making it difficult to read and therefore implement. |
| Waste<br>Section 4.10 | It is recommended that the revised Waste Management Plan references the most up to date waste management legislation. |
| Waste<br>WstMP-8 | It is recommended that the final destination of wastes (both recycled and disposed) and the EPL number for licensed premise are included in the Waste Register. |
| Aboriginal Heritage<br>AHMP-11 | The non compliance reporting flow chart should be updated to reflect the detail of actual MCO processes undertaken. |
| Aboriginal Heritage<br>General Recommendations | It is recommended that an overall review of the management of heritage aspects including stakeholder consultation is undertaken. This could be done as part of the audit requirements as detailed in Section 3.3 of the Plan. Of particular note in the review should be: there is no plan covering stage 2 works; and the issues facing aboriginal group stakeholder management. |
| Aboriginal Heritage<br>General Recommendations | Site should ensure that artefacts identified in Stage 2 works are managed proactively, even in the absence of a management plan that covers these areas. Consultation should continue with DoP regarding formalising a plan for these areas and in addressing aspects of the potential for impact to sites in Stage 2 areas. |
| Complaints Management<br>Section 4.11 | Given the significant increase in complaints received following the audit period and the likelihood that these will further increase once MCO commence night time activities, MCO should consider employing a full time community relations person who would be responsible for managing community consultation and complaints. |
| Complaints Management<br>Section 4.11 | Improvements can be made by documenting on the Community Complaints Form the follow up with the complainant in more detail. For example including details of the outcomes of meetings with complainants or follow up phone calls. |
| Dangerous Goods<br>Section 4.12 | Consider a modification be made to the EPL to reflect the need to permit the refuelling of larger mining equipment in-situ, rather than confining all fuelling operations to the designated storage and handling area. MCO would have to discuss this with DECCW for resolution. |
| Greenhouse Gas<br>ESAP-6 | Ensure that awareness extends to requirements with national legislation (e.g. NGERs) and not just State legislation. |
| Environmental Management Strategy<br>Section 6.2 and Section 6.6 | It is recommended that MCO investigate the need for a more formal and structured Environmental Management System. It is recommended that MCO further develop their environmental management systems to be compliant with the requirements of ISO 14001. At minimum, the EMS should be reviewed and updated against the requirements of ISO14001:2004; |
| Environmental Management Plans<br>General recommendations<br>Section 6.4 | MCO should develop and implement risk assessment methodologies across all aspects of environmental management and compliance with relevant environmental legislation. This should be the basis of the development of management mechanisms outlined in the Plans. |

## 8 Summary of Non Compliances and Recommendations

| Reference | Recommendation |
|---|---|
| Environmental Management Plans<br>General recommendations<br>Section 6.4 | MCO should ensure effective ownership of the site's management plans by all MCO personnel. MCO should develop and implement a programme to ensure all site have awareness of the plans to the extent appropriate for their roles and responsibilities on site. A training needs analysis may help define the extent of training required for each person on site. MCO personnel should be held accountable for their responsibilities under the Plans; |
| Environmental Management Plans<br>General recommendations<br>Section 6.4 | Plans should be updated based on the findings of this report and relevant feedback from DoP and other agencies; |
| Environmental Management Plans<br>General recommendations<br>Section 6.4 | All Plans should have a section that provides a list of all required management mechanisms relating to the Plan to enable staff to effectively implement plans and to enable effective internal and external auditing of the Plans. |
| Environmental Management Systems<br>Section 6.6 | It is recommended that MCO conduct a site wide Environment and Community Risk Assessment to identify and assess such risks and assess current management mechanisms for these risks. The risk assessment should be repeated at suitable intervals, which, given the current levels of change due to construction and new mining activities, should be frequent. |
| Environmental Management Systems<br>Section 6.6 | Part of the above recommendation would be the development of a regular process to assess compliance of the operations with consent conditions, other legal requirements and to assess the level of implementation of the relevant plans as required by legislation. |
| Environmental Management Systems<br>Section 6.6 | Current Environmental Inspections should be documented through a formal process to record dates, findings, actions required and responsibilities. The outcomes should be auditable, so as to demonstrate a continuous improvement process and close out process for all corrective actions. |
| Environmental Management Systems<br>Section 6.6 | The site has developed an Air Quality Monitoring Program, but not an *Air Quality Management Plan*. This was recognised as an oversight in the planning requirements and a Plan has been submitted to DoP for approval. Implementation of the revised Plan should occur as soon as is feasible. |
| Environmental Management Systems<br>Section 6.6 | Further and more specific training be given to employees on the contents and requirements of management plans regarding specific controls etc as relevant. |
| Environmental Management Systems<br>Section 6.6 | The responsibilities for Environmental Management should be distributed across all relevant staff; not focussed on the Environmental Management team, who may be more effectively employed in an overseeing/review role rather than implementation role. |
| Environmental Management Systems<br>Section 6.6 | The EMS should be implemented, and observations on the implementation of the EM Strategy addressed. |

Recommendations have not been made in relation to the incidents of clearing for the construction of a fence around the lease area and the construction of the rail loop across Bora Creek as it is understood that DoP and DECCW have conducted their own investigations of these incident.

9

# Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of MCO and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 9th September 2009.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between October 2009 and June 2010 and is based on the conditions encountered and information reviewed at the time of the initial site visit dated 2 and 3 December 2009. URS disclaims responsibility for any changes that may have occurred after the time of the site visit dated 2nd and 3rd December 2009. URS has not considered any event or activity that occurred after the December 2009 site inspection.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

A

# Appendix A Compliance Tables - Project Approval Conditions

**SCHEDULE 2**
**ADMINISTRATIVE CONDITIONS**

## Obligation to Minimise Harm to the Environment

**1**. The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

| |
|---|
| **Status:** |
| Several non compliances have been recorded relating to the two environmental incidents referred to elsewhere in the report. Other than where issues have been identified, in general the site appeared to be compliant with most conditions of consent in the Project Approval and associated with the site's EPL and MLs. |
| Key areas of concern related to the management of erosion and sedimentation risks and the implementation of effective controls. These and other non-compliances observed are further discussed in relevant sections of this compliance table. |
| **Evidence Sighted:** |
| Compliance status determined following assessment of observations made throughout the audit period. |
| **Compliance Status:** |
| Non compliant |
| **Recommended Action:** |
| As per specific recommendations made throughout the report and Appendices. |

## Terms of Approval

**2**. The Proponent shall carry out the project generally in accordance with the:

(a) EA;
(b) statement of commitments; and
(c) conditions of this approval.

*Notes:*

- *The general layout of the project is shown in Appendix 2.*
- *The statement of commitments is reproduced in Appendix 3 (excluding the commitments which are directly reflected in, or inconsistent with, the conditions of this approval).*

| |
|---|
| **Status:** |
| MCO have constructed the Rail Loop across Bora Creek and as part of this work had effectively blocked the Creek. This situation arose as a result of the design and construction methodology of installation of culverts in the creek. At the time of the December 2009 site visit, the culverts were in place, but boarded up by wooden panels, aimed at preventing sediment laden water passing through the culverts in the event of heavy rain. That the creek was blocked formed the part of the incident in June 2009. Site staff indicated that the barricade remained in place as they saw this as the best means of sediment control of the creek below. |
| URS could not sight any approval to block the creek, and did not sight in the EA documents an approach that involved blocking the creek. As such, URS could not sight approvals for this construction methodology. |
| An incident of unauthorised clearing occurred along the Mining Lease boundary, not in accordance with the Project Approval. Approximately 4 Ha of vegetation was cleared to facilitate the installation and ongoing maintenance of a fence along the mining lease boundary line. An investigation into this incident was undertaken by DoP with a subsequent prosecution occurring in March 2010. |
| The above comments were observed during the audit process and assessment of the Conditions of Approval. URS has not completed a detailed assessment against all of the specific requirements as stated in the EA or the Statement of Commitments. |
| **Evidence Sighted:** |
| Compliance status determined following assessment of observations made throughout the audit period. |
| **Compliance Status:** |
| Non compliant in respect of issue indicated above. |
| **Recommended Action:** |
| As per specific recommendations made throughout the report and Appendices. |

**2A**. If there is any inconsistency between the above, the conditions of this approval shall prevail to the extent of the inconsistency.

| |
|---|
| **Status:**<br>Moolarben stated that no significant inconsistencies between the above documents had been identified. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Noted. |

**3**. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:

(a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with this approval; and

(b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.

| |
|---|
| **Status:**<br>During the initial preparation of the various environmental Management Plans, MCO had responded to numerous requests from the DoP to provide information, prior to submission for approval.<br>MCO stated that feedback on the content of the draft Management Plans (accepted as approved for the construction activities) had been incorporated into the revised versions for the operational works. At the time of the first site inspection, no feedback had been obtained regarding the content of the revised Management Plans.<br>The Surface and Groundwater Response Plan was one example where considerable changes were required to be made (Condition 3/39) as part of the DGs requirements and feedback on plans submitted.<br>MCO stated that they had responded directly to feedback obtained from the DoP and DECCW during the enquiries which arose as a result of an incident on the site (Condition 5/03).<br>At the time of the first site visit, DoP were still to review the Annual Environmental Management Report (AEMR). Comments were provided by DoP on the AEMR dated 24 February 2010 and site was re-writing sections of the document to address the noted issues. |
| **Evidence Sighted:**<br>Correspondence referring to requirements of the Director-General is identified under the conditions relevant to individual Management Plans, Strategies and Monitoring Programs. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Limits on Approval

**4**. Mining operations may take place for 21 years from the grant of the mining lease for the project.

*Note: Under this approval, the Proponent is required to rehabilitate the site and provide offsets to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated and the offset provided to a satisfactory standard.*

| |
|---|
| **Status:** |
| During the audit period to the end of November 2009, no mining of coal had taken place, and was not expected to commence until end March 2010. Excavation of overburden had commenced at the time of the audit. |
| Note that the Mining Leases (1605 and 1606) were granted in December 2007. |
| **Evidence Sighted:** |
| Viewed Mining Leases 1605 and 1606. |
| **Compliance Status:** |
| Compliant. |

**5**. The Proponent shall not:

(a) produce more than 10 million tonnes of coal a year; or

(b) extract more than 8 million tonnes of ROM coal a year from the open-cut mining operations, and 4 million tonnes of ROM coal a year from the underground mining operations.

| |
|---|
| **Status:** |
| No mining of coal had taken place during the audit period and was not expected to commence until early 2010. |
| **Evidence Sighted:** |
| AEMRs, Quarterly Environmental Reports and Annual Return to EPL. |
| **Compliance Status:** |
| Not yet applicable |

**6**. The Proponent shall only transport coal from the site by rail.

| |
|---|
| **Status:** |
| No mining of coal had taken place during the audit period. It is intended that all coal be transported by rail using the rail loop under construction at the time of the site visit. |
| **Evidence Sighted:** |
| AEMRs, Quarterly Environmental Reports and Annual Return to EPL. |
| **Compliance Status:** |
| Not yet applicable |

## Staged Submission of Management Plans/Monitoring Programs

**7**. With the approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

| |
|---|
| **Status:** |
| MCO stated that the submission in progressive stages is their preferred method for the development of Management Plans and Monitoring Programs, as this allows continual upgrade and improvement of these working documents, as the project progresses. |
| **Evidence Sighted:** |
| Letter from DoP (dated 9/3/08) viewed, agreeing to this approach. |
| **Compliance Status:** |
| Compliant. |

**7A**. Within 3 months of any modifications to this approval, the Proponent shall review and if necessary revise all strategies/plans/programs required under this approval which are relevant to the modification to the satisfaction of the Director-General.

| |
|---|
| **Status:** |
| MCO pointed out that review and revision of Management Plans, Monitoring Programs and the Environmental Management Strategy was ongoing, as a result of the proposed commencement of mining operations at the site. |
| **Evidence Sighted:** |
| Revised versions of each of the management plans and monitoring programs have been obtained from MCO and viewed (see Section 6.3). |
| **Compliance Status:** |
| Compliant. |

## Structural Adequacy

**8**. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

*Notes:*

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

| |
|---|
| **Status:** |
| At the time of the end of the audit period to November 2009, MCO stated that no Construction Certificates (CCs) or Occupation Certificates (OCs) were in place for any of the structures present or under construction at the site. A visit from MWRC was planned for early December, in order to obtain some certification for buildings and structures already in place, and for those planned and under construction. MCO pointed out that much of the delay in obtaining these lay with Council.<br>MCO indicated that they were very confident that there were no shortcomings in the design of the buildings and structures on the site. |
| **Evidence Sighted:** |
| |
| **Compliance Status:** |
| Non compliant. |
| **Recommended Action:** |
| MCO should endeavour to accelerate the Construction Certificate process to comply with Council building requirements. |

## Demolition

**9**. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

| |
|---|
| **Status:** |
| MCO stated that during the audit period, no demolition had taken place within the Stage 1 project area on properties acquired by MCO. However, it was pointed out that four derelict rural properties had been demolished at locations outside of the Stage 1 area.<br>MCO stated that Council Approval had been obtained and the appropriate AS2601 demolition procedures had been followed for this work, including the identification and licensed removal of asbestos containing materials. |
| **Evidence Sighted:** |
| None seen. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |
| |

## Operation of Plant and Equipment

**10**. The Proponent shall ensure that all plant and equipment used at the site is:

(a) maintained in a proper and efficient condition; and

(b) operated in a proper and efficient manner.

**Status:**

It was stated by MCO that there have been no incidents recorded relating to on-site plant and equipment failures or maintenance issues. MCO noted that all equipment is brand new and 'state of the art'.

At the time of the December 2009 site visit the permanent maintenance areas were still under construction, however temporary facilities were in place for routine maintenance of site plant and vehicles.

.Management staff indicated that the procedure for recruiting new mining related staff was thorough and carefully scrutinised an individual's training, experience and work attitude. Probationary periods were much longer than industry standard, to ensure that the preferred culture was adopted for the operation.

**Evidence Sighted:**

Compliance status was determined following the assessment of observations made throughout the audit period, both around the site and in the interviews with site staff.

All the equipment viewed operating on the site appeared to be new.

Maintenance Schedules were established for all MCO equipment. In addition the '1 Week Production Plan' includes a weekly snapshot of the upcoming equipment maintenance for the week. The 1 Week Production Plan for the 7 May 2010 was observed showing the scheduled maintenance of drills, excavators, trucks and dozers.

The high volume air sampler is reportedly calibrated every two months by the suppliers. The calibration report prepared by Ecowise Environmental was viewed dated 30 March 2010 for the two units.

The noise loggers for the unattended noise monitoring and the dust TEOM units are calibrated by contractors (Novecom) on a monthly basis. The SentineX Noise Unit Service Report and the Sentinex Dust (TEOM) Unit Service Report both dated 20 January 2010 were viewed. In addition to the monthly maintenance, the TEOM units also undergo an annual service. The service reports prepared by Lear Siegler Australasia for the three units (including the mobile unit) were viewed dated 5 November 2009.

The meteorological station is reportedly overhauled annually. The field performance inspection certificates for the two meteorological stations, prepared by Carbon Based Environmental and dated 22 February 2010, were viewed.

The Environment and Community induction includes requirements on the proper and efficient operation of equipment.

**Compliance Status:**

Compliant.

## Planning Agreement

**11**. Within 12 months of this approval, the Proponent shall enter into a planning agreement with Council in accordance with:

(a) Division 6 of Part 4 of the EP&A Act; and

(b) the terms of the Proponent's offer to the Minister on 4 September 2007, which includes the matters set out in Appendix 4.

**Status:**

An agreement between MCO, Felix and MWRC was concluded during April 2008.

**Evidence Sighted:**

Copy of Agreement viewed "Moolarben Coal Project Planning Agreement" dated 23/04/08, between MCO, MWRC and Felix Resources.

**Compliance Status:**

Compliant

## SCHEDULE 3
## SPECIFIC ENVIRONMENTAL CONDITIONS

## ACQUISTION OF AFFECTED PROPERTIES

### Acquisition upon Request

**1**. Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in conditions 10-12 of Schedule 4.

*Table 1: Land subject to acquisition upon request*

| | |
|---|---|
| 4 – M. Swords | 5 – M & P Swords |
| 6 – Thompson | 15 – Green |
| 20 – Williamson | 25 – Tuck-Lee |
| 29a – E. Mayberry | 29b – E. Mayberry |
| 29 – E. Mayberry | 33 – K. & R. Mayberry |
| 36 – Rayner | 50 – C. Mayberry |
| 134 – M.J. & H. Swords | 163 – C.M. & J.J. Key |
| 164 – J.J. Key | 166 – C.M. Key |

*Note: For information on the numbering and identification of properties used in this approval, see Appendix 5.*

| |
|---|
| **Status:**<br>MCO stated that the Acquisition upon Request process was underway and all owners mentioned on the list were aware of the situation regarding acquisition. Not all properties on the list had been acquired at the end of the audit period as some landowners did not wish to sell at that time. |
| **Evidence Sighted:**<br>A list of all properties acquired to the date of the end of the audit period (November 2009) was viewed, which indicated the status of those properties was still under negotiation. Copies of letters sent to the above landowners notifying them of their entitlement to request that their property is acquired were viewed dated 24 September 2007. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## NOISE
## Noise Impact Assessment Criteria

**2**. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, or on more than 25% of any privately-owned land.

*Table 2: Noise impact assessment criteria dB(A)*

| Land Number | Day | Evening | Night | |
|---|---|---|---|---|
| | $L_{Aeq(15min)}$ | $L_{Aeq(15min)}$ | $L_{Aeq(15min)}$ | $L_{A1(1min)}$ |
| 26, 49 | 38 | 38 | 38 | 45 |
| 22, 23, 41A, 63, 64, 170, 171, 172 | 38 | 38 | 37 | 45 |
| 169, 173 | 37 | 37 | 37 | 45 |
| All other privately owned land (outside the village of Ulan) | 35 | 35 | 35 | 45 |
| Ulan Primary School | 35 (internal) when in use and under all weather conditions | | | - |
| Ulan Anglican Church<br>Ulan Catholic Church | 35 (internal) when in use and under all weather conditions | | | - |
| Goulburn River National Park<br>Munghorn Gap Nature Reserve | 50 | | | - |

However, the Proponent may exceed the noise limits in Table 2 if it has:

(a) a written negotiated noise agreement with any landowner for higher noise limits, and a copy of this agreement has been forwarded to the Department and DECC; or

(b) an approved Construction Noise Management Plan (see condition 7 below) for the project, which sets higher noise limits for a specified period.

*Notes:*

- *To determine compliance with the $L_{Aeq(15\ minute)}$ noise limits, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
- *To determine compliance with the $L_{A1(1\ minute)}$ noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
- *The noise emission limits identified in the above table apply under meteorological conditions of:*
  - o *wind speeds of up to 3 m/s at 10 metres above ground level ; or*
  - o *temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.*

**Status:**

The approved Construction Noise Monitoring Program (CNMP) specifies the following noise criteria for 0 to 6 months:

| Receiver | Daytime Criterion $L_{Aeq(15\ min)}$ [1] |
|---|---|
| 26, 49, 22, 23, 41A, 63, 64, 170, 171, 172 | 43 |
| 169, 173 | 42 |
| All other privately owned land (outside the village of Ulan) | 40 |
| Ulan Primary School | 43 $L_{Aeq\ (15\ min)}$ External When in use and under all weather conditions |
| | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions |
| Ulan Anglican Church<br>Ulan Catholic Church | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions |
| Goulburn River National Park<br>Munghorm Gap Nature Reserve | 50 $L_{Aeq\ (15\ min)}$ |

Notes: 1. $L_{A10(15min)}$ was used in the CNMP. Consistent with the DECC's Draft Construction Noise Guideline (2008), which was the latest guideline when the CNMP was prepared, noise levels should be assessed using $L_{Aeq(15min)}$.

And 7 to 15 months:

| Receiver | Day | Evening | Night | |
|---|---|---|---|---|
| | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{A1(1\ min)}$ |
| 26, 49 | 38 | 38 | 38 | 45 |
| 22, 23, 41A, 63, 64, 170, 171, 172 | 38 | 38 | 37 | 45 |
| 169, 173 | 37 | 37 | 37 | 45 |
| All other privately owned land (outside the village of Ulan) | 35 | 35 | 35 | 45 |
| Ulan Primary School | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions | | | - |
| Ulan Anglican Church<br>Ulan Catholic Church | 35 $L_{Aeq\ (15\ min)}$ Internal When in use and under all weather conditions | | | - |
| Goulburn River National Park<br>Munghorn Gap Nature Reserve | 50 $L_{Aeq\ (15\ min)}$ | | | - |

Construction activities commenced at the site in April 2009 therefore the criteria outlined in the first table above were applicable for the period April to September 2009 and the criteria outlined in second table above were applicable for the period from October 2009.

**Evidence Sighted:**

During the audit period, MCO established continuous noise loggers at two locations (Ulan School and a mobile unit). The loggers provide real-time noise data which can be used for the purpose of assessing compliance with the noise criteria in addition to providing a management tool to monitor and mitigate potential noise impacts. Advitech Pty Ltd was engaged by MCO to collate, analyse and report on the continuous noise monitoring results on a quarterly basis. URS reviewed the reports prepared by Advitech for January to March 2009, April to June 2009, July to August 2009 and September to November 2009 and note the following:

- January to March 2009: MCO activities limited to preparation works including road improvements around the proposed Coal Handling Plant, rail loop and administration centres. Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 36% of the time it was in-use in the absence of any contribution from activities associated with MCO.
- Measured noise levels were above the criterion 28% of the night time period at R26 in the absence of any contribution from mining activities associated with MCO.
- April to June 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 66% of the time it was in-use. Advitech concluded that road noise, meteorological impacts and the operation of the school (i.e. children playing in the school yard) were the dominant noise sources at this location. Construction noise in the form of reversing alarms was observed on one occasion on 8 May, however a review of the recorded audio by Advitech concluded that the school was not in use at the time and the observed impact had diminished to the point of inaudibility by 9:00 am when school operations commenced. The noise criteria for the school is applicable when the school is in use.
- Measured noise levels at R26 were above the 43 dB(A) criterion for approximately 58% of the day period (approximately 22% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the audio files and concluded that road noise and other transportation sources dominated the noise environment at R26 and that noise generating activities consistent with construction works were not identified during the review of audio at this location.
- July and August 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 78% of the time it was in-use. Advitech considered that road noise, meteorological impacts and the operation of the school were the dominant noise sources and that noise generating activities consistent with construction activities, while audible on occasion, were not considered to have contributed to results exceeding the criteria.
- Measured noise levels at R26 were above the 43 dB(A) criteria for approximately 99% of the day period (approximately 13% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the recorded audio and concluded that road noise and other transportation sources dominated the noise environment and that noise generating activities consistent with construction activities, while audible, were not considered to have contributed to results exceeding the criteria.
- September and November 2009: Measured noise levels at Ulan Primary school were above the 43 dB(A) indicator approximately 89% of the time it was in-use. Advitech considered that road noise, meteorological impacts and the operation of the school were the dominant noise sources and that noise generating activities consistent with construction activities, while audible on occasion, were not considered to have contributed to results exceeding the criteria.
- Measured noise levels at R26 were above the 43 dB(A) criterion for approximately 99% of the day period (approximately 58% of the data was excluded due to prevailing meteorological conditions). Advitech reviewed the recorded audio and concluded that road noise and other transportation sources dominated the noise environment and that noise generating activities consistent with construction activities, while audible, were not considered to have contributed to results exceeding the criteria.

The continuous noise monitoring data could not accurately confirm compliance with noise criteria due to other noise sources dominating at the monitoring locations such as road noise, other transportation noise and school noise.

The real-time unattended noise monitoring was supplemented by attended monitoring for the purpose of assessing compliance as required by the Project Approval Conditions. During the audit period Spectrum Acoustics was engaged to undertake attended noise monitoring at the locations identified in the CNMP to assess compliance with the above noise criteria. The auditors and URS noise expert reviewed the monitoring reports prepared by Spectrum Acoustics for the months April 2009 to December 2009 and noted the following:

- The October 2009 monitoring report was not available.
- For the period April to September 2009 the monitoring results indicated that noise attributed to the Moolarben coal mine was either below the 0 – 6 month construction criteria or inaudible when measured at the identified sensitive receivers. In each case other noise sources contributed to the measured Leq including traffic (both local traffic near the monitoring site and traffic on Ulan – Mudgee Road), noise from other mines in the area and bird noise.
- For the period November to December 2009 the monitoring results indicated that noise attributed to the Moolarben coal mine was either below the 7 – 15 month construction criteria or inaudible when measured at the identified sensitive receivers. In each case other noise sources contributed to the measured Leq.

The monitoring reports provided by Spectrum Acoustics continued to compare measured noise levels with the 0 – 6 month construction criteria post September 2009 instead of applying the 7 – 15 month criteria. Although it is noted that the 0 – 6 month construction criteria was proposed for the construction of the environmental bund and that works on the rehabilitation of the bund continued post the 6 month period the auditors consider that the 7 – 15 month criteria should be applicable from October 2009 as specified in the CNMP.

**Compliance Status:**

Compliant.

**Recommended Action:**

It is recommended that MCO apply the correct construction noise criteria (7 -15 month) as specified in the CNMP when comparing monitoring results for the purpose of assessing compliance.

It is recommended that alternative methods of determining compliance are agreed with the DECCW, documented in the Noise Management Plan and implemented.

The footnotes to PAC 3/2 state that:

*"Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy)."*

Chapter 11 of the Industrial Noise Policy (INP) allows for noise measurement closer to the noise source and extrapolation of the noise levels to the sensitive receivers. In the auditors opinion this method would provide a more accurate and transparent determination of the noise levels from the MCO.

## Land Acquisition Criteria

**3**. If the noise generated by the project exceeds the relevant criteria in Table 3 at any residence on privately owned land or on more than 25% of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 10-12 of Schedule 4.

*Table 3: Land acquisition criteria dB(A)*

| Day/Evening/Night $L_{Aeq(15min)}$ | Land Number |
|---|---|
| 43 / 43 / 43 | 26, 49 |
| 43 / 43 / 42 | 22, 23, 41A, 63, 64, 170, 171, 172, |
| 42 / 42 / 42 | 169, 173 |
| 40 / 40 / 40 | All other private land owners not listed in Table 1 |

*Note: Noise generated by the project is to be measured in accordance with the notes presented below Table 2.*

**Status:**

MCO stated that it has not received a written request for acquisition from any landowner under this PAC.

**Evidence Sighted:**

The attended monitoring reports prepared by Spectrum Acoustics did not indicate that the land acquisition criteria hadhave been exceeded by MCO during the audit period.

**Compliance Status:**

Not applicable.

