

# MAC-ENC-MTP-034

## SITE WATER MANAGEMENT PLAN

### Document Owner

---

Scott Mitchell, Environmental Superintendent

### Document Approver

---

Julie McNaughton, Environment & Community Manager

Version No	Date Published	Details
Draft 1	30 June 2011	Draft submitted to DPI for comment
Final	23 August 2012	Approved by the Department of Planning & Infrastructure on 23/8/2012.

## Contents

1.0	Introduction .....	3
1.1.	Objectives .....	3
1.2.	Environmental Management System.....	3
1.3.	Consultation Process.....	3
2.0	Minister’s Consent Conditions .....	5
3.0	Impact Assessment Criteria.....	5
4.0	Control Measures and Baseline Data .....	5
5.0	Response Procedures .....	6
5.1	Operational Response Process.....	6
5.2	Response Plan .....	6
5.3	Complaint Response Process .....	6
5.4	Complaints Register .....	7
6.0	Reporting.....	7
7.0	Access to Information .....	8
8.0	Performance Indicators .....	8
9.0	Continual Improvement .....	8
10.0	Periodic Review.....	9
11.0	References .....	10
11.1	External Documents .....	10
11.2	Mt Arthur Coal Internal EMS Documents.....	10
	Appendix 1: Water Management Plan Requirements Checklist.....	11
	Appendix 2: Landholder Consultation and Investigation Process .....	24
	Appendix 3: Correspondence Records .....	25

## Figures

Figure 1:	Mount Arthur Coal Site Locality.....	4
Figure 2:	Landholder Consultation and Investigation Process .....	24

## Tables

Table 1:	Water management plan requirements checklist .....	11
----------	--	----

## 1.0 Introduction

Hunter Valley Energy Coal Pty Ltd operates the Mt Arthur Coal Complex which consists of approved open cut and underground mining operations, a rail loop and associated rail loading facilities. The operations are located in the Upper Hunter Valley, NSW approximately five kilometres south west of Muswellbrook, refer to Figure 1.

Project Approvals and Environmental Protection Licences (EPLs) associated with Mt Arthur Coal mining operations are provided in Appendix 1.

The proposed Mt Arthur Underground operation has not commenced. This management plan will be reviewed and updated prior to the commencement of underground operations.

This Site Water Management Plan (WMP) has been prepared to detail the relevant water quality impact assessment criteria and compliance checking procedures for subsequent reporting in accordance with the Department of Planning and Infrastructure (DoPI) and the NSW Office of Environment and Heritage (OEH) requirements.

### 1.1. Objectives

The objectives of this WMP are to:

- Ensure all relevant statutory requirements and BHP Billiton Policies and Standards are met;
- Employ applicable best practice water quality tools to manage and minimise the impact of mining operations on surrounding surface water bodies and groundwater aquifers;
- Maintain an effective response mechanism to deal with issues and complaints; and
- Ensure the results of the surface water and groundwater quality monitoring comply with applicable criteria.

### 1.2. Environmental Management System

Mt Arthur Coal has a firm commitment to minimising the impact of its operations on the local environment and community, and has a comprehensive Environmental Management System (EMS) in place to fulfil this commitment. This WMP is a component of the Mt Arthur Coal EMS.

### 1.3. Consultation Process

This WMP has been prepared in consultation with OEH, NSW Office of Water (NOW) and the Director-General.

