



# APPENDIX **2**

## Updated Mitigation Measures

## Appendix 2 – Updated Mitigation Measures

**Table A2.1** provides an updated summary of mitigation measures for PA 08\_0184 as modified (incorporating MOD 6). It is intended that **Table A2.1** will replace the Statement of Commitments in Appendix 9 of PA 08\_0184.

**Table A2.1 Mitigation Measures PA 08\_0184**

Aspect	No.	Mitigation Measures
<b>Hours of Operation</b>	1.1	Mining and associated activities for the Project may be undertaken 24 hours a day, seven days a week.
	1.2	Construction will generally be undertaken within recommended standard construction hours.  Construction activities may occur outside these hours when UCMPL is satisfied that such activities are inaudible at nearest private residences.
<b>Refinement of Mine Plan</b>	2.1	Any refinements to the mine plan will be detailed and assessed as part of Extraction Plans required by the project approval or other relevant process.
	2.2	The locations of ancillary surface infrastructure required to support underground mining will be documented and detailed within the operational approvals required for UCMPL to continue its mining and associated activities.
<b>Rail Haulage</b>	3.1	The peak number of trains from UCMPL will be limited to a maximum of 10 per day i.e. 20 train movements.
	3.2	No product coal will be transported from site by road transport except in an emergency situation with prior approval of the Director General.
	3.3	Annual average and maximum daily train movements and tonnages will be reported in the Annual Review (refer to Mitigation Measure 27.1).
<b>Soils and Land</b>	4.1	Areas for long-term soil stockpiles will be planned and designated adjacent to the disturbance area or within a short haul distance for rehabilitation at a later date and will not be placed near drainage lines.
	4.2	Material will be stripped to the depths required for engineered stability of surface infrastructure, separating topsoil (generally up to 0.2 m) and subsoil, subject to any further field investigations during construction activities. Soil will preferably be stripped in a slightly moist condition, and not in either excessively dry or wet conditions. Whilst construction schedules dictate stripping times, consideration will be given to near term weather forecasts.
	4.3	Treatment options for the amelioration of sodic soils will include the application of gypsum, lime or organic matter, or a combination of these materials.
	4.4	The surface of long-term soil stockpiles will be slightly roughened to promote infiltration and minimise erosion until vegetation is established.
	4.5	Where possible, stockpiles will have a maximum height of 3 m. Clayey soils will be stored in lower stockpiles for shorter periods of time compared to coarser textured sandy soils.
	4.6	Stockpiles will be seeded and fertilised as soon as possible using an annual cover crop.
	4.7	An inventory of available soil will be maintained to ensure adequate topsoil materials are available for planned rehabilitation activities.

Aspect	No.	Mitigation Measures
	4.8	Thorough seedbed preparation will be undertaken to ensure optimum establishment and growth of vegetation.
Subsidence	5.1	Where a potential subsidence impact is predicted on private property, UCMPL will prepare a Private Property Subsidence Management Plan for each of the potentially affected private landholders. These plans will clearly outline impacts of mining on the property and the management and remediation measures to be implemented, in consultation with the landowner.
	5.2	If agreement for a new cross-panel subsidence monitoring line for LW7 to LW12 at Ulan West Underground is not able to be established and monitored through agreement with the private property landholder, then a new east-west line should be established over the proposed extension areas of Longwalls 9A-12A through the undeveloped native vegetation environment on UCMPL and Crown Land.
Groundwater	6.1	<p>A groundwater monitoring program will be implemented in accordance with the Water Management Plan. The groundwater monitoring program will include:</p> <ul style="list-style-type: none"> <li>Continued measurement of groundwater levels, pressures and water quality within the existing regional network of monitoring bores and an expanded network as underground mining progresses to the north and west, specifically considering: <ul style="list-style-type: none"> <li>depressurisation monitoring of at least three multi level piezometer strings equipped with vibrating wire transducers (or equivalent) and distributed within the Permian-Triassic strata;</li> <li>strata hydraulic conductivity measurement on rock core obtained at these above noted piezometer locations;</li> <li>daily or more frequent monitoring of pore pressures and piezometric elevations by installed auto recorders in selected new piezometers.</li> </ul> </li> <li>Mine water seepage monitoring, including: <ul style="list-style-type: none"> <li>measurement of all water pumped underground and all mine water pumped to surface on a daily basis. Measurement will be undertaken using calibrated flow meters or other suitable gauging apparatus;</li> <li>routine monitoring of coal moisture content delivered from the working face, ventilation humidity and any build up of water storage in the goaf.</li> </ul> </li> <li>Groundwater monitoring will include: <ul style="list-style-type: none"> <li>monthly monitoring of basic water quality parameters pH and EC in pumped mine water.</li> <li>six monthly monitoring of pH and EC in the regional monitoring network.</li> <li>annual measurement of total dissolved solids (TDS) and speciation of water samples in selected piezometers to support identification of mixing of groundwater types.</li> <li>graphical plotting of basic water quality parameters and identification of trend lines and statistics including mean and standard deviation calculated quarterly. Comparison of trends with rainfall and any other identifiable processes that may influence such trends.</li> </ul> </li> </ul> <p>The monitoring network and monitoring programme will be reviewed on an annual basis to determine ongoing suitability and any proposed changes will be discussed in the annual review of monitoring results.</p>
	6.2	The results of groundwater monitoring and a comparison of measured and predicted impacts will be reported in the annual review required by project approval conditions.