**Recommended Action:**

## Cumulative Noise Criteria

**4**. The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately owned land, or on more than 25% of any privately owned land, excluding the land listed in Table 1, to the satisfaction of the Director-General:

. $L_{Aeq(11\ hour)}$ *50 dB(A) - Day;*
. $L_{Aeq(4\ hour)}$ *45 dB(A) - Evening;*
. $L_{Aeq(9\ hour)}$ *40 dB(A) – Night.*

| |
|---|
| **Status:** |
| MCO stated that it had taken all reasonable and feasible measures to meet the cumulative noise criteria throughout the audit period. |
| **Evidence Sighted:** |
| Data from the continuous noise loggers was used to assess compliance with the cumulative noise criteria. Advitech Pty Ltd has been engaged by MCO to collate, analyse and report on the continuous noise monitoring results on a quarterly basis. The quarterly reports prepared by Advitech for January to March 2009, April to June 2009, July to August 2009 and September to November 2009 were reviewed by the auditors. The reports indicated instances were the measured $L_{AeqLF,period}$ noise levels exceeded the 50 dB(A) day time cumulative noise criteria at Ulan School and R26. In these instances Advitech reviewed the recorded audio and indicated that the dominant noise sources were non-mining related including road noise and meteorological influences. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**5**. If the cumulative noise generated by the project combined with the noise generated by other mines exceeds the following amenity criteria at any residence on privately owned land, or on more than 25% of privately owned land, excluding the land listed in Table 1, then upon receiving a written request from the landowner, the Proponent shall take all reasonable and feasible measures to acquire the land on as equitable basis as possible with the relevant mines, in accordance with the procedures in conditions 10-12 of schedule 4, to the satisfaction of the Director-General:

. $L_{Aeq(11\ hour)}$ *53 dB(A) - Day;*
. $L_{Aeq(4\ hour)}$ *48 dB(A) - Evening;*
. $L_{Aeq(9\ hour)}$ *43 dB(A) – Night.*

*Notes:*
. *For the purpose of this condition, the expression "Proponent" in conditions 10-12 of schedule 4 should be interpreted as the Proponent and any other relevant mine owners.*
. *The cumulative noise generated by the project combined with the noise generated by other mines is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.*

| |
|---|
| **Status:** |
| For the audit period, MCO stated that this situation had not been not triggered. No exceedances attributable to mining operations had been registered during the audit period. MCO reported that it had not received any written requests for land acquisition from any landowners. |
| **Evidence Sighted:** |
| Advitech quarterly reports. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## Traffic Noise Impact Assessment Criteria

**6**. The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project combined with the traffic noise generated by other mines does not exceed the traffic noise impact assessment criteria in Table 4.

*Table 4: Traffic noise criteria dB(A)*

| Road | Day/Evening $L_{Aeq(1\ hour)}$ | Night $L_{Aeq(1\ hour)}$ |
|---|---|---|
| Ulan Road | 60 | 55 |

*Note: Traffic noise generated by the project is to be measured in accordance with the relevant procedures in the DECC's Environmental Criteria for Road Traffic Noise.*

| |
|---|
| **Status:** |
| Monitoring to assess compliance with the traffic noise impact assessment criteria was not undertaken during the audit period therefore MCO can not demonstrate compliance with the above criteria. |
| **Evidence Sighted:** |
| Traffic noise monitoring was not undertaken during the audit period. |
| **Compliance Status:** |
| Non Compliant. |
| **Recommended Action:** |
| Implement traffic noise monitoring and analysis to enable assessment of compliance with the traffic noise impact assessment criteria. |

## Noise Mitigation – Initial Construction

**7**. The Proponent shall prepare and implement a Construction Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:

(a) be prepared in consultation with the DECC by a suitably qualified expert whose appointment has been approved by the Director-General;
(b) be submitted to the Director-General for approval prior to carrying out any construction on site;
(c) contain construction noise goals for the first 6 months of construction;
(d) describe what measures would be implemented to minimise the construction noise impacts of the project during the first 6 months of construction, with particular emphasis on minimising the impacts on Ulan School and its pupils;
(e) describe how the effectiveness of these measures would be monitored;
(f) document the procedures that would be followed if an exceedance of the construction noise goals are detected.

| |
|---|
| **Status:** |
| A Construction Noise Management Plan (CNMP) was prepared for the construction phase of the project. |
| **Evidence Sighted:** |
| The CNMP was viewed and is posted on the MCP website. |
| (a) Neil Pennington of Spectrum Acoustics was approved by DoP to prepare the CNMP (letter 9/03/08). Evidence of consultation with DECC in the preparation stages (letter dated 29/08/08); |
| (b) Confirmation of submission of CNMP to DoP (letter 29/9/08) and Approval confirmed (letter from DoP 17/12/08) |
| (c ) Section 3.3.1 of the CNMP describes the construction noise goals for the first 6 months of construction; |
| (d) Sections 5 and 6 of the CNMP describe the measures to be implemented to minimise the construction noise impacts of the project during the first 6 months of construction; |
| (e) Section 5 of the CNMP describes how the effectiveness of these measures will be monitored; |
| (f) Section 6.3 of the CNMP documents the procedures that would be followed in an exceedance of the construction noise goals was recorded. |
| **Compliance Status:** |
| Preparation of Document: Compliant. |
| Implementation of Plan: Some non compliances were identified and reference is made to these in Section 6.5 of the main report. |
| **Recommended Action:** |
| Refer to recommendations made in Section 6.5 of main report. |

## Additional Noise Mitigation Measures

**8**. Upon receiving a written request from a landowner:

- of the land listed in Table 1 (unless the landowner has requested acquisition); or
- of the following land: 26, 49, 22, 23, 41A, 63, 64, 170, 171, 172; or
- of any residence on privately owned land outside the Ulan Village where subsequent noise monitoring shows the noise generated by the project is greater than or equal to $L_{Aeq(15\ min)}$ 38 dB(A) (except where a negotiated noise agreement is in place);

the Proponent shall implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

*Note: For the purposes of this approval Ulan Village is defined by the area coloured pink on the map in Appendix 6.*

These additional mitigation measures must be reasonable and feasible. If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution. Within 3 months of this approval, the Proponent shall notify all applicable landowners that they are entitled to receive additional noise mitigation measures.

| |
|---|
| **Status:** |
| MCO stated that no written requests had been received from landowners pertaining to this aspect of noise mitigation. |
| **Evidence Sighted:** |
| Letter from D-G to MCP confirming which landowners entitled to this option (9/03/08). |
| **Compliance Status:** |
| Compliant. |

## Continuous Improvement

**9**. The Proponent shall:

(a) include in each Annual Environmental Monitoring Report (AEMR) required by Condition 5 (Schedule 5) a review of best practice noise mitigation measures that could be reasonably and feasibly applied to the ongoing operation of the mine;

(b) where there is a clear public benefit in the application of such measures, implement these measures to the satisfaction of the Director-General; and

(c) ensure that any additional measures implemented as part of this condition are considered in all future AEMR's and Independent Environmental Audit's required under Condition 6 (Schedule).

**Status:**

The 2008/09 AEMR reported that the following noise mitigation measure was implemented during the reporting period:

- Haul trucks that have noise attenuation systems installed were utilised. These systems consist of two primary silencers and a secondary silencer. The two primary silencers attenuate mid to high frequency noises while the secondary silencer attenuates low frequency noise.

In addition the AEMR reported that the following measure would be undertaken during the next reporting period:

- Investigation into the installation of alarming systems on the real time noise monitoring stations

The AEMR however did not present a detailed review of best practice noise mitigation measures and an assessment of whether these measures could be reasonably or feasibly applied to the ongoing operation of the mine.

In addition to the measures outlined in the AEMR, MCO implemented the following mitigation measures to lead to continued improvement in the noise performance of the mine:

- Additional noise attenuation features in the form of low frequency reversing alarms were fitted onto site trucks.
- A silent alarm system was installed on dozers and excavators to reduce horn use as a means of communication between the dozer and the excavator drivers.
- In March 2010 alarming systems were installed on the real-time noise monitoring stations to alert the ECRM and site supervisors that noise levels are approaching the criteria threshold levels and that additional noise controls such as modifying the operation may need to be implemented.

**Evidence Sighted:**

2008/2009 AEMR (Section 3.13.1).

**Compliance Status:**

Compliant.

**Recommended Action:**

It is recommended that MCO undertakes a review of available best practice noise mitigation measures and conducts an assessment of whether they can be reasonably or feasibly applied. The assessment should include a review of the public benefit of the application of such measures. The outcomes of this review should be detailed in the 2009/10 AEMR.

## Monitoring

**10**. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:

(a) be prepared in consultation with DECC;

(b) be submitted to the Director-General for approval prior to carrying out any construction on site; and

(c) include:

. a combination of real-time and supplementary attended monitoring measures; and

. noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.

*Note: This program must expressly monitor the modifying factors referred to in the NSW Industrial Noise Policy (such as intermittency, tonality and low frequency).*

**Status:**

A Noise Monitoring Program (NMP) was prepared (dated December 2008) and implemented for the construction phase of the project.

MCO stated that they have also reviewed the NMP and revised the document in anticipation of the commencement of operational activities at the mine in early 2010. The Operational Noise Management Plan was provided to the DoP for approval on the 16th November 2009. .

**Evidence Sighted:**

The NMP (dated December 2008) was viewed and is posted on the MCO website.

(a) Evidence of consultation with DECC (letter dated 03/06/08).

(b) Confirmation of submission of NMP to DoP (letter 29/9/08) and Approval confirmed (letter 17/12/08);

(c) Both real time and attended monitoring methods were proposed in the NMP (Section 5), as well as a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria stipulated in the approval (Section 5.3). Modifying correction factors for *intermittency, tonality and low frequency* were addressed in Section 3.3.7.

**Compliance Status:**

Preparation of Plan: Compliant.

Implementation of Plan: Some non compliances were identified and are presented in Section 6.5 of the main report.

**Recommended Action:**

Refer to recommendations made in Section 6.5 of the main report.

## BLASTING AND VIBRATION
## Airblast Overpressure Impact Assessment Criteria

**11**. The Proponent shall ensure that the airblast overpressure level from blasting at the project does not exceed the criteria in Table 5 at any residence on privately owned land.

*Table 5: Airblast overpressure impact assessment criteria*

| Airblast overpressure level (dB(Lin Peak)) | Allowable exceedance |
|---|---|
| 115 | 5% of the total number of blasts over a period of 12 months |
| 120 | 0% |

**Status:**

Blasting commenced on 7th October 2009 on a weekly basis (approximately) and MCO stated that no exceedances of the stipulated criteria had occurred during any of the seven blast events undertaken during the audit period.

**Evidence Sighted:**

Blast monitoring is undertaken in-house by MCO. A table summarising blast monitoring results was provided by MCO.

During the audit period blast monitoring was undertaken at the following three locations: BM1 (Ulan School), BM3 (Moolarben Dam Wall) and BM4 (Lagoons Road). As the BM2 monitoring location (Rock Shelters) is over 2km from the blast location (and hence not considered to be impacted by blasting from these locations), no monitoring data have been gathered from this location.

URS reviewed blast monitoring results for the period 7th October 2009 to 26th November 2009 (presented on an Excel summary table). During this period an airblast overpressure level of 117.6 dBL was recorded at BM3 on 29th October 2009. However, it is noted that the overpressure limits do not apply for the BM3 location as it is not a residence.

All other results were below the 115 dBL criterion.

**Compliance Status:**

Compliant.

**Recommended Action:**

## Ground Vibration Impact Assessment Criteria

**12**. The Proponent shall ensure that the ground vibration level from blasting at the project does not exceed the criteria in Table 6.

*Table 6: Ground vibration impact assessment criteria*

| Receiver | Peak particle velocity (mm/s) | Allowable exceedance |
|---|---|---|
| Residence on privately owned land | 5 | 5% of the total number of blasts over a period of 12 months |
| | 10 | 0% |
| 330kV transmission line | 50 | 0% |
| Aboriginal rock shelters | 40 | 0% |

*Note: The impact assessment criteria for Aboriginal rock shelters applies unless the Proponent develops site specific impact assessment criteria to the satisfaction of the Director-General.*

| |
|---|
| **Status:**<br>Blasting commenced on 7th October 2009 on a weekly basis (approximately) and MCO stated that no exceedances of the stipulated criteria had occurred during any of the seven blast events undertaken to date. |
| **Evidence Sighted:**<br>Blast monitoring is undertaken in-house by MCO. A table summarising blast monitoring results was provided by MCO.<br>During the audit period blast monitoring was undertaken at the following three locations: BM1 (UIan School), BM3 (Moolarben Dam Wall) and BM4 (Lagoons Road). As the BM2 monitoring location (Rock Shelters) is over 2km from the blast location, no monitoring data have been gathered from this location.<br>URS reviewed a summary of the blast monitoring results for the period 7th October 2009 to 26th November 2009. The results indicated no instances where a peak particle velocity of 5 mm/s was exceeded. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Blasting Hours

**13**. The Proponent shall only carry out blasting at the project between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of DECC.

| |
|---|
| **Status:**<br>MCO stated that blasting was normally undertaken around midday on weekdays (Wednesday) and that all blasts had taken place within the specified time intervals. |
| **Evidence Sighted:**<br>The time of the blast is recorded on a summary of the blast monitoring results provided by MCO. A review of the blasting events and monitoring results for the period 7th October 2009 to 26th November 2009 indicated no instances where blasts were undertaken outside of these hours. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Blasting Frequency

**14**. The Proponent may carry out:

(a) 2 blasts a day;

(b) 9 blasts a week, averaged over any 12 month period, including

(c) a maximum of 4 blasts a week, averaged over any 12 month period, with a maximum instantaneous charge (MIC) of greater than 650kg.

| |
|---|
| **Status:** |
| MCO stated that they had remained within the stipulated maximum frequency of blasting. |
| **Evidence Sighted:** |
| A review of the blasting events and monitoring results provided for the period 7th October 2009 to 26th November 2009 indicated no instances where more than one blast was conducted per week. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## Operating Conditions

**15**. During mining operations, the Proponent shall:

(a) implement best blasting practice to:

. protect the safety of people and livestock in the area surrounding blasting operations;

. protect public or private infrastructure/property in the area surrounding blasting operations from blasting damage; and

. minimise the dust and fume emissions from blasting at the project; and

(b) co-ordinate blasting on site with the blasting at the adjoining Ulan and Wilpinjong coal mines to minimise the potential cumulative blasting impacts of the three mines, to the satisfaction of the Director-General.

| |
|---|
| **Status:** |
| MCO indicated that the first phase of blasting took place during the few weeks prior to the December 2009 site audit visit. This blasting was associated with the ground clearing operations at Open Cut 1.<br>MCO stated that they had undertaken a risk assessment of the entire blasting process prior to undertaking the first blast. As an extra precaution, the main public road past the site was closed for the event, even though it was outside the 500m zone stipulated in Section 4.2 (Public Safety) of the revised Blast Management Plan.<br>In addition, to minimise the potential impact on the surrounding area, the size of the blasts was controlled, by commencing with a small scale blast and building up slowly, to allow monitoring of conditions steadily as the size of the blast increased.<br>MCO also pointed out that coordination of blasts times is undertaken with both neighbouring mines (Ulan were not blasting at present and Wilpinjong undertake blasting following a regimented program). This coordination was normally done by means of a telephone call. |
| **Evidence Sighted:** |
| Blast warning signs, with spaces provided for the actual time of the proposed blast, were observed along the main public road adjacent to the Open Cut 1 area.<br>A copy of the Blast Management Plan (dated November 2009) was viewed, which incorporated details on blasting practice and measures to protect people and livestock, property and infrastructure, and minimise dust and fume emissions from the blasting operations (Sections 4.0 and 4.7).<br>A copy of the Broad Brush Risk Assessment (dated June 2009) was viewed, which addressed risk associated with blasting at the site.<br>The Drill and Blast Checklist includes details of communications with other mines and includes a check box asking if MCO is blasting the same day as Ulan and Wilpingjong mines. Communications with the other mines is conducted by the Blast Supervisor and recorded on the checklist. A completed Drill and Blast Checklist was observed dated 15 October 2009.<br>No evidence of satisfaction being expressed by the D-G for coordination of blasting with neighbouring mines was available. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**16**. The Proponent shall not undertake blasting within 500 metres of:

(a) the Ulan-Wollar Road without the approval of Council;
(b) the Ulan Road without the approval of the RTA;
(c) the Gulgong-Sandy Hollow Railway Line without the approval of the ARTC;
(d) the Wollar-Wellington 330kV Transmission Line without the approval of Transgrid; and
(e) any privately-owned land or adjoining mine-owned land, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property to the satisfaction of the Director-General.

| |
|---|
| **Status:** |
| MCO stated that no blasting had been undertaken within any of these specified areas. All blasting to date had been within the initial clearance area of Open Cut 1. |
| **Evidence Sighted:** |
| Viewed summary of blasting events and monitoring results undertaken to date. |
| **Compliance Status:** |
| Compliant. |

## Public Notice

**17**. During mining operations, the Proponent shall:

(a) notify the landowner/occupier of any residence within 2 kilometres of the open cut mining operations who registers an interest in being notified about the blasting schedule at the mine;
(b) operate a Blasting Hotline, or alternate system agreed to by the Director-General, to enable the public to get up-to-date information on the blasting schedule at the project;
(c) advertise the blasting hotline number in a local newspaper at least 4 times each year; and
(d) publicise an updated blasting schedule on its website, to the satisfaction of the Director-General .

| |
|---|
| **Status:** |
| MCO stated that prior to blasting activities commencing, each of the requirements of the condition were addressed, with letters sent out to property owners, a Blasting Hotline being set up and advertised, and relevant information provided on the MCO website.<br>MCO outlined the five methods that were available for landowners to be notified about blasting times. These were:<br>• the website,<br>• the blasting hotline,<br>• by post,<br>• by e-mail (four individuals had requested this method),<br>• by direct telephone call on day of the blast (five individuals were informed by this method, including the four who had requested e-mail confirmation) |
| **Evidence Sighted:** |
| (a) MCO stated that letters had been sent to relevant landowners by post. A copy of the Pre-blast Notification Register was viewed and was current to the 7 May 2010. The register lists the residents who had requested a telephone call on the day of the blast and includes the date and time they were contacted and notes on who was spoken to or if a message was left. The register is updated by the Environmental Coordinator.<br>The Drill and Blast Checklist includes details of the residents that requested to be notified by email the day before a blast. The emails are sent by the Blast Supervisor and the time recorded on the checklist. A completed Drill and Blast Checklist was observed dated 15th October 2009.<br>(b) The AEMR states that a blasting hotline had been established, with the number 1800 556 484. This number was dialled, and found to be valid;<br>(c ) A copy of the advertisement submitted to the local newspaper was viewed;<br>(d) The MCO website listed a number of proposed blast times (including 29/11/09 at 12.30 pm). |
| **Compliance Status:** |
| Compliant. |

## Property Inspections

**18**. Prior to starting mining operations, the Proponent shall:

(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to prepare a report of the condition and structural integrity of:

. Ulan Public School;
. Ulan Catholic Church;
. Ulan Anglican Church;
. the historic heritage items with moderate to exceptional heritage significance identified in Appendix 6; and
. any building or structure on privately owned land within 2 kilometres of open cuts 1, 2 or 3, and

(b) give the relevant land owner a copy of this report.

*Notes:*

. *The preparation of this report may be delayed with the agreement of the relevant land owner.*
. *The Proponent is not required to prepare a report on any building or structure on privately owned land within 2 kilometres of open cuts 1, 2 or 3 if the relevant land owner does not want such a report to be prepared.*

| |
|---|
| **Status:**<br>MCO reported that prior to the commencement of blasting operations, a suitably qualified and approved expert was commissioned to undertake inspections and prepare a report on the condition and structural integrity of the buildings listed. In the case of those buildings within two kilometres of open cuts 1, 2 and 3, inspections were carried out on those structures where requested by the owners. A Structural Engineering Building Investigation Report was prepared for each of the properties surveyed and the reports are currently awaiting finalisation. |
| **Evidence Sighted:**<br>(a) Viewed letter from DoP to MCO (dated 28/7/09) approving L Morris and P Miller of Barnson Engineering as being suitably qualified to undertake the inspections. Letter from Ulan Public School to MCO (dated 5/12/08) confirming that a survey of the school building had been undertaken;<br>(b) Reports were provided to the Anglican Parish, Mr D English, I.C.I Australia Operations, St John the Baptist Church, Mr Tuck-Lee and the Ulan Hotel on the 29 December 2009 (viewed cover letters enclosing reports). |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Property Investigations

**19**. If the landowner of privately owned land within 2 km of an open cut area claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this claim:

(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and
(b) give the landowner a copy of the property investigation report.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director- General.
If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.
If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 8).

| |
|---|
| **Status:**<br>MCO stated that no claims of damage from blasting operations had been received from any landowners within 2 kilometres of blast operations at the mine for the audit period. Any future structural investigations related to such claims would be undertaken by the same team of experts as approved for the initial property surveys. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Blast Monitoring Program

**20**. The Proponent shall prepare and implement a Blast Monitoring Program for the project to the satisfaction of the Director-General. This program must:

(a) be prepared in consultation with the DECC;

(b) be submitted to the Director General for approval prior to carrying out any blasting on site; and

(c) include a protocol for evaluating blasting impacts and demonstrating compliance with the blasting criteria in this approval.

| |
|---|
| **Status:**<br>A Blast Monitoring Program for the construction phase of the program was prepared by Spectrum Acoustics and approved by the DoP in December 2008. This program has now been incorporated into the updated Blast Management Plan (BMP) by MCO staff and resubmitted to DoP for approval prior to the commencement of mining operations, early in 2010. At the time of the audit, approval of the revised BMP had not yet been received. |
| **Evidence Sighted:**<br>(a) Evidence of consultation with DECC in form of letter mentioning receipt of BMP for review (dated 28/11/08).<br>(b) A letter from DoP to MCO approving the BMP for construction activities was viewed (dated 17/12/08); and<br>(c) A copy of the revised BMP (dated November 2009) was reviewed by URS. Section 5 described the Blast Monitoring Program. Section 6 described the protocols for evaluating blasting impacts and demonstrating compliance with the blasting criteria. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## AIR QUALITY
## Impact Assessment Criteria

**21**. The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria in Tables 7, 8, and 9 at any residence on privately owned land, or on more than 25 percent of any privately owned land (excluding the properties listed in Table 1).

*Table 7: Long term impact assessment criteria for particulate matter*

| Pollutant | Averaging period | Criterion |
|---|---|---|
| Total suspended particulate (TSP) matter | Annual | 90 µg/m$^3$ |
| Particulate matter < 10 µm (PM10) | Annual | 30 µg/m$^3$ |

*Table 8: Short term impact assessment criteria for particulate matter*

| Pollutant | Averaging period | Criterion |
|---|---|---|
| Particulate matter < 10 µm ($PM_{10}$) | 24 hour | 50 µg/m$^3$ |

*Table 9: Long term impact assessment criteria for deposited dust*

| Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level |
|---|---|---|---|
| Deposited dust | Annual | 2 g/m$^2$/month | 4 g/m$^2$/month |

*Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*

**Status:**

MCO reported that monitoring results to date had generated no additional exceedances of the air quality impact assessment criteria at these locations due to dust emissions from the project.

**Evidence Sighted:**

***$PM_{10}$***

The monitoring results obtained during the audit period indicated compliance with the annual average criterion.

For assessment of compliance against the 24 hour criterion for $PM_{10,}$ URS performed a review of the MCO monitoring data as presented in the 2008/2009 AEMR and monthly monitoring reports (September 2009 to November 2009 inclusive). There were a total of 14 days in the period after the commencement of significant construction activities, where exceedances of the 50 µg/m$^3$ goal were reported at MCO monitoring sites.

The monthly monitoring reports provide explanations where exceedances of the 50µg/m$^3$ goal are reported in the monitoring data. Some of these explanations are not adequate for demonstration of compliance with the impact assessment criteria. These include:

- On some occasions MCO report *"MCO's contribution was deemed to be less than 50µg/m$^3$ which is not considered to be an exceedance of criteria".* This is not considered appropriate given that the criteria in the approval consent state "*The proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the criteria*". These criteria include the 50µg/m$^3$ 24 hour goal.
- Analysis of dust contribution is based on wind direction when winds are light or calm.

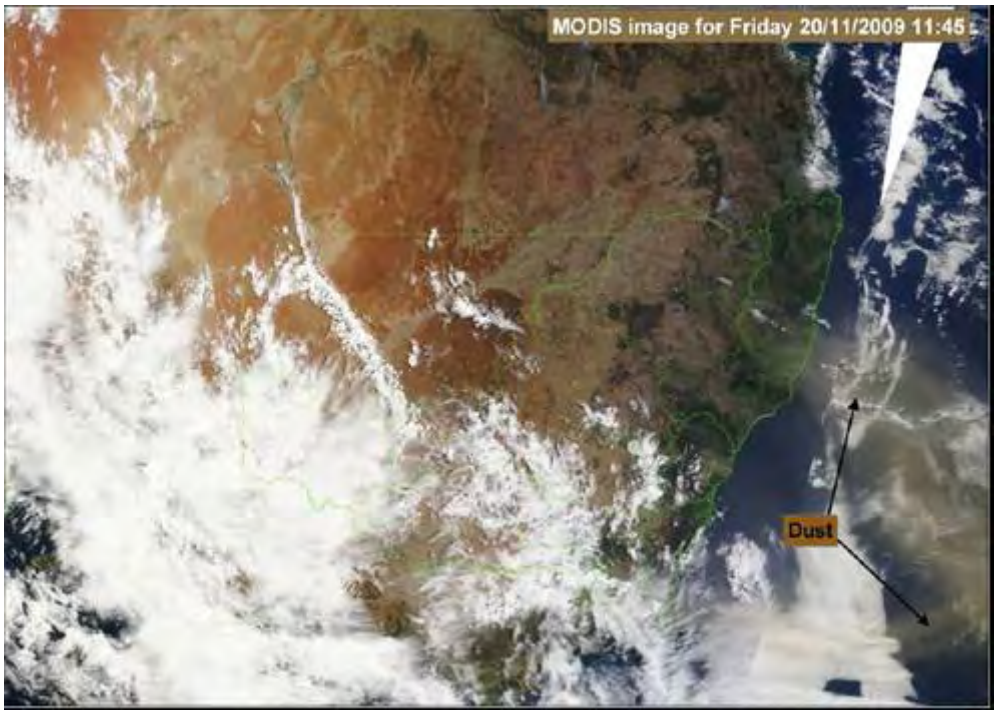
In the absence of the availability of 2009 DECCW National Environmental Protection Measure (NEPM) Ambient Air Quality (AAQ) compliance reports, (which provide logs of regional dust events and is yet to be publically issued for the period of interest), a URS air quality specialist reviewed data available at: http://www.environment.nsw.gov.au/AQMS/dailydata.htm to check for the presence of widespread elevated dust levels, for days where exceedances of the 50µg/m$^3$ goal were reported at MCO monitoring sites.

Dust storms were present for a large part of 2009, where wind blown dust originating from the dry arid regions near to central Australia was transported across New South Wales. The Table below compares the 24 hour $PM_{10}$ concentrations obtained from MCO's loggers with results obtained from the DECCW website. This comparison indicates that dust levels were likely to be elevated on a regional scale for the majority of days where exceedances of the 50µg/m$^3$ goal were reported at MCO monitoring sites.