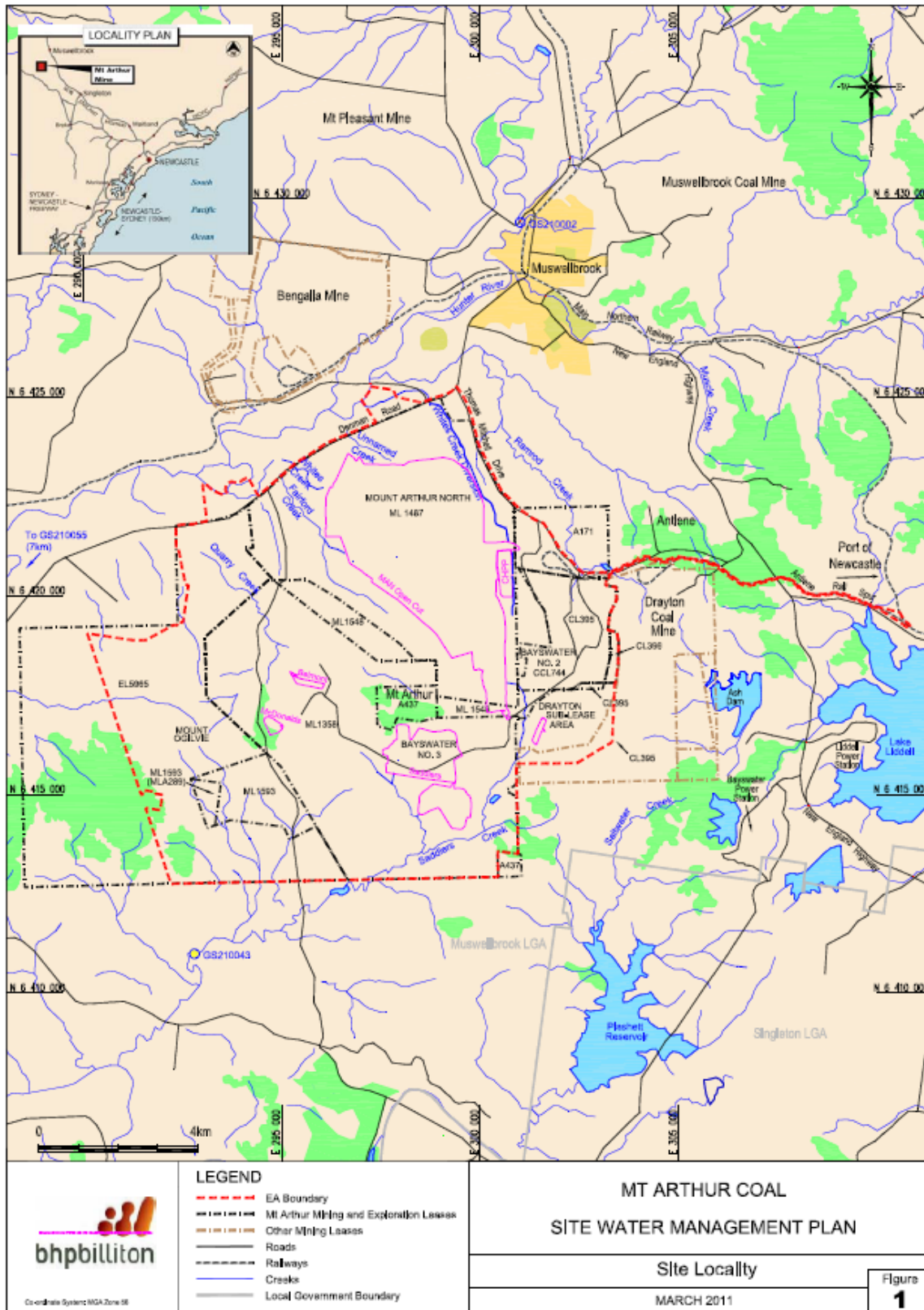


Figure 1: Mount Arthur Coal Site Locality

## 2.0 Minister's Consent Conditions

This WMP has been developed to meet the Project Approval conditions associated with water management, specifically Schedule 3, Condition 29. The WMP has been developed in addition to the five supplementary appendices, including:

- *MAC-ENC-PRO-059 Site Water Balance*
- *MAC-ENC-PRO-060 Erosion and Sediment Control Plan*
- *MAC-ENC-PRO-061 Surface Water Monitoring Program*
- *MAC-ENC-PRO-062 Groundwater Monitoring Program*
- *MAC-ENC-PRO-063 Surface and Ground Water Response Plan*

Appendix 1 provides a complete summary of all development consent conditions, environmental protection licence (EPL) conditions and relevant commitments detailed in the Environmental Assessment, associated with this WMP and associated appendices.

## 3.0 Impact Assessment Criteria

The water management and water quality impact assessment criteria applicable to the Mt Arthur Coal Complex are listed separately in the five supplementary Appendices.

## 4.0 Control Measures and Baseline Data

The Mt Arthur Coal Water Management System includes a comprehensive set of both proactive and reactive control measures designed to minimise the impact of the mine on surrounding surface water bodies and groundwater aquifers.

Water management control measures are outlined in the following five supplementary Appendices including the *MAC-ENC-PRO-059 Site Water Balance*, *MAC-ENC-PRO-060 Erosion and Sediment Control Plan*, *MAC-ENC-PRO-061 Surface Water Monitoring Program*, *MAC-ENC-PRO-062 Groundwater Monitoring Program*, and the *MAC-ENC-PRO-063 Surface and Ground Water Response Plan*.

Mt Arthur Coal will conduct a census of privately owned groundwater bores to establish baseline conditions and enable future impacts on ground water, if any, to be assessed.

## 5.0 Response Procedures

### 5.1 Operational Response Process

In situations where water quality results are identified as being unacceptable, or the real-time monitoring system detects elevated water quality levels, or high/low water storage levels the following actions will be undertaken:

- The Environmental Coordinator will investigate the situation / incident to determine the cause of the water quality and/or quantity problems and possible sources;
- Where the source is identified at the mine site, additional controls will be implemented or the operational methods will be altered to prevent and control the source;
- Any incident and the corrective action will be recorded in the site event management database; and
- The Environmental Coordinator must be informed of any complaint and details must be recorded in the site event management database in addition to the response and actions taken.

Major storm events are covered in the *MAC-ENC-PRO-061 Surface Water Monitoring Program* and the *MAC-ENC-PRO-063 Surface and Ground Water Response Plan*.

### 5.2 Response Plan

Where surface water and groundwater monitoring results exceed the relevant water quality impact assessment criteria, as outlined in *MAC-ENC-PRO-061 Surface Water Monitoring Program* and *MAC-ENC-PRO-062 Groundwater Monitoring Program* respectively, the response protocols outlined in the *MAC-ENC-PRO-063 Surface and Ground Water Response Plan* will be implemented and additional management measures investigated, refer to Appendix 2. Exceedance reporting will comply with Schedule 5 Condition 3 of the Project Approval and *MAC-ENC-PRO-063 Surface and Ground Water Response Plan*.

### 5.3 Complaint Response Process

All complaints received in relation to this plan will be responded to in accordance with *MAC-ENC-PRO-042 Community and Environmental Incident Response and Reporting* and Condition M4.2 of EPL 11457. These procedures and condition provide details on how to receive, handle, respond to, and record and action any community complaints.

Upon receipt of a complaint from the community, preliminary investigations will commence as soon as practicable to determine the likely causes of the complaint using information such as rainfall data, location of erosion or sediment and recent water quality monitoring results. A response will be provided as soon as practicable, which may include the provision of relevant monitoring data.

## 5.4 Complaints Register

Mt Arthur Coal will record all community complaints into the site event management database. The database is maintained to include reporting, incident/event notification, close out action tracking, inspections, and audits.

## 6.0 Reporting

Water management reporting is designed to comply with the Project Approval and the EPL conditions, and provide stakeholder access to relevant water quality information and data.

Key stakeholders requiring access to this information include Mt Arthur Coal, state and local government agencies, and the local community. Reporting will be undertaken in accordance with *MAC-ENC-PRO-008 Communication and Reporting* and *MAC-ENC-PRO-042 Community and Environmental Incident Response and Reporting*.

