

Boggabri Coal Pty Ltd

Water Management Plan

February 2014



Revision Control Chart

| Rev No | Original | 1 | 2 | 3 | 4 | 5 |
|---------------|------------|----------------|-------------|-------------|-----------|-----------|
| Revision Date | 27/04/12 | 14/09/12 | 31/07/13 | 9/10/13 | 18/11/13 | 12/02/14 |
| Prepared by | L Doeleman | L Doeleman | C Callipari | C Callipari | K Agllias | K Agllias |
| Reviewed by | T Swanson | E Lam / B Bird | S Trott | S Trott | S Trott | S Trott |
| Approved by | J Rennick | J Green | J Green | J Green | J Green | J Green |
| Signed | | | | | | |

Distribution Control

Controlled copies will be distributed to and retained by relevant personnel including key Boggabri Coal Pty Limited (BCPL) agency and contractor representatives.

| Company | Position |
|---|--|
| Idemitsu Australia Resources Group | Manager Corporate Sustainability and Environment |
| BCPL | Environment Superintendent |
| Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy | Regional Environmental Officer |
| Department of Planning and Infrastructure | Senior Planner |
| Downer EDI Mining | Project Manager |
| LCR Coal | Project Manager |

Uncontrolled Copies

Uncontrolled copies may be issued on the authority of the BCPL Environment Superintendent. Such copies will neither be numbered nor kept up to date.

Contents

| | Page Number |
|--|--------------------|
| 1. Introduction | 1 |
| 1.1 Background | 1 |
| 1.2 Purpose | 2 |
| 1.3 Responsibilities | 3 |
| 1.4 Agency consultation | 4 |
| 1.5 Revision status | 4 |
| 2. Planning and statutory requirements | 6 |
| 2.1 Commonwealth | 6 |
| 2.1.1 <i>Project approval</i> | 6 |
| 2.1.2 <i>National Water Quality Management Strategy</i> | 6 |
| 2.2 State | 7 |
| 2.2.1 <i>EP&A Act Project approval</i> | 7 |
| 2.2.2 <i>Mining Lease approval under the Act 1992</i> | 7 |
| 2.2.3 <i>Water Management Act 2000</i> | 7 |
| 2.2.4 <i>Protection of the Environment Operations Act 1997</i> | 8 |
| 2.3 Project approval conditions | 8 |
| 2.4 Local | 16 |
| 2.4.1 <i>Namoi CMA Catchment Action Plan, 2012</i> | 16 |
| 2.4.2 <i>Namoi CMA Extractive Industries Policy, 2011</i> | 17 |
| 2.4.3 <i>Namoi CMA cumulative risk assessment tool</i> | 17 |
| 3. Water management..... | 18 |
| 3.1 Water management overview | 18 |
| 3.2 Surface water management overview | 18 |
| 3.3 Groundwater management overview | 19 |
| 3.4 Site Water Balance overview | 20 |
| 3.5 BTM Complex Water Management Strategy overview | 20 |
| 3.6 Construction Environmental Management Plan overview | 21 |
| 4. Procedural and reporting requirements | 22 |
| 4.1 Roles and responsibilities | 22 |
| 4.2 Periodic reporting | 23 |
| 4.2.1 <i>Annual return</i> | 23 |
| 4.2.2 <i>Annual Environmental Management Report</i> | 23 |
| 4.2.3 <i>Annual Surface Water Quality Monitoring Appendix</i> | 24 |
| 4.2.4 <i>Annual Groundwater Monitoring Appendix</i> | 24 |
| 4.2.5 <i>Annual Site Water Balance Appendix</i> | 24 |
| 4.2.6 <i>Independent Audit</i> | 24 |
| 4.3 Incident and complaint management | 24 |
| 4.3.1 <i>Incident management</i> | 24 |
| 4.3.2 <i>Complaint response protocol</i> | 25 |
| 4.4 Corrective and preventative actions | 26 |
| 4.4.1 <i>Non-compliances and corrective actions</i> | 26 |
| 4.4.2 <i>Preventative actions</i> | 26 |
| 4.4.3 <i>Event reporting</i> | 26 |
| 5. Revision and development..... | 28 |
| 5.1 Annual review | 28 |
| 5.2 Planning related changes | 28 |
| 5.3 Changes to mine operations | 28 |
| 5.4 Feedback loop | 29 |
| 5.5 Agency and community consultation | 29 |
| 5.6 Submission of incident report | 29 |
| 5.7 Independent environmental auditing | 29 |
| 6. References..... | 30 |

Contents (continued)

Page Number

List of figures

| | |
|-------------------------------|---|
| Figure 1-1 Document hierarchy | 3 |
|-------------------------------|---|

List of tables

| | |
|--|----|
| Table 1-1 Water management documents | 3 |
| Table 1-2 Revision status | 4 |
| Table 2-1 Commonwealth Government Project approval conditions under the EPBC Act | 9 |
| Table 2-2 State Project approval conditions under the EP&A Act | 10 |
| Table 2-3 Water related Mining Lease conditions under the NSW Mining Act | 15 |
| Table 4-1 Site contacts | 22 |
| Table 4-2 Roles and responsibilities | 22 |

List of appendices

| | |
|--------------------------------------|--|
| Appendix A Record of consultation | |
|--------------------------------------|--|