**Comparison of 24 hour $PM_{10}$ Concentrations**

| | MCO Murragamba | MCO Toole Rd | MCO Ulan | DECCW Wallsend | DECCW Beresfield | DECCW Newcastle | DECCW Tamworth | Widespread Dust Present |
|---|---|---|---|---|---|---|---|---|
| 16/04/2009 | 62.0 | NA | 81.4 | 179.5 | 171.8 | 245.4 | 36.2 | Yes |
| 25/042009 | 99.7 | NA | 119.4 | 81.1 | 96.2 | 85.1 | 68.9 | Yes |
| 01/07/2009 | 65.6 | 57.5 | 60.4 | 59.9 | 71.3 | 71.3 | NA | Yes |
| 23/09/2009 | 2805 | 2853 | 3035 | 2150.3 | 1999.0 | 2426.8 | 1791.4 | Yes |
| 26/09/2009 | 104.0 | 100.0 | 112.2 | 173.9 | 211.4 | 211.6 | 227.2 | Yes |
| 02/10/2009 | 51.8 | ~42 | 51.6 | 35.6 | 56.9 | 46.2 | 59.4 | Yes |
| 13/10/2009 | ~24* | 51.9 | 66.1 | 52.8 | 69.7 | 70.9 | 159.0 | Yes |
| 14/10/2009 | 115.8 | 101.4 | 117.5 | 78.9 | 115.2 | 86.6 | 292.1 | Yes |
| 24/10/2009 | ~42 | 56.1 | ~8 | 18.9 | 25.2 | 26.5 | 15.0 | No |
| 16/11/2009 | 60.0 | ~33 | ~30 | 33.7 | 38.2 | 38.7 | 25.0 | Unclear |
| 17/11/2009 | ~41 | 51.8 | ~47 | 23.5 | 28.2 | 31.5 | 35.9 | Unclear |
| 22/11/2009 | 72.3 | 70.6 | 72.3 | 37.7 | 40.1 | NA | 53.6 | Yes |
| 28/11/2009 | 82.5 | 88.8 | NA | 60.7 | 63.1 | NA | 92.5 | Yes |
| 29/11/2009 | 227.4 | 223.9 | NA | 260.8 | 300.6 | NA | 213.4 | Yes |

It is not clear as to whether the three exceptions (shaded) constitute additional exceedances of the 50µg/$m^3$ goal. Dust storms were present across NSW around the times of the exceedances. For example, dust storms swept across NSW on the week in which the 16/11/2009 and 17/11/2009 exceedances were reported. The Figure below shows a satellite map of the east coast of Australia from the 20/11/2009 which was sourced from the NSW DECCW Dustwatch report for the week of 23/11/09 (http://www.environment.nsw.gov.au/resources/dustwatch/DWNL091123.pdf).




In contrast, on the days on which the 50µg/$m^3$ goal was exceeded, some of the MCO monitoring sites dust levels are well below the goal, whilst other MCO sites were above the goal, indicating the some of the dust was likely to be locally generated. For assessment of additional exceedances, MCO need to present further analysis and justification of its contribution, which would ideally include observations of dust sources at the time of the exceedance, and time series charts of dust levels and meteorological conditions throughout the day.

There are several issues relating to the 24 hour $PM_{10}$ criterion which are considered to extend beyond the scope of this audit, and are applicable to all projects, to which the 24 hour $PM_{10}$ criterion applies on a "*no additional exceedances*" due to "*dust emissions from the project*" basis. A summary of some of these issues has been included in order to provide additional context to the assessment of the 24 $PM_{10}$ criterion made in this audit. Some of these issues are:

- The 24 hour $PM_{10}$ criterion is reliant on establishing incremental impact from the operations, which is not

implementable at a technical level at the resolution that is demanded by the criterion. For example, the Australian Standard for high volume air samplers (AS3580.9.6.2003) specifies a measurement uncertainty of 5 µg/m$^3$. Hence presuming that the analytical procedures are in accordance with the standard, for analysis of an upwind sample against a downwind sample, up to 10 µg/m$^3$ of incremental impact (and a potential non-compliance) could be implied by measurement uncertainty alone. In addition, there are likely to be anthropogenically generated spatial variations (e.g. emissions from other industry) and naturally occurring spatial variations in $PM_{10}$ levels that significantly impair the ability of an upwind/downwind sampling network to establish incremental impact. This is often evidenced in AQIA's where monitoring data (collected prior to mine establishment) is presented for two different sampling sites for the same sampling periods.

- The criterion would benefit from an established technical framework and guidance for establishing incremental impact, in conjunction with the precision with which the criterion should be enforced.
- The use of a threshold-based criterion is not consistent with the non-threshold based health risks associated with fine particulate exposure. For example, in order to avoid additional exceedances, the allowable contribution from the project approaches 0 µg/m$^3$ as the existing background level approaches 50 µg/m$^3$. Should existing background concentrations be above 50 µg/m$^3$, then there is no restriction on the contribution from the project, despite potential health implications associated with higher levels of particulate exposure.

Hence at present, it is considered that assessment of the compliance with the 24 hour $PM_{10}$ criterion is not able to be made in a precise manner, and is considered to require judgement and interpretation from an appropriate specialist, with support from regulatory bodies.

***Dust Deposition***

URS reviewed deposited dust monitoring results for the period to November 2009. Approximately 49% of records were contaminated with organic matter such as bird droppings, leaves (representing an increase over the previous reporting period in which 31% of results were affected). Bird deterrent rings were installed on all dust gauges at the end of July 2009 (after the current Environmental Coordinator commenced on site in June 2009), with a reduction in contamination from bird droppings observed in August 2009. As outlined in the Air Quality Monitoring Program MCO (2008), contaminated results are excluded from the annual average. This is considered to be an appropriate approach for cases where the sample integrity has been compromised. All uncontaminated results were below the annual average dust limit of 4 g/m$^2$/month.

The introduction of control measures resulted in an improvement in quality of data from those monitoring locations which were previously subjected to excessive contamination. For example, at the time of writing (June 2010), it is noted that in the previous 6 months of reporting (November 2009 to April 2010), 13% of dust deposition samples (7 out of 54 samples) were reported to be contaminated, which is a significant reduction below the contamination rate of 49% reported in the previous monitoring period. This may be due to the success of the bird deterrent rings, or due to variation in seasonal patterns which affect the amount of natural interference present.

The AQMP for the site identifies that due to existing (baseline) dust deposition levels of less than 2g/m$^2$/month, "*In all locations…. …MCM will have a statutory limit of 2 g/m$^2$/month increase in total dust deposition above background dust levels."* Whilst MCO are compliant with the 2 g/m$^2$/month increase (above the baselines identified in the AQMP) at all locations, future reporting should include reference to the incremental guideline.

***TSP***

No evidence of monitoring of TSP was observed. It was noted that the EPL did not require the measurement of this parameter, although it was included in Table 7 of the Approval Condition. MCO stated that the EA had discussed the direct correlation between PM10 and TSP results and that the PM10 data obtained by monitoring allowed the comparison with TSP criteria to be undertaken by extrapolation. MCO considered that they were undertaking the monitoring activities in line with the approved AQMP. Compliance with the annual average $PM_{10}$ criterion is generally indicative of compliance with the annual average TSP criteria. However, the AEMR should include some consideration of TSP compliance. Otherwise, MCO should seek to have the TSP criterion removed from the condition if they do not intend to undertake TSP monitoring.

**Compliance Status:**

Indeterminate (for 24 hour $PM_{10}$ criteria as unable to determine if exceedance of 50 µg/m$^3$ is attributed to MCO activities)

**Recommended Action:**

***Analysis of $PM_{10}$***

Analysis of $PM_{10}$ exceedances would be improved by presenting the data at a higher resolution. $PM_{10}$ levels, wind direction and wind speed will vary significantly within a 24 hour period such that detail (which is valuable to the

analysis) is lost if averaged out to 24 hours. In addition, worst case dispersion conditions are likely to occur under calm and stable meteorology, where analysis based on wind direction is of lesser value, and spatial variation in wind direction (e.g. between a dust emission source and the weather station) is greater.

For days on which the 50 µg/m$^3$ goal is exceeded, a time series of dust levels (at each monitor) against wind direction and wind speed (using a higher resolution dataset, e.g. 10, 30 or 60 minutes) would allow an improved assessment of MCO's potential contribution to $PM_{10}$ levels. This would improve the integrity of the analysis.

Pending the suitability of the anemometer (siting, instrument type/wind speed and direction starting thresholds) wind direction could also be presented for the calm conditions and this data included in dust roses for the 24 hour period.

***Dust Deposition***

It is recommended that MCO continue to address dust gauge contamination issues through such measures as:

- The identification of monitoring locations where contamination occurs on a regular basis (e.g. > 4 months in the previous 12 months).
- The trial of the duplicate sample locations at identified contamination prone monitoring sites. Duplicate gauges could be either co-located (to provide a backup) or placed at a separate location in the near vicinity (e.g. < 250 m) of the original monitoring location. This could be worthwhile if there is an opportunity to avoid a localised contamination influence (e.g. long grass, or areas in which birds or insects are prevalent).

MCO should ensure that future dust deposition reporting includes reference to and assessment against the incremental criterion of 2 g/m$^2$/month above the baselines identified in the AQMP.

***TSP***

MCO should consider TSPO compliance and report this in the AEMRs. Otherwise, if MCO do not intend to undertake TSP monitoring, it should seek to have the TSP criterion removed from the Approval Condition.

## Land Acquisition Criteria

**22**. If the dust emissions generated by the project exceed the criteria in Tables 10, 11 and 12 at any residence on privately owned land, or on more than 25 percent of any privately owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 10-12 of schedule 4.

*Table 10: Long term land acquisition criteria for particulate matter*

| Pollutant | Averaging period | Criterion |
|---|---|---|
| Total suspended particulate (TSP) matter | Annual | 90 µg/m$^3$ |
| Particulate matter < 10 µm ($PM_{10}$) | Annual | 30 µg/m$^3$ |

*Table 11: Short term land acquisition criteria for particulate matter*

| Pollutant | Averaging Period | Criterion | Percentile[1] | Basis |
|---|---|---|---|---|
| Particulate matter < 10 µm ($PM_{10}$) | 24 hour | 150 µg/m$^3$ | 99[2] | Total[3] |
| Particulate matter < 10 pm ($PM_{10}$) | 24 hour | 50 µg/m$^3$ | 98.6 | Increment[4] |

*Notes:* [1] *Based on the number of block 24 hour averages in an annual period.*
[2] *Excludes extraordinary events such as bush fires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with the DECC.*
[3] *Background $PM_{10}$ concentrations due to all other sources plus the incremental increase in $PM_{10}$ concentrations due to the mine alone.*
[4] *Incremental increase in $PM_{10}$ concentrations due to the mine alone.*

*Table 12: Long term land acquisition criteria for deposited dust*

| Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level |
|---|---|---|---|
| Deposited dust | Annual | 2/g/m$^2$/month | 4 g/m$^2$/month |

*Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*

**Status:**

MCO confirmed that this condition has not been triggered as no written request for acquisition had been received as a result of dust emissions during the period of the audit.

**Evidence Sighted:**

| |
|---|
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Operating Conditions

**23**. The Proponent shall:

(a) regularly assess the real time air quality and meteorological monitoring data;

(b) relocate, modify and/or stop mining operations in adverse meteorological conditions to minimise the short term air quality impacts of the project on privately-owned land, and in particular on properties 8, 22, 23, 26, 30, 31, 32, 41A, 49, 63, 64, 169, 170, 172 during open cut mining operations;

(c) implement all reasonable and feasible measures to minimise the off-site odour and fume emissions generated by any spontaneous combustion on site, to the satisfaction of the Director-General.

| |
|---|
| **Status:**<br>Although open cut mining operations had not commenced during the audit period, MCO recognised that initial blasting and land clearing activities had the potential to create impacts on air quality. MCO reported that a review of real time air quality and meteorological monitoring data is undertaken on a daily basis.<br>MCO outlined the range of control measures introduced to the construction operations to minimise short term air quality impacts, including wetting down procedures, excavation and truck loading practices, haulage speed controls, and the involvement of operators in the decision making process to curtail work when conditions were adverse.<br>MCO reported that in the few weeks prior to the December 2009 site visit, there were four or five days when operations (construction or mining) – some or all – were suspended due to excessive dust being generated in poor meteorological conditions e.g. high winds. This is recorded in shift reports.<br>As no coal had been mined at the site during the audit period odour and fume generation due to spontaneous combustion of coal was not an issue at the site. |
| **Evidence Sighted:**<br>(a) The operation of the real time air quality instrumentation was demonstrated during the site visit, as was the operation of the upgraded meteorological station. Since January 2010 the Environmental Coordinator receives daily emails summarising the real time air quality and meteorological monitoring data in graphical form. These emails were observed by the auditors during the site visit.<br>(b) At the time of the December 2009 site visit a number of water carts were observed in use along internal haul roads (approximately two large and seven or eight road registered water carts were reported to be utilised across the site). The modification of loading practices (lowering excavator buckets to inside of the truck when emptying soil material) as a result of adverse conditions, was observed when on site. Copies of internal communications describing work stoppages due to meteorological / air quality conditions were viewed. The auditors also viewed Community Complaints Forms for complaints received on the 24 November 2009 which noted that operations were suspended until weather conditions became favourable.<br>(c) The revised AQMP (dated November 2009) states that a Spontaneous Combustion Management Plan (SCMP) will be developed in due course and appropriate control measures for odour and fume generation due to spontaneous combustion of coal will be incorporated into the AQMP. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Monitoring

**24**. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. This program must:

(a) be prepared in consultation with DECC;

(b) be submitted to the Director-General for approval prior to carrying out any construction on site; and

(c) include:

- a combination of real-time monitors, high volume samplers and dust deposition gauges to monitor the air quality emissions of the project; and
- an air quality monitoring protocol for evaluating compliance with the air quality impact assessment and land acquisition criteria in this approval

**Status:**

An Air Quality Monitoring Program for the construction phase of the project has been prepared by Nigel Holmes of Holmes Air Science and approved by the DoP. This AQMP was approved by the DoP in December 2008, prior to the commencement of construction activities in March 2009.

A revised AQMP to cover the initial operational phases was submitted to the DoP for approval on the 16th November 2009. Approval of this document had not been received at the time of the audit.

**Evidence Sighted:**

(a) Evidence for consultation with DECC during the preparation of the AQMP is included in the appendices of the Plan. A letter from DECC to MCO (dated 03/06/08) confirming receipt of AQMP for review.

(b) Evidence of submission of AQMP from MCO to DoP (cover letter 29/08/08), and evidence of approval (letter dated17/12/08);

(c ) Concerning the content of the AQMP, a review of this document was undertaken:

- Section 5.1 describes the monitoring methodology in detail, which includes a combination of each of the required sampling approaches, including the following:
- 3 TEOMs to measure $PM_{10}$ in real time;
- 2 HVAS to measure 24 hour average $PM_{10}$ concentrations on a 6-day cycle;
- 9 dust depression gauges to monitor monthly dust fall out; and
- 2 meteorological stations.
- Section 5.2 describes the protocol for evaluating compliance (and Section 6 the protocols for response to any exceedances).

A copy of the revised Air Quality Management Plan (dated November 2009) was viewed.

Section 4.1 of the revised AQMP delineates the various control measures which will be utilised on site to minimise the impact on air quality.

**Compliance Status:**

Preparation of Plan: Compliant.

Implementation of Plan: Some non compliances were identified and are presented in Section 6.5 of the main report.

**Recommended Action:**

## METEOROLOGICAL MONITORING

**25**. The Proponent shall ensure the project has a suitable meteorological station in the vicinity of the site that complies with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

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| **Status:**<br>MCO currently operate two monitoring stations (WS01, relocated from Ulan Village to the site admin office area) and WS02 (located at the southern area of the mine). Technical difficulties have been experienced on occasions with equipment at one or other of these locations. However, overall there was continuous data for the site available throughout the reporting period. Station WS01 was upgraded to provide real-time data on-line allowing any data quality issues to be identified quickly and rectified.<br>The availability of data from two stations allowed some confirmation of data quality and MCO stated that data checks and data exchanges were also made with Ulan Coal when more information was required. Calibration of the weather stations is undertaken annually by suppliers.<br>MCO pointed out that the design of the weather station at WS01 was determined by the detailed specifications provided in the EPL. |
| **Evidence Sighted:**<br>Monitoring station WS01 was viewed on 3 December 2009 and a demonstration of the on-line weather data availability was provided by MCO during the audit.<br>The specifications of the weather station and the meteorological parameters to be measured were observed to be in line with the requirements of the site EPL (12932). |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## SUBSIDENCE
## Subsidence – Natural Features

**26**. The Proponent shall:

(a) ensure that the Drip, Goulburn River Gorge and bed of the Goulburn River (see Appendix 7) remain outside the zone of recorded subsidence damage for longwall mining in NSW;

(b) minimise subsidence damage to Cliff Line 3 (see Appendix 7); and

(c) reduce the likelihood of subsidence damage to:

- Aboriginal sites 264, 282, 283, 286, 287 (see Appendix 7) to low; and
- Aboriginal site 280 (see Appendix 7) to moderate.

*Note: The mine layout and design will be reviewed during the assessment of each subsidence management plan (see below), which will be informed by both the end-of panel reports (see condition 28 below) and each independent environmental audit (see condition 6 of Schedule 5). Consequently, the final mine plan may differ in minor respects from the mine plan shown in Appendix 7. However, the revised mine plan would need to comply with the performance criteria specified in this condition.*

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| **Status:** |
| This condition is not yet applicable, as underground mining has not yet commenced. |
| **Evidence Sighted:** |
| **Compliance Status:** |
| Not yet applicable. |
| **Recommended Action:** |

## Subsidence Management Plan

**27**. The Proponent shall prepare and implement a Subsidence Management Plan (SMP) for the project to the satisfaction of the Director-General of DPI. This plan must:

(a) be prepared in accordance with the latest version (or subsequent replacement) of the:

- *New Approval Process for Management of Coal Mining Subsidence - Policy*; and
- *Guideline for Applications for Subsidence Management Approvals*;

(b) be approved prior to the carrying out any underground mining operations that could cause subsidence;

(c) include a detailed program to monitor:

- the height of fracturing above the goaf of the longwall panels;
- surface subsidence above the longwall panels, including all near and far field components of subsidence;
- the impact of surface subsidence on surface features, including flora and fauna, threatened species, and any surface water quality and/or flows; and
- the effectiveness of any subsidence mitigation measures; and

(d) a program to validate the subsidence prediction methodology for the project, and calibrate it to site specific conditions.

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| **Status:** |
| This condition is not yet applicable, as underground mining has not yet commenced. |
| **Evidence Sighted:** |
| **Compliance Status:** |
| Not yet applicable. |
| **Recommended Action:** |

## End-of-Panel Report

28. Prior to completion of each longwall panel, the Proponent shall:

(a) prepare an end-of-panel report analysing the subsidence, surface water, and groundwater impacts of the panel, and the cumulative impacts of this panel combined with any other longwall panels;

(b) commission suitably qualified subsidence and groundwater experts whose appointment has been approved by the Director-General to review the end-of-panel report, and if necessary recommend changes to the monitoring programs and/or mine plan for subsequent panels; and

(c) submit a copy of the end-of-panel report and expert review to the Department, DPI and any other relevant agencies.

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| **Status:**<br>This condition is not yet applicable, as underground mining has not yet commenced. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |
| **Recommended Action:** |

## WATER
## Water Supply

**29**. The Proponent must ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its water supply.

*Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or Water Management Act 2000.*

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| **Status:**<br>MCO stated that sufficient water was currently available for its operations. Two additional water licences had been applied for (to NSW Office of Water (NOW), formerly DWE) to allow extraction of water from bores around the site. MCO confirmed during the audit that these (2 Bore licences for the Northern Borefield) had been received at the end of November 2009.<br>MCO also confirmed that an agreement had been reached with neighbouring Ulan Mine to supply water from their workings and this supply was now functioning. MCO indicated that 1,000 ML / year of water is piped from Ulan to MCO.<br>MCO indicated that in the event of water shortages, mining operations would me modified, with examples of actions as follows:<br>• underground coal would by-pass the washing process to reduce consumption; and<br>• investigate the use of chemical dust suppressants on haul roads. |
| **Evidence Sighted:**<br>Copies of two Bore Licence Certificates (20BL171998 and 20BL172000), issued by the DWE were viewed (dated 27/01/09 and valid until 2014).<br>The water pipeline from Ulan was observed functioning during the December 2009 and May 2010 audit site visits. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Surface Water Discharges

**30.** The Proponent shall ensure that all surface water discharges from the site:

(a) meet the relevant ANZECC water quality objectives for the protection of aquatic ecosystems and the water quality of existing receiving waters; and

(b) comply with the discharge limits (both volume and quality) set for the project in any EPL.

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| **Status:**<br>Prior to the date of the first site inspection the site had experienced long periods of dry weather, and MCO stated that no licensed discharges had taken place to the end of the audit period.<br>Unlicensed discharges to Bora Creek occurred during June 2009 and are referred to in an incident report and in the AEMR. Measurements undertaken at the time indicated that the water discharged would not have met the criteria, due to the high sediment loading. Elevated turbidity and TSS measurements were observed from Bora Creek approximately one week after the first two discharge events.<br>The source of the high sediment content of the discharges is attributable to the extensive areas of disturbance from construction activities and the limited effectiveness of erosion and sediment controls in place. This is discussed in detail in the main section of the report. |
| **Evidence Sighted:**<br>As no licensed discharges had taken place no monitoring data or volume and quality discharge levels had been measured.<br>(a) The Surface Water Monitoring Plan (SWMP) describes how the protection of aquatic ecosystems and water quality in the creeks will be monitored (Section 4.1 of the SWMP, Section 5.4.5 of the revised SWMP).<br>(b) The applicable discharge limits are listed in the EPL and SWMP. In the event of a controlled discharge taking place, MCO indicated that the monitoring and sampling would be undertaken by external contractors.<br>The incident report for the June 2009 unlicensed discharge was viewed. |
| **Compliance Status:**<br>Non-Compliant. |
| **Recommended Action:**<br>Refer to Section 4.4 of main body of report. |

## Offsets

**31.** The Proponent shall:

(a) offset any loss to the base flow of the Goulburn River and associated creeks caused by the project; and

(b) provide suitable compensation or compensatory measures to the owners of any privately owned land whose water supply is adversely affected by the project, to the satisfaction of the Director-General.

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| **Status:**<br>Data on the base flow in the Goulburn River is obtained from Ulan Coal Mines, who have two flow measurement stations. Information from this source has been used to assist in determining the baseline flow conditions. In the event that a reduction in base flow was measured, MCO stated that a hydrogeologist would be utilised to identify the likely cause. This process is described in the revised Water Management Plan (WMP).<br>The WMP describes the likely process for offsetting any losses to the river base flow. |
| **Evidence Sighted:**<br>A copy of the revised Water Management Plan was provided by MCO and reviewed.<br>(a) Section 7.1.2 describes how the offsets be achieved<br>(b) Section 7.1.2 describes how suitable compensation will be agreed, in the event hat an adverse impact is identified.<br>As mining and dewatering are yet to commence it is unlikely that losses to the base flow of the Goulburn River have occurred at this stage of the project due to Moolarben activities. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Permeability of Water Storages

**32**. The Proponent shall ensure that the tailings dam, mine infrastructure dams, groundwater storage and treatment dams, and the Ulan Seam sub-crop line of the most northerly final void are suitably lined to comply with a permeability standard of $< 1 \times 10^{-9}$ m/s.

| |
|---|
| **Status:**<br>MCO stated that all the water storage features completed to date had been constructed using suitably compacted clays and tested to confirm the permeability of the lining. At the time of the end of the audit period, only the emergency tailings dam was incomplete.<br>The permeability of the final void linings would be addressed when appropriate. |
| **Evidence Sighted:**<br>The clay lining could be observed on the base of several of the water storage features under construction in the rail loop area at the time of the December 2009 site visit.<br>Macquarie Geotech undertook geotechnical testing and assessment of the emergency tailings dam, western tailings dam, product dam and clear water dam (report dated 14 August 2009). The in-situ soils were tested to determine if lining of the dams was required. The report concluded that the permeability of the emergency tailings dam, western tailings dam and clear water dam met the minimum requirement of $1 \times 10^{-9}$. Further testing of the permeability of the product dam north wall was recommended. There was no evidence to demonstrate that this further testing had been undertaken. |
| **Compliance Status:**<br>Non Compliant. |
| **Recommended Action:**<br>Under take further testing of the permeability of the product dam north wall as per recommendations in Macquarie Geotech report. |

## Regional Water Supply/Monitoring Investigation

**33**. Prior to the commencement of mining operations, unless the Director-General agrees otherwise, the Proponent shall carry out a Regional Water Supply/Monitoring Investigation to the satisfaction of the Director-General. This investigation must:

(a) be conducted by suitably qualified and independent expert/s whose appointment has been approved by the Director-General;

(b) be carried out in consultation with the DECC, DPI, DWE and owners of the Ulan and Wilpinjong coal mines;

(c) assess the feasibility and potential environmental benefits of increased water sharing between the three mining operations in the region;

(d) consider the potential for developing regional surface and ground water monitoring programs to:

. rationalise the surface and ground water monitoring programs of the three mining operations in the region; and

. improve the monitoring of the individual and cumulative surface and ground water impacts of these mining operations; and

(e) recommend measures to reduce the surface and ground water impacts of mining in the region, and any potential changes to existing licences and/or approvals that could facilitate the implementation of these measures.

**Status:**

Mining had not yet commenced within the audit period (to end of November 2009), but was expected to in early to mid 2010. In anticipation of this, a Regional Water Supply and Monitoring Investigation Report was prepared by Aquaterra and a draft submitted to the DoP for review on the 6th November 2009.

**Evidence Sighted:**

Viewed Regional Water Supply and Monitoring Investigation Report by Aquaterra (dated 05 November 2009).

A letter was viewed confirming this report was submitted to the DoP (letter dated 6 November 2009), and MCO reported that feedback is awaited.

(a) A letter from DoP (12/03/08) approving Dr N Merrick to undertake the surface water investigations was viewed and another letter (09/03/08) approving Chris Thomas (Worley Parsons) and Peter Dundon (Aquaterra) to undertake the groundwater investigations;

(b) Evidence of consultation with other parties was viewed, including the following:

- a meeting between DECCW and MCO is referred to in a letter from DECCW (dated 23/10/09), and DECCW/NOW acknowledged consultation in a letter dated 23/10/09;
- a letter from DII to MCO confirming satisfaction with the level of consultation undertaken to date (dated 21/10/09);
- letters from MCO to Ulan Coal Mine and Wilpinjong Coal Mine (both dated 08/07/09) referring to meetings and agreements concerning Regional Water Strategy;

(c) The feasibility and potential environmental benefits of increased water sharing between the three mining operations in the region is assessed in several sections of the report, and forms one of the main conclusions of the report.

The 2008/2009 AEMR refers to a water sharing agreement being reached with Ulan Coal Mines to enable supply of 1,000 ML/annum of operational water. Construction of this supply pipeline is now complete and the supply is functioning (observed during site visit on 02/12/09).

(d) Recommendations for regional monitoring programs for surface water / groundwater are made in Section 3.4 of the report.

(e) Suggested measures to reduce impact of mining in the region are provided in Section 7 of the report and focus mainly on water sharing between the existing mines.

**Compliance Status:**

Compliant.