Aspect	No.	Mitigation Measures
	6.3	Impacts on the privately owned licensed bores identified as being potentially affected, will be assessed by monitoring and in the event that any utilised privately owned bore is significantly adversely affected, an alternative water supply will be provided by UCMPL until such time as the bore is re-established or replaced, or appropriate compensation established, in accordance with project approval requirements.
	6.4	The groundwater monitoring results will be analysed (graphically and statistically) as new results become available i.e. quarterly or six monthly. In addition, a monitoring review and verification process will be established as part of the Water Management Plan process, to verify regional groundwater losses as necessary to refine groundwater mitigation strategies.
	6.5	Identification of any changes or long term trends in groundwater outside the predicted impacts will result in an investigation to determine if the trend is a result of UCMPL operations and if so, identify management strategies to be implemented to address the identified issues as per UCMPL's Internal TARP process (T – Trigger; A – Action; R – Response; P – Plan).
	6.6	Review of depressurisation of coal measures and comparison of responses with aquifer model predictions will be completed every two years. Expert review will be undertaken by a suitably qualified hydrogeologist, and reported in accordance with the process set out in the Water Management Plan.
Surface Water	7.1	UCMPL will implement clean water divisions to minimise the volume of water to be handled within the mine water management system.
	7.2	The staged remediation strategy for the Goulburn River Diversion will be implemented, generally as described in the Approved Goulburn River Diversion Remediation Plan.
	7.3	In addition to the detailed mine water seepage monitoring outlined in Mitigation Measure 6.1, water usage, rainfall, dam volumes and discharges (including transfers) will be monitored to assist in the management of the mine water management system. This monitoring will be conducted in a manner that enables the detailed water balance to be maintained and updated at least annually for ongoing operations. The water balance will be used on an ongoing basis for operational management and will also be reported in the annual review required by project approval conditions.
	7.4	Subsidence monitoring will include pre and post mining within drainage lines. This will include monitoring of the presence of surface cracking, surface ponding or out of channel flows and remediation measures as appropriate.
	7.5	Water which is in excess of UCMPL operational needs will be managed in accordance with the following hierarchy: <ol style="list-style-type: none"> <li>1. water sharing</li> <li>2. Bobadeen irrigation</li> <li>3. offsite discharge.</li> </ol>