Mt Arthur Coal's Annual Environmental Management Report (AEMR) will include reporting of environmental monitoring required by the Project Approval. The AEMR will be prepared in accordance with Condition 3, Schedule 5 of the Project Approval and the relevant Department of Industry and Investment guidelines.

Additional reporting requirements directly related to any of the Appendices to this report are outlined in the relevant Appendices, and will be reported in the AEMR.

This WMP, the associated supporting Appendices, as well as monitoring results within previous AEMR's will be made publicly available on Mt Arthur Coal's website in accordance with Condition 11, Schedule 5 of the Project Approval.

The AEMR will be submitted to the Community Consultative Committee (CCC) and made available for public information on Mt Arthur Coal's website.

The Annual Return for EPL 11457 will include a water quality monitoring report covering the following items relating to water quality:

- Any exceedance of water quality or quantity performance criteria (refer to appendices for criteria);
- The cause of the water quality or quantity exceedance;
- Mitigation measures implemented to minimise or prevent water incidents;
- The water monitoring results for each water monitoring station; and
- An explanation for any missing water monitoring results.

## 7.0 Access to Information

In accordance with Schedule 5 Condition 11 of the Project Approval, this *MAC-ENC-MTP-034 Water Management Plan* and the supporting Appendices will be made available publicly on the Mt Arthur Coal website, including:

- *MAC-ENC-PRO-059 Site Water Balance;*
- *MAC-ENC-PRO-060 Erosion and Sediment Control Plan;*
- *MAC-ENC-PRO-061 Surface Water Monitoring Program;*
- *MAC-ENC-PRO-062 Groundwater Monitoring Program; and*
- *MAC-ENC-PRO-063 Surface and Ground Water Response Plan.*

## 8.0 Performance Indicators

The extent to which this WMP complies with the Project Approval and EPL requirements will be measured by the following performance indicators:

1. Compliance with relevant water quality standards at monitoring locations, in particular those representative of sensitive receptor locations;
2. The frequency and extent of water quality and supply complaints will be compared against Mt Arthur Coal water management targets, to track the operations performance, with operations modified accordingly;
3. Compliance with the *MAC-ENC-PRO-059 Site Water Balance* and this plan, as indicated by internal and statutory reporting;
4. Compliance with the *MAC-ENC-PRO-060 Erosion and Sediment Control Plan* and this plan, as indicated by internal and statutory reporting;
5. Compliance with the *MAC-ENC-PRO-061 Surface Water Monitoring Program* and this plan, as indicated by internal and statutory reporting;
6. Compliance with the *MAC-ENC-PRO-062 Groundwater Monitoring Program* and this plan, as indicated by internal and statutory reporting; and
7. Compliance with the *MAC-ENC-PRO-063 Surface and Ground Water Response Plan* and this plan, as indicated by internal and statutory reporting

## 9.0 Continual Improvement

Mt Arthur Coal will strive to continually improve on the mine's environmental performance by applying the principles of best practice to mining operations, including where cost-effective and practicable, the adoption of new best practice technologies and improved water management and water quality control measures. Progress will be monitored using the above noted performance indicators.



## 10.0 Periodic Review

This WMP will be reviewed and if necessary revised to the satisfaction of the Director-General (and relevant government authorities) in accordance with Condition 4 of Schedule 5 of the Project Approval:

- within 3 months of the submission of an:
  - annual review under Condition 3, Schedule 5 of the Project Approval;
  - incident report under Condition 7, Schedule 5 of the Project Approval;
  - Independent Environmental Audit report under Condition 9, Schedule 5 of the Project Approval;
  - Modification to the conditions of the Project Approval.
- where there is a significant change in the Project water balance surplus/deficit;
- where there are necessary or any unforeseen changes to water quality monitoring locations;
- in response to a relevant change in technology or legislation; or
- Where a risk assessment identifies the requirement to alter the plan

## 11.0 References

### 11.1 External Documents

Hansen Bailey (2009), Mt Arthur Coal Consolidation Project Environmental Assessment. Prepared for Hunter Valley Energy Coal Pty Ltd.

Dames and Moore (2000), "Mount Arthur North Coal Project EIS, Appendix E: Flora and Fauna Report".

Department of Planning (June 2007) Guidelines for establishing and operating community consultative committees for mining projects

Gilbert and Associates (2009), "Mt Arthur Coal Consolidation Project Environmental Assessment – Appendix M Surface Water Assessment". Report prepared for Hunter Valley Energy Coal Pty Ltd November.

AGE Consulting (2009), "Mt Arthur Coal Consolidation Project Environmental Assessment – Appendix N Groundwater Impact Assessment". Report prepared for Hunter Valley Energy Coal Pty Ltd November.

Standards Australia (1998), "Water quality - Sampling - Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples", Australian/New Zealand Standard AS/NZS 5667.1:1998, Sydney.

URS Australia Pty Limited (2000) The Mount Arthur North Coal Project, Environmental Impact Statement. Prepared for Coal Operations Australia Limited.