Glossary

| Glossary | |
|---------------------|--|
| AEMR | Annual Environmental Management Report |
| BCPL | Boggabri Coal Pty Limited |
| BTM Complex | Boggabri-Tarrawonga-Maules Creek Mine Complex |
| CCC | Community Consultative Committee |
| CMA | Catchment Management Authority |
| DP&I | Department of Planning and Infrastructure |
| DRE | NSW Division of Resources and Energy |
| DTIRIS | NSW Department of Trade and Investment, Regional Infrastructure and Services |
| EMPs | Environmental Management Plans |
| EPA | Environment Protection Authority |
| EP&A Act | <i>Environmental Planning and Assessment Act, 1979</i> |
| EPBC Act | <i>Environmental Protection and Biodiversity Conservation Act, 1999</i> |
| EPL | Environment Protection License |
| GMP | Groundwater Management Plan |
| MDB | Murray-Darling Basin |
| MOP | Mining Operations Plan |
| Mtpa | Million Tonnes Per Annum |
| NOW | NSW Office of Water |
| NSW | New South Wales |
| OEH | NSW Office of Environment and Heritage |
| PAC | NSW Planning and Assessment Commission |
| ROM | Run of Mine |
| SEWPaC | Commonwealth Department of Sustainability, Environment, Water, Populations and Communities |
| SWB | Site Water Balance |
| SWMP | Surface Water Management Plan |
| WMP | Water Management Plan |
| WMS | Water Management Strategy |
| WEPP | Water Erosion Prediction Project |

1. Introduction

Boggabri Coal Mine is located 15 km north-east of the township of Boggabri in north-western New South Wales and comprises an open cut coal mine that has been operating since 2006. Truck and shovel operations produce a crushed and screened run of mine (ROM) coal product. Coal is transported on a sealed private haul road to a rail loading facility, for dispatch via the port of Newcastle for overseas consumption.

The mine is managed by Boggabri Coal Pty Limited (BCPL), who engages contractors to undertake construction, mining, coal crushing and transportation activities. All contractors working at the Boggabri Coal mine are required to operate in compliance with this Water Management Plan (WMP).

Boggabri Coal Mine is largely contained within the catchment of an unnamed ephemeral drainage line commonly known as 'Nagero Creek'. The catchment consists predominantly of woodland upstream of the site and cleared farmland downstream. The creek flows approximately 8km to the Namoi River. A small area to the south of the mine infrastructure area (MIA) is located within the catchment of Bollo Creek. Nagero Creek and Bollo Creek are both small tributaries of the Namoi River, which is part of the Barwon-Darling River system.

The Namoi River is the main watershed for the region, and is part of the Murray Darling Basin system and is managed under the following Water Sharing Plans (WSPs):

- WSP for the Namoi Unregulated and Alluvial Water Sources
- WSP for the Upper Namoi and Lower Namoi Regulated River Water Sources.

Key aquifers in the region include:

- Alluvial aquifers; comprising alluvial deposits associated with the Namoi River and its tributaries
- The Maules Creek Formation aquifer; the major transmissive units are within the coal seams, in particular the Merriown Seam
- Minor colluvium associated with weathered Boggabri Volcanics

1.1 Background

In 2009, BCPL lodged a major project application (the Project) under the now-repealed Part 3A of the Environmental Planning and Assessment Act, 1979 (EP&A Act). In the Project application, BCPL sought to extend its mining operations for a further 21 years, and increase its production rate to 7 Million tonnes per annum (Mtpa) of ROM coal from a total resource of 145 Mt. The Project includes operation of existing ancillary equipment; construction of a new coal handling and preparation plant; a 17 km rail spur line; bridges over the Namoi River and Kamilaroi Highway; a rail load-out facility located at the mine; upgrade of the overburden and coal extraction haulage fleet (with an option for a drag-line); upgrade of electricity transmission lines; and other ancillary infrastructure.

The Project application was determined by the NSW Planning Assessment Commission (PAC), under delegation by the Minister for Planning and Infrastructure. Project Approval 09_0182 (the Project Approval) was received in July 2012.

Schedule 3, Condition 38 of the Project Approval requires the preparation of a Water Management Plan (WMP). This plan has been prepared in fulfilment of the requirements. The specific NSW EP&A Act Project approval conditions relating to water management are listed in Table 2-2 of this document.

Conditions of approval were released by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) on 11 February 2013. Conditions 15 to 19 apply to the WMP. The specific federal requirements are listed in Table 2-1.

This WMP considers the entire life of the mine. To ensure clarity throughout the document, reference is made to two distinct mine plans for which various aspects of the water management system have been devised, specifically the:

1. Revised Draft Mining Operations Plan (MOP): lodged with the NSW Division of Resources and Energy (DRE) in November 2013. The MOP spans a 5-year period between 2013 and 2017. Mine plan snapshots and water management systems relevant to mine years 0, 1, 2 and 5 are aligned with this MOP.
2. Environmental Assessment (EA) Mine Plan: lodged in 2009 and conditionally approved by the NSW Minister for Planning and Infrastructure in July 2012, the EA mine plan spans a 21 year period between 2013 and 2034. Mine plan snapshots and water management systems relevant to mine years beyond year 5 reflect the EA mine plan.

1.2 Purpose

The purpose of this WMP is to provide a framework for water management at Boggabri Coal Mine (the site). As is referred to in the Project Approval under Section 75J of the EP&A Act 1979 (Schedule 3, Condition 38), this WMP is an overarching document that pulls together water management aspects of the following documents:

- the Surface Water Management Plan (SWMP)
- Groundwater Management Plan (GMP)
- Site Water Balance (SWB) report
- BTM Complex Water Management Strategy (WMS)
- Construction Environmental Management Plan (CEMP).