**Recommended Action:**

## Water Management Plan

**34**. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:

(a) be prepared in consultation with DECC, DPI and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;

(b) be submitted to the Director-General for approval prior to carrying out any construction on site; and

(c) include:

- a Site Water Balance;
- an Erosion and Sediment Control Plan;
- a Surface Water Monitoring Plan;
- a Groundwater Monitoring Plan; and
- a Surface and Ground Water Response Plan.

**Status:**

The currently approved Water Management Plan relates to the construction phase of the project. It is noted (Section 3.1.5) that the Water Sharing Plan was placed on display by the DWE, and that no extraction from the alluvials was proposed during the construction phase of the project.

MCO stated that feedback from DWE in the form of written comments on each constituent of the WMP was incorporated into revised versions of the Water Management Plan components.

A revised WMP to cover the initial operational phases of the project was submitted to the DoP for approval on the 16 November 2009.

**Evidence Sighted:**

(a) A letter from DoP to MCO (12/03/08) approving Dr N Merrick and another letter (09/03/08) approving Chris Thomas (Worley Parsons) and Peter Dundon (Aquaterra) to prepare various components of the WMP were viewed.

Section 3.4 of the WMP refers to extensive consultation with government authorities in the preparation of the WMP, including joint meetings, meetings with individual authorities, participation in Panel group meetings and responses to submissions. Copies of correspondence from various parties involved in the consultation process were viewed (including letters from DECCW (10/07/08), NSW DPI (16/07/08) and Chris Thomas of Worley Parsons (15/12/08)).

Viewed letter from approved independent expert Chris Thomas (Worley Parsons) to MCO confirming acceptance of the various MPs as suitable for the construction phases of the project (15/12/08), other correspondence includes a letter from DWE to MCO discussing the content of the various component Plans of the WMP (dated 11/11/08).

(b) The WMP for the construction phase of project was approved by the DoP (viewed letter to MCO dated 17/12/08)

(c) The WMP included each of the following components, all of which were available on the MCO website:

- Site Water Balance;
- Erosion and Sediment Control Plan;
- Surface Water Monitoring Plan;
- Groundwater Monitoring Plan, and
- Surface and Ground Water Response Plan.

Copies of revised versions of each of these plans were supplied by MCO at the time of the audit. These had been updated to cover the operational phase of the project, currently programmed to commence in March 2010.

**Compliance Status:**

Preparation of Plan: Compliant.

Implementation of Plan: Some non compliances were identified and are referenced in Section 4.4 and 6.5 of the main report.

**Recommended Action:**

Refer to Sections 4.4 and 6.5 of the main report.

## Site Water Balance

**35**. The Site Water Balance must:

(a) include details of:

- sources and security of water supply;
- water use on site;
- water management on site;
- off-site water transfers;
- reporting procedures, and

(b) investigate and describe measures to minimise water use by the project.

| |
|---|
| **Status:**<br>The Site Water Balance (SWB) for the construction phase of the project was obtained from the MCO website. This document was prepared by Wells Environmental Services (July 2008) and approved by the DoP as part of the WMP in December 2008.<br>An updated SWB covering the operational phase of the project was submitted to DoP for approval as part of the Operational Water Management Plan on the 16 November 2009. At the time of the audit, the Operational Water Management Plan was yet be approved. |
| **Evidence Sighted:**<br>Feedback from the DWE on the content of the initial SWB was viewed in the form of a letter (dated 11/11/08), providing comment on a number of issues of concern in the SWB. DWE have requested annual reviews of the actual and predicted yield for the first five years of mining. 'DWE offers no objection to the SWB for the first 12 months of construction activities on the proviso that' the issues they raised were addressed within that timescale.<br>(a) The following issues were noted to be covered:<br>• sources and security of water supply are described in Section 2 of the SWB;<br>• water use on site is described in Section 3 of the SWB;<br>• water management on site is described in Section 4 of the SWB;<br>• off-site water transfers are described in Section 5 of the SWB; and<br>• reporting procedures are described in the WMP.<br>(b) Measures to investigate and minimise water use in the project are described in Section 4 of the SWB. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## Erosion and Sediment Control

**36**. The Erosion and Sediment Control Plan must:

(a) be consistent with the requirements of the *Managing Urban Stormwater: Soils and Construction Manual* (Landcom 2004, or its latest version);
(b) identify activities that could cause soil erosion and generate sediment;
(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
(d) describe the location, function, and capacity of erosion and sediment control structures; and
(e) describe what measures would be implemented to maintain the structures over time.

| |
|---|
| **Status:**<br>The Erosion and Sediment Control Plan (ESCP) was incorporated into the Site Water Management Plan and was approved by the DoP as part of the WMP in December 2008.<br>An updated ESCP covering the operational phase of the project was submitted to DoP for approval as part of the Operational Water Management Plan on the 16 November 2009. At the time of the audit the Operational Water Management Plan was yet to be approved. |
| **Evidence Sighted:**<br>Copies of the construction phase ESCP and upgraded ESCP were obtained and reviewed.<br>(a) A letter from NSW DPI to MCO (06/06/08) states 'The ESCP adheres to established principles of sediment and erosion control, references accepted guidance or standards, and documents and provides for review in response to the results of monitoring';<br>Having reviewed the ESCP on request, DWE offered the comment that 'the design criteria of erosion and sediment control for the site is only to retain run-off from up to a 1:10 year storm event. This is a minimal design criterion, to which the majority of mining sites are required to exceed. A 1:20 year, 12 hour storm criterion is standard practice in the Hunter/Newcastle coalfield, and should be adopted in the revised plan. In response, MCO stated that they had taken these comments on board during the revision of the SWB for the operational phase of the project.<br>(b) Section 4.1 of the revised ESCP identifies activities that could cause soil erosion and generate sediment;<br>(c ) Section 4.2 of the revised ESCP describes measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;<br>(d) Section 4.3 of the revised ESCP describes the location, function, and capacity of erosion and sediment control structures; and<br>(e) Section 4.4 of the revised ESCP describes the measures to be implemented to maintain the various structures over time.<br>Various comments regarding the implementation of erosion and sediment controls are provided in Section 4.4 of the main report. |
| **Compliance Status:**<br>Preparation: Compliant on the basis that the Plan was developed and approved.<br>Implementation: Not Compliant. A detailed discussion of the implementation of erosion and sediment controls is provided in Section 4.4 of the main report. |
| **Recommended Action:**<br>Refer to recommendations in Section 4.4 of the main report. |

## Surface Water Monitoring

**37**. The Surface Water Monitoring Plan must include:

(a) detailed baseline data on surface water flows and quality in creeks and other water bodies that could be affected by the project (including the Goulburn River, Bora Creek and Moolarben Creek);

(b) surface water quality and stream health assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; and

(c) a program to monitor:

- surface water flows, quality, and impacts on water users;
- stream health; and
- channel stability in the Goulburn River, Bora Creek, and Moolarben Creek.

**Status:**

The Surface Water Monitoring Program (SWMP) for the construction phase of the project was incorporated into the site Water Management Plan and was approved by the DoP in December 2008.

A revised SWMP was submitted to DoP for approval on the 16th November 2009, as part of the Operational Water Management Plan. MCO stated that the updated Plan incorporated revised Trigger levels, which had been substantiated by their team of approved experts prior to submission. The Plan has been reviewed by DECCW, NOW and DPI.

**Evidence Sighted:**

Copies of the construction phase SWMP and revised SWMP were obtained and reviewed.

(a) Baseline data dating back from 2005 was described in Section 2 of the SWMP (a table of data is provided in Appendix C.1) and Section 5.2 of the revised SWMP.

(b) Surface water quality and stream health assessment criteria are described in Section 3 of the SWMP and Section 5.3 of the revised SWMP. This includes trigger levels for investigating any potentially adverse surface water impacts;

(c) The monitoring programs are addressed in Sections 4.1, 4.2 and 4.3, and a report on stream health provided in Appendix C.2 of the SWMP

ANZECC Fe and Zn criteria are not included in Table 2.

Sections 4.3 and 5 refer to review of channel stability data after a significant rainfall event and to regular or annual inspections and review of data;

A more formal review of data was proposed at the end of construction – to assist with upgrading the SWMP prior to commencement of mining – this has been completed.

Having reviewed the initial construction phase SWMP on request, DWE accepted the plan be implemented for the first 12 months of construction, but offered the following comments for modifying the Plan for future upgrading:

- 'The SWMP addresses the DWE's concerns with regard to Moolarben Creek, the Goulburn River and Wilpinjong Creek in a fragmented manner.'
- No specific means to monitor impacts upon baseflows are nominated. Examples from neighbouring mines are given (Ulan flow gauging on the Goulburn River and Wilpinjong flow gauging on the Wilpinjiong Creek.
- No specific proposal to monitor creek flows is included, which diminishes the value of the programme overall.'
- DWE recommends flow gauging on both the Moolarben Creek and Upper Wilpinjong Creek, mindful of the Draft Hunter Unregulated River and Alluvium Water Sharing Plan (HURAWSP), which was due to come into force in mid-2009. All of this to allow validation of the EA predictions of minimal interaction between the three mines and adjacent rivers.

**Compliance Status:**

Compliant.

**Recommended Action:**

## Groundwater Monitoring

**38**. The Groundwater Monitoring Plan must include:

(a) detailed baseline data of groundwater levels, yield and quality in the region, and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by mining operations on site;

(b) a program to augment the baseline data over the life of the project;

(c) groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;

(d) a program to monitor:

. groundwater inflows to the open cut and underground mining operations;

. the impacts of the project on:

- the alluvial, Triassic, coal seam and interburden aquifers;
- base flows to the Goulburn River and associated creeks;
- any groundwater bores, springs and seeps (including spring and seep fed farm dams) on privately-owned land;
- any groundwater dependent ecosystems, such as the Drip, and riparian vegetation along the Goulburn River and associated creeks; and

. the seepage/leachate from any tailings dams, water storages or backfilled voids on site; and

(e) a program to validate the groundwater model for the project, and calibrate it to site specific conditions.

**Status:**

A Groundwater Monitoring Program GWMP applicable to the construction phase of the project, was incorporated into the site Water Management Plan and was approved by the DoP in December 2008.

DWE reviewed the draft GWMP applicable to the construction phase of the project and accepted a 12 month period for revision, prior to the commencement of mining operations. The DWE review generated the following comments:

- A proposed trigger level of 20% deviation from the predicted drawdown, was deemed unacceptable by DWE;
- DWE expressed concern with the proposed method of ongoing recalibration of the groundwater impact assessment model in response to monthly monitoring data, and stated that this issue must be addressed prior to Open Cut Pit 1 intersecting the local groundwater table.
- DWE were insistent upon annual review of the adequacy of the GWMP – Moolarben confirmed that this would take place – in addition, the site groundwater model will be evaluated and calibrated annually (Section 6.5).

MCO indicated that the revised GWMP would take account of these comments.

An updated GWMP was prepared by MCO as part of the Operational Water Management Plan and was submitted to the DoP on the 16th November 2009 for approval prior to the commencement of operational phase of the project in early 2010.

**Evidence Sighted:**

View GWMP (dated 03/07/08) prepared by Wells Environmental Service and revised GWMP, dated November 2009 prepared by MCO staff.
(a) Section 6.2 and Appendix 3 of the revised GWMP provided detailed baseline data of groundwater levels, yield and quality in the region;
(b) Section 6.3 of the revised GWMP provided a program to augment the baseline data over the life of the project
(c) Section 6.3 of the revised GWMP provided criteria / trigger values groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts
(d) Section 6.4 of the revised GWMP provided a program to monitor groundwater inflows to the open cut and underground mining operations, the impacts of the project on the various components of the groundwater system and the seepage/leachate from any tailings dams, water storages or backfilled voids on site:
(e) Section 6.5 of the revised GWMP provided a validation program for the project groundwater model

Copies of correspondence with the various authorities involved in reviewing this plan were included in Appendix 2.

**Compliance Status:**

Compliant.

**Recommended Action:**

## Surface and Ground Water Response Plan

**39**. The Surface and Ground Water Response Plan must describe what measures and/or procedures would be implemented to:

(a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;
(b) offset the loss of any base flow to the Goulburn River and/or associated creeks caused by the project;
(c) compensate landowners of privately-owned land whose water supply is adversely affected by the project; and
(d) mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

**Status:**

A Surface and Ground Water Response Plan (SGWRP) applicable to the construction phase of the project was incorporated into the site Water Management Plan and was approved by the DoP by letter to MCO dated 17/12/08.

Following their review of the construction phase SGWRP, the DWE were not satisfied with the Plan in its form as submitted, however indicated that it would be acceptable only for the construction phases of the work. The revised version of the plan should incorporate the feedback they provided following their review.

A revised SGWRP was prepared by MCO for submission to DoP and approval prior to the commencement of operational phase of the project in early 2010.

**Evidence Sighted:**

DWE review of the draft SGWRP (viewed letter to MCO dated 11/11/008) generated numerous comments, including the following:

- Certain components of the SGWRP were regarded as preliminary in nature, and required to be fully accounted for and approved by DWE and DECCW, prior to finalisation and approval by DoP;
- DWE required the development of an effective accounting framework to address issues concerning potential loss of baseflow, as well as surface and groundwater availability and quality relative to pre-mining conditions; and
- A revision was required, to address impacts within the water sharing regulatory requirements;

Viewed copies of SGWRP and revised SGWRP.

(a) Section 7.1.1 of the revised SGWRP describes the measures to be implemented to respond to any exceedances of the surface water, stream health, and groundwater assessment criteria.

This is addressed in Section 3 of the construction phase SGWRP (not in Section 4 as indicated in the summary table). Triggers are summarised, with intended responses for each (investigation / contingency / response) for 1) surface water quality, 2) stream health and 3) groundwater quality and level.

(b) Section 7.1.2 of the revised SGWRP describes the measures to be implemented to offset the loss of any base flow to the Goulburn River and/or associated creeks caused by the project (Section 4.1 of the construction phase SGWRP).

(c ) Section 7.1.2 of the revised SGWRP also describes the measures to be implemented to compensate landowners of privately-owned land whose water supply is adversely affected by the project (Section 4.2 of the construction phase SGWRP).

(d) Section 6.4.3 of the revised SGWRP describes the measures to be implemented to mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation (Sections 4.3 and 4.4 of the construction phase SGWRP).

**Compliance Status:**

Compliant.

**Recommended Action:**

## LANDSCAPE MANAGEMENT

## Rehabilitation

**40**. The Proponent shall progressively rehabilitate the site to the satisfaction of the DPI, in general accordance with the proposed rehabilitation and offset strategy shown in Appendix 8.

**Status:**

Rehabilitation measures commenced soon after the construction work commenced on the site. For example spray reseeding of some water storage dam and selected rail loop batters and related exposed surfaces was undertaken during 2009, although it was noted that the very dry conditions were not conducive to rapid growth of the seeded vegetation and limited re-growth was observed at the time of the first site visit in December 2009. At the time of the December 2009 site visit many batters, including the majority of many steep sections of the rail loop batters were still to be rehabilitated. It was considered that at the construction area, rehabilitation efforts had not kept up with the areas exposed by clearing and construction and significant areas of disturbance remained that was awaiting rehabilitation. Un-rehabilitated surfaces at the construction site represented a risk of erosion in rain events and were a potential source of dust. This is further covered in the section on Erosion and Sediment Control.

URS consider that MCO were not in compliance with Condition 40 (at the time of the first site inspection) to progressively rehabilitate some areas of the construction site, particularly the steep batters of the rail loop.

**Evidence Sighted:**

Observations made during the December 2009 site visit indicated that some areas had been spray seeded. However, many areas remained disturbed and did not appear to have been subjected to any efforts of rehabilitation e.g. steep batters of the rail loop.

During the May 2010 site visit substantial progress had been made on soil stabilisation measures around the construction areas, and also in commencement of rehabilitation activities at the environmental bund. Observations made during the May 2010 site visit are summarised in Section 7 of the main report.

**Compliance Status:**

Non-Compliant.

**Recommended Action:**

Ensure all areas of the Rail Loop and other affected/disturbed areas are adequately rehabilitated directly after disturbance occurs or construction completed. See other recommendations regarding soil and erosion controls.

## Endangered Ecological Community Offset

**41**. Within 12 months of this approval, the Proponent shall make suitable arrangements to:

(a) transfer at least 135 hectares of the White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community to the Minister for Climate Change, Environment and Water to offset, on a "like for like" basis, the 65 hectares that would be cleared by the project at an offset ratio of 2:1; and

(b) provide DECCW with funds (which at the discretion of DECCW may include an in-kind contribution) to cover any reasonable costs associated with the transfer and ongoing management of this land.

**Status:**

MCO have made arrangements to transfer 135 hectares if White Box, Yellow Box Blakely's Red Gum Woodland endangered ecological community to the DECCW.

MCO reported that they were awaiting MWR Council to re-zone the land earmarked for transfer to National Parks and that they were waiting for the DECCW to formally accept the transfer.

MCO also indicated through documentation that funds have been provided to DECCW.

**Evidence Sighted:**

(a) Viewed copies of correspondence with DECCW (dated 29/08/2008, 29/09/2008) and MWRC (dated 15/09/2008) regarding the transfer of lands to DECCW.

(b) Viewed copy of letter from DECCW dated 29/09/08 acknowledging receipt of cheque for $23,800 to cover costs associated with the transfer of the land.

**Compliance Status:**

Compliant.

**Recommended Action:**

MCO should endeavour to accelerate formal acceptance of the transfer (of the land as required by the consent) from DECCW.

**41A**. By the end of December 2010, the Proponent shall make suitable arrangements to:

(a) conserve at least 4 hectares of existing White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community on Property 24; and

(b) conserve and enhance at least 2.6 hectares of regenerating White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community on Property 24;

c) revegetate two cleared areas on Property 46 with at least 10 hectares of endangered ecological community; and

(d) make suitable arrangements to protect and manage these offset areas in the long-term, to the satisfaction of the Director-General and DECCW.

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| **Status:** |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |

## Vegetation Offsets

42. The Proponent shall:

(a) revegetate at least 38 hectares of disturbed land on the "Red Hills" property (see property R14 in Appendices 5 and 8) with Yellow Box White Box Blakely's Red Gum vegetation;

(b) revegetate at least 153 hectares of cleared land on the "Red Hills" property (see property R14 in Appendices 5 and 8) and adjoining lands (see properties R12, R13, R15, R16, R17, R18 and R19 in Appendices 5 and 8) with suitable native vegetation to improve wildlife corridor linkages;

(c) conserve and enhance at least 1262 hectares of existing native vegetation onsite; and

(d) make suitable arrangements to protect these offset areas from development in the long term, to the satisfaction of the Director-General and DECCW.

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| **Status:**<br>MCO indicated that they were in the early stages of developing an Offset Implementation Strategy, identifying seed sources, a planting and establishment program and a suitable methodology to complete the program.<br>MCO indicated that a strategy for revegetating areas of MCO land with White Box Yellow Box Blakely's Red Gum vegetation will be developed during the next AEMR reporting period.<br>It was noted that no timing for the establishment of vegetation offsets is stipulated in the Project Approval Condition. |
| **Evidence Sighted:**<br>None seen. |
| **Compliance Status:**<br>Indeterminate (on basis that there is no timing on the Condition for this to be achieved and as yet limited works have been conducted to meet this requirement) |
| **Recommended Action:**<br>Although no timing is stipulated for progressing the vegetation offset strategy, MCO should actively develop a program to address the conditions relating to the Vegetation Offsets. This would include the pursuit of up to date advice on relevant matters concerning seed sources to be used. |

## Landscaping – Environmental Bunds

**43**. The Proponent shall progressively landscape the environmental bunds on site.

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| **Status:**<br>During the December 2009 site visit MCO stated that the environmental bund around the Open Cut 1 area was under construction and no landscaping had commenced. Landscaping would commence when the bund construction was complete. During the May 2010 site visit works to place topsoil on the environmental bund had progressed and significant areas of the bund had been topsoiled. |
| **Evidence Sighted:**<br>The construction works at the Open Cut 1 environmental bund were observed during the December 2009 site visit.<br>During the May 2010 site visit progress on the construction of the environmental bund had been made. The banks of the bund had been shaped and stockpiles of mixed woodchips and topsoil placed along the top of the bund in preparation for spreading. Refer to Section 7 for further observations during the May 2010 site visit. |
| **Compliance Status:**<br>Compliant. |

## Landscape Management Plan

**44**. The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of DPI and Director-General. This Plan must:

(a) be prepared in consultation with DECCW and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;

(b) be submitted to the Director-General for approval prior to starting mining operations on site; and:

(c) include a:

- Rehabilitation and Offset Management Plan;
- Final Void Management Plan; and
- Mine Closure Plan.

**Status:**

At the time of the December 2009 site visit, MCO stated that during the audit period a Landscape Management Plan was prepared for consultation with DECCW, NOW and DII. This LMP was submitted for the approval of DoP and DEWHA on the 16th November 2009. The Plan was still in consultation at the end of the audit period.

**Evidence Sighted:**

The LMP submitted to the DoP, prepared internally, and dated November 2009 was viewed.

(a) Letters providing feedback on the content of the draft LMP were viewed from DPI (undated but received by MCO on 18/08/09), DECCW (04/09/09), DEWHA (e-mail 23/0/09) and NOW (letter 02/11/09).

A letter from DoP to MCO (dated 09/03/08) approved John King (Ecohub), Mark Aitkens (Ecovision Consulting) and Richard Goode (Department of Lands and Conservation) as suitably qualified experts to participate in the preparation of the Management Plan.

(b) MCO stated that approval of the LMP had not been received from DoP at the time of the audit;

(c ) The LMP included sections covering each of the required component Plans:

- The Rehabilitation and Offset Management Plan provides some detail but is largely conceptual in nature;
- The Final Void Management Plan and Mine Closure Plan are essentially conceptual in nature and it was envisaged that further work on these Plans would be undertaken when the progress of the mining operations warranted further detail in specific areas.

**Compliance Status:**

Preparation of the Plan: Compliant.

Implementation of the Plan: Indeterminate as Plan not yet approved.

**Recommended Action:**

MCO should ensure that future revision of the LMP and its component Plans should take on board the various critical comments received in correspondence from DII and DECCW.

## Rehabilitation and Offset Management Plan

**45**. The Rehabilitation and Offset Management Plan must include:

(a) the rehabilitation objectives for the site, vegetation offsets and landscaping;

(b) a description of the short, medium, and long term measures that would be implemented to:

- rehabilitate the site;
- implement the vegetation offsets; and
- landscape the environmental bunds;

(c) performance and completion criteria for the rehabilitation of the site, implementation of the vegetation offsets, and landscaping of the environmental bunds;

(d) a detailed description of the measures that would be implemented over the next 3 years including the procedures to be implemented for:

- progressively rehabilitating areas disturbed by mining;
- implementing vegetation offsets;
- reducing the visual impacts of the project;
- protecting areas outside the disturbance areas;
- rehabilitating creeks and drainage lines on the site (including Moolarben Creek) to ensure no net loss of stream length and aquatic habitat;
- undertaking pre-clearance surveys;
- managing impacts on fauna;
- landscaping the site to minimise visual impacts;
- conserving and reusing topsoil;
- collecting and propagating seed for rehabilitation works;
- salvaging and reusing material from the site for habitat enhancement;
- controlling weeds and feral pests;
- controlling access;
- bushfire management; and
- managing any potential conflicts between the offsite offset areas and Aboriginal cultural heritage,

(e) a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria (see (c) above);

(f) a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and

(g) details of who would be responsible for monitoring, reviewing, and implementing the plan.

*Note: Reference to 'rehabilitation" in this approval includes all works associated with the rehabilitation and restoration of the site as described in the EA, and applies to all areas within the Mining Lease and Offsets Strategy.*

**Status:**

The Rehabilitation and Offset Management Plan forms part of the LMP which was submitted to DoP for approval on the 16th November 2009. Feedback from the regulators on the content is included under the LMP (Condition 3/44).

**Evidence Sighted:**

A copy of the ROMP (dated November 2009) was viewed:

(a) Section 3.3 of the LMP addresses the rehabilitation objectives for the site, vegetation offsets and landscaping;

(b) Sections 3.3 to 3.6 of the LMP provides description of the short, medium, and long term measures that would be implemented to rehabilitate the site, implement the vegetation offsets and landscape the environmental bunds;

(c ) Section 5.5 of the LMP provides the performance and completion criteria for the rehabilitation of the site, implementation of the vegetation offsets, and landscaping of the environmental bunds;

(d) Section 3.3 to 3.15 of the LMP provides detailed description of the landscaping, conservation and rehabilitation measures that would be implemented over the next three years;

(e) Section 3.0 of the LMP provides a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;

(f) Section 3.16 of the LMP provides a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and

(g) Section 8.0 of the LMP indicates who would be responsible for monitoring, reviewing, and implementing the plan.

**Compliance Status:**

Compliant.

**Recommended Action:**

## Final Void Management

**46**. The Final Void Management Plan must:

(a) justify the planned final location and future use of the final void/s;
(b) incorporate design criteria and specifications for the final void/s based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration;
(c) assess the potential interactions between creeks on the site and the final void/s; and
(d) describe what actions and measures would be implemented to:

- minimise any potential adverse impacts associated with the final void; and
- manage and monitor the potential impacts of the final void until the mining lease for the project is relinquished.

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| **Status:** |
| The Final Void Management Plan (FVMP) forms part of the LMP which was submitted to DoP for approval on the 16th November 2009. |
| MCO indicated that this plan will be progressively reviewed as mining continues. |
| Feedback from the regulators on the content is included under the LMP (Condition 3/44). |
| **Evidence Sighted:** |
| Viewed copy of Final Void Management Plan (dated November 2009), prepared by MCO staff. |
| (a) Section 4.1 of the LMP justifies the planned final location and future use of the final void/s; |
| (b) Section 4.2 of the LMP incorporates design criteria and specifications for the final void/s based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration; |
| (c ) Section 4.3 of the LMP assesses the potential interactions between creeks on the site and the final void/s; and |
| (d) Section 4.4 of the LMP describes what actions and measures would be implemented to minimise any potential adverse impacts associated with the final void and manage and monitor the potential impacts of the final void until the mining lease for the project is relinquished. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## Mine Closure Plan

**47**. The Mine Closure Plan must:

(a) define the objectives and criteria for mine closure;
(b) investigate options for the future use of the site, including any final void/s;
(c) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
(d) describe how the performance of these measures would be monitored over time.

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| **Status:** |
| The Mine Closure Plan (MCP) forms part of the LMP which was submitted to DoP for approval on the 16th November 2009. |
| MCO indicated that this plan will be progressively reviewed and updated as mining continues. |
| Feedback from the regulators on the content is included under the LMP (Condition 3/44). |
| **Evidence Sighted:** |
| Viewed copy of Mine Closure Plan (dated November 2009): |
| (a) Sections 5.1 and 5.5 of the LMP define the objectives and criteria for mine closure; |
| (b) Section 5.7 of the LMP investigates options for the future use of the site, including any final void/s; |
| (c ) Section 5.6 of the LMP describes the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; |
| (d) Section 5.6 of the LMP describes how the performance of these measures would be monitored over time. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## Vegetation Offset Bond

**48**. Within 3 months of the approval of the Landscape Management Plan, the Proponent shall lodge a bond with the Department to ensure that the vegetation offsets are implemented in accordance with the performance and completion criteria of the Landscape Management Plan. The sum of the bond shall be determined by calculating the full cost of implementing the vegetation offsets, and verified by suitably qualified quantity surveyor, to the satisfaction of the Director-General.