### 11.2 Mt Arthur Coal Internal EMS Documents

#### **Previous Mt Arthur Coal EMS Documents**

*MAC-ENC-MTP-034 Site Water Management Plan (2001)*

*MAC-ENC-MTP-033 Erosion and Sediment Control Management Plan*

#### **Current Mt Arthur Coal EMS Documents**

*MAC-ENC-PRO-008 Communication and Reporting*

*MAC-ENC-PRO-042 Community and Environmental Incident Response and Reporting*

*MAC-ENC-PRO-059 Site Water Balance*

*MAC-ENC-PRO-060 Erosion and Sediment Control Plan*

*MAC-ENC-PRO-061 Surface Water Monitoring Program*

*MAC-ENC-PRO-062 Groundwater Monitoring Program*

*MAC-ENC-PRO-063 Surface and Ground Water Response Plan*

## Appendix 1: Water Management Plan Requirements Checklist

Table 1: Water management plan requirements checklist

Consent/Licence	Condition	Requirement	Section
Open Cut Consolidation Project Approval	29	<p><b>Site Water Management Plan</b></p> <p>29. The Proponent shall prepare and implement a Water Management Plan for the Mt Arthur mine complex to the satisfaction of the Director-General. This plan must:</p> <p>(a) be prepared in consultation with NOW and OEH, and be submitted to the Director-General for approval by the end of March 2011; and</p> <p>(b) include a:</p> <ul style="list-style-type: none"> <li>• Site Water Balance;</li> <li>• Erosion and Sediment Control Plan;</li> <li>• Surface Water Monitoring Program;</li> <li>• Groundwater Monitoring Program; and</li> <li>• Surface and Ground Water Response Plan.</li> </ul>	<p>1.3</p> <p>SWB</p> <p>ESCP</p> <p>SWMP</p> <p>GMP</p> <p>SGWRP</p>
Open Cut Consolidation Project Approval	30	<p>30. The Site Water Balance must:</p> <p>(a) include details of:</p> <ul style="list-style-type: none"> <li>• sources and security of water supply;</li> <li>• water use on site;</li> <li>• water management on site;</li> <li>• any off-site water transfers;</li> </ul>	Refer to SWB

Consent/Licence	Condition	Requirement	Section
		<ul style="list-style-type: none"> <li>• reporting procedures; and</li> </ul> <p>(b) investigate and implement all reasonable and feasible measures to minimise water use by the Mt Arthur mine complex.</p>	
Open Cut Consolidation Project Approval	31	<p>31. The Erosion and Sediment Control Plan must:</p> <p>(a) be consistent with the requirements of <i>Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004 (Landcom)</i>;</p> <p>(b) identify activities that could cause soil erosion, generate sediment or affect flooding;</p> <p>(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage flood risk;</p> <p>(d) describe the location, function, and capacity of erosion and sediment control structures and flood management structures; and</p> <p>(e) describe what measures would be implemented to maintain the structures over time.</p>	Refer to ESCP
Open Cut Consolidation Project Approval	32	<p>32. The Surface Water Monitoring Program must include:</p> <p>(a) detailed baseline data on surface water flows and quality in creeks and other water bodies that could potentially be affected by the project;</p> <p>(b) surface water and stream health impact assessment criteria;</p> <p>(c) a program to monitor and assess:</p> <ul style="list-style-type: none"> <li>• surface water flows and quality;</li> <li>• impacts on water users;</li> <li>• stream health;</li> <li>• channel stability,</li> </ul> <p>in Quarry Creek, Fairford Creek, Whites Creek (and the Whites Creek diversion),</p>	Refer to SWMP

Consent/Licence	Condition	Requirement	Section
		<p><i>Saddlers Creek, Ramrod Creek and other unnamed creeks; and</i></p> <p><i>(d) reporting procedures for the results of the monitoring program.</i></p>	6.0
<p>Open Cut Consolidation Project Approval</p>	33	<p>33. <i>The Groundwater Monitoring Program must include:</i></p> <p><i>(a) detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores, that could be affected by the project;</i></p> <p><i>(b) groundwater impact assessment criteria;</i></p> <p><i>(c) a program to monitor:</i></p> <ul style="list-style-type: none"> <li><i>• groundwater inflows to the mining operations;</i></li> <li><i>• impacts on regional aquifers;</i></li> <li><i>• impacts on the groundwater supply of potentially affected landowners;</i></li> <li><i>• impacts on the Hunter River and Saddlers Creek alluvial aquifers; and</i></li> <li><i>• impacts on any groundwater dependent ecosystems and riparian vegetation;</i></li> </ul> <p><i>(d) procedures for the verification of the groundwater model; and</i></p> <p><i>(e) reporting procedures for the results of the monitoring program and model verification.</i></p>	<p>Refer to GWMP</p> <p>6.0</p>
<p>Open Cut Consolidation Project Approval</p>	34	<p>34. <i>The Surface and Ground Water Response Plan must describe the measures and/or procedures that would be implemented to:</i></p> <p><i>(a) investigate, notify and mitigate any exceedances of the surface water, stream health and groundwater impact assessment criteria;</i></p> <p><i>(b) compensate landowners of privately-owned land whose water supply is adversely affected by the project, including provision of an alternative supply of water to the affected landowner that is equivalent to the loss attributed to the project;</i></p> <p><i>(c) minimise, prevent or offset potential groundwater leakage from the Hunter River and</i></p>	<p>Refer to SGWRP</p>

Consent/Licence	Condition	Requirement	Section
		<p><i>Saddlers Creek alluvial aquifers; and</i></p> <p><i>(d) mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.</i></p>	
<p>Open Cut Consolidation Project Approval</p>	<p>5:2</p>	<p><b>Management Plan Requirements</b></p> <p>2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p> <p>(b) a description of:</p> <ul style="list-style-type: none"> <li>• the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>• any relevant limits or performance measures/criteria;</li> <li>• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;</li> </ul> <p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> <li>• impacts and environmental performance of the project;</li> <li>• effectiveness of any management measures (see c above);</li> </ul> <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the project over time;</p> <p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> <li>• incidents;</li> </ul>	<p>Refer to all Appendices</p> <p>Appendix 1 Refer to all Appendices 8.0</p> <p>Refer to all Appendices Refer to all Appendices</p> <p>5.0 &amp; SGWRP</p> <p>8.0 &amp; 9.0</p> <p>5.0 5.3</p>