This WMP also sets out to satisfy standard requirements for management plans (outlined in Schedule 5, Condition 3).

The objectives of this WMP are to:

- ensure environment safeguards are implemented correctly
- ensure compliance with the requirements of all relevant environment legislation, and conditions of any applicable licence, approval and permit
- ensure that works are managed to minimise adverse impacts on the environment
- effectively manage water through onsite retainment and reuse, and to prevent contaminated water from leaving the site, thereby preventing potential pollution to groundwater aquifers and nearby waterways
- ensure that mine operations do not adversely impact nearby water users.

Table 1–1 lists the relevant plan and strategy documents referred to in this WMP. Given the overarching intent of the WMP, these documents should be read in conjunction with the WMP where appropriate, particularly where detail on the subject matter is sought (e.g. for groundwater monitoring refer to the GMP). The WMP document hierarchy is shown in Figure 1-1.

Table 1-1 Water management documents

| Document | Description |
|--|---|
| Surface Water Management Plan | Surface water baseline data, performance criteria, monitoring program, response plan, water management system description, erosion and sediment controls |
| Groundwater Management Plan | Groundwater baseline data, performance criteria, monitoring program, response plan, groundwater model validation program |
| Site Water Balance report | Mine water balance modelling methodology, assumptions and results, mine water management system operating philosophy |
| BTM Complex Water Management Strategy | Regional strategy prepared in consultation with Tarrawonga Coal Mine and Maules Creek Coal |
| Construction Environmental Management Plan | Potential impacts and mitigation measures relating to water management during construction MIA area associated with the expansion works including MIA area and rail spur line |

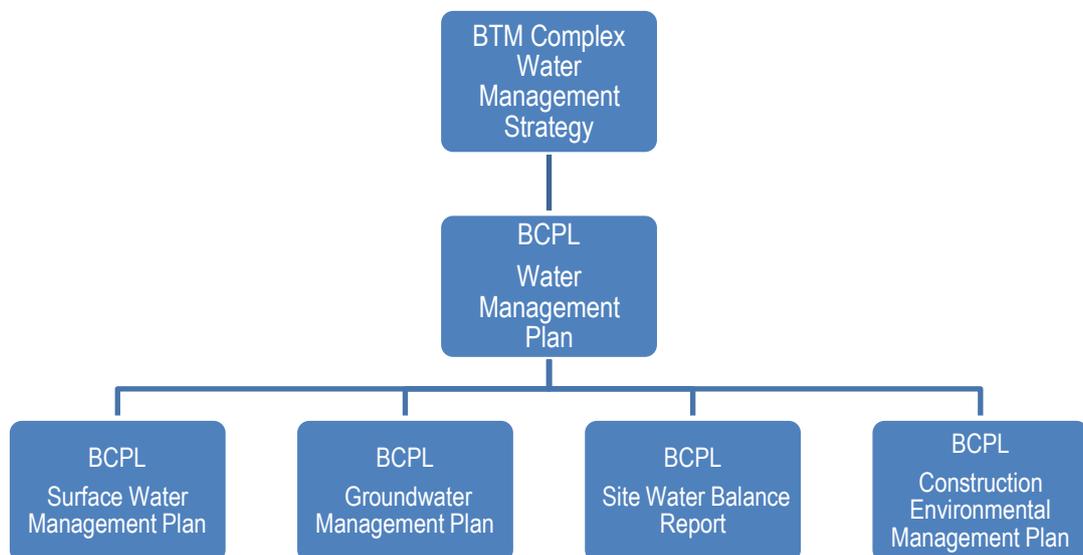


Figure 1-1 Document hierarchy

1.3 Responsibilities

BCPL is responsible for compliance with the WMP and sub-plans: SWMP, GMP, SWB report, CEMP and jointly for the BTM Complex Water Management Strategy (WMS) with Tarrawonga Coal Mine and Maules Creek Coal. Monitoring, reporting and management are undertaken by BCPL in accordance with the guidance provided in the sub-plans and Environment Protection Licence 12407 (the EPL), MOP and various Project Operational Environmental Management Plans (EMPs).

BCPL is responsible for any remedial action that may be required as a result of an exceedance of the performance criteria, or if monitoring results are considered unacceptable within the sub-plans (refer to Section 4.4).

1.4 Agency consultation

Previous versions of this WMP have been prepared in consultation with representatives from the NSW Office of Environment and Heritage (OEH), NSW Office of Water (NOW), Namoi Catchment Management Authority (NCMA) and the Community Consultative Committee (CCC).

The WMP has been prepared by suitably qualified persons approved by the DP&I to undertake this work. Draft versions of this WMP have been reviewed by DP&I and comments have been addressed.

This plan has been submitted to regulators (EPA and NOW), NCMA and the CCC. The final WMP has been updated to incorporate feedback from regulators and the CCC. Evidence of consultation is presented in Appendix A.

1.5 Revision status

The WMP has been updated to reflect requirements of the new Project Approval on 18 July 2012 under Section 75J of the EP&A Act 1979.

This WMP and associated sub-plans relate to Years 1 to 21 of mining (up to the end of December 2033).

The WMP is to be reviewed and updated on an annual basis, or when any significant changes are made to mining operations or to the water management system described in this report. Section 4 outlines the revision and development requirements of the WMP. Previous revisions and updates made to this WMP are summarised in Table 1-2.