*Notes:*
- *If the vegetation offset is completed to the satisfaction of the Director-General, the Director-General will release the conservation bond.*
- *If the vegetation offset is not completed to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory completion of the relevant works.*
- *If amendments to the Mining Act 1992 allow the Minister for Mineral Resources to require rehabilitation securities under a Mining Lease which apply to the implementation of rehabilitation works outside the boundary of a Mining Lease, the Proponent may transfer the vegetation offset bond required under this approval to the Minister of Mineral Resources provided the Director-General and the DPI agree to the transfer.*

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| **Status:**<br>As the LMP was not approved at the time of the end of the audit period, this condition was not yet applicable.<br>MCO stated that aspects of this, including the calculation of the sum of the bond, were currently under consideration. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |
| **Recommended Action:** |

## HERITAGE
## Aboriginal Heritage Plan

**49**. The Proponent shall prepare and implement an Aboriginal Heritage Plan for the project to the satisfaction of the Director-General. The plan must:

(a) be prepared in consultation with DECCW and the Aboriginal community;

(b) be submitted to the Director-General for approval prior to carrying out any development on site; and

(c) include a:

- program for the test excavations, intensive recording, salvage, and surface collection of the sites identified in Appendix 9, which includes a suitable lithic analysis of all material collected as part of the salvage operations;
- program for the conservation of the site outside the surface disturbance area (see Appendix 9), including measures that would be implemented to secure, analyse and record the sites at risk of subsidence;
- program to further assess and document the Aboriginal heritage values of the area;
- description of the measures that would be implemented if any Aboriginal skeletal remains are discovered during the project; and
- protocol for the ongoing consultation and involvement of the Aboriginal community in the conservation and management of the Aboriginal heritage on the site.

**Status:**

An Aboriginal Heritage Plan (AHP), relevant to the construction phase of the project, was prepared by G Hamm ('qualified archaeologist') and conditionally approved by the DoP in August 2008.

MCO stated that an updated version of the AHP was in preparation at the time of the audit.

**Evidence Sighted:**

The AHP was downloaded from the MCO website and reviewed by URS.

(a) Details of the consultation process followed in the preparation of the AHP are provided in the Plan and letters of correspondence provided in the AHP Appendix. Section 1.3.1 refers to extensive consultation with DECC and the Aboriginal community (letter of submission to DECC for consultation dated 03/06/08, feedback with comments provided dated 24/06/08). The consultation process included accompanied site inspections and meetings held between April 2006 and July 2008) with minutes of the meetings provided in Appendix 1. Three groups have been consulted in the Aboriginal cultural heritage assessment process:

- Mudgee Local Aboriginal Land Council (LALC),
- Murong Gialinga Aboriginal and Torres Strait Islander Corporation and
- Warrabinga Native Title Claimants Aboriginal Corporation

Conditional letters of support from each of these groups (dated 25/08/08) have been viewed (also included in Appendix 1 to the AHP).

(b) Evidence for the approval of the AHP by DoP was viewed (letter stating general satisfaction, with conditions attached, dated 29/8/08).

(c) The review of the AHP noted the following, in regard to each of the specific requirements of the Condition:

- The proposed development of a Cultural Heritage Management Report is described in Section 2.1. This is intended to provide a methodology and program for each of the aspects of the investigation and archiving phases of the work, and also to assist with auditing and compliance. The research methodology is detailed in Section 2.5;
- The AHP Section 1.1 (Scope) only briefly covers this component of the program. MCO stated that a program for the conservation of the site outside the surface disturbance area is to be addressed subsequently;
- A program to further assess and document the Aboriginal heritage values of the area is addressed in a flowchart for assessment and reporting in Appendix 2;
- A description of the measures that would be implemented if any Aboriginal skeletal remains are discovered during the project is provided in Section 2.7 and on a flowchart in Appendix 5; and
- A protocol for the ongoing consultation and involvement of the Aboriginal community is provided in Section 2.8 and the procedure for resolution of conflict is presented in Appendix 4.

**Compliance Status:**

Preparation of the Plan: Compliant.

Implementation of the Plan: Some non compliances were identified. Refer to Section 6.5 of the main report

**Recommended Action:**

Refer to recommendations made in Section 6.5 of main report.

## Non-Aboriginal Heritage Plan

**50**. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:
(a) be prepared in consultation with the Council;
(b) be submitted to the Director-General for approval prior to carrying out any development on site; and
(c) include a:

- program for the archival recording of the sites identified in Appendix 10, in accordance with the relevant NSW Heritage Office guidelines; and
- description of the measures that would be implemented to conserve and/or maintain public access to the sites identified in Appendix 10.

**Status:**

The Heritage Management Plan (HMP) for the construction phase of the project was approved in December 2008. A delay was requested by MCO for the commencement of the archival recording program until June 2009.

The 2008/2009 AEMR states that no active heritage management occurred during the reporting period as construction activities did not impact on any European Heritage sites. A scope of works was prepared and an appropriate consultant was engaged to undertake an archival recording program (to commence during the subsequent reporting period). MCO stated that this archiving has now been completed and the report received November 2009. Ten sites in the Stage 1 area were assessed in this program.

A revised HMP was prepared for submission to the DoP for approval in December 2009.

In its initial state as reviewed by URS, the HMP prepared for the construction phase of the work did not adequately address all aspects of the required content and was not compliant with the Approval Condition. The shortcomings have been rectified by the subsequent revision of the plan.

**Evidence Sighted:**

The HMP for the construction phase of the project was viewed.

(a) The HMP Section 1.6 states that the MWRC has been consulted and provided with a draft of the HMP, and that MWRC had advised that they did not object to the provisions of the document (copy of letter dated 08/12/08, indicating MWRC support for the HMP supplied).
A letter from the MWRC to MCO approving the revised version of the HMP was viewed (dated 02/11/09) and is appended to the HMP;

(b) A letter confirming submission of the HMP to the DoP from WES (dated 03/07/08) and a letter of approval of the HMP for the construction phase from DoP to MCO (dated17/12/08) were viewed;

(c) The HMP was reviewed for its content:

- Table 3 in the HMP states that Section 1.2.1.1 describes the program for the archival recording of the sites, but this was found to be inaccurate. Table 5 (Section 5.2) included an item referring to the commencement of recordings in June 2009;
- Table 3 also states that Section 4 describes the measures to be implemented to conserve and/or maintain public access to the sites identified in Appendix 10, but this was found to be inaccurate, as this section appears to describe the general communication lines, both internal and external, and associated contacts / information sources, unrelated to heritage issues. Table 5 (section 5.2) includes the description of measures to restrict access to heritage sites, as well as the actions required to allow accompaniment of members of the public to specific sites, on request.

The absence of a program for archival recording of the sites and a full description of the measures to be implemented to maintain public access to the sites listed was noted in the HMP.

MCO stated that those components of the program for archival recording and measures to be implemented to conserve public access which were not included in the HMP approved for the construction phase of the works were now included in the updated version of the HMP. The program and access issues were described in Table 2 (Section 3) of the revised HMP.

MCO's copy of the report titled "*A Photographic Archival recording of Rural Heritage in the Moolarben Coal Operations Area, NSW Volume 1: Report October 2009*" was produced by heritage consultants, Stedinger Associates Heritage and Archaeology and accompanying volumes of photographs was sighted by the auditor. The letter submitting the report to the DoP dated 7 December 2009 was viewed.

**Compliance Status:**

Preparation of the Plan: Compliant (for the revised Plan).

Implementation of the Plan: Some non compliances were identified and are referenced in. Section 6.5 of the main report.

**Recommended Action:**

Refer to recommendations made in Section 6.5 of the main report.

## TRANSPORT
## Road Works

**51**. Prior to carrying out any construction on site, unless otherwise authorised by the Director-General, the Proponent shall:

(a) construct the new intersection between the Ulan-Cassilis Road (MR 214) and the proposed mine access road for the coal handling preparation plant and coal stockpile infrastructure areas; and

(b) upgrade the existing intersection between the Ulan-Cassilis Road (MR 214) and Ulan-Wollar Road in conjunction with the owner of the Wilpinjong coal mine, to the satisfaction of the RTA.

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| **Status:** |
| MCO stated that both intersections had been completed within the required timescale and were now in use. Meetings were held with the Wilpinjong owners on a regular basis during the planning and construction phases of the road upgrade. |
| MCO also indicated that no feedback had been received from the RTA regarding the completed works. |
| **Evidence Sighted:** |
| The completed new road intersections were observed at the time of the audit. |
| **Compliance Status:** |
| Compliant. |

**52**. Prior to carrying out any construction on site to the south of the Ulan-Wollar Road, the Proponent shall construct the new intersection between the Ulan-Wollar Road and the proposed mine access road for the open cut operations to the satisfaction of Council.

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| **Status:** |
| MCO stated that the intersection had been completed within the required timescale and was now in use. Work was still continuing to remove the old road surface in the vicinity of the intersection and some minor landscaping works were proposed to complete the task. |
| MCO also indicated that no feedback had been received from the Council regarding the works completed to date. |
| **Evidence Sighted:** |
| The completed new road intersection was observed at the time of the audit. Works were underway at the time to remove the old road surface. |
| **Compliance Status:** |
| Compliant. |

**53**. Within 3 years of this approval, the Proponent shall construct the proposed diversion of the Ulan-Wollar Road to the satisfaction of Council.

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| **Status:** |
| MCO stated that the diversion had been completed and the new road was now in use. Work was still required to remove the old road surface. |
| MCO also indicated that no feedback had been received from the Council regarding the completed works, hence Council satisfaction is yet to be demonstrated. As Council satisfaction cannot be demonstrated, the condition has been deemed non-compliant. |
| **Evidence Sighted:** |
| The completed new road was observed to be in use at the time of the audit. |
| **Compliance Status:** |
| Non Compliant |
| **Recommended Action:** |
| Seek confirmation from Council that the Ulan-Woolar Road diversion has been constructed to Council's satisfaction. |

**54**. Prior to the commencement of mining operations in Open Cut 2, the Proponent shall divert Carrs Gap Road to the satisfaction of Council.

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| **Status:**<br>MCO pointed out that work on this diversion has not yet commenced, as mining has not yet commenced in Open Cut 2. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |

**55**. Prior to the commencement of mining operations in Open Cut 3, the Proponent shall divert Moolarben Road to the satisfaction of Council.

*Note: These road works must be constructed in accordance with the relevant RTA or Austroads standards, and signposted and lit in accordance AS 1742 – Manual of Uniform Traffic Control Devices and AS/NZS 1158: 2005 – Lighting for Roads and Public Spaces.*

| |
|---|
| **Status:**<br>MCO pointed out that work on this diversion has not yet commenced, as mining has not yet commenced in Open Cut 3. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |

## Upgrade of Ulan Road (MR 208/214), Cope Road (MR 598) and Ulan-Wollar Road

**56**. Within 6 months of this approval, the Proponent shall prepare a detailed program for the staged upgrade of Ulan Road, Cope Road and Ulan-Wollar Road to the satisfaction of the Director-General. This program must:

(a) be prepared by a suitably qualified expert/s whose appointment has been approved by the Director- General;

(b) be prepared in consultation with the RTA, Council, and the owner of the Wilpinjong coal mine;

(c) identify the road works that are required to improve the safety of these roads;

(d) include a detailed program to progressively implement these works; and

(e) allocate the available funding in any relevant VPA or statement of commitments to these works.

*Note: The Proponent is only responsible for upgrading the Ulan-Wollar Road from the existing intersection between Ulan- Cassilis Road (MR 214) and Ulan-Wollar Road and the new intersection between the Ulan-Wollar Road and the proposed mine access road for the open cut mining operations (see Conditions 51(b) and 52 of Schedule 3).*

| |
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| **Status:**<br>MCO stated that the staged program for the upgrade of the three roads has been submitted to the DoP for approval. |
| **Evidence Sighted:**<br>The program was submitted to the DoP for approval (letter dated 23/06/08, viewed). DoP Approval was received by letter dated 27 February 2010.<br>(a) DG approval of experts is referred to in the meeting minutes of 30/05/08;<br>(b) Consultation with the various parties is referred to in the meeting minutes of 30/05/08. RTA provided support to the proposed program (viewed undated letter, received by MCO 19/09/08) and from MWRC by letter (viewed, dated 11/02/09);<br>(c ) The works required was the subject of discussion at the meeting for which the minutes were viewed (30/05/08)<br>(d) A program to implement the works has been prepared and submitted (viewed);<br>(e) Funding for this work was included in the Voluntary Agreement referred to in Condition 2/12. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

**57**. Following the approval of this program, the Proponent shall implement the program in consultation with the RTA, Council, and owner of the Wilpinjong coal mine.

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| **Status:**<br>MCO stated that the program has yet to be approved. Therefore the condition was not yet applicable. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |
| **Recommended Action:** |

## Traffic Management

**58.** The Proponent shall:

(a) schedule the shift changes on site to occur outside the school bus hours;

(b) co-ordinate the shift changes on site with the shift changes of the adjoining Ulan and Wilpinjong coal mines to minimise the potential cumulative traffic impacts of the shift changes of the three mines.

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| **Status:**<br>MCO stated that agreement had been reached concerning shift starting times at the three mines, with the emphasis on avoiding school bus times. It was reported that the day shift start and finish times were staggered over the space of an hour.<br>For the audit period, aside form a skeleton night shift in the construction team, only one shift was working ,with round the clock shifts only programmed to start when operational phase of the work commenced in 2010.<br>Additional measures undertaken included the encouragement of the use of minibuses by contractors working on the site, and the use of car pools, which is informally encouraged by MCO. |
| **Evidence Sighted:**<br>No documented evidence was available to confirm the staggering of shift times.<br>No complaints had been received during the audit period concerning the volume of traffic on the road as a result of the mine activities or the timing of the shifts. |
| **Compliance Status:**<br>Compliant |
| **Recommended Action:** |

## Rail Transport – West

**59.** The Proponent shall not transport any coal west of the site through Gulgong and Mudgee without the written approval of the Director-General. In seeking this approval, the Proponent shall submit a report to the Director-General that:

(a) has been prepared in consultation with Council;
(b) demonstrates that the railway line has been suitably upgraded to accommodate the proposed coal train traffic;
(c) describes:
- the expected tonnages, train size, number, and rail scheduling of the proposed coal train movements (both laden and unladen);
- the measures that would be implemented to minimise, mitigate and/or manage the ongoing environmental effects of these coal train movements; and
- how the performance of these measures would be monitored.

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| **Status:** |
| MCO stated that no coal has been produced or transported off site to date, and there were currently no plans to transport coal on the rail line to Mudgee. |
| **Evidence Sighted:** |
| Observations made on the December 2009 site visit confirmed that no coal mining had taken place and the rail facility was not yet capable of transporting coal form the site. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## Monitoring of Coal Transport

**60**. The Proponent shall monitor the:

(a) amount of coal transported from the site each year; and
(b) date and time of each train movement generated by the project.

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| **Status:** |
| MCO pointed out that monitoring of coal movements would take place when mining commenced in 2010. |
| **Evidence Sighted:** |
| **Compliance Status:** |
| Not yet applicable. |
| **Recommended Action:** |

## LIGHTING IMPACTS

**61**. The Proponent shall:

(a) take all practicable measures to further mitigate off-site lighting impacts from the project; and

(b) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the Director-General.

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| **Status:**<br>MCO stated that during the initial construction phase of the admin area, some feedback was obtained concerning the lighting and its potential impact on the adjacent road. This was acted upon by modifying the angle of the lighting to minimise impact.<br>Off-site lighting impacts will be a more significant issue once MCO commence working in the afternoon and night during 2010.<br>MCO stated that all lighting conformed to the Australian Standard mentioned, but that no feedback had been received from the DoP since the project commenced. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:**<br>Monitor off-site lighting impacts following commencement of afternoon and night shift work and implement mitigation measures as required. |

## GREENHOUSE GAS
## Energy Savings Action Plan

**62.** The Proponent shall prepare and implement an Energy Savings Action Plan for the project to the satisfaction of the Director-General. This plan must:

(a) be prepared in consultation with DWE;

(b) be prepared in accordance with the *Guidelines for Energy Savings Action Plans* (DEUS 2005, or its latest version);

(c) be submitted to the Director-General for approval prior to carrying out any construction on site; and

(d) include a program to monitor the effectiveness of measures to reduce energy use on site.

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| **Status:**<br>An Energy Savings Action Plan (ESAP) was prepared and approved by the DoP (December 2008) for implementation at the project. The ESAP for the construction phase of the project was essentially a technical review which aimed to audit the proposed equipment and identify potential improvements in energy performance.<br>MCO stated that this plan would be upgraded in the future, but this was not proposed to take place before the commencement of the operational phase of the project. |
| **Evidence Sighted:**<br>The Energy Savings Action Plan (dated December 2008) was downloaded from the website and reviewed.<br>(a) Evidence for consultation with DWE in preparation of the ESAP was not seen (see EMP Section 4.6);<br>(b) The introduction states that the DEUS guidelines are followed in the preparation of the ESAP;<br>(c ) A letter from the DoP to MCO, approving the ESAP for the construction phases of the project was viewed (dated 17/12/08) This was received prior to the start of construction operations;<br>(d) A program to monitor the effectiveness of the energy reducing measures is presented as Table 1 (Energy Management Action for MCM), with proposed start dates and completion dates. A list of opportunities for improvements in energy efficiency, with suggested completion dates, is included as Table 2. |
| **Compliance Status:**<br>Preparation of Plan: Compliant.<br>Implementation of Plan: Some non compliances were identified. Refer to Section 6.5 of the main report. |
| **Recommended Action:**<br>Refer to recommendations made in Section 6.5 of the main report. |

## Gas Drainage

**63**. The Proponent shall implement all reasonable and feasible measures to minimise the greenhouse gas emissions from the underground mining operations to the satisfaction of the Director-General.

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| **Status:**<br>MCO stated that measures to minimise the greenhouse gas emissions from the underground operations would be addressed in more detail when the project progressed towards the development of the underground phase of the work. |
| **Evidence Sighted:** |
| **Compliance Status:**<br>Not yet applicable. |
| **Recommended Action:** |

**64.** Prior to carrying out underground mining operations, the Proponent shall submit a Greenhouse Gas Minimisation Plan to the Director-General. This plan must:

(a) identify options for minimising greenhouse gas emissions from underground mining operations, with a particular focus on capturing and/or using these emissions;
(b) investigate the feasibility of implementing each option;
(c) propose the measures that would be implemented in the short to medium term on site; and
(d) include a research program to inform the continuous improvement of the greenhouse gas minimisation measures on site.

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| **Status:**<br>MCO stated that the Greenhouse Gas Minimisation Plan (GGMP) has not yet been completed as underground mining operations are not planned to commence for some years. Greenhouse gas emissions were not actively being quantified/tracked during the audit period.<br>MCO stated that gas testing of the coal seam was underway in the area of the Open Cut 1 to gather data for use in greenhouse gas emission calculations. |
| **Evidence Sighted:**<br>Evidence of the shallow drilling works undertaken to assess the gas potential of the coal seam was observed during the December 2009 visit in the Open Cut No. 1 area. |
| **Compliance Status:**<br>Not yet applicable. |
| **Recommended Action:** |

## WASTE

65. The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must:

(a) be submitted to the Director-General for approval prior to commencing construction;
(b) identify the various waste streams of the project;
(c) describe what measures would be implemented to reuse, recycle, or minimise the waste generated by the project; and
(d) include a program to monitor the effectiveness of these measures.

*Note: This plan is not required to cover the disposal of tailings or the management of overburden.*

**Status:**

MCO stated that the Waste Management Plan (WMP) for the construction phase of the project was approved by the DoP prior to the commencement of construction at the site. A revised WMP was submitted to the DoP for approval on the 16th November 2009, incorporating a number of changes.

Consultation with MWRC and unnamed waste contractors during the planning phases is mentioned in Section 1.6 of the WMP. MCO stated that it was policy of the project to utilise local contractors where possible for each aspect of the waste management program.

**Evidence Sighted:**

A copy of the WMP was downloaded from the website for review. It was noted that this version had not identified the revised legislation which came into force during 2008 (but now recognised in the revised version of the WMP).

(a) Approval of the WMP for the construction phase of the project was received from DoP (letter viewed, dated 17/12/08);

(b) Appendix 3 of the WMP is a tabulated waste schedule with waste sources and estimates of quantities to be generated for each type of waste, plus strategies to manage the waste within the requirements of the approval conditions. An example of a monthly summary of wastes removed from the site by the licensed contractor (JR Richard & Sons, Waste & Recycling Services, Dubbo) was viewed. It was noted that the materials removed included general waste, recycled cardboard, and portaloo and septic effluent effluents;

(c) Sections 5.2 to 5.6 of the WMP outline the management systems and procedures initiated to implement the necessary measures to ensure that waste streams are suitably managed. Appendix 4 describes various management procedures in place to monitor and report on various aspects of the site waste streams.

(d) Sections 6 to 10 of the WMP describe the various measures initiated to allow effective monitoring of waste streams, including weekly and monthly assessments, keeping of a waste register, a protocol for the monitoring of performance in the area of waste management, and a review of the weekly / monthly assessments. MCO stated that a monthly report of volumes of waste removed from the site is received form the contractor. An example of this (in spreadsheet form) was viewed. MCO also stated that ad hoc inspections of waste containers form part of the regular environmental inspections carried out routinely at the site.

Refer to Section 6.5 of main report for discussion of implementation of the Plan.

**Compliance Status:**

Preparation of the Plan: Compliant

Implementation of the Plan: Some non compliances were identified and a referenced in Section 6.5 of the main report.

**Recommended Action:**

It is recommended that the revised Waste Management Plan references the most up to date waste management legislation.

Refer to recommendations made in Section 6.5 of the main report.

## SCHEDULE 4
## ADDITIONAL PROCEDURES FOR AIR QUALITY & NOISE MANAGEMENT

### NOTIFICATION OF LANDOWNERS

**1.** Within 1 month of this approval, the Proponent shall notify the landowners of the land listed in Table 1 in writing that they have the right to require the Proponent to acquire their land at any stage during the project.

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| **Status:** |
| MCO stated that all the landowners on the list had been notified of their right (as presented in the condition) through letters sent to landowners. |
| **Evidence Sighted:** |
| Copies of letters sent out to seventeen of the landowners were viewed (each dated 24/09/07). |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**2**. If the results of monitoring required in Schedule 3 identify that the impacts generated by the project are greater than the relevant impact assessment criteria in Schedule 3, except where this is predicted in the EA, and except where a negotiated agreement has been entered into in relation to that impact, then the Proponent shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the criteria in Schedule 3.

| |
|---|
| **Status:** |
| This action was not triggered during the audit period, as monitored impacts were below the relevant assessment criteria. |
| **Evidence Sighted:** |
| Monitoring results sighted as part of the review for this audit and as presented in the two AEMRs completed to date. |
| **Compliance Status:** |
| Not applicable. |
| **Recommended Action:** |

3. Prior to carrying out any construction on site, the Proponent shall:

(a) prepare a brochure to advise landowners and tenants (including tenants of mine owned properties) of the possible health and amenity impacts associated with exposure to particulate matter, in consultation with NSW Health, and to the satisfaction of the Director-General;

(b) provide a copy of the approved brochure to the landowners and tenants (including tenants of mine owned properties) of properties where the predictions in the EA identify that the dust emissions generated by the project are likely to be greater than the air quality land acquisition criteria in Schedule 3.

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|---|
| **Status:** |
| A brochure entitled ‘Mine Dust and You’ was prepared and approved by the DoP, and then distributed to all parties. |
| **Evidence Sighted:** |
| The brochure was downloaded from the website and reviewed. |
| A letter from the DoP to MCO approving the brochure was viewed (dated 26/05/08). |
| MCO stated that copies of the brochure were distributed by hand to properties in the neighbourhood, as well as being posted on the website. |
| **Compliance Status:** |
| Compliant |
| **Recommended Action:** |

## INDEPENDENT REVIEW

**4**. If a landowner considers the project to be exceeding the impact assessment criteria in Schedule 3, except where this is predicted in the EA, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.
If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 3 months of the Director-General advising that an independent review is warranted:

(a) consult with the landowner to determine his/her concerns;
(b) commission a suitably qualified, experienced and independent person whose appointment has been approved by the Director-General, to conduct monitoring on the land, determine whether the project is complying with the relevant impact assessment criteria in Schedule 3, identify the source(s) and scale of any impact on the land, and the project's contribution to this impact;
(c) give the Director-General and landowner a copy of the independent review.

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| **Status:** |
| MCO reported that during the audit period the Director General had not advised that an independent review was required. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**5**. If the independent review determines that the project is complying with the relevant impact assessment criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

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| **Status:** |
| As per PAC 4/4 above. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**6.** If the independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:

(a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria; and
(b) conduct further monitoring to determine whether these measures ensure compliance; or
(c) secure a written agreement with the landowner to allow exceedances of the criteria in Schedule 3,

to the satisfaction of the Director-General. If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

If the Proponent is unable to finalise an agreement with the landowner, then the Proponent or landowner may refer the matter to the Director-General for resolution. If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 11).
If the measures referred to in (a) do not achieve compliance with the relevant land acquisition criteria in Schedule 3, and the Proponent cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then, upon receiving a written request from the landowner, the Proponent shall acquire the landowner's land in accordance with the procedures in Conditions 10-12 below.

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| **Status:** |
| As per PAC 4/4 above. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**7.** If the independent review determines that the relevant criteria in Schedule 3 are being exceeded, but that more than one mine is responsible for this non-compliance, then the Proponent shall, together with the relevant mine/s:

(a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and

(b) conduct further monitoring to determine whether these measures ensure compliance; or

(c) secure a written agreement with the landowner and other relevant mines to allow exceedances of the criteria in Schedule 3, to the satisfaction of the Director-General.

If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

If the Proponent is unable to finalise an agreement with the landowner and/or other mine/s, then the Proponent or landowner may refer the matter to the Director-General for resolution.

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 11).

If the measures referred to in (a) do not achieve compliance with the relevant land acquisition criteria in Schedule 3, and the Proponent together with the relevant mine/s cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then, upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land on as equitable basis as possible with the relevant mine/s, in accordance with the procedures in Conditions 10-12 below.

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| **Status:** |
| As per PAC 4/4 above. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**8.** If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the Director-General for resolution.

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.

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| **Status:** |
| As per PAC 4/4 above. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**9**. If, following the Independent Dispute Resolution Process, the Director-General decides that the Proponent shall acquire all or part of the landowner's land, then the Proponent shall acquire this land in accordance with the procedures in conditions 10-12 below.

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| **Status:** |
| As per PAC 4/4 above. |
| **Evidence Sighted:** |
| This Condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

## LAND ACQUISITION

**10.** Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:

(a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project the subject of the project application, having regard to the:

. existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and

. presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of Condition 8 of Schedule 3;

(b) the reasonable costs associated with:

. relocating within the Mid Western Regional Council local government area, or to any other local government area determined by the Director-General;

. obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and

(c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution (see Appendix 8). Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired. Within 14 days of receiving the independent valuer's determination, the Proponent shall make a written offer to purchase the land at a price not less than the independent valuer's determination.