Consent/Licence	Condition	Requirement	Section
		<ul style="list-style-type: none"> <li>• complaints;</li> <li>• non-compliances with statutory requirements; and</li> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul> <p>(h) a protocol for periodic review of the plan.</p>	<p>6.0</p> <p>5.2</p> <p>10.0</p>
Open Cut Consolidation Project Approval	5:3	<p><b>Annual Review</b></p> <p>3. By the end of 2010, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:</p> <p>(a) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year;</p> <p>(b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the</p> <ul style="list-style-type: none"> <li>• the relevant statutory requirements, limits or performance measures/criteria;</li> <li>• the monitoring results of previous years; and</li> <li>• the relevant predictions in the EA;</li> </ul> <p>(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;</p> <p>(d) identify any trends in the monitoring data over the life of the project;</p> <p>(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and</p> <p>(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.</p>	6.0
Open Cut Consolidation	5:4	<b>Revision of Strategies, Plans and Programs</b>	10.0

Consent/Licence	Condition	Requirement	Section
Project Approval		<p>4. Within 3 months of the submission of an:</p> <ul style="list-style-type: none"> <li>(a) annual review under condition 3 above;</li> <li>(b) incident report under condition 7 below;</li> <li>(c) audit under condition 9 below; and</li> <li>(d) any modification to the conditions of this approval, the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.</li> </ul> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.</i></p>	
	5:7	<p><b>REPORTING</b></p> <p><b>Incident Reporting</b></p> <p>7. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident.</p> <p>Within 7 days of becoming aware of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.</p>	5.0 6.0
Open Cut Consolidation Project Approval	5:8	<p><b>Regular Reporting</b></p> <p>8. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Director-General.</p>	6.0
Open Cut Consolidation	5:11	<b>ACCESS TO INFORMATION</b>	7.0



Consent/Licence	Condition	Requirement	Section
Project Approval		<p>11. From the end of December 2010, the Proponent shall:</p> <p>(a) make the following information publicly available on its website:</p> <ul style="list-style-type: none"> <li>• a copy of all current statutory approvals for the project;</li> <li>• a copy of the current environmental management strategy and associated plans and programs;</li> <li>• a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;</li> <li>• a complaints register, which is to be updated on a monthly basis;</li> <li>• a copy of the minutes of CCC meetings;</li> <li>• a copy of any Annual Reviews (over the last 5 years);</li> <li>• a copy of any Independent Environmental Audit, and the Proponent’s response to the recommendations in any audit;</li> <li>• any other matter required by the Director-General; and</li> </ul> <p>(b) keep this information up to date, to the satisfaction of the Director-General.</p>	
Open Cut Consolidation Project Approval – Appendix 3 Statement of Commitments	8	<p><i>Mt Arthur Coal will continue to monitor hydro-geomorphological conditions and scrutinise for evidence of any groundwater ingress or endwall instability indicators as it progresses the previously approved mining towards the Hunter River Alluvials. Mining (other than that already approved in the MAN EIS) will not extend beyond a nominal 150 m buffer zone from the Hunter River Alluvials until agreement is reached with NOW regarding the installation of a lower permeability barrier along the point of connections of mining and the alluvium or other appropriate safeguards.</i></p>	GMP
Open Cut Consolidation Project Approval – Appendix 3 Statement of	9	<p><i>Mt Arthur Coal will undertake a census of privately owned groundwater bores to ascertain their current usage and provide a baseline against which to compare any future impacts. In the event of interruption to water supply resulting from the Project, an alternative water supply will be provided, until such interruption ceases.</i></p>	4.0

Consent/Licence	Condition	Requirement	Section
Commitments			
Open Cut Consolidation Project Approval – Appendix 3 Statement of Commitments	10	<p><i>Mt Arthur Coal will install and maintain for the life of the mine a real time surface water monitoring station, downstream of the mine in Saddlers Creek but upstream from any water off-takes, with the following characteristics:</i></p> <ul style="list-style-type: none"> <li>• <i>The station would continuously monitor in real time the following parameters as a minimum:</i> <ul style="list-style-type: none"> <li>- <i>Flows;</i></li> <li>- <i>Conductivity; and</i></li> <li>- <i>Turbidity.</i></li> </ul> </li> <li>• <i>Agreed trigger levels would be established in consultation with Darley for conductivity and turbidity;</i></li> <li>• <i>If trigger levels are exceeded, nominated Darley staff would be automatically notified by SMS or other agreed alarm protocols; and</i></li> <li>• <i>Annual water quality reports incorporating raw data and professional interpretation would be provided annually to Darley and the Department.</i></li> </ul>	SWMP
Open Cut Consolidation Project Approval – Appendix 3 Statement of Commitments	11	<p><i>Water at Mt Arthur Coal will continue to be managed in accordance with best practice and the reduce, reuse, recycle principles. Development of modern tailings storage facilities and possible modifications to coal preparation processes to reduce water usage on site will continue to be developed and assessed, and water use and reduction initiatives will be reported annually in the Annual Review.</i></p>	SWMP
EPL 11457	P1	<p><b>2 Discharges to air and water and applications to land</b>  <b>P1 Location of monitoring/discharge points and areas</b>                      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.                      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.</p>	SWMP