Table 1-2 Revision status

| Rev No. | Mine plans | Approval reference | Author | Approval | Date | Comment |
|---------|--|---|--------------------------|-----------|---------------|------------------------------------|
| 0 | Years 1 to 2 (i.e. calendar years 2012 to 2013) | Boggabri Modification - DA 36/88 as modified on 19 October 2011 | L Doeleman | J Rennick | 27 April 2012 | Issue to DP&I, OEH, NOW, DRE, NCMA |
| 1 | Years 1 to 21 (i.e. calendar years 2012 to 2033) | Boggabri Coal Project 09-0182 - as approved on 18 July 2012 | L Doeleman N Harcombe | J Green | 16 Jan 2013 | Issue to DP&I, OEH, NOW, NCMA, CCC |
| 2 | Years 1 to 21 (i.e. calendar years 2013 to 2033) | Boggabri Coal Mine as per Draft MOP lodged June 2013 and Boggabri Coal Mine Extension (EPBC 2009/5256) – as approved 11 February 2013 | C Callipari S Trott | J Green | 31 July 2013 | DP&I comments addressed. |
| 3 | Years 1 to 21 (i.e. calendar | Boggabri Coal Mine as per | C Callipari S Trott | J Green | 09 October | BCPL comments |

| | | | | | | |
|---|--|---|----------------------|---------|------------------|--|
| | years 2013 to 2033) | Revised Draft MOP lodged November 2013 and Boggabri Coal Mine Extension (EPBC 2009/5256) – as approved 11 February 2013 | | | 2013 | addressed. Issue to DP&I |
| 4 | Years 1 to 21 (i.e. calendar years 2013 to 2033) | Boggabri Coal Mine as per Revised Draft MOP lodged November 2013 and Boggabri Coal Mine Extension (EPBC 2009/5256) – as approved 11 February 2013 | K Agllias S Trott | J Green | 18 Nov 2013 | DP&I comments addressed. Issue to EPA and DoE |
| 5 | Years 1 to 21 (i.e. calendar years 2014 to 2034) | Boggabri Coal Mine as per Revised Draft MOP lodged November 2013 and Boggabri Coal Mine Extension (EPBC 2009/5256) – as approved 11 February 2013 | K Agllias S Trott | J Green | 12 February 2014 | Relevant agencies comments addressed. Issue to DP&I |

2. Planning and statutory requirements

Statutory requirements include any Commonwealth, State or local requirements under any provisions of relevant acts and regulations, environmental planning instruments (e.g. State Environmental Planning Policies, Regional Environmental Plans, Local Environmental Plans and Development Control Plans) and any other relevant guidelines relevant to mine water management.

The statutory requirements associated with water management discussed in the sections following have been considered during the development of this WMP. Further details relating to water management statutory requirements are provided in the SWMP and GMP.

2.1 Commonwealth

2.1.1 Project approval

Commonwealth approval for the Project was granted on 11 February 2013 pursuant to Sections 130 (1) and 133 of the *Environmental Protection and Biodiversity Conservation Act (1999)* (EPBC Act) (EPBC Act referral 2009/5256). The EPBC Act protects matters of National Environmental Significance. Based on the known and potential impacts on matters of National Environmental Significance, the Project would constitute a controlled action under the EPBC Act, with impact assessment and regulatory approval provided through Part 3A of the *NSW Environmental Planning and Assessment Act*, requiring approval from the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (SEWPaC). Mitigation measures associated with the provision of the EPBC Act will apply during ongoing Project operations and site rehabilitation. Refer to Section 2.3 for specific EPBC Act Project approval conditions related to WMPs.

2.1.2 National Water Quality Management Strategy

The National Water Quality Management Strategy (NWQMS) is a joint national approach to improving water quality in Australian and New Zealand waterways. The NWQMS aims to protect the nation's water resources, by improving water quality while supporting the businesses, industry, environment and communities that depend on water for their continued development.

The process for water quality management is based on national guidelines that are implemented at State, regional and local levels. The national water quality guidelines are the basis for development of the State and local plans and objectives. The ANZECC water quality guidelines (water quality benchmarks) have been used in both the GMP and the SWMP for the Project.

ANZECC guidelines were the basis of development for the more specific regional objectives related to surface water quality; the Namoi catchment uncontrolled streams guidelines. NSW OEH developed these local guidelines for each river basin within NSW for regulated and uncontrolled streams within those river basins based on the local environmental values (beneficial uses) of the catchment. These guidelines have been adopted in the SWMP.

2.2 State

State statutory requirements associated with mine water management during the operation and rehabilitation phase of the Boggabri Coal Project have been considered during the development of this WMP and are outlined below.

2.2.1 EP&A Act Project approval

State approval for the Project was made on 18 July 2012 pursuant to Section 75J of the *NSW Environmental Planning and Assessment Act*, The Planning and Assessment Commission of NSW approves the project application as delegate of the Minister for the Environment. Once approved by the state government, the project must then be approved by the Department of Environment (formerly SEWPaC). Refer to Section 2.3 for specific project approval conditions related to WMPs.

2.2.2 Mining Lease approval under the Act 1992

The objectives of the *Mining Act 1992* as are to encourage and facilitate discovery and development of mineral resources having regard to the need to encourage ecologically sustainable development. In relation to water, the act sees that BCPL ensure effective rehabilitation of disturbed land and water and to ensure mineral resources are identified and developed in ways that minimise impact to the environment. BCPL hold coal lease CL368 under this act.