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	7.6	UCMPL will undertake a research study on the Talbragar River commenced at least six months prior to any discharge into this waterway. The study is to require UCMPL to satisfy the following: <ol style="list-style-type: none"> <li>1. establish baseline ecological, hydrological and geomorphological conditions of the Talbragar River downstream of the discharge point.</li> <li>2. develop a flow release protocol at the discharge point to maintain the conditions identified in (1)</li> <li>3. develop a monitoring program to review the effectiveness of the release protocols.</li> </ol>
	7.7	An additional surface water monitoring point will be added on Mona Creek downstream of subsidence impacted areas (potentially immediately upstream of Blue Springs Road) to continue to monitor potential water quality impacts in Mona Creek. The location of this replacement gauge will be determined as part of the updates to the WMP.
Ecology	8.1	Underground mining will not be undertaken within the Brokenback Conservation Area.
	8.2	UCMPL will utilise existing disturbed ground areas, where practicable, for the placement of infrastructure associated with underground mining, to avoid impact on significant ecological features such as the Box Gum Woodland CEEC.
	8.3	Surface infrastructure, e.g. pipelines, power lines and roads, will be co-located, where practicable, to minimise native vegetation, habitat and ground disturbance.
	8.4	UCMPL will rehabilitate and revegetate the open cut to self-sustaining native vegetation communities, being Grey Box Woodland and Ironbark Open Forest Complex on Sandstone communities which are characteristic of the pre-mining composition.
	8.5	Revegetation works will use local provenance species, where possible.
	8.6	The results of the ecological monitoring and management measures will be reviewed and reported annually, in accordance with project approval requirements. Management measures will be adapted, as required, on the basis of monitoring outcomes.
	8.7	UCMPL will provide for the long term conservation of all required biodiversity offset areas. The appropriate mechanism for achieving this long term conservation security will be determined in accordance with project approval requirements.
	8.8	A rehabilitation area within the post-mining open cut area will be established to trial the success of <i>Acacia ausfeldii</i> seed germination. Should this trial prove unsuccessful UCMPL will establish a suitable offset which is located outside any future mining area in consultation with DECCW and DPE.
	8.9	The design and construction of water crossings will be undertaken in accordance with the NSW Fisheries guidelines for Fish Friendly Waterway Crossings and in liaison with NSW Fisheries.
Aboriginal Cultural Heritage	9.1	Impacts to the Mona Creek rockshelter sites (ID# 180-187) will be avoided.
	9.2	Detailed recording of the stone arrangements (ID# 589, 603, 697 and 700) will be undertaken, prior to commencement of secondary extraction under these sites.
	9.3	Archaeological survey of all potential impact areas that could not be accessed during previous investigations will be completed prior to any impact occurring in these areas.

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	9.4	Any refinements to conceptual surface infrastructure layouts will seek to avoid archaeological sites as far as practicable. Where required, further due diligence assessment will be undertaken and any impacts to sites or values will be managed in accordance with the HMP.
<b>Historic and Natural Heritage</b>	10.1	UCMPL will carry out archival recording of Old Ulan Village and Bobadeen Homestead to Heritage Council of NSW, and DPE standards prior to longwall mining within 100 metres of the structure.
	10.2	A Conservation Management Plan or Strategy will be prepared for the site of Old Ulan Village, in accordance with project approval requirements, to ensure appropriate short and long term management strategies are determined. This will include a maintenance strategy for Old Ulan Village, to be developed prior to longwall mining within 100 metres of the structure.
	10.3	The Talbragar Fish Fossil Reserve will be secured with appropriate fencing and suitable signage subject to landowner approval.
<b>Air Quality</b>	11.1	Measures to minimise dust emissions from the operation will be included in the project design such as enclosures on top of overland conveyors and spray systems for permanent coal stockpiles where practicable.
	11.2	The Project will minimise the total disturbance footprint and the area of untreated hardstand to the minimum practicable.
	11.3	UCMPL will continue to implement existing dust controls, including: <ul style="list-style-type: none"> <li>watering of active mining areas, active spoil emplacement areas and haul roads that are subject to frequent vehicle movements</li> <li>all drill rigs are equipped with dust control systems and are regularly maintained for effective use</li> <li>automatic sprays fitted to dump hopper and crushing plant to minimise dust from coal processing activities</li> <li>topsoil stripping is preferentially undertaken when there is sufficient moisture content in the soil</li> <li>minimising the area of disturbance by restricting vegetation clearing ahead of mining operations, rehabilitating mine spoil dumps as soon as practicable after mining and using existing facilities and infrastructure where possible</li> <li>restricting blasting activities during adverse weather conditions.</li> </ul>
	11.4	UCMPL will continue to implement the current spontaneous combustion management system to address the coal's susceptibility to spontaneous combustion, which includes procedures for identifying potential sources of carbonaceous material with spontaneous combustible properties and methods for handling and disposing of these materials.
<b>Noise and Vibration</b>	12.1	UCMPL will implement all reasonable and feasible measure to minimise the noise impact at residences.
	12.2	UCMPL will design and undertake blasts to ensure the relevant vibration and blast overpressure criteria are met at private residences, unless there is an agreement with these residents in relation to blast impacts above the relevant criteria.
	12.3	UCMPL will consult with residents surrounding the project area prior to the first blast on site and identify those residents that may wish to be notified of blasting times on an ongoing basis.
	12.4	UCMPL is committed to ameliorating any low frequency noise issues in accordance with best practice guidelines and management practices, when the issue is identified.