Consent/Licence	Condition	Requirement					Section												
		EPA identification no.	Type of monitoring point	Type of discharge point	Description of location														
		5		Discharge point under Hunter River Salinity Trading Scheme.	At outlet pipe from storage dam E298480 N6424790 marked as "EPA 5" on plan titled "Mt Arthur HRSTS Discharge and Monitoring Points" DOC09/23227 on file LIC07/2093-03														
		6	Water quality and volume monitoring for discharges under the Hunter River Salinity Trading Scheme.		At weir structure downstream of outlet pipe from storage dam E298190 N6424890 marked as "EPA 6" on plan titled "Mt Arthur HRSTS Discharge and Monitoring Points" DOC09/23227 on file LIC07/2093-03														
EPL 11457	L3	<p><b>L3 Concentration limits</b></p> <p>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.</p> <p>L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.</p> <p>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.</p> <table border="1" data-bbox="577 1241 1756 1377"> <thead> <tr> <th data-bbox="577 1241 763 1353">Pollutant</th> <th data-bbox="770 1241 954 1353">Units of Measure</th> <th data-bbox="960 1241 1144 1353">50 percentile concentration limit</th> <th data-bbox="1151 1241 1335 1353">90 percentile concentration limit</th> <th data-bbox="1341 1241 1525 1353">3DGM concentration limit</th> <th data-bbox="1532 1241 1756 1353">100 percentile Concentration Limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 1358 763 1377">pH</td> <td data-bbox="770 1358 954 1377">pH</td> <td data-bbox="960 1358 1144 1377"></td> <td data-bbox="1151 1358 1335 1377"></td> <td data-bbox="1341 1358 1525 1377"></td> <td data-bbox="1532 1358 1756 1377">6.5-9.0</td> </tr> </tbody> </table>					Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile Concentration Limit	pH	pH				6.5-9.0	SWMP
Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile Concentration Limit														
pH	pH				6.5-9.0														



Consent/Licence	Condition	Requirement						Section						
		Total suspended solids	milligrams per litre				120							
EPL 11457	L4.1	<p><b>L4 Volume and mass limits</b></p> <p>L4.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:</p> <p>(a) liquids discharged to water; or;</p> <p>(b) solids or liquids applied to the area;</p> <p>must not exceed the volume/mass limit specified for that discharge point or area.</p> <table border="1" data-bbox="577 699 1756 756"> <thead> <tr> <th data-bbox="577 699 965 727">Point</th> <th data-bbox="965 699 1364 727">Unit of measure</th> <th data-bbox="1364 699 1756 727">Volume / Mass Limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 727 965 756">5</td> <td data-bbox="965 727 1364 756">Megalitres per day</td> <td data-bbox="1364 727 1756 756">450</td> </tr> </tbody> </table>						Point	Unit of measure	Volume / Mass Limit	5	Megalitres per day	450	SWMP
Point	Unit of measure	Volume / Mass Limit												
5	Megalitres per day	450												
EPL 11457	M1	<p><b>5 Monitoring and recording conditions</b></p> <p><b>M1 Monitoring records</b></p> <p>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.</p> <p>M1.2 All records required to be kept by this licence must be:</p> <p>(a) in a legible form, or in a form that can readily be reduced to a legible form;</p> <p>(b) kept for at least 4 years after the monitoring or event to which they relate took place; and</p> <p>(c) produced in a legible form to any authorised officer of the EPA who asks to see them.</p> <p>M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:</p> <p>(a) the date(s) on which the sample was taken;</p> <p>(b) the time(s) at which the sample was collected;</p> <p>(c) the point at which the sample was taken; and</p> <p>(d) the name of the person who collected the sample.</p>						SWMP GMP  SWMP & GMP						
EPL 11457	M2	<p><b>M2 Requirement to monitor concentration of pollutants discharged</b></p> <p>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:</p> <p><b>POINT 6</b></p>						SWMP						

Consent/Licence	Condition	Requirement	Section																
		<table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of measure</th> <th>Frequency</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Conductivity</td> <td>microsiemens per centimetre</td> <td>Continuous during discharge</td> <td>A probe designed to measure the range 0 to 10,000 uS/cm</td> </tr> <tr> <td>Total suspended solids</td> <td>milligrams per litre</td> <td>Daily during any discharge</td> <td>Representative sample</td> </tr> <tr> <td>pH</td> <td>pH</td> <td>Daily during any discharge</td> <td>Representative sample</td> </tr> </tbody> </table>	Pollutant	Units of measure	Frequency	Sampling Method	Conductivity	microsiemens per centimetre	Continuous during discharge	A probe designed to measure the range 0 to 10,000 uS/cm	Total suspended solids	milligrams per litre	Daily during any discharge	Representative sample	pH	pH	Daily during any discharge	Representative sample	
Pollutant	Units of measure	Frequency	Sampling Method																
Conductivity	microsiemens per centimetre	Continuous during discharge	A probe designed to measure the range 0 to 10,000 uS/cm																
Total suspended solids	milligrams per litre	Daily during any discharge	Representative sample																
pH	pH	Daily during any discharge	Representative sample																
EPL 11457	M3	<p><b>M3 Testing methods - concentration limits</b></p> <p>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.</p>	SWMP																
EPL 11457	M4	<p><b>M4 Recording of pollution complaints</b></p> <p>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.</p> <p>M4.2 The record must include details of the following:</p> <ul style="list-style-type: none"> <li>(a) the date and time of the complaint;</li> <li>(b) the method by which the complaint was made;</li> <li>(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;</li> <li>(d) the nature of the complaint;</li> <li>(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and</li> <li>(f) if no action was taken by the licensee, the reasons why no action was taken.</li> </ul> <p>M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.</p> <p>M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.</p>	5.0																
EPL 11457	M5	<p><b>M5 Telephone complaints line</b></p>	5.0																