2.2.3 Water Management Act 2000

The *Water Management Act 2000* incorporates the provisions of various Acts relating to the management of surface and groundwater in NSW and provides a single statute for regulation of water use and works that affect surface and groundwater, both marine and fresh.

The objectives of the *Water Management Act 2000* are to provide for the sustainable and integrated management of the water sources of NSW for the benefit of present and future generations.

Where an area is covered by a gazetted Water Sharing Plan (WSP) under the Act, an access licence must be obtained under the Act to obtain a specified share of water, to take water at a specified time, at a specified rate or at a specified area within a specified location. Different types and categories of access licence exist for different purposes.

The Project is within water sharing plan areas, and BCPL holds existing licences under the *Water Management Act 2000* for the extraction of both surface water and groundwater. Readers are referred to the GMP and SWMP for details of the relevant plans and licences.

The Act establishes a regime for the protection and improvement of certain rivers and foreshores and the prevention of erosion of lands by non-tidal and tidal water. A controlled activity approval under the *Water Management Act 2000* is required for certain types of developments and activities that are carried out in or near a river, lake or estuary.

According to the provisions of the *Environmental Planning and Assessment Act*, an activity approval is not required for works to be undertaken within the project area, however, approvals have been obtained for works undertaken outside of the Lease area associated with the haul road and Namoi River bridge construction.

2.2.4 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* aims to protect, restore and enhance the quality of the environment in NSW by rationalising, simplifying and strengthening the regulatory framework for environment protection. The Act and associated Regulations are administered by the NSW Office of Environment and Heritage (OEH).

The *Protection of the Environment Operations Act 1997* replaced the licences and approvals formerly required under separate Acts relating to air, water pollution, noise pollution and waste management with a single integrated licence.

BCPL holds Environment Protection Licence (EPL) No: 12407 under this Act.

2.3 Project approval conditions

Table 2-1 lists the Commonwealth Government Project approval conditions relating to water management, as set by SEWPAC in approval EPBC 2009/5256 on 11 February 2013.

Table 2-2 outlines the NSW EP&A Act Project approval conditions relating to water management, as listed in Schedule 3 and Schedule 5 of the Project Approval.

Table 2-3 outlines Mining Lease conditions under the NSW Mining Act, as they relate to water management.

Other approval conditions are associated with:

- Environment Protection Licence – Variation dated 02/11/12. These conditions are further discussed within the SWMP, GMP and SWB
- *Water Management Act 2000* licence(s) to extract surface water and groundwater. The conditions are specified on the individual licences and in the relevant applicable water sharing plans
- Controlled activity approvals under the *Water Management Act 2000*. The conditions are specified on the individual approvals.

Table 2-1 Commonwealth Government Project approval conditions under the EPBC Act

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|---|---------------------------------|
| 15 | The person taking the action must provide to the Minister for approval, the surface and groundwater management plans as identified in condition 38 of the NSW state government Project Approval dated 18 July 2012 (application number 09_0182). The surface and groundwater management plans approved by the Minister must be implemented prior to the commencement of new mining operations. | Refer to SWMP and GMP |
| 16 | The surface and groundwater management plans must be consistent with the National Water Quality Management Strategy. | Refer to SWMP and GMP |
| 17 | <p>The person taking the action must within 6 months of this approval, in collaboration with the person taking the action to develop and operate the Maules Creek Coal Project (EPBC 2010/5566) and any other approved mines within 20 km of the mine site provide written advice to the Minister demonstrating how the approved surface and groundwater management plans (specified in condition 15), addresses the cumulative impact of groundwater drawdown as a result of mining and how this may impact on the consequent health of the remnant native vegetation in the Leard State Forest, the Leard State Conservation Area and surrounding areas. In particular the advice must address the following matters:</p> <ul style="list-style-type: none"> (a) maximum amount of allowable drawdown in the alluvial aquifer (b) drawdown in hard rock aquifer (c) trigger levels pertaining to drawdown in the alluvial aquifer when corrective actions will be required to be undertaken (d) identify the depth of root zone of the native vegetation (e) monitoring to assess the ongoing quality and quantity of both surface and groundwater to identify impacts on the native vegetation. | Refer to WMS |
| 18 | <p>The person taking the action must within 6 months of the date of this approval, or such other timeframe specified by the Minister, provide to the Minister a report on:</p> <ul style="list-style-type: none"> (a) any updated modelling of surface and groundwater impacts that has been undertaken in preparing the surface and groundwater management plans (b) how the surface and groundwater management plans addressed groundwater and surface water impacts on native vegetation | Refer to SWMP and GMP |
| 19 | A risk-based assessment of the disposal of mine water by irrigation on soils must be undertaken. The assessment must include the risk of metal and salinity accumulation in soils. | Refer to SWB* |

* Planned increases to mine water storage capacity are considered adequate to alleviate need for mine water disposal via irrigation.