If the landowner refuses to accept this offer within 6 months of the date of the Proponent's offer, the Proponent's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.

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| **Status:** |
| MCO stated that five properties had been acquired to the date of the end of the audit period (November 2009). , Negotiations had commenced, on several other properties, however the process has not progressed to the stage of involving the independent valuers. A revised list of the properties is provided in the updated NMP for the Operational phase of the project. |
| **Evidence Sighted:** |
| The revised list of properties was viewed in the NMP. |
| **Compliance Status:** |
| Compliant. |

**11.** The Proponent shall bear the costs of any valuation or survey assessment requested by the independent valuer, or the Director-General and the costs of determination referred above.

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| **Status:** |
| MCO stated that no valuation or survey assessment has been required to date. |
| **Evidence Sighted:** |
| This condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

**12.** If the Proponent and landowner agree that only part of the land shall be acquired, then the Proponent shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.

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| **Status:** |
| MCO stated that in each case where a property has been purchased, it had been purchased in its entirety, and no subdivision was involved. |
| **Evidence Sighted:** |
| This condition has not been triggered. |
| **Compliance Status:** |
| Not applicable. |

## SCHEDULE 5
## ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

### ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must be submitted to the Director-General prior to carrying out any development on site, and:

(a) provide the strategic context for environmental management of the project;
(b) identify the statutory requirements that apply to the project;
(c) describe in general how the environmental performance of the project would be monitored and managed;
(d) describe the procedures that would be implemented to:
- keep the local community and relevant agencies informed about the operation and environmental performance of the project;
- receive, handle, respond to, and record complaints;
- resolve any disputes that may arise during the course of the project;
- respond to any non-compliance;
- manage cumulative impacts; and
- respond to emergencies; and

(e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project.

**Status:**

The Environmental Management Strategy (EMS) for the construction phase of the project was approved by the DoP in December 2008, which was before the construction work commenced on the site.

MCO stated that the EMS had not yet been updated for the commencement of the operational phase of the project, but that information had been added to each of the individual management plans, which had been submitted to DoP for approval. Once these were approved, the EMS would be updated accordingly.

**Evidence Sighted:**

The EMS was submitted to and approved by the DOP by letter dated 17/12/08 (viewed), prior to the commencement of construction, which occurred in March 2009.

(a) Section 2.2 (Figure 4) of the EMS provides the strategic context for the environmental management of the project;

(b) Section 3 of the EMS identifies the statutory requirements that apply to the project;

(c) Section 4 of the EMS describes how the environmental performance of the project will be monitored and managed;

(d) The description of the various procedures to be implemented were to be found as follows:

- Section 7.3 deals with the dissemination of information to the local community (not Section 9 as indicated on the Table in the EMS). In this regard, a letter from Ulan Public School (dated 5/12/08) was viewed, outlining the meetings and correspondence which had taken place between several stakeholder parties concerning community feedback on the various monitoring programs initiated by MCO;
- Section 9.1 covers the handling and response to complaints (not Sections 9 and 10;
- Although the table in the EMS states that Sections 9 and 10 cover the subject. The version viewed does not appear to include information on how the resolution of disputes is to occur. MCO pointed out that relevant information has been added to the appropriate updated management plans, but the update of the EMS has not yet been addressed. Once the updated management plans have been approved this would be completed on the EMS;
- Sections 9.2 and Section 10 of the EMS deal with the response to any non-compliance;
- Section 4.13 covers the management of cumulative impacts (not Section 9 as indicated on the Table in the EMS);
- Section 9.5 of the EMS covers the response to emergencies;

(e) Section 6 of the EMS describes the roles and responsibilities of the key personnel and what authority and accountability is involved.

**Compliance Status:**

Preparation of the Plan: Compliant.

Implementation of the Plan: Some non compliances were identified. These are referenced in Section 6.2 of main report.

**Recommended Action:**

Refer to recommendations made in Section 6.2 of main report.

## ENVIRONMENTAL MONITORING PROGRAM

**2**. The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements of this approval into a single document, and be submitted to the Director-General with the submission of the relevant monitoring programs.

| |
|---|
| **Status:**<br>MCO stated that the Environmental Monitoring Program (EMP) was prepared and submitted to the DoP for approval, along with those monitoring programs relevant to the construction phase of the project. Those component programs not required for the initial phases of the project (e.g. Subsidence Monitoring Program) were not incorporated into the EMP at this stage.<br>The revision of the EMP will take place as new or revised management plans are approved and incorporated into the Program. |
| **Evidence Sighted:**<br>The EMP was downloaded from the MCO website for review, and noted to contain sections on each of the component programs required for the construction phase of the project.<br>A letter accompanying submission of the EMP to the DoP was viewed (dated 02/10/08).<br>No evidence of feedback from DoP in regard to the content of the EMP was viewed. |
| **Compliance Status:**<br>Preparation of the Plan: Compliant.<br>Implementation of the Plan: Some non compliances were identified. Refer to discussion of implementation of the various monitoring programs in Section 6.5 of the main report. . |
| **Recommended Action:**<br>Refer to recommendations made in Section 6.5 of the main report on the various monitoring plans/programs. |

## REPORTING
## Incident Reporting

**3.** Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department and other relevant agencies of the exceedance/incident.

**Status:**

Two incidents (or groups of incidents) had occurred at the site during the audit period which necessitated reporting to the DoP and other agencies. These are described in the AEMR and summarised below.

MCO stated that four separate discharge events are referred to in correspondence with the agencies, relating to events which took place on the 8th, 9th and 22nd of June 2009. It was pointed out that due to the fact that the first set of events (Discharges 1 to 3) took place during a long weekend, there had been some confusion regarding the actual date of Discharge Events 1 and 2, although it was now agreed that these had occurred on the 8th June, not on the 7th, as had been reported in some correspondence.

The discharge incidents which occurred during June 2009 are also summarised in a Notification to Provide Information issued by EPA (dated 27/08/2009).

DECCW refer to four separate discharge events involving sediment laden water being released from the site:

- Discharges 1 and 2 – into Bora Creek at two separate locations on 07/06/09 (which MCO subsequently confirmed actually occurred on the 08/06/09, which was a public holiday;
- Discharge 3 – into Bora Creek on 09/06/09 (community complaint received on 09/06/09 (10/06/09 reported to DECC);
- Discharge 4 – into Bora Creek on 22/06/09.

The following information summarises the relevant aspects for this condition:

- Discharges 1/2 – into Bora Creek approx 13.00 on 08/06/09, reported to DECC and DoP at approx 12.30 on 10/06/09;
- Discharge 3 – into Bora Creek at approx 14.00 on 09/06/09 (arising from community complaint at that time) reported to DECC and DoP at approx 12.30 on 10/06/09;
- Discharge 4 – into Bora Creek at 10.15 on 22/06/09. Reported by telephone to EPA on same morning, and subsequently by letter on 23/06/09.

Available evidence therefore indicates that Discharges1/2 were not notified to the Department within 24 hours of the incident being detected as required by this Condition.

The second incident relating to the unauthorised clearance of vegetation was reported by a neighbour, and followed up by the DoP. MCO were not aware of the incident until notified by the DoP. The incident reporting condition is therefore not relevant in this case.

Incidents outside of the reporting period (November 2009) have not been assessed against this condition as part of this audit.

**Evidence Sighted:**

Reference to verbal report from MCO to DoP on 10/06/09 concerning discharge incident (described in letter to Department dated 15/07/09).

Reference to a letter (dated 17/06/09) from MCO to DECCW concerning erosion and sediment control in letter described below (dated 22/06/09).

Viewed letter to DECCW (dated 22/06/09) describing the discharge incident, in response to verbal request for information from DECCW.

Viewed Notification to Provide Information and/or Records issued by EPA/DECCW on 27/08/09.

Viewed letter responding to request for information sent to DECCW (dated 30/09/09).

**Compliance Status:**

Non Compliant

**Recommended Action:**

Develop and implement systems to ensure that notification of any future incidents is undertaken within the required 24 hours.

**4.** Within 6 days of notifying the Department and other relevant agencies of an exceedance/incident, the Proponent shall provide the Department and these agencies with a written report that:

(a) describes the date, time, and nature of the exceedance/incident;
(b) identifies the cause (or likely cause ) of the exceedance/incident;
(c) describes what action has been taken to date ; and
(d) describes the proposed measures to address the exceedance/incident.

**Status:**

Following the incidents where sediment laden water was discharged into Bora Creek, a written report describing relevant details concerning Discharge Events 1, 2 and 3 was provided to DoP (dated 15 July 2009). It is noted that the request for an extension for submission of a written report on the discharge events was granted by the DoP after the six day deadline had been passed.

A written report describing relevant details concerning Discharge Event 4 was provided to DECCW on the 26 June 2009. Additional information was requested by DECCW on 27th August 2009, which was provided by MCO on 30th September 2009.

Following the incident where vegetation was found to have been cleared without the correct authority, additional information was requested by DoP on 03/07/09. This request referred to letter dated 21/05/09 from MCO describing the background to the incident, accompanied by several photographs. URS understands that the original incident occurred on 10/05/09.

**Evidence Sighted:**

Copies of correspondence related to the above incidents were provided by MCO:

- Written report (dated 26/06/09) from MCO to DECCW describing Discharge Event 4. The report on this event describes the date, time, and nature of the incident, identifies the cause of the incident, what action was taken as a result of the incident and the proposed measures to address prevention of further incidents of this nature;
- Written report (dated 15/07/09) from MCO to DoP describing Discharge Events 1, 2 and 3. The report on these events describes the date, time, and nature of the incidents, identifies the cause of the incidents, what action was taken as a result of the incidents and the proposed measures to address prevention of further incidents of this nature;
- Notice from EPA to provide information on an incident (dated 27/08/09);
- Provision of information by MCO in response to the request from DECCW (dated 30/09/09); and
- E-mail correspondence from Belinda Parker (DoP), dated 1706/09, agreeing to an extension for submission of an incident report on Discharges 1/2/3, referring to an investigation into the incident involving DECCW. The request for an extension was made by MCO by e-mail on 15/06/2009.

Regarding the unauthorised vegetation clearing incident:

- Reference to a letter from MCO to DoP describing the events surrounding the incident (dated 21/05/09);
- Notice from DoP to provide information on an incident in response to a request (dated 03/07/09).

**Compliance Status:**

Compliant

**Recommended Action:**

Develop and implement systems to ensure that any future incidents are supported by the submission of a written report to the relevant agencies, as required by the condition, within six days of notification of the event.

## Annual Reporting

**5.** Within 12 months of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and relevant agencies. This report must:

(a) identify the standards and performance measures that apply to the project;
(b) describe the works carried out in the last 12 months;
(c) describe the works that will be carried out in the next 12 months;
(d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
(e) include a summary of the monitoring results for the project during the past year;
(f) include an analysis of these monitoring results against the relevant:
- impact assessment criteria/limits;
- monitoring results from previous years; and
- predictions in the EA;

(g) identify any trends in the monitoring results over the life of the project;
(h) identify any non-compliance during the previous year; and
(i) describe what actions were, or are being, taken to ensure compliance.

**Status:**

MCO indicated that Annual Environmental Monitoring Reports (AEMR) have been submitted for both 2007/2008 and 2008/2009 and that copies had been forwarded to each of the following agencies or committees – DoP, MWRC, NSW Water, DII, DECCW and the CCC.

A response to the 2008/2009 AEMR was provided by the DoP dated 24 February 2010 and provided detailed comments on where the AEMR had not met the expectations of the DoP. As of 15 June 2010, MCO were still updating the AEMR based on the comments received from DoP.

**Evidence Sighted:**

A cover letter accompanying submission of the 2008 AEMR to DoP was viewed (dated 10/10/08). Cover letters for submission of the 2009 AEMR to various groups were viewed (to CCC, DoP, MWRC, NSW W, DII and DECCW, all dated 30/10/09).

Copies of both the 2008 AEMR and the 2009 AEMR were downloaded form the company website for review.

Regarding the content of the AEMR, the 2008/2009 AEMR comprised the following, as required by the Condition:

(a) Section 1 identifies the standards and performance measures that apply to the project;
(b) Section 2 describes the works carried out in the last 12 months;
(c) Section 6 describes the works that will be carried out in the next 12 months;
(d) Section 4.1 includes a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
(e) Section 3 comprises a summary of the monitoring results for the project during the past year;
(f) Section 3 also includes an analysis of these monitoring results against the relevant:
- impact assessment criteria/limits;
- monitoring results from previous years; and
- predictions in the EA;

(g) Section 3 also identifies trends in the monitoring results over the life of the project.;
(h) Section 3.23 identifies non-compliances recorded during the previous year;
(i) Section 3.23 describes what actions were, or are being, taken to ensure compliance.

Comments from the DoP on the AEMR dated 24 February 2010.

**Compliance Status:**

Non Compliant.

**Recommended Action:**

Continue to revise the AEMR as required by the DoP.

## INDEPENDENT ENVIRONMENTAL AUDIT

**6.** Within 2 years of this approval, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:

(a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;

(b) include consultation with the relevant agencies;

(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant mining lease and environment protection licence (including any strategy, plan or program under these approvals);

(d) review the adequacy of strategies, plans and/or programs required under these approvals; and, if necessary,

(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals, including changes to the mine plan.

*Note:*

. *Notwithstanding the timing referred to above, audits must be carried out prior to the completion of longwall panels 4 and 8. The Proponent must liaise with the Department to determine the precise date of these audits.*

. *This audit team should be led by a suitably qualified auditor, and include experts in the field of subsidence, surface water and groundwater management, noise, ecology and mine rehabilitation.*

| |
|---|
| **Status:** |
| This audit being undertaken by URS is the first independent compliance audit to be undertaken on the project, to fulfil the requirement of this condition. |
| **Evidence Sighted:** |
| (a) The URS audit team led by Michael Woolley was approved by the DoP as suitably qualified and experienced to conduct the audit (letter viewed, dated 1/10/09); |
| (b) As part of this audit, URS have consulted with DECCW, DoP, MWRC, DII, and NSW/NOW. At the time of reporting responses had been received from DECCW, MWRC and DoP; |
| (c) The audit report contains sections which assess the environmental performance of the project with respect to the listed licenses and approvals (Appendices A and B of this report); |
| (d) The audit report contains sections which review the adequacy of the various management plans / monitoring programs (Sections 4 and 5 of this report); and |
| (e) The audit report contains a section which provides recommendations on how the environmental performance could be improved (Section 5 of this report). |
| An audit report was submitted to DoP in February 2010. Comments on the report were provided to URS at a meeting with DoP dated 21 April 2010. URS has subsequently sought to address the DoP comments through a further site visit in May 2010 and a revision of the report. This revised report reflects the updates made through this process. |
| **Compliance Status:** |
| Compliant. |

**7.** Within 6 weeks of completing this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General with a response to any recommendations contained in the audit report.

| |
|---|
| **Status:** |
| No previous audits of this nature have yet been undertaken. Following submission of the completed revised audit report, MCO indicated that a copy would be submitted to the DoP, along with responses to any recommendations made in the report. |
| **Evidence Sighted:** |
| Not yet applicable. |
| **Compliance Status:** |
| Not yet applicable. |

**8.** Within 3 months of submitting the audit report to the Director-General, the Proponent shall review and if necessary revise the strategies/plans/programs required under this approval, to the satisfaction of the Director-General.

| |
|---|
| **Compliance Status:**<br>MCO stated that revision of the various strategies would commence with immediate effect, following the closing meeting at the end of the site visit. |
| **Evidence Sighted:**<br>Not yet applicable at time of audit. |
| **Compliance Status:**<br>Not yet applicable. |

## COMMUNITY CONSULTATIVE COMMITTEE

**9.** The Proponent shall establish a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in general accordance with the *Guideline for Establishing and Operating Community Consultative Committees for Mining Projects*. This committee must be established within 3 months of this approval.

| |
|---|
| **Status:**<br>MCO indicated that a Community Consultative Committee (CCC) had been established in mid 2008, in line with the guidelines, and was composed of representatives from MCO, a representative from MWRC, one representative from UCM and ten community members.<br>MCO stated that the CCC typically meets every two to three months. .<br>It is a requirement of the guidelines that CCC meeting minutes are available on the Company's website and in another public place agreed to by the Committee within 28 days of each meeting. |
| **Evidence Sighted:**<br>A letter was viewed approving Mr O'Brien as independent chairperson of CCC (from DoP, dated 26/05/08). Mr O'Brien stepped down as independent chairperson in September 2009 and was replaced by Esme Martens.<br>The MCO Website was noted to include a page on the CCC – with various general information and attaching minutes of CCC meetings for meetings held on the 26/06/08, 28/08/08 and 8/10/08. Minutes from meetings post 8/10/08 were not posted on the website.<br>The following CCC meeting minutes were viewed:<br>• 26 June 2008;<br>• 28 August 2008;<br>• 28 October 2008;<br>• 23 April 2009;<br>• 28 July 2009;<br>• 29 September 2009; and<br>• 24th November 2009.<br>It was noted that the CCC were on the list of recipients for distribution of the various annual reports and management plans produced by MCO. |
| **Compliance Status:**<br>Non Compliant. |
| **Recommended Action:**<br>Ensure minutes of the CCC meetings are posted on MCO's website within 28 days of each meeting. |

## ACCESS TO INFORMATION

**10.** Within 3 months of the approval of any strategy/plan/program required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMRs, required under this approval, the Proponent shall:

(a) provide a copy of the relevant document/s to the relevant agencies and CCC;
(b) put a copy of the document/s on its website.

| |
|---|
| **Status:**<br>MCO stated that hard copies of each plan or program were typically distributed to CCC members, and that both electronic copies and hard copies were made available to the various agencies.<br>MCO stated that each plan / program was posted on to the website as soon as possible, but that some difficulties had been experienced as the service provider was remote form the mine site (in Brisbane). This situation was in the process of being rectified by making direct access to the website possible for mine based staff. |
| **Evidence Sighted:**<br>Evidence provided during the course of the audit has confirmed that in general, copies of plans, programs and reports were made available to the various agencies and the CCC within the required time period. Moolarben stated that hard copies of these documents were often distributed to CCC members by hand, and that proof of distribution might therefore be difficult to substantiate in some instances.<br>The relevant agencies were provided with copies of each of the approved documents during the course of the approval process, as evidenced under each of the conditions relevant to the respective documents.<br>Copies of each of the approved plans, strategies and programs were observed to be posted on the MCO website at the time of the audit (AHMP, AQMP, AEMR (2008/2009), BMP, CNMP, ESMP, EMSP, EMP, HMP, NMP, WasteMP and WaterMP). It was noted that, following the provision of the 2008/2009 AEMR on the website, the 2007/2008 AEMR was no longer available.<br>Monthly monitoring reports were available on the website for the months August 2009 to January 2010. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:**<br>Ensure the website is kept up to date and amended plans and new plans are included on the website. The 2007/2008 AEMR report should be provided on the website: |

**11**. During the project, the Proponent shall:

(a) make a summary of monitoring results required under this approval publicly available on its website; and
(b) update these results on a regular basis (at least every 3 months).

| |
|---|
| **Status:**<br>MCO stated that monthly summaries of the monitoring results were placed on the website, and that, now that direct access to the website was possible from the mine site, updating of the website would be undertaken on a regular basis. |
| **Evidence Sighted:**<br>During preparation for the site visit, difficulties experienced by MCO with direct access to their website had meant that not all documents were available on the website. Subsequent visits to the website confirmed that monitoring results were provided in the following format:<br>• Monthly results for August 2009, September 2009, October 2009 and November 2009 (in summary format with some interpretation provided);<br>• The 2008/2009 AEMR, complete with a full set of monitoring results. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

B

# Appendix B Compliance Tables - EPL Conditions

# EPL 12932

# 1. Administrative Conditions

## A1 What the licence authorises and regulates

**A1.2** This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee based activity classification and the scale of the operation. Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

**Scheduled Activity**
Mining for coal
**Fee Based Activity Scale**
Mining for coal > 5000000 - T produced

| |
|---|
| **Status:** |
| Mining has not yet commenced. |
| **Evidence Sighted:** |
| Observation of activities at site. |
| **Compliance Status:** |
| Compliant. |

## A2 Premises to which this licence applies

**A2.1** The licence applies to the following premises:

**Premises Details**

**MOOLARBEN COAL PROJECT**
**Ulan-Cassilis Road**
**ULAN NSW 2850**
**EXPLORATION LICENCES 6288 AND 7074, INCLUDING MINING LEASES 1605, ML 1606, MLA 316, ML A 317 AND MLA 318**

Property details as indicated in appendix 1 of Development Approval 05_0117

| |
|---|
| **Status:** |
| Noted. |
| **Evidence Sighted:** |
| Site visited at the above address. |
| **Compliance Status:** |
| Compliant. |

**A4.1** Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence. In this condition the reference to "the licence application" includes a reference to:

(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and

(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

| |
|---|
| **Status:** |
| Moolarben stated that works and activities undertaken at the site are carried out as described in the licence application. |
| **Evidence Sighted:** |
| Compliance status determined from all evidence collected as part of the audit. |
| **Compliance Status:** |
| Compliant. |

# 2 Discharges to air and water and applications to land

## P1 Location of monitoring/discharge points and areas

**P1.1** The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

*Air*

| EPA Identification no. | Type of Monitoring Point | Type of Discharge Point | Description of Location |
|---|---|---|---|
| 6 | Dust deposition monitoring (DM1) | Dust deposition monitoring (DM1) | North of 6288 on Williams property (property no 52) as indicated on fig 3 pg 16 Air Quality Management Plan dated 12/3/08 |
| 7 | Dust deposition monitoring (DM2) | Dust deposition monitoring (DM2) | Mine owned property (property no 16) between Murragamba Road and Ulan-Wollar Road, approx 1.5 km from the intersection of the roads. |
| 8 | Dust deposition monitoring (DM3) | Dust deposition monitoring (DM3) | Mine owned property no 2, south west of intersection of Murragamba Road and south western boundary of Munghorn Gap Nature Reserve |
| 9 | Dust deposition monitoring (DM4) | Dust deposition monitoring (DM4) | Spring Street, Ulan Village |
| 10 | Dust deposition monitoring (DM5) | Dust deposition monitoring (DM5) | Ryans Creek Road, Ulan Coal Mine owned land (property no 46), near intersection of Ulan and Lagoons Road |
| 11 | Dust deposition monitoring (DM6) | Dust deposition monitoring (DM6) | Cox property Moolarben Road (property 31), near intersection with Mayberry Road |
| 12 | Dust deposition monitoring (DM7) | Dust deposition monitoring (DM7) | Rayner property Moolarben Road (property no 36) |
| 13 | Dust deposition monitoring (DM8) | Dust deposition monitoring (DM8) | Mayberry property Moolarben Road (property no 29A), near Spring Creek |
| 14 | Dust deposition monitoring (DM9) | Dust deposition monitoring (DM9) | Szymkarczuk residence Ulan Road (property 37) |
| 15 | Dust monitoring PM10 (TEOM) | | Mine owned property no 16 between Murragamba Road and Ulan-Wollar Road, approx 1.5 km from the intersection of the roads. |
| 16 | Dust monitoring PM10 (HVAS) | | John Street, Ulan village |
| 17 | Dust monitoring PM10 (TEOM) | | Ulan Public School, Ulan village |

**Status:**
Moolarben stated that all monitoring points were as identified in the table.

**Evidence Sighted:**
Selected monitoring locations were visited during site audit, including the air quality monitoring location at Ulan School.

**Compliance Status:**
Compliant.

**P1.2** The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

*Water and land*

| EPA identification no. | Type of monitoring point | Type of discharge point | Description of location |
|---|---|---|---|
| 1 | Discharge to waters. Discharge water quality monitoring. | Discharge to waters. Discharge water quality monitoring. | Discharge to Bora Creek from pond 2B as indicated in figure 2 (MCP stage 1 general arrangement) Moolarben Coal Project EPL attachments received by EPA 30/6/08 |
| 2 | Discharge to waters. Discharge water quality monitoring. | Discharge to waters. Discharge water quality monitoring. | Discharge to Bora Creek from pond 2D as indicated by figure 2 (MCP stage 1 general arrangement) Moolarben Coal Project EPL attachments received by EPA 30/6/08. |
| 3 | Surface water quality monitoring | | Bora Creek at the western boundary of mining lease 1605. Surface water monitoring point SW11 as indicated in figure 2 Moolarben Water Management Plan appendix C, dated 10 December 2008 |
| 4 | Surface water quality monitoring | | Bora Creek upstream of the extent of the rail loop. Surface water monitoring point SW10 as indicated in figure 2 of the Moolarben Water Management Plan Appendix C, dated 10 December 2008 |
| 5 | Effluent discharge and monitoring | Effluent discharge and monitoring | End of pipe discharging to the environmental bund adjacent to open cut 1 |

**Status:**

Ponds 2B and 2D as indicated for EPA Identification Numbers 1 and 2 were not constructed as per the original EPL Application. Moolarben stated in July 2010 that the exact discharge point was still to be agreed between the EPA and Moolarben. Also, at the time of the audit, the effluent discharge point had not yet been completed.

**Evidence Sighted:**

Evidence showing discussions had occurred with the EPA over the location of the discharge points was not provided and is based on verbal communications with MCO.

One of the surface water monitoring locations was observed during site audit. Time did not permit the observation of all four.

**Compliance Status:**

Indeterminate

**Recommended Action:**

Complete discussions with DECCW to confirm location of the discharge points. Update the licence as appropriate to reflect these locations.