Consent/Licence	Condition	Requirement	Section						
		<p>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.</p> <p>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.</p> <p>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.</p>							
EPL 11457	M6	<p><b>M6 Requirement to monitor volume or mass</b></p> <p>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.</p> <p>POINT 6</p> <table border="1" data-bbox="577 1018 1762 1129"> <thead> <tr> <th data-bbox="577 1018 972 1070">Frequency</th> <th data-bbox="978 1018 1364 1070">Unit Of Measure</th> <th data-bbox="1370 1018 1762 1070">Sampling Method</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 1075 972 1129">Continuous during discharge</td> <td data-bbox="978 1075 1364 1129">megalitres per day</td> <td data-bbox="1370 1075 1762 1129">Weir structure and level sensor</td> </tr> </tbody> </table>	Frequency	Unit Of Measure	Sampling Method	Continuous during discharge	megalitres per day	Weir structure and level sensor	SWMP
Frequency	Unit Of Measure	Sampling Method							
Continuous during discharge	megalitres per day	Weir structure and level sensor							
EPL 11457	M9	<p><b>M9 HRSTS monitoring</b></p> <p>M9.1 The licensee must continuously operate and maintain communication equipment which makes the conductivity and flow measurements, taken at Point 6 available to the Department of Land and Water Conservation within one hour of those measurements being taken and makes them available in the format specified in the “Hunter River Salinity Trading Scheme Discharge Point Site Equipment” as published by the Department of Land and Water Conservation on 7 May 2002.</p> <p>M9.2 The licensee must ensure that all monitoring data is within a margin of error of 5% for conductivity measurements and 10% for discharge flow measurement.</p> <p>M9.3 The licensee must mark monitoring point(s) 5 &amp; 6, with a sign which clearly indicates the name of the licensee, whether the monitoring point is up or down stream of the discharge</p>	SWMP						

Consent/Licence	Condition	Requirement	Section
		point(s) and that it is a monitoring point for the Hunter River Salinity Trading Scheme.	
EPL 11457	R5	<p><b>R5 HRSTS Reporting</b></p> <p>R5.1 The licensee must compile a written report of the activities under the Scheme for each scheme year. The scheme year shall run from 1 July to 30 June each year. The written report must be submitted to the EPA’s regional office within 60 days after the end of each scheme year and be in a form and manner approved by the EPA. The information will be used by the EPA to compile an annual scheme report.</p>	SWMP

**Abbreviations:**

WMP	MAC-ENC-MTP-034 Site Water Management Plan
SWB	MAC-ENC-PRO-059 Site Water Balance
ESCP	MAC-ENC-PRO-060 Erosion and Sediment Control Plan
SWMP	MAC-ENC-PRO-061 Surface Water Monitoring Program
GMP	MAC-ENC-PRO-062 Groundwater Monitoring Program
SGWRP	MAC-ENC-PRO-063 Surface and Ground Water Response Plan