Table 2-2 State Project approval conditions under the EP&A Act

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|---|----------------------------------|
| Sc3,33 | <p>Water supply</p> <p>The Proponent shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations on site, to match its available water supply to the satisfaction of the Director-General.</p> | Refer to SWB |
| Sc3, 34 | <p>Compensatory water supply</p> <p>The Proponent shall provide a compensatory water supply to any landowner of privately-owned land whose water supply is adversely and directly impacted (other than an impact that is negligible) as a result of the project, in consultation with NOW, and to the satisfaction of the Director-General.</p> <p>The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply should be provided (at least on an interim basis) within 24 hours of the loss being identified.</p> <p>If 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.</p> <p>If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.</p> | Refer to SWB |
| Sc3, 35 | <p>Surface water discharges</p> <p>The Proponent shall ensure that any surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.</p> | Refer to SWMP |
| Sc3, 36 | <p>Operating conditions</p> <p>The Proponent shall:</p> <ul style="list-style-type: none"> (c) Ensure that coal reject or any potentially acid forming interburden materials must not be emplaced at elevations within the Boggabri pit shell where they may promote acid or sulphate species generation and migration beyond the pit shell (d) Ensure that any coal barrier between the final void and any future surrounding mining operations must remain intact in order to impede exchange of any contained groundwaters in the Boggabri pit shell | Refer to SWMP and RMP |
| Sc3, 37 | <p>Flood impacts Boggabri Rail Spur Line and Haul Road</p> <p>The rail spur line, rail spur bridges and any upgrade to the haul road must be designed and constructed to minimise impacts on flooding. Prior to construction of the rail spur line or any upgrades to the haul road, the Proponent shall undertake a flood assessment of the detailed design to confirm there would be minimal impacts as predicted in the EA.</p> <p>This shall include assessment of impacts of the rail spur line embankment and proposed design of stormwater culverts along the rail spur line to the Namoi River to assess changes to localised flood impacts within the</p> | Refer to SWMP and Aurecon (2013) |

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|--|---|
| | <p>Nagero Creek catchment and adjoining Bollol Creek catchment. The assessment must be undertaken in consultation with NOW, Namoi CMA, Council and OEHL, to the satisfaction of the Director-General.</p> | |
| <p>Sc3, 38</p> | <p>Water Management Plan</p> <p>The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with OEHL, NOW, Namoi CMA, and CCC, by suitably qualified and experienced persons whose appointment has been approved by the Director-General, and be submitted to the Director-General for approval within 6 months of the date of the approval.</p> <p>In addition to the standard requirements for management plans (Condition 3 of Schedule 5), the plan must include:</p> <p>a) a Site Water Balance, that:</p> <ul style="list-style-type: none"> • includes details of: <ul style="list-style-type: none"> - sources and security of water supply, including contingency for future reporting periods; - water use on site; - water management on site; - any off-site water discharges; - reporting procedures, including the preparation of a site water balance for each calendar year; - a program to validate the surface water model, including monitoring discharge volumes from the site and comparison of monitoring results with modelled predictions; and • describes the measures that would be implemented to minimise clean water use on site; <p>(b) a Surface Water Management Plan, which includes:</p> <ul style="list-style-type: none"> • detailed baseline data on surface water flows and quality in the water-bodies that could potentially be affected by the project; • detailed baseline data on soils within the irrigation management area; • detailed baseline data on hydrology across the downstream drainage system of the Namoi River floodplain from the mine site to the Namoi River; • a detailed description of the water management system on site, including design objectives and performance criteria for the: <ul style="list-style-type: none"> - clean water diversion systems; - erosion and sediment controls (dirty water system); - mine water management systems including irrigation areas; - discharge limits in accordance with EPL requirements; and - water storages - haul road and Boggabri Rail Spur Line and bridge flood and water diversions; • Detailed plans, including design objectives and performance criteria for: | <p>The SWB, SWMP and GMP form part of this WMP. Suitability qualified persons have prepared these plans in accordance with this requirement, whose appointment has been approved by the Director-General.</p> |

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|---|---------------------------------|
| | <ul style="list-style-type: none"> - design and management of final voids; - design and management for the emplacement of reject materials, sodic and dispersive soils and acid or sulphate generating materials; - design and management for the construction and operation of Boggabri Rail Spur Line and bridge across the Namoi River floodplain and upstream adjoining Nagero/Bollol Creek catchments; - reinstatement of drainage lines on the rehabilitated areas of the site; and - control of any water pollution from the rehabilitated areas of the site; • performance criteria for the following, including trigger levels for investigating any potentially adverse impacts associated with the project: <ul style="list-style-type: none"> - the water management system; - soils within the irrigation area; - downstream surface water quality; - downstream flooding impacts, including flood impacts due to the construction and operation of the Boggabri Rail Spur Line and rail bridge; and - stream and riparian vegetation health, including the Namoi River; • a program to monitor: <ul style="list-style-type: none"> - the effectiveness of the water management system; - soils within the irrigation area; and - surface water flows and quality in the watercourses that could be affected by the project; and • reporting procedures for the results of the monitoring program; • a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and <p>(c) a Groundwater Management Plan, which includes:</p> <ul style="list-style-type: none"> • detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores including a detailed survey/schedule of groundwater dependent ecosystems (including stygo-fauna), that could be affected by the project; • the monitoring and testing requirements specified in the PAC recommendations for groundwater management set out in Appendix 6; • detailed plans, including design objectives and performance criteria, for the design and management of the proposed final void; • groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts; • a program to monitor and assess: <ul style="list-style-type: none"> - groundwater inflows to the open cut mining operations; | |