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	12.5	Minor blasts such as that associated with small scale construction projects i.e. construction of ventilation shafts will not be limited in terms of frequency or require monitoring where UCMPL confirms by design and prediction prior to blasting that the overpressure and vibration levels will be less than 95 dBL and 1 mm/sec at all private buildings or structures.
	12.6	Construction work will be scheduled, where practicable, to be conducted within recommended standard construction hours. However, due to the nature of the construction activities for the ventilation fan shafts and dewatering boreholes, construction work may be required outside of standard hours.
	12.7	The mitigation and management measures outlined in the Surface Infrastructure Construction Noise Management Plan prepared for Modification 4 will also apply to Modification 6, where required.
<b>Traffic and Transport</b>	13.1	UCMPL will participate in the preparation and implementation of the Ulan Road Strategy, in accordance with project approval requirements.
<b>Visual</b>	14.1	UCMPL will implement the following visual controls to screen or filter views of surface infrastructure from residential and public road locations: <ul style="list-style-type: none"> <li>• maintaining vegetation screening along Ulan Road</li> <li>• ensuring that all lighting complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting</li> <li>• all buildings and infrastructure potentially visible to the public to be coloured in suitable non-reflective natural tones, where practicable</li> <li>• directing light towards work areas and not towards private residences</li> <li>• progressive decommissioning of infrastructure that no longer supports mining operations (or relocation if required)</li> <li>• progressive rehabilitation of disturbed areas.</li> </ul>
<b>Greenhouse Gas and Energy</b>	15.1	UCMPL will continue to implement their existing greenhouse gas and energy management commitments.
	15.2	UCMPL will investigate and implement where feasible GHG and energy management and mitigation initiatives during design, operation and decommissioning.
	15.3	UCMPL will continue to monitor and seek to improve its energy and greenhouse gas performance against performance targets.
	15.4	UCMPL will report greenhouse and energy performance via legislative reporting requirements.
<b>Decommissioning and Mine Closure</b>	16.1	Within 12 months of project approval, UCMPL will revise the current conceptual mine closure plan. A detailed closure planning process will be undertaken five years prior to cessation of mining.
	16.2	Decommissioning of the mining operations and surface facilities will occur progressively throughout the life of the mine, in accordance with conditions of the relevant mining titles. This will include progressive decommissioning of mine entries, ventilation fans, ventilation shafts, borehole facilities and associated surface facilities. A decommissioning plan will be prepared for each stage as part of the extraction plan and/or rehabilitation management plan process.
<b>Waste</b>	17.1	Waste materials generated by the construction and operation of the mine will be managed through the design; procurement of construction materials and purchasing; identification and segregation of reusable and recyclable materials; processing materials for recycling; and considering environmental impacts for waste removal processes.