**P1.3** The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

| |
|---|
| **Status:**<br>No utilisation areas are described in the Licence. |
| **Evidence Sighted:**<br>Noted. |
| **Compliance Status:**<br>Not applicable. |

# 3 Limit Conditions

## L1 Pollution of waters

**L1.1** Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

| |
|---|
| **Status:**<br>Evidence gained during the audit indicated that the discharge incidents which impacted the Bora Creek during June 2009 (and described elsewhere in this report) were classified as pollution events, in contravention of the legislation described in the Condition.<br>With the possible exception of the discharge events described above, Moolarben stated that they had complied with the stated legislation. |
| **Evidence Sighted:**<br>The unlicensed discharge events at Bora Creek in June 2009 were entered into the 2009 Annual Return as a non-compliance.<br>All available evidence gained during the audit pointed towards the fact that, aside from the discharge events described above, Moolarben has complied with the stated legislation during the audit period. |
| **Compliance Status:**<br>Non compliant. |

## L3 Concentration limits

**L3.1** For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

*Air*

POINTS 6,7,8,9,10,11,12,13,14

| Pollutant | Units of measure | 100 percentile concentration limit |
|---|---|---|
| Particulates - Deposited Matter | grams per square metre per month | 4.0 |

*Water and Land*

POINTS 1,2

| Pollutant | Units of Measure | 50 percentile concentration limit | 90 percentile concentration limit | 3DGM concentration limit | 100 percentile Concentration Limit |
|---|---|---|---|---|---|
| Conductivity | microsiemens per centimetre | 800 | | | 900 |
| Iron | milligrams per litre | | | | 5 |
| Oil and Grease | milligrams per litre | | | | 10 |
| pH | pH | | | | 6.5-8.5 |
| Zinc | milligrams per litre | | | | 5 |
| Total suspended solids | milligrams per litre | | | | 50 |

| |
|---|
| **Status:**<br>Water discharge during the period covered by the audit occurred in the discharge events in June 2009 which exceeded Total Suspended Solids concentrations. This event is under investigation and prosecution by DECCW.<br>As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| **Evidence Sighted:**<br>Viewed Incident Report dated 26 June 2009 and 30 September 2009, Annual Return, AEMRs, monthly and quarterly monitoring reports. |
| **Compliance Status:**<br>Indeterminate - As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| **Recommended Action:**<br>Complete baseline assessment to confirm elevated levels of certain analytes in the surface waters.<br>Also, as per P1.2. |

**L3.2** Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

| |
|---|
| **Status:** |
| No licensed discharge has taken place during the period covered by the audit other than the discharge events in June 2009. |
| **Evidence Sighted:** |
| Viewed AEMRs, monthly and quarterly monitoring reports. |
| **Compliance Status:** |
| Compliant. |

**L3.3** To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table/s.

| |
|---|
| **Status:** |
| No relevant information on other potential pollutants was available at the time of the audit. Data was only available for the specified potential pollutants. MCO did not stored or use significant volumes of chemicals or fuels at the time of the discharge events. |
| **Evidence Sighted:** |
| Noted. |
| **Compliance Status:** |
| Compliant |

## L4 Volume and mass limits

**L4.1** For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
(a) liquids discharged to water; or;
(b) solids or liquids applied to the area;
must not exceed the volume/mass limit specified for that discharge point or area.

| Point | Unit of measure | Volume/Mass Limit |
|---|---|---|
| 1 | kilolitres per day | 400 |
| 2 | kilolitres per day | 400 |
| 5 | kilolitres per day | 25 |

| |
|---|
| **Status:** |
| Discharges occurred in June 2009. There was no monitoring of the volume of these flows. Outside of these events there were no reported licensed discharges.<br>As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| **Evidence Sighted:** |
| Viewed AEMRs, monthly and quarterly monitoring reports. |
| **Compliance Status:** |
| Indeterminate Recommendation as per P1.2. |

## L5 Waste

**L5.1** The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

| |
|---|
| **Status:** |
| Moolarben stated that no wastes had been accepted onto the site for any purpose. |
| **Evidence Sighted:** |
| No evidence for waste materials noted during site inspection, other than at the appropriate designated areas. |
| **Compliance Status:** |
| Compliant. |

## L6 Noise Limits

**L6.1** Noise from the premises must not exceed the noise limits presented in the following table:

| Location | Noise Limits (dBA) | | | |
|---|---|---|---|---|
| | Day | Evening | Night | |
| | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{Aeq\ (15\ min)}$ | $L_{A1\ (1minute)}$ |
| 26 G V Robinson | 38 | 38 | 38 | 45 |
| 49 A M Brooks | 38 | 38 | 38 | 45 |
| 22 A Aiton | 38 | 38 | 37 | 45 |
| 23 A & E Woodhead | 38 | 38 | 37 | 45 |
| 41A P Libertis | 38 | 38 | 37 | 45 |
| 63 B & B Whiticker | 38 | 38 | 37 | 45 |
| 64 Goninan & Boland | 38 | 38 | 37 | 45 |
| 170 W & T Roberts | 38 | 38 | 37 | 45 |
| 171 J McGregor | 38 | 38 | 37 | 45 |
| 172 A & T Kimber | 38 | 38 | 37 | 45 |
| 169 E & R Tinker | 37 | 37 | 37 | 45 |
| All other privately owned land (outside the village of Ulan) | 35 | 35 | 35 | 45 |
| Ulan primary school | 35 (internal) when in use and under all weather | 35 (internal) when in use and under all weather | 35 (internal) when in use and under all weather | - |
| | conditions | conditions | conditions | |
| Ulan Anglican Church | 35 (internal) when in use and under all weather conditions | 35 (internal) when in use and under all weather conditions | 35 (internal) when in use and under all weather conditions | - |
| Ulan Catholic Church | 35 (internal) when in use and under all weather conditions | 35 (internal) when in use and under all weather conditions | 35 (internal) when in use and under all weather conditions | - |
| Goulburn River National Park(1) | 50 | 50 | 50 | - |
| Munghorn Nature Reserve(1) | 50 | 50 | 50 | - |

*Note:*

1) *The noise level is to be assessed at the most affected point within 50 metres of the boundary of the National Park and Nature Reserve.*

- Where $L_{Aeq}$ means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.
- Where the Project Specific Noise Limits (PSNL) are exceeded by between 3 to 5 decibels the proponent shall develop and implement a Noise Reduction Plan which will consider a range of feasible and reasonable mitigation measures with PSNL as a noise goal for the longer term operation of the mine.

| |
|---|
| **Status:** |
| Monitoring results collected during the audit period confirm that measured noise levels from the premises remain within the prescribed limits (Appendix A). |
| **Evidence Sighted:** |
| AEMRs, monthly and quarterly monitoring reports. |
| **Compliance Status:** |
| Compliant. |

**L6.2** For the purpose of condition day, evening and night time periods are as defined in the NSW Industrial Noise Policy January 2000.

| |
|---|
| **Status:**<br>Noted. |
| **Evidence Sighted:**<br>The periods followed in the noise monitoring activities are as defined in the Project Approval, which are in agreement with the NSW Industrial Noise Policy. |
| **Compliance Status:**<br>Compliant. |

**L6.3** To determine compliance with condition(s) L6.1 noise must be computed for or measured at:

- 1 metre from the dwelling façade to determine compliance with LA1(1 minute) noise limits; and
- The most affected point within the residential boundary (or at the most affected point within 30 metres of a dwelling where the dwelling is more than 30 metres from the boundary (rural situation)), to determine compliance with the Leq(15 minute) noise limits in condition L6.1.

Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.
A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "Environmental Noise Management - NSW Industrial Noise Policy (January 2000)".

| |
|---|
| **Status:**<br>Moolarben stated that to the best of their knowledge, the contractors undertaking the attended noise monitoring followed the defined procedures when collecting monitoring data. During the introduction of the upgraded noise monitoring system, Moolarben staff were generally present. It was stated that ad hoc inspections would be carried out if considered necessary to confirm the methodology applied and quality of the data produced. |
| **Evidence Sighted:**<br>The noise monitoring methodology defined in the EPL was as described in the relevant Approval condition (Schedule 3, Condition 2). |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

**L6.4** The noise emission limits identified in this licence apply under all meteorological conditions except:

(a) during rain and wind speeds (at 10m height) greater than 3m/s; and
(b) under "non-significant weather conditions".

*Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.*

| |
|---|
| **Status:**<br>Moolarben stated that meteorological conditions were taken into account both when planning noise monitoring events and when assessing the data received. Good quality, real time meteorological data was now available at the site. |
| **Evidence Sighted:**<br>Viewed data in AEMRs, monitoring reports,<br>Meteorological station and remote data terminal viewed. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

## L7 Blasting limits

**L7.1** Blasting in or on the premises must only be carried out between 9.00 hours and 17.00 hours, Monday to Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.

**L7.2** Blasting at the premises is limited to the following:

- A maximum if 2 blasts per day;
- A maximum of 9 blasts per week averaged over a 12 month reporting period; including
- A maximum of 4 blasts per week, averaged over a 12 month reporting period, with a maximum instantaneous charge (MIC) of greater than 650 kg.

| |
|---|
| **Status:** |
| At the time of the audit, Moolarben stated that blasting was being undertaken generally on one to two occasions per week and fell within the specified limits. |
| **Evidence Sighted:** |
| The blasting schedule was discussed with several of the senior mine staff. A blast was undertaken at the time of the site visit. All blasts to date logged were noted to be within the specified limits of the condition.<br>The revised Blast Monitoring Program was noted to have incorporated all the above restrictions on blasting times and frequencies. |
| **Compliance Status:** |
| Compliant on both conditions. |

**L7.3** The overpressure level from blasting operations at the premises must not exceed 120 dB (Lin Peak) at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

**L7.4** The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level.. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

| |
|---|
| **Status:** |
| Moolarben stated that blast monitoring undertaken to date indicated that the measured overpressure level remained within the levels specified. |
| **Evidence Sighted:** |
| Blast monitoring data provided during the audit visit had indicated no measurements to date in excess of the 120dB (Ln Peak) level and one measurement to date in excess of the 115dB (Ln Peak) level at one of the measuring locations (BM3), but this occasion appeared represent less than five percent of the total monitoring of blasts to date. Further monitoring data was required to provide a more accurate assessment of the blast overpressure levels relative to the EPL limits. |
| **Compliance Status:** |
| Compliant on both conditions. |
| **Recommended Action:** |

**L7.5** Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

**L7.6** Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

| |
|---|
| **Status:**<br>Moolarben stated that blast monitoring had indicated no exceedence of the ground vibration peak particle velocity limits to date. |
| **Evidence Sighted:**<br>Blast monitoring data provided during the audit visit had indicated no measurements to date in excess of the 5mm/sec level. |
| **Compliance Status:**<br>Compliant on both conditions. |
| **Recommended Action:** |

# 4 Operating conditions

## O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner. This includes:

(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and

(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

| |
|---|
| **Status:**<br>Moolarben stated that all construction and operational activities were managed and monitored strictly, to ensure that these were carried out in a competent manner.<br>Moolarben stated that new staff training records and experience were critically assessed before employment commenced. All staff were actively encouraged to become involved in the environmental management of materials handling at the site. |
| **Evidence Sighted:**<br>Examples of assessment forms for new staff training records were viewed during the site visit.<br>With regard to the handling of materials and substances, no observations noted during the site visit to suggest that the operations on the site were being undertaken in an inappropriate or incompetent manner, with one possible exception. It could be considered that the management of erosion and sediment issues around the construction of the steep batters of the rail loop was not 'competent. This is discussed elsewhere in the report.<br>No observations noted during the site visit to suggest that the handling of waste generated by the site was being undertaken in an inappropriate or incompetent manner. |
| **Compliance Status:**<br>Compliant.<br>While the condition has been assessed as generally compliant, some incidents have occurred within the audit period (described throughout the report) which lead to regulatory action by the DoP and DECCW and hence may be considered examples of not acting in a competent manner.<br>Erosion and sediment control issues are described elsewhere in the report. |

## O2 Maintenance of plant and equipment

**O2.1** All plant and equipment installed at the premises or used in connection with the licensed activity:

(a) must be maintained in a proper and efficient condition; and

(b) must be operated in a proper and efficient manner.

| |
|---|
| **Status:**<br>Moolarben stated that it was company policy to ensure that the highest standards of operation and maintenance of all equipment was demanded with both Moolarben operators and contractors.<br>Moolarben pointed out that, as the project was less than a year into its program, all equipment was either brand new or nearly new. |
| **Evidence Sighted:**<br>Examples of maintenance schedules for earthmoving plant were viewed during the site visit.<br>Examples of site inspection routines covering plant operation and maintenance were viewed during the site visit.<br>Examples of staff and contractor induction presentations covering plant operation and maintenance were viewed during the site visit.<br>No observations noted during the site visit to suggest that equipment and machinery was being operated in an inappropriate manner or being neglected with regard to maintenance and condition. |
| **Compliance Status:**<br>Compliant. |

## O3 Dust

**O3.1** All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

| |
|---|
| **Status:**<br>An Air Quality Monitoring Program (AQMP) was approved by the DoP and implemented for the construction phase of the project to assist with the management of dust generation at the site. This AQMP has subsequently been updated by the site environmental team to accommodate the change in activities towards mining.<br>Moolarben stated that they encourage the modification of working practices in response to high risk environmental conditions, such as dry or windy weather. Examples were provided, including the running of haulage trucks at slow speeds and the method of emptying the excavator bucket into the haul truck while loading overburden.<br>Moolarben also stated that all training strongly encouraged construction and operation staff to become proactive in managing the generation of dust at the site, and to liaise directly with the site environmental staff. |
| **Evidence Sighted:**<br>Modified work practices were observed during the site audit visit. Site excavators were viewed lowering the bucket inside of the haulage truck while loading, to reduce dust generation in the overburden clearing operations. Several water carts were also observed spraying the unsurfaced roads on the site.<br>Further description of this aspect is provided in the Report (Section 4.3 on Air Quality) and in Appendix A Conditions 3.21 to 3.25. |
| **Compliance Status:**<br>Compliant. |

**O3.2** All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.

| |
|---|
| **Status:**<br>Moolarben stated that it was their intention to maintain the roads and trafficable areas in a clean, dust free condition during all construction and operational activities. A road sweeper was called for immediately if any mud was noted on the site access roads or on the public roads adjacent to the site. |
| **Evidence Sighted:**<br>Several water carts were observed in operation, watering down the haul road, at the time of the site visit.<br>Further description of this aspect is provided in the Report (Section 4.3 on Air Quality) and in Appendix A Conditions 3.21 to 3.25. |
| **Compliance Status:**<br>Compliant. |

## O4 Effluent application

**O4.1** Effluent application must not occur in a manner which causes surface runoff.

**O4.2** Spray from effluent application must not drift beyond the boundary of the premises.

| |
|---|
| **Status:** |
| Moolarben stated that no effluents had been applied anywhere on the site. |
| **Evidence Sighted:** |
| No evidence for the application of effluents to the site was observed. |
| **Compliance Status:** |
| Not applicable with respect to both conditions |

**O4.3** The quantity of effluent applied to the utilisation area(s) must not exceed the capacity of the utilisation area(s) to effectively utilise the effluent. For the purpose of this condition, "effectively utilise" includes the ability of the soil to absorb the nutrient, salt and hydraulic loads and the applied organic material without causing harm to the environment.

| |
|---|
| **Status:** |
| Moolarben stated that no effluents had been applied anywhere on the site. |
| **Evidence Sighted:** |
| None seen. |
| **Compliance Status:** |
| Not applicable. |

# 5 Monitoring and Recording Conditions

## M1 Monitoring records

**M1.1** The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

**M1.2** All records required to be kept by this licence must be:

(a) in a legible form, or in a form that can readily be reduced to a legible form;
(b) kept for at least 4 years after the monitoring or event to which they relate took place; and
(c) produced in a legible form to any authorised officer of the EPA who asks to see them.

**M1.3** The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

| |
|---|
| **Status:**<br>Moolarben indicated that monitoring activities were undertaken as required by the licence, as a minimum. Records would be kept for each activity as required.<br>Moolarben stated that records had been viewed by EPA officers during a previous site visit. |
| **Evidence Sighted:**<br>Monitoring data provided in the AEMRs, monthly, summary sheets and Quarterly and Annual Reports indicated that the sampling frequency was as required.<br>Viewed examples of field monitoring sheets collected for noise monitoring. Viewed meteorological monitoring records (these are now on-line). No examples of field sampling sheets (e.g. surface water quality) were viewed. |
| **Compliance Status:**<br>Compliant with respect to each Condition. |

## M2 Requirement to monitor concentration of pollutants discharged

**M2.1** For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

**POINTS 1,2**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Conductivity | microsiemens per centimetre | Continuous during discharge | Probe |
| Iron | milligrams per litre | Daily during any discharge | Composite sample |
| Oil and Grease | milligrams per litre | Daily during any discharge | Grab sample |
| Total suspended solids | milligrams per litre | Daily during any discharge | Composite sample |
| Zinc | milligrams per litre | Daily during any discharge | Grab sample |
| pH | pH | Daily during any discharge | Grab sample |

**POINT 3**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Conductivity | microsiemens per centimetre | Special Frequency 1 | Probe |
| Oil and Grease | milligrams per litre | Special Frequency 1 | Grab sample |
| Total suspended solids | milligrams per litre | Special Frequency 1 | Grab sample |
| pH | pH | Special Frequency 1 | Grab sample |

**POINT 4**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Conductivity | microsiemens per centimetre | Special Frequency 2 | Probe |
| Oil and Grease | milligrams per litre | Special Frequency 2 | Grab sample |
| Total suspended solids | milligrams per litre | Special Frequency 2 | Grab sample |
| pH | pH | Special Frequency 2 | Grab sample |

**POINT 5**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Biochemical oxygen demand | milligrams per litre | Quarterly | Grab sample |
| Nitrogen (total) | milligrams per litre | Quarterly | Grab sample |
| Oil and Grease | milligrams per litre | Quarterly | Grab sample |
| Phosphorus (total) | milligrams per litre | Quarterly | Grab sample |
| Total suspended solids | milligrams per litre | Quarterly | Grab sample |
| pH | pH | Quarterly | Probe |

**POINTS 6,7,8,9,10,11,12,13,14**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Particulates - Deposited Matter | grams per square metre per month | Monthly | AM-19 |

**POINT 15**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| PM10 | micrograms per cubic metre | Continuous | AM-22 |

**POINT 16**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| PM10 | micrograms per cubic metre | Every 6 days | AM-18 |

**POINT 17**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| PM10 | micrograms per cubic metre | Continuous | AM-22 |

*For the purposes of the table(s) above Special Frequency 1 means point 3 is required to be sampled monthly in the event of a flow and daily during periods of discharge from the premises and in the event of a flow at point 3.*
*For the purposes of the table(s) above Special Frequency 1 means point 4 is required to be sampled monthly in the event of a flow.*

**Status:**

Moolarben stated that no licensed discharges had taken place to date, therefore the monitoring of water at the discharge points was not applicable.

One instance of surface water quality monitoring samples not being collected was recorded as a non-compliance in the EPL Annual Return (2009). This was due to the timing of the EPL modification relative to the sampling event, which failed to take into account the additional locations in time. This has not occurred since.

Several instances of air quality monitoring samples not being collected were recorded as non-compliance in the EPL Annual Return (2009). These were due to technical problems associated with the installation of new equipment. The situation had been rectified and no omissions had occurred since.

**Evidence Sighted:**

AEMRs, monthly and quarterly monitoring reports, EPL Annual Return.

**Compliance Status:**

Compliant.

## M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

(a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or

(b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

(c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

*Note: The Protection of the Environment Operations (Clean Air) Regulation 2002 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".*

| |
|---|
| **Status:** |
| Moolarben stated that the methodologies of air quality monitoring specified in the Approval Conditions and EPL were followed in detail. |
| **Evidence Sighted:** |
| Units of measurement provided in the AEMRs and monthly and quarterly monitoring reports were as required by the relevant Approval Conditions 3/21 and 3/22 and by this EPL. |
| **Compliance Status:** |
| Compliant. |

**M3.2** Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

| |
|---|
| **Status:** |
| Moolarben stated that no licensed discharges had taken place to date. |
| **Evidence Sighted:** |
| AEMRs, monthly and quarterly monitoring reports. |
| **Compliance Status:** |
| Not applicable. |

## M4 Recording of pollution complaints

**M4.1** The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

| |
|---|
| **Status:** |
| Moolarben indicated that complaints related to pollution addressed to the licensee / any employee or agent were logged onto the Complaints Register and summarised in the AEMRs. |
| **Evidence Sighted:** |
| Viewed summary of complaints in AEMRs. |
| **Compliance Status:** |
| Compliant. |

**M4.2** The record must include details of the following:

(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.

| |
|---|
| **Status:** |
| Records were produced for the three discharge events on the site provided all the details required by the EPL condition |
| **Evidence Sighted:** |
| Correspondence relating to three discharge events on the site was viewed, and was noted to present the required details. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**M4.3** The record of a complaint must be kept for at least 4 years after the complaint was made.

**M4.4** The record must be produced to any authorised officer of the EPA who asks to see them.

| |
|---|
| **Status:** |
| Relevant records are kept, and MCO indicated they will be kept beyond the required period. |
| **Evidence Sighted:** |
| Correspondence relating to three discharge events on the site appeared to confirm that records were made available to the EPA when requested. |
| **Compliance Status:** |
| Compliant with respect to both Conditions. |

## M5 Telephone complaints line

**M5.1** The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

**M5.2** The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

| |
|---|
| **Status:** |
| Moolarben confirmed that a telephone community enquiry line was in operation and the number and purpose was distributed via the CCC, the Community Newsletters and the White Pages and was also advertised in the local newspaper. |
| **Evidence Sighted:** |
| Viewed the number of the Moolarben Community Enquiry Line in the Newsletters and in the White Pages (1800 556 484)<br>Viewed complaints received from the telephone complaints line in the AEMRs. |
| **Compliance Status:** |
| Compliant on both Conditions. |
| **Recommended Action:** |

**M5.3** Conditions M5.1 and M5.2 do not apply until 3 months after:

(a) the date of the issue of this licence or

(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

| |
|---|
| **Status:** |
| Noted. |
| **Evidence Sighted:** |
| Noted. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## M6 Requirement to monitor volume or mass

**M6.1** For each discharge point or utilisation area specified below, the licensee must monitor:

(a) the volume of liquids discharged to water or applied to the area;
(b) the mass of solids applied to the area;
(c) the mass of pollutants emitted to the air;

at the frequency and using the method and units of measure, specified below.

**POINTS 1,2**

| Frequency | Unit Of Measure | Sampling Method |
|---|---|---|
| Daily during any discharge | kilolitres per day | By Calculation (volume flow rate or pump capacity multiplied by operating time) |

**POINT 5**

| Frequency | Unit Of Measure | Sampling Method |
|---|---|---|
| Daily during any discharge | kilolitres per day | By Calculation (volume flow rate or pump capacity multiplied by operating time) |

| |
|---|
| **Status:** |
| Discharges during June 2009 were not monitored for volume or mass. |
| **Evidence Sighted:** |
| Discharge incident reports, AEMRs, quarterly and monthly monitoring reports. |
| **Compliance Status:** |
| Indeterminate – As per P1.2, there is no defined discharge location, hence it is unclear if this requirement pertains to the actual discharges in June 2009 as the discharge location is not defined. |
| **Recommended Action:** |
| As per P1.2. |

## M7 Requirement to monitor weather

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

**Point 18**

| Parameter | Units of Measure | Frequency | Averaging Period | Sampling Method |
|---|---|---|---|---|
| Rainfall | mm | Continuous | 1 hour | AM-4 |
| Wind speed | @ 10 metres m/s | Continuous | 15 minute | AM-2 & AM-4 |
| Wind direction | @ 10 metres ° | Continuous | 15 minute | AM-2 & AM-4 |
| Temperature | @ 2 metres °C | Continuous | 15 minute | AM-4 |
| Temperature | @ 10 metres °C | Continuous | 15 minute | AM-4 |
| Sigma theta | @ 10 metres ° | Continuous | 15 minute | AM-2 & AM-4 |
| Solar radiation | W/m² | Continuous | 15 minute | AM-4 |
| **Additional requirements** | | | | |
| - Siting | | | | AM-1 & AM-4 |
| - Measurement | | | | AM-2 & AM-4 |
| Relative humidity @ 2 metres | % | Continuous | 1 hour | AM-4 |

**Status:**

Moolarben stated that a state-of-the-art system had now been installed adjacent to the main offices, full compliance with the requirements of the condition could be demonstrated.

One instance of meteorological monitoring data not being collected was recorded as a non-compliance in the EPL Annual Return (2009). This was due to an equipment malfunction and substitute data was available from the back up station elsewhere on the site. Data omission has not occurred since.

**Evidence Sighted:**

Monitoring station adjacent to main offices viewed. On-line data viewed.

**Compliance Status:**

Compliant.

## M8 Blasting monitoring

**M8.1** To determine compliance with condition(s) L7.3, L7.4, L7.5 and L7.6:

a) Airblast overpressure and ground vibration levels must be measured and electronically recorded at the nearest non-mine owned residence, the Ulan Primary School and the Aboriginal rock shelter site S1MC55 and S1MC56 where blasting is undertaken within 2 kilometres; and

b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of *Australian Standard AS 2187.2-2006*.

**Status:**

Measurements were taken at the required monitoring locations on the seven occasions that blasting had taken place at the time of the audit. It was pointed out that the Aboriginal rock shelter is situated more than two kilometres from the location of each the blasts which have been completed.

**Evidence Sighted:**

Table of blast monitoring results viewed.

Blast monitoring equipment was viewed at the Ulan School monitoring location.

**Compliance Status:**

Compliant.

**Recommended Action:**

# 6 Reporting conditions

## R1 Annual return documents

## What documents must an Annual Return contain?

**R1.1** The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

(a) a Statement of Compliance; and

(b) a Monitoring and Complaints Summary.