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|---|---|
| | <ul style="list-style-type: none"> - the seepage/leachate from water storages, backfilled voids and the final void; - interconnectivity between the alluvial and bedrock aquifers; - background changes in groundwater yield/quality against mine-induced changes; - the impacts of the project on <ul style="list-style-type: none"> - regional and local (including alluvial) aquifers; - groundwater supply of potentially affected landowners; - aquifers potentially affected by the mine irrigation area; - groundwater dependent ecosystems (including potential impacts on stygo-fauna) and riparian vegetation. • a program to validate the groundwater model for the project, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and • a plan to respond to any exceedances of the performance criteria; and <p>(d) a Leard Forest Mining Precinct Water Management Strategy, that has been prepared in consultation with other mines within the Precinct to:</p> <ul style="list-style-type: none"> • minimise the cumulative water quality impacts of the mines; • review opportunities for water sharing/water transfers between mines; • co-ordinate water quality monitoring programs as far as practicable; • undertake joint investigations/studies in relation to complaints/exceedances of trigger levels where cumulative impacts are considered likely; and • co-ordinate modelling programs for validation, re-calibration and re-running of the groundwater and surface water models using approved mine operation plans. <p><i>Note that the Leard Forest Mining Precinct Water Management Strategy is being developed in stages and will be subject to ongoing review dependent upon the determination and commencement of other mining projects in the area.</i></p> | |
| Sc5, 3 | <p>Preparation of management plans</p> <p>The Proponent shall ensure that the management plans required under this consent 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"> • the relevant statutory requirements (including any relevant consent, licence or lease conditions); • any relevant limits or performance measures/criteria; • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; <p>(c) a description of the measures that would be implemented to comply with the relevant statutory</p> | <p>Refer to the SWB, SWMP and GMP and WMP. Suitability qualified persons have prepared these plans in accordance with this requirement.</p> |

| Applicable conditions | Requirement | Addressed in following document |
|-----------------------|--|---------------------------------|
| | <p>requirements, limits, or performance measures/criteria</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> • impacts and environmental performance of the project; • effectiveness of any management measures (see c above) <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement way 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"> • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and <p>(h) a protocol for periodic review of the plan.</p> | |
| Sc5, 6 | <p>Management of cumulative impacts</p> <p>In conjunction with the owners of the nearby mines in the Leard Forest Mining Precinct, the Proponent shall use its best endeavours to minimise the cumulative impacts of the project on the surrounding area to the satisfaction of the Director-General.</p> | Refer to WMS |

Table 2-3 Water related Mining Lease conditions under the NSW Mining Act

| Applicable conditions | Regulating Authority | Requirement | Addressed in following document |
|------------------------------|-----------------------------|--|--|
| 11 (b) ii & iii | DTIRIS (DRE) | The registered holder shall...submit for the Ministers approval an environmental management plan relating to the operation of the registered holder on the subject area. (b) the plan shall describe the methods to be used to protect the environment, including the methods used to – (ii) minimise air, noise and water pollution; (iii) minimise erosion; | AQGHMP, NMP, WMP, SWMP, SWB, GMP and RMP |
| 22 | DTIRIS (DRE) | Settling dams or other dams constructed or to be constructed on the subject area shall be constructed, maintained and sealed to the satisfaction of the Minister. | SWMP |
| 23 | IDTIRIS (DRE) | The registered holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent contaminated waters discharging or escaping from the subject area onto the surrounding areas and shall comply with any written directions given or which may be given in this regard by the Minister. | SWMP |
| 25 | DTIRIS (DRE) | The registered holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent the contamination, pollution, erosion or saltation of any stream or watercourse or catchment area or any undue interference to fish or their environment and shall observe any instruction which may be given by the Minister with a view to protecting or minimising the contamination, pollution, erosion or saltation of any stream, watercourse or catchment area, or any undue interference to fish or their environment. | SWMP |
| 29 | DTIRIS (DRE) | The registered holder shall conduct operations in such a manner as not to cause or aggravate soil erosion and the registered holder shall observe and perform any instruction which may be given by the Minister or the Director General with a view to minimising or preventing soil erosion. | SWMP and RMP |
| 32 | DTIRIS (DRE) | The registered holder shall ensure that the runoff from any disturbed area including the overflow from any depression or ponded area is discharged in such a manner that it will not cause erosion. | SWMP |

2.4 Local

A number of Namoi Catchment Management Authority (CMA) policies and plans have been considered in the development of this WMP and associated sub-plans.

2.4.1 Namoi CMA Catchment Action Plan, 2012

The Namoi CMA Catchment Action Plan (CAP) is a strategic plan on how the Namoi catchment's natural resources should be managed over the next 10 years. The CAP addresses catchment targets for people, native plants and animals, water and landscape and sets thresholds based on a "resilience approach". CAP targets do not have any legislative implications but should be used as a guide when making planning decisions about the catchment. The CAP targets and thresholds that relate to surface water and groundwater are listed below:

- By 2020 there is an improvement in the condition of those riverine ecosystems that have not crossed defined geomorphic thresholds as at the 2010 baseline.
- By 2020 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses.
- By 2020 there is an improvement in the condition of regionally important wetlands and the extent of those wetlands is maintained.

These targets are designed to avoid crossing the following thresholds identified for water;

- Surface water flow quantity is at 66% of natural (pre-development) condition with a sensitivity to natural frequency and duration.
- Geomorphic condition is good (against benchmark condition).
- Recruitment of riparian vegetation is higher than attrition of individual trees, shrubs or groundcover species.
- Agricultural and urban supply aquifers do not cross into lower levels of beneficial use regarding quality.
- Alluvial aquifers are not drawn down below long term historical maximum drawdown levels.
- Groundwater is within 30m of surface where there are identified groundwater dependent ecosystems.
- Wetland is not drained, dammed or otherwise physically modified.