Aspect	No.	Mitigation Measures
<b>Community – Engagement and Decision Making</b>	18.1	<p>UCMPL will continue to implement the Stakeholder Engagement Strategy, with key objectives:</p> <ul style="list-style-type: none"> <li>• focus current engagement activities within the community on issues of key concern to the community</li> <li>• align with community identified preferences for engagement and information requirements</li> <li>• track and monitor community issues and perceptions of the operation over time and evaluate the success of strategies to manage and/or enhance social impacts</li> <li>• ensure near neighbours are kept informed of mining activities</li> <li>• provide access to monitoring data and detail of management strategies to reduce impacts</li> <li>• provide early and ongoing engagement with potentially impacted landholders to communicate eligibility for relevant management/mitigation measures and discuss any concerns.</li> </ul>
<b>Community – Economic Development – Employment, Education and Training</b>	19.1	<p>UCMPL currently aims to maximise local employment and provide training and education opportunities through:</p> <ul style="list-style-type: none"> <li>• advertising employment, apprenticeships and traineeships in local media</li> <li>• providing an employment pack that allows local residents to register their interest in employment opportunities at the UCMPL office and providing access to the corporate careers centre via the UCMPL website so that local residents can easily register their interest in employment online</li> <li>• a formalised policy that gives local residents employment preference where they have the required skills and experience, and demonstrate a cultural fit with the organisation</li> <li>• sharing information about mining careers at UCMPL and corporate entity with local schools</li> <li>• offering training opportunities through partnerships with local tertiary education providers</li> <li>• participating in the corporate school scholarship program</li> <li>• continued implementation of Corporate and UCMPL Corporate Social Involvement (CSI) programs</li> <li>• developing partnerships with other local organisations, such as the Mudgee Regional Tourism Inc. Committee, to promote employment opportunities in non-mining related sectors to the families of UCMPL employees.</li> </ul>
<b>Community – Economic Development – Business Opportunities</b>	20.1	<p>UCMPL will continue to implement the Glencore Procurement Policy giving preference to sourcing materials and services from local companies where all other commercial factors are equal.</p>
<b>Community – Quality of Life – Community Investment</b>	21.1	<p>UCML will review its social involvement program three yearly in consultation with key stakeholders such as the Community Consultative Committee and Mid Western Regional Council to ensure the program's focus areas remain relevant and address issues of greatest community need/challenge.</p>



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	21.2	UCMPL will continue to reduce the impacts of its workforce on local health services by continuing current activities such as: <ul style="list-style-type: none"> <li>• running an in-house annual influenza vaccination program</li> <li>• providing in-house employee medical assessments every three years</li> <li>• offering First Aid training to employees</li> <li>• delivering a health promotion program for UCMPL employees</li> <li>• encourage raising funds for health-related causes (e.g. hospital equipment, the Cancer Foundation etc) through staff volunteering and fund raising activities.</li> </ul>
<b>Community – Quality of Life – Road Safety</b>	22.1	UCMPL will continue to promote safe driver practices in its internal newsletter and apply a driver fatigue policy to all employees.
	22.2	UCMPL will investigate the possibility of providing a bus to transport workers as part of the Ulan Road Strategy, required by project approval conditions.
<b>Community – Cumulative Impacts</b>	23.1	UCMPL will continue to work with representatives from neighbouring mines to discuss and address issues of common concern in relation to management of cumulative impacts, in accordance with project approval requirements.
	23.2	UCMPL will participate in any working parties/forums which Council or government may establish to address the impact of regional development on health care, land availability, education and childcare services.
<b>Community – Residential Subdivision</b>	24.1	UCMPL will develop the remaining 47 residential allotments required to complete the obligations outlined in the Deed of Agreement (1983) signed by the Minister, UCMPL and Council in relation to the development of 250 serviced residential lots, as part of the former approval of Ulan Colliery. This development will be completed in consultation with Mid Western Regional Council (MWRC) to stage the subdivision release to meet predicted residential demand in accordance with the MWRC Land Use Strategy.
<b>Community – Voluntary Planning Agreement</b>	25.1	Continue to implement the Voluntary Planning Agreement undertaken with Council in accordance with Division 6 of Part 4 of the EP&A Act.
<b>Annual Review</b>	26.1	UCMPL will prepare an Annual Review, in accordance with project approval requirements.
<b>Surrender of Redundant Development Consents</b>	27.1	UCMPL will surrender all other development consents that relate to activities that are adequately covered in any new project approval, in accordance with the new project approval conditions.
<b>Independent Environmental Audit</b>	28.1	UCMPL will commission and pay the full cost of an Independent Environmental Audit in accordance with project approval conditions.