A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

| |
|---|
| **Status:** |
| The Annual Return was completed as required by the Condition. |
| **Evidence Sighted:** |
| Viewed EPL Annual Return for 2009. |
| **Compliance Status:** |
| Compliant. |

## Period covered by Annual Return

**R1.2** An Annual Return must be prepared in respect of each reporting period, except as provided below.

*Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.*

| |
|---|
| **Status:** |
| The Annual Return was completed as required by the Condition. |
| **Evidence Sighted:** |
| Viewed EPL Annual Return for 2009. |
| **Compliance Status:** |
| Compliant. |

**R1.3** Where this licence is transferred from the licensee to a new licensee:

(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and

(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

*Note: An application to transfer a licence must be made in the approved form for this purpose.*

| |
|---|
| **Status:** |
| Not applicable. |
| **Evidence Sighted:** |
| |
| **Compliance Status:** |
| Not applicable. |

**R1.4** Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or

(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

| |
|---|
| **Status:** |
| Not applicable. |
| **Evidence Sighted:** |
| |
| **Compliance Status:** |
| Not applicable. |

## Deadline for Annual Return

**R1.5** The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

| |
|---|
| **Status:** |
| Annual Return submitted within the required time period. |
| **Evidence Sighted:** |
| Annual Return 2009 (for the period 18/08/09 to 17/08/09) submitted on 30/09/09. |
| **Compliance Status:** |
| Compliant. |

## Licensee must retain copy of Annual Return

**R1.7** The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

| |
|---|
| **Status:** |
| Moolarben stated that they intend to keep copies for the required period. |
| **Evidence Sighted:** |
| None. |
| **Compliance Status:** |
| Compliant. |

## Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

**R1.8** Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

(a) the licence holder; or

(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

| |
|---|
| **Status:** |
| Signatures of Michael Chapman (Director) and Terry Wilcox (Secretary) were entered onto the Annual Return 2009 Signature and Certification page. |
| **Evidence Sighted:** |
| Viewed copy of signed document (Annual Return 2009). |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**R1.9** A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

| |
|---|
| **Status:** |
| Noted. |
| **Evidence Sighted:** |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

## R2 Notification of environmental harm

*Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.*

**R2.1** Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

| |
|---|
| **Status:** |
| Moolarben consider that they notified the EPA via the Pollution Line of the discharge events at Bora Creek in June 2009 as soon as was practicable, after becoming aware of each of the events which took place. |
| The notification of incidents to the EPA in relation to the discharge events affecting Bora Creek is described in further detail in Appendix A, Conditions 5/03 to 5/04. |
| **Evidence Sighted:** |
| Moolarben have provided URS with copies of correspondence relating to the discharge incidents at Bora Creek in June 2009. |
| Refer to Appendix A, Conditions 5/03 to 5/04. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

**R2.2** The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

| |
|---|
| **Status:** |
| Moolarben confirmed that written details were provided to the EPA concerning each of the events which took place at Bora Creek during June 2009. The timing of the submission of written details was outside of the required 7 days as Moolarben had requested additional time to gather the necessary information. Written report provided 16 June 2009 after discharge event on 7 June 2009 hence were outside of the 7 day requirement. |
| MCO provided a Diary note dated 12 June 2009 indicating that the DECCW officer did not require a written report regarding discharge event Tuesday 9 June 2009 as DECCW would be doing their won investigation. |
| **Evidence Sighted:** |
| Moolarben have provided URS with copies of correspondence relating to the discharge incidents at Bora Creek in June 2009. |
| Refer to Appendix A, Conditions 5/03 to 5/04. |
| Reference to verbal report from MCO to DoP on 10/06/09 concerning discharge incident (described in letter to Department dated 15/07/09). |
| Reference to a letter (dated 17/06/09) from MCO to DECCW concerning erosion and sediment control in letter described below (dated 22/06/09). |
| Viewed letter to DECCW (dated 22/06/09) describing the discharge incident, in response to verbal request for information from DECCW. |
| Viewed Notification to Provide Information and/or Records issued by EPA/DECCW on 27/08/09. |
| Viewed letter responding to request for information sent to DECCW (dated 30/09/09). |
| **Compliance Status:** |
| Compliant, however timing outside the 7 day limit |

## R3 Written report

**R3.1** Where an authorised officer of the EPA suspects on reasonable grounds that:

(a) where this licence applies to premises, an event has occurred at the premises; or

(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

| |
|---|
| **Status:** |

| |
|---|
| Moolarben indicated that the EPA had requested written information of the discharge incidents at Bora Creek in June 2009 by letter on 27th August 2009. |
| **Evidence Sighted:**<br>Viewed letter of request for information from EPA (dated 27/08/09), requiring that this information be provided no later than 28th September 2009. |
| **Compliance Status:**<br>Compliant. |

**R3.2** The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

| |
|---|
| **Status:**<br>Moolarben confirmed that they had ensured that the written response to the EPA request for information provided the required details without undue delay. |
| **Evidence Sighted:**<br>Viewed written response from Moolarben to EPA, dated 30/09/09. |
| **Compliance Status:**<br>Non Compliant.<br>This non-compliance is based on the fact that the response was required to be lodged with the EPA no later than 5pm on the 28th September 2009. |
| **Recommended Action:** |

**R3.3** The request may require a report which includes any or all of the following information:

(a) the cause, time and duration of the event;
(b) the type, volume and concentration of every pollutant discharged as a result of the event;
(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
(e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
(f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
(g) any other relevant matters.

| |
|---|
| **Status:**<br>The request from EPA to provide information included the requirement for numerous details to be provided, each of which was addressed in the response. |
| **Evidence Sighted:**<br>Viewed written response from Moolarben to EPA, dated 30/09/09. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:** |

**R3.4** The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

| |
|---|
| **Status:**<br>Moolarben indicated that a request for additional information had not been made by the EPA at the time of the audit. |
| **Evidence Sighted:** |

| |
|---|
| None |
| **Compliance Status:**<br>Not Applicable |
| **Recommended Action:** |

## R4 Quarterly Report

**R4.1** Every calendar quarter, the licensee must complete and submit to the EPA a quarterly report comprising:

- Data, reported graphically where practicable, for monitoring conducted in accordance with licence requirements;
- Statement of compliance; and
- A complaints summary.

The quarterly report must be received by the EPA no later than 4 weeks after the end of the period being reported.

| |
|---|
| **Status:** |
| Moolarben confirmed that quarterly reports were submitted to the EPA as required and included the required contents. |
| **Evidence Sighted:** |
| Quarterly reports for 2009 Q1, Q2 and Q3 were downloaded from the Moolarben website and viewed for their content. |
| **Compliance Status:** |
| Compliant. |
| **Recommended Action:** |

# General conditions

## G1 Copy of licence kept at the premises

**G1.1** A copy of this licence must be kept at the premises to which the licence applies.

**G1.2** The licence must be produced to any authorised officer of the EPA who asks to see it.

**G1.3** The licence must be available for inspection by any employee or agent of the licensee working at the premises.

| |
|---|
| **Status:** |
| Moolarben confirmed that up to date copies of EPL were available at Mine Offices. To date, no request from authorised offices of the EPA had taken place. |
| **Evidence Sighted:** |
| Copy of EPL presented by Moolarben for consultation. |
| **Compliance Status:** |
| Compliant with regard to each condition. |

## G2 Signage

**G2.1** Each monitoring and discharge point must be clearly marked by a sign that indicates the EPA point identification number.

| |
|---|
| **Status:** |
| Moolarben stated that the relevant monitoring locations and discharge points were marked by identification signs with the EPA identification number. |
| **Evidence Sighted:** |
| Appropriate signs were observed at each EPA monitoring point visited. It was noted that only the EPA locations were identified by the signs, the additional Moolarben sampling points on the Creeks were unmarked. |
| **Compliance Status:** |
| Compliant. |

## G3 Chemicals and Dangerous Goods

**G3.1** All chemicals, fuels and explosives must be handled and stored in a bunded area which complies with the specifications of the relevant Australian Standard and legislative requirements.

| |
|---|
| **Status:**<br>Moolarben stated that during the present construction phase, there is currently no storage or handling of significant quantities of chemicals or reagents.<br>No explosives are stored on site. Explosives are brought onto site by blasting contractors as required for specific blasting events at present.<br>The new on-site fuelling facility at the Open Cut 1 mining area is currently nearing completion. A temporary fuelling station has been in operation and some plant is fuelled by mobile fuelling vehicles following standard operating procedures. It was noted that the Licence condition does not appear to provide for the refuelling of vehicles away from the designated area, which may prove impractical for the larger site plant. |
| **Evidence Sighted:**<br>Observations made during the tour of the site. |
| **Compliance Status:**<br>Compliant. |
| **Recommended Action:**<br>As there appears to be no allowance for the refuelling of larger site vehicles away from the designated area in the Licence Condition, it may be appropriate to seek modification of the Licence. This issue is described further in Section 4.12 Dangerous Goods in the report.<br>Ensure all refuelling activities undertaken on site follow documented procedures, with adequate back-up for accidental spills.<br>Obtain EPL modification which specifically relates to the refuelling of larger plant at the site which cannot realistically refuel at the on-site facilities. |

**G3.2** Contingency and emergency management plans must be developed and implemented for the spill of any chemical and fuel.

| |
|---|
| **Status:**<br>Moolarben stated that Emergency Spill Kits and appropriate management plans and procedures for spills and incidents involving fuel and chemicals were in place. |
| **Evidence Sighted:**<br>Moolarben indicated where the emergency spill procedures and related documentation were kept on the site. An example was viewed, with some accompanying MSDS sheets. |
| **Compliance Status:**<br>Compliant |

C

# Appendix C Site Photographs

Photo 1: Mining Infrastructure Area adjacent Bora Creek (Dec 09)

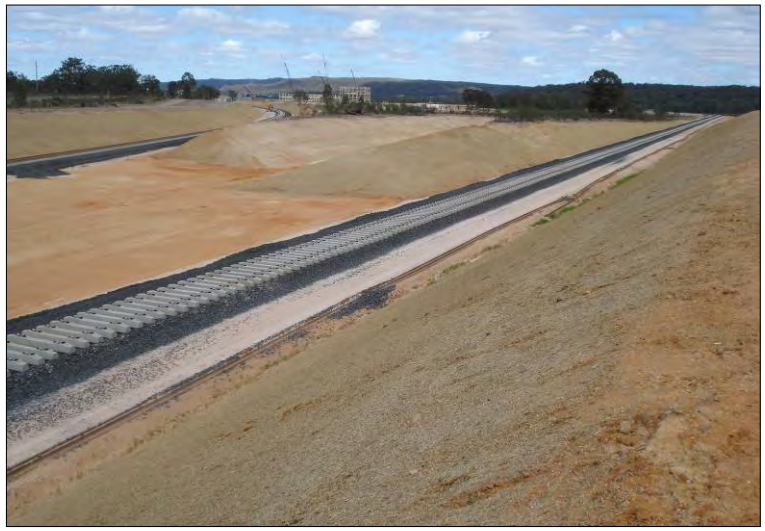

Photo 2: Rail Loop Construction (Dec 09)

Photo 3: Rail Loop Crossing of Bora Creek (Dec 09)

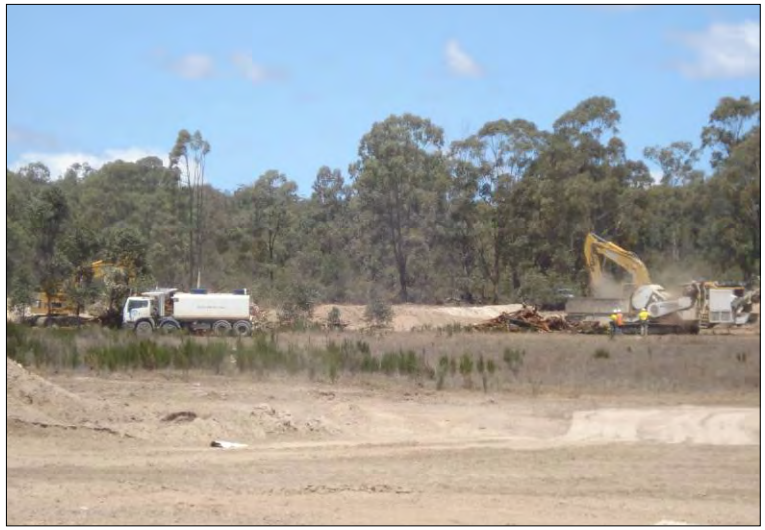

Photo 4: Mulching Activities (Dec 09)

Photo 5: Clearing for Environmental Bund showing resident in acquisition zone (Dec 09)

Photo 6: Construction of Environmental Bund (Dec 09)

Photo 7: Haul Road Construction (Dec 09)

Photo 8: Haul Road Construction (Dec 09)


Photo 9: Clearing Activities (Dec 09)

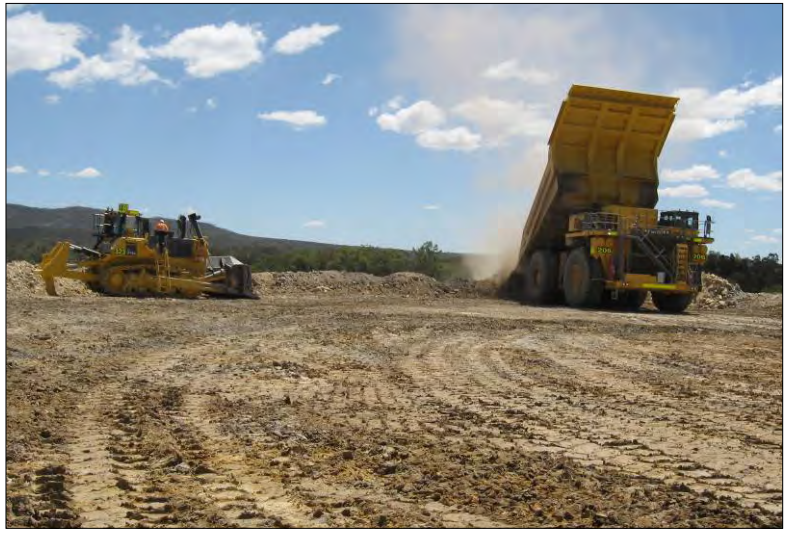

Photo 10: Construction of Environmental Bund showing (Dec 09)

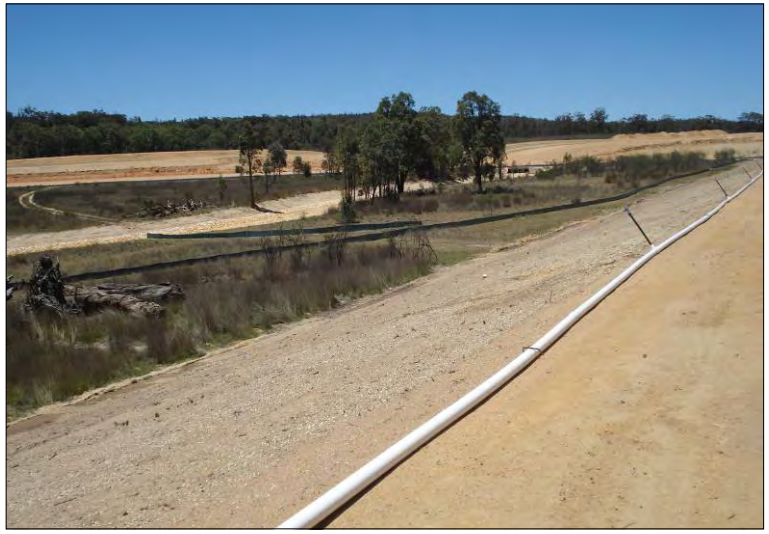

Photo 11: Bora Creek Catchment up stream of Rail Crossing (Dec 09)

Photo 12: Rail Lop Crossing of Bora Creek (Dec 09)

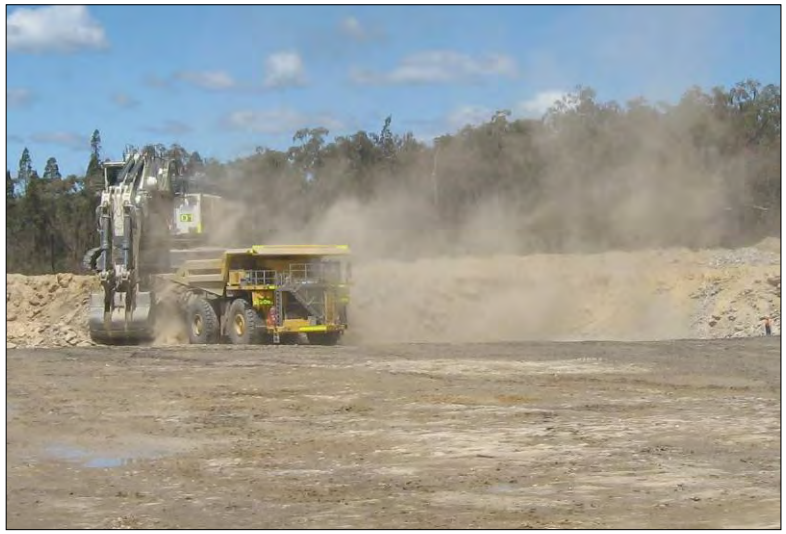

Photo 13: Excavation of dry soil layer and overburden (Dec 09)

Photo 14: Construction of ROM Hopper/Crusher (Dec 09)

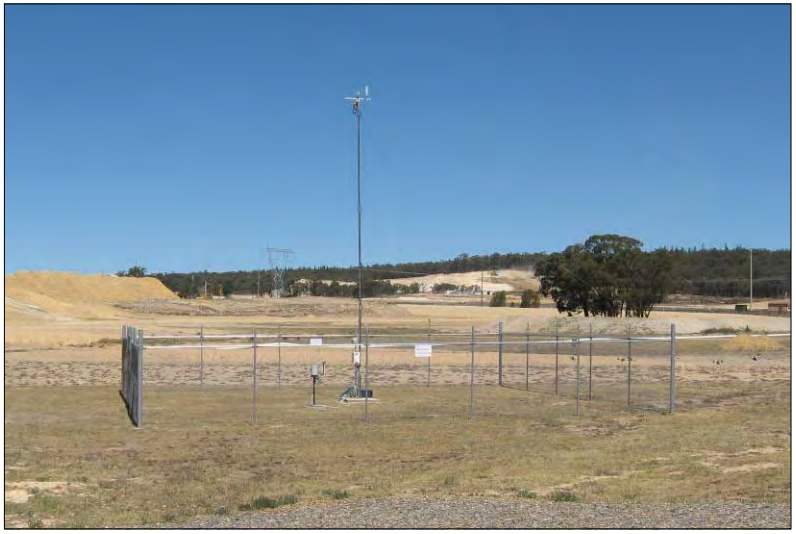

Photo 15: Met Station (Dec 09)

Photo 16: Product Coal Stockpile sediment dams (May 2010)

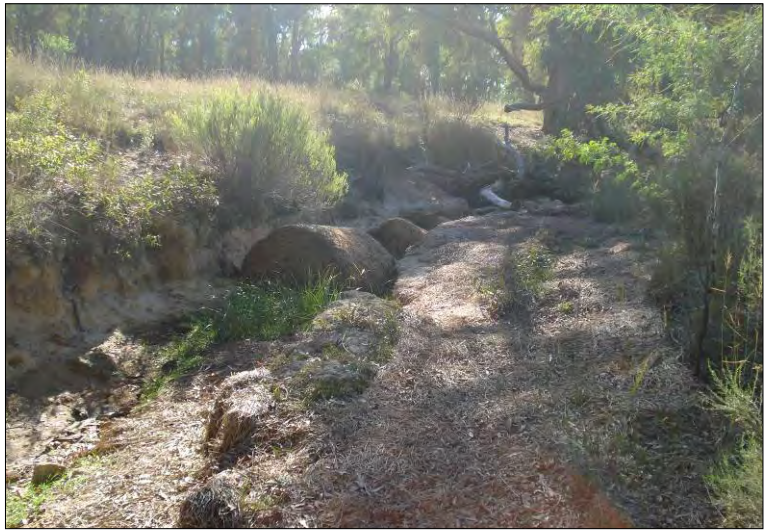

Photo 17: Hay Bales installed in Bora Creek (May 2010)

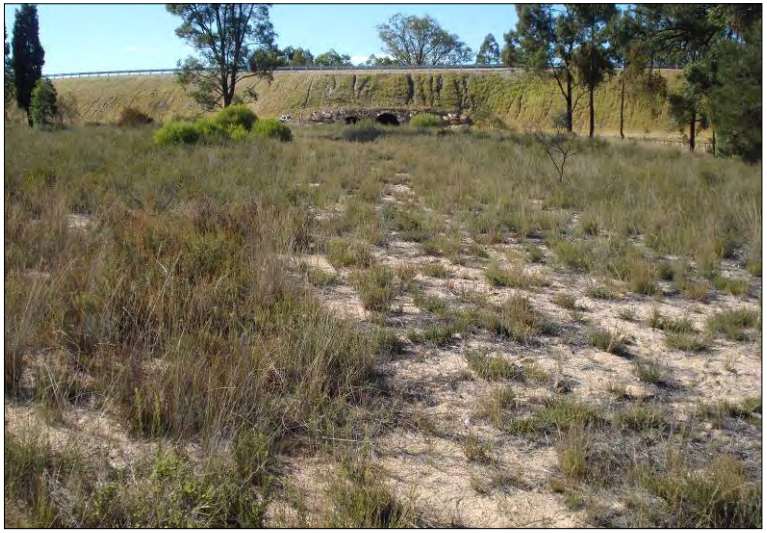

Photo 18: Bora Creek catchment and Rail Loop Crossing (May 2010)

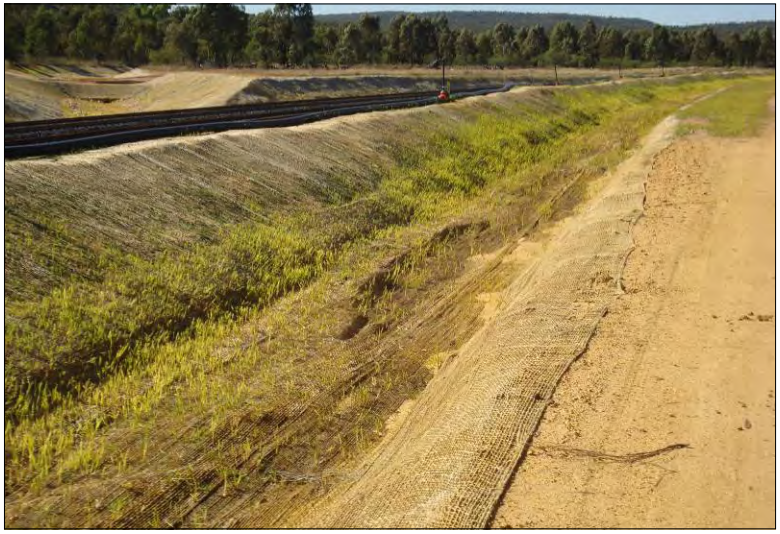

Photo 19: Soil Stabilisation works near Rail Loop (May 2010)

Photo 20: Soil Stabilisation works near Rail Loop (May 2010)

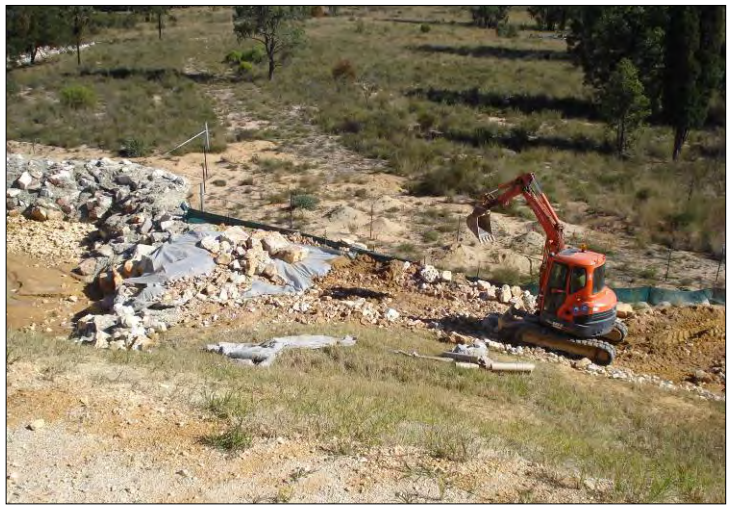

Photo 21: Bora Creek catchment and Rail Loop Crossing (May 2010)

Photo 22: TEOM and Noise Monitor at Ulan School (May 2010)

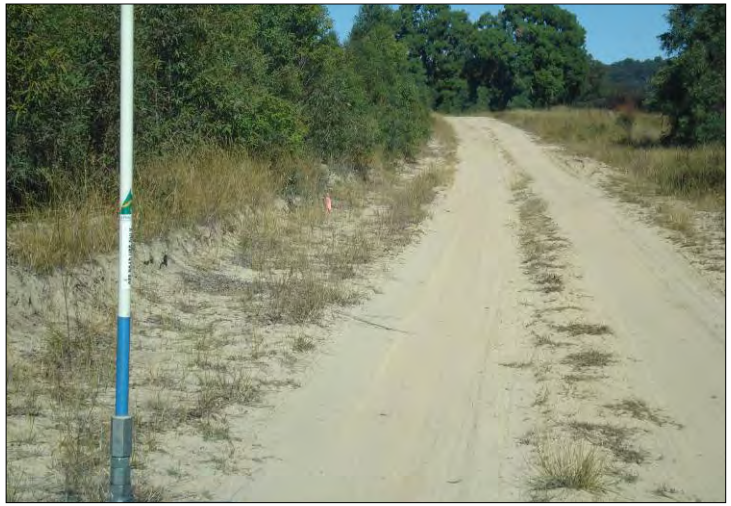

Photo 23: Stage 2 Area – Murragamba Valley showing grading of access track (May 2010)

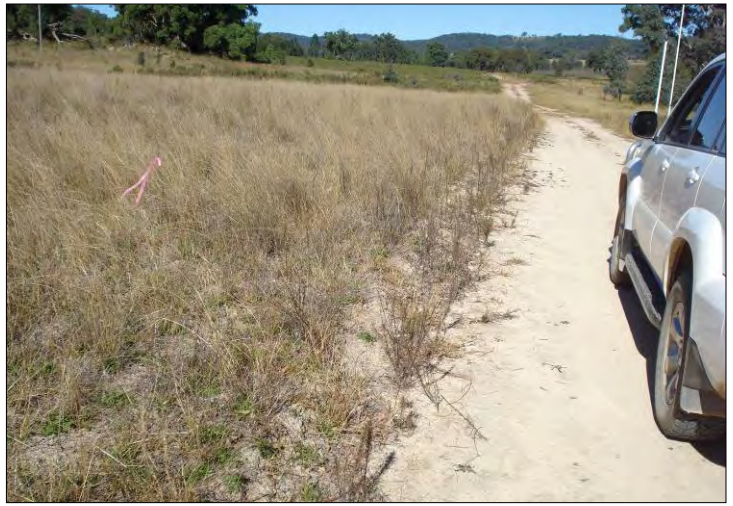

Photo 24: Stage 2 Area – Murragamba Valley showing grading of access track (May 2010)

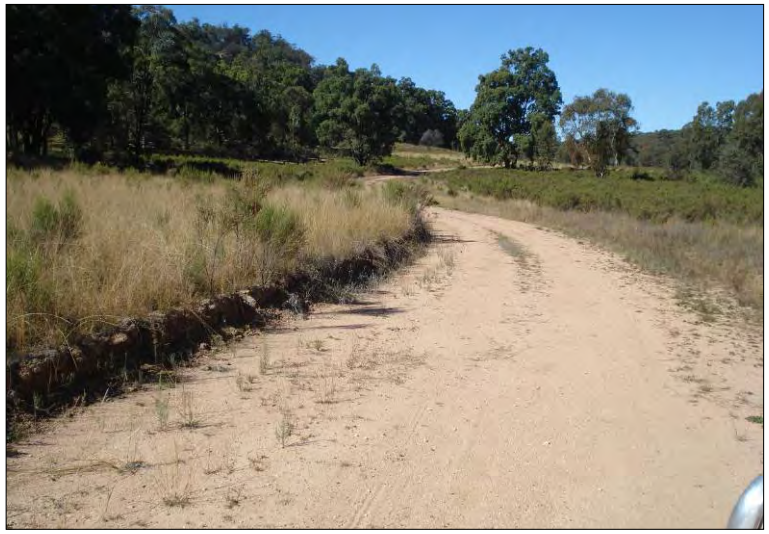

Photo 25: Stage 2 Area – Murragamba Valley showing grading of access track (May 2010)

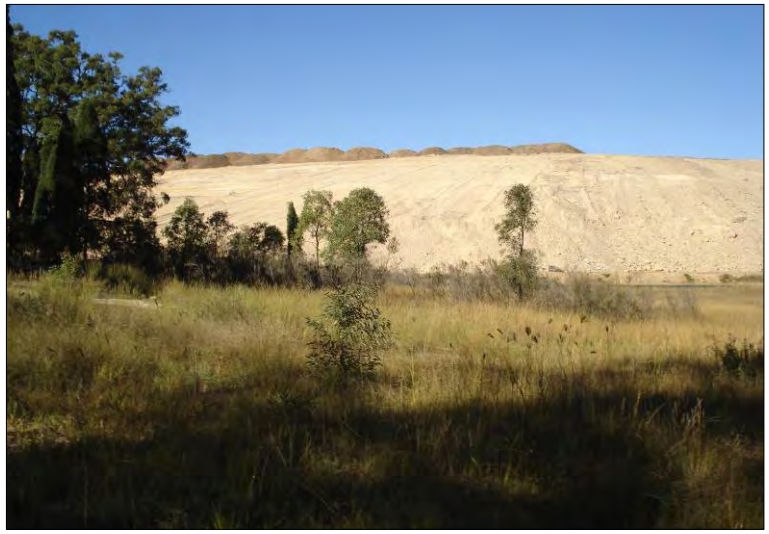

Photo 26: Construction of Environmental Bund (May 2010)

Photo 27: Drilling Coal after removal of Overburden (May 2010)

Photo 28: Rehabilitation of Environmental Bund (May 2010)

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