**Appendix 2: Landholder Consultation and Investigation Process**

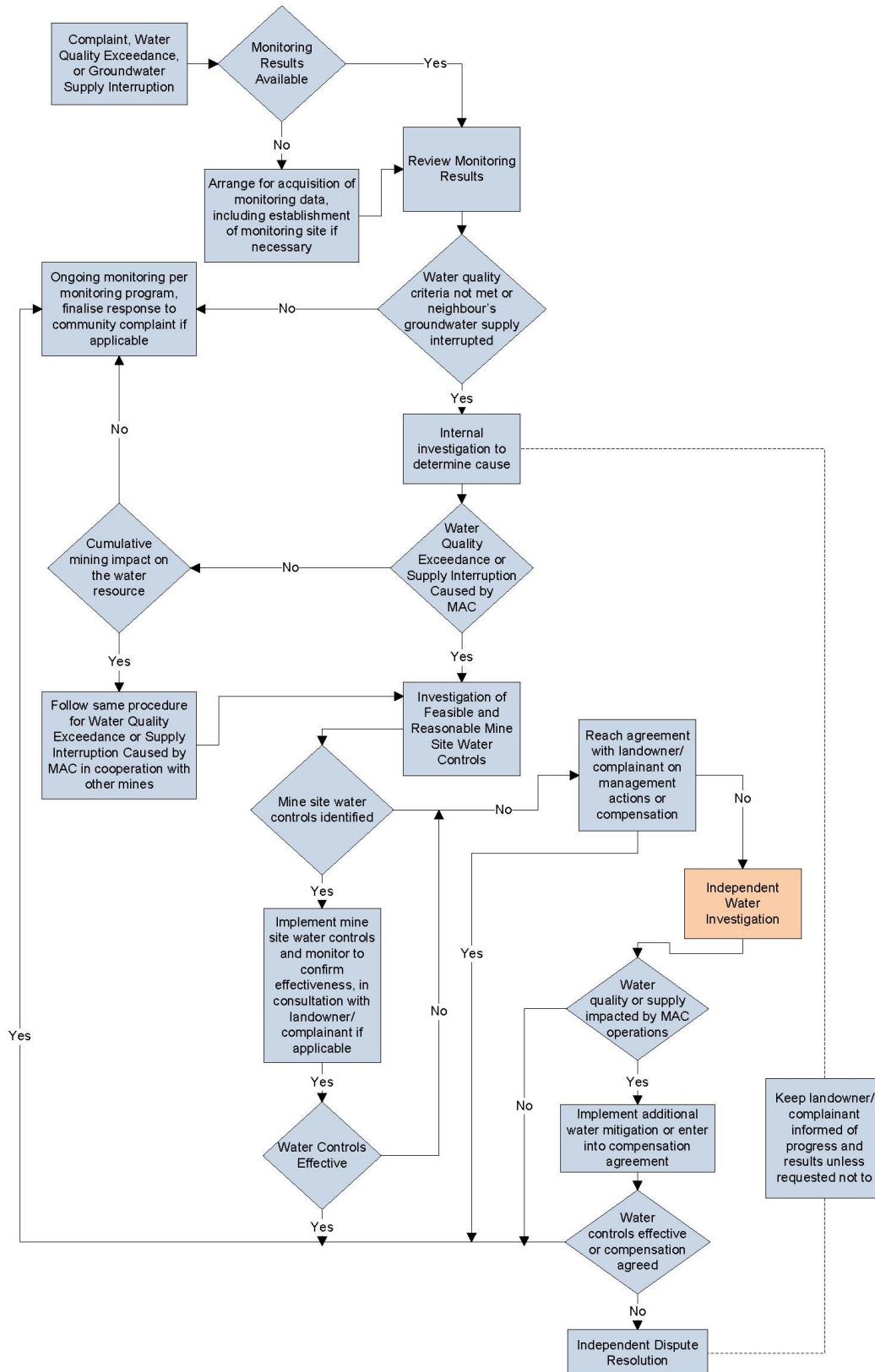


Figure 2: Landholder Consultation and Investigation Process



## Appendix 3: Correspondence Records

### *Telephone correspondence on 16 March 2011, 3.38pm*

Steve Perkins from Mt Arthur Coal contacted Steve Clair from the Department of Environment, Climate Change and Water (now Office of Environment and Heritage) on 16 March 2011 and asked if Mt Arthur Coal could meet with him to review Management Plans. Steve Clair advised that the Department of Environment, Climate Change and Water does not provide comment on Management Plans. Steve Clair informed Steve Perkins that he could send the Management Plans to him for review, but that he would not submit any comments on the Management Plans.

### *Email correspondence on 25 March 2011, 4.28 pm*

**From:** Perkins, Steven R  
**Sent:** Friday, 25 March 2011 4:28 PM  
**To:** fhancock@dnr.nsw.gov.au  
**Subject:** Mt Arthur Coal Site Water Management Plan  
**Attachments:** Groundwater Monitoring Program.doc; Site Water Balance.docx; Site Water Mgt Plan.doc; Surface and Groundwater Response Plan.doc; Surface Water Monitoring Program.doc

Good afternoon Fergus,

Please find attached the draft Site Water Management Plan and associated documents. We appreciate your input on the Site Water Management Plan during your visit on 20 Jan 2011. Following is a summary of the key issues raised and where they are addressed in the attached documents.

Groundwater investigation and structure of the F4 fault within the alluvials- interested in results in this area: <ul style="list-style-type: none"><li>- Permeability and fracture pathways</li><li>- Alluvial material in tributary and relation to Hunter River alluvials.</li></ul>	Section 3.4 of Erosion and Sediment Control Plan. Additional information to be provided to NOW as required.
Groundwater access licencing and ensuring accounting is in place for groundwater inflows.	Outlined in section 6.2 of Groundwater Management Plan
Final approval and sign off for Whites Creek diversion (a separate point and not included in WMP)	External point unrelated to Site Water Management Plan.

Due to the size of the Erosion and Sediment Control Plan, it will be sent to you in a separate e-mail.

Regards,  
Steve



**Steven Perkins**  
Environmental Superintendent  
Mt Arthur Coal  
NSW Energy Coal

**BHP Billiton**  
Thomas Mitchell Drive, Muswellbrook, 2333, NSW, Australia  
Mail To [Steven.R.Perkins@bhpbilliton.com](mailto:Steven.R.Perkins@bhpbilliton.com)  
Internet <http://www.bhpbilliton.com>  
Phone +61 2 6542 4874  
Mobile +61 408 220 765  
Please consider the environment before printing this email

**Email correspondence on 25 March 2011, 4.47 pm**

**From:** Perkins, Steven R  
**Sent:** Friday, 25 March 2011 4:47 PM  
**To:** steve.clair@environment.nsw.gov.au  
**Subject:** Site Water Management Plan  
**Attachments:** Site Water Mgt Plan.doc; Surface and Groundwater Response Plan.doc; Surface Water Monitoring Program.doc; Groundwater Monitoring Program.doc; Site Water Balance.docx

Good afternoon Steve,

Please find attached the Mt Arthur Coal draft Site Water Management Plan and supporting documents for your review. It is my understanding based on our previous conversation that DECCW does not comment on management plans. However, we would welcome any feedback you might provide.

Due to the size of the Erosion and Sediment Control Plan, it will be sent to you in a separate e-mail.

Regards,  
Steve



**Steven Perkins**  
Environmental Superintendent  
Mt Arthur Coal  
NSW Energy Coal

**BHP Billiton**  
Thomas Mitchell Drive, Muswellbrook, 2333, NSW, Australia  
Mail To [Steven.R.Perkins@bhpbilliton.com](mailto:Steven.R.Perkins@bhpbilliton.com)  
Internet <http://www.bhpbilliton.com>  
Phone +61 2 6542 4874  
Mobile +61 408 220 765  
Please consider the environment before printing this email



Contact: Ben Harrison  
Phone: 02 6575 3402  
Fax: 02 6575 3515  
Email: [benjamin.harrison@planning.nsw.gov.au](mailto:benjamin.harrison@planning.nsw.gov.au)

Our ref: 10/20755

Michael White  
General Manager Operations  
Mt Arthur Coal  
PMB 8  
MUSWELLBROOK NSW 2333

Dear Mr White,

**Mt Arthur Coal Mine – PA 09\_0062  
Environmental Monitoring and Management Plans**

Thank you for forwarding the following management plan required under project approval 09\_0062 for the Department's consideration:

- Site Water Management Plan (Condition 29 of Schedule 3);

The Department has reviewed this plan (as amended following previous correspondence) and is satisfied that it generally address the requirements set out in the relevant conditions of the project approval. Consequently, I would like to advise you that the Director-General has approved the plan.

Could you please forward a finalised copy of the above plan for the Department's records at your earliest convenience.

Should you have any enquiries on this matter please contact Ben Harrison on (02) 6575 3402.

A handwritten signature in blue ink, appearing to read 'S. Brooks'.

Scott Brooks

**Team Leader Compliance**

23-8-12  
As Nominee for the Director-General