These targets and thresholds have been considered in the development of the SWMP by:

- undertaking progressive rehabilitation of the site and returning clean runoff back to the environment
- only releasing water from sediment dams when discharge limits are not exceeded
- conducting geomorphology assessments of the creek line downstream of the mine
- not discharging mine water unless under allowed high flow conditions
- retaining riparian vegetation where possible

The above targets have also been considered in the development of the GMP by:

- re-using captured dirty water on-site as a first priority and only utilising groundwater as a secondary source of water
- taking groundwater from licenced aquifers in line with licence conditions and water access rules
- undertaking a hydrocensus so that potential impacts on registered groundwater users can be identified and minimised
- undertaking surveys of groundwater dependent ecosystems

2.4.2 Namoi CMA Extractive Industries Policy, 2011

This Policy recognises that extractive industries in the Namoi catchment compete for a wide range of resources and may impact the environment and other existing uses in a number of ways. The Policy makes recommendations to federal and state governments to ensure that the catchment assets are sustained in the long term. This includes adopting the Precautionary Principle, being involved in risk management assessments with government, seeking to ensure that in-depth baseline databases are in place, and supporting the ten International Council of Mining and Metals (ICMM) Principles.

The development of the WMPs has provided recommendations on continued ambient monitoring for surface water and groundwater so that comprehensive baseline datasets can be provided for the area so that changes to water quality can be identified and managed accordingly so that impacts to surface water and groundwater can be minimised.

2.4.3 Namoi CMA cumulative risk assessment tool

Namoi CMA is currently developing a GIS-based tool to assess the cumulative risk of multiple mines to natural resource assets in the Namoi Catchment. The tool will be based on the best available science and mapping that would allow the testing of different scenarios to produce cumulative risk statements and associated maps. The tool is based on critical thresholds identified for natural resource assets in the CAP.

Once the tool is developed and publically available, it will be reviewed, and following further discussions and agreement the CMA recommendations related to water management consideration will be given to incorporating into the relevant WMPs.

3. Water management

3.1 Water management overview

The primary objective of this WMP is to provide a framework for water management at Boggabri Coal Mine. Broadly the aim of water management throughout the Boggabri Coal Mine is to:

- maximise use of contaminated and dirty water from runoff and seepage on site;
- maximise diversion of clean water upstream of Boggabri Coal Mine around the operational footprint
- ensure any discharges to streams are compliant with EPLs
- minimise impacts of operations on natural flows and existing groundwater levels in the shallow alluvial aquifer
- quantify, minimise and account for impacts on other water users in the catchment and groundwater regime generally
- minimise impacts on/changes to flood flows
- minimise impacts on water dependent environments
- establish monitoring regimes to inform the achievement of above objectives and adaptive management as required
- implement effective management responses to water and related issues
- provide transparent reporting of water information and management outcomes

3.2 Surface water management overview

The focus of surface water management at Boggabri Coal Mine is to assess, manage, monitor and mitigate impacts to the surface water system regime imparted by its operation. A framework describing how BCPL implement these processes is provided in the SWMP.

The objectives of this SWMP are to provide:

- Detailed baseline data on surface water flows and quality in the water-bodies that could potentially be affected by the development
- Detailed baseline data on hydrology across the downstream drainage system of the Namoi River floodplain from the mine site to the Namoi River
- A detailed description of the water management system on site, including design objectives and performance criteria for the water management system, discharge limits in accordance with the Environment Protection Licence (EPL) requirements, water storages, haul road and Boggabri Rail Spur Line
- Detailed plans, including design objectives and performance criteria for final voids, emplacement of reject material. Construction and operation of the Boggabri Rail Spur Line and bridge crossing the Namoi River, drainage line lines on rehabilitated areas and control of potential water pollution from rehabilitated areas

- Performance criteria for water management, downstream surface water quality, downstream flooding impacts, stream and riparian vegetation health including trigger levels for investigating any potentially adverse impacts associated with the development
- A program to monitor the effectiveness of the water management system and surface water flows and quality in affected watercourses and downstream flooding impacts
- Reporting procedures for the results of the monitoring program
- A plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the Project.

Clean water consisting of runoff from undisturbed catchments located upslope of the mine site are typically intercepted and diverted around the operations or captured and released via pumping. Dirty water consists of runoff from disturbed areas of the mining site, has a high sediment load and is typically captured in sediment dams prior to release. Contaminated water consists of runoff generated from coal stockpiles and the pit void, have a moderate to high sediment load and may contain other contaminants and are captured, stored and recycled for site operations such as dust suppression.

Further details of surface water management system are provided within the SWMP and SWB.

3.3 Groundwater management overview

The focus of groundwater management at Boggabri Coal Mine is to assess, manage, monitor and mitigate impacts to the groundwater regime imparted by its operation. A framework describing how BCPL implement these processes is provided in the GMP.

The aim of the GMP is to:

- facilitate compliance with the Project Approval, EPL 12407 (the EPL), Mining leases CL 368, A355, A339 and all relevant environmental legislation, licences and permits
- describe the groundwater monitoring program and baseline data
- to ensure that works are managed to minimise adverse groundwater impacts on the community and the environment
- develop a groundwater impact assessment criteria and establish trigger levels to identify groundwater level and quality changes that may indicate connectivity between the alluvium aquifer and mine dewatering activities
- to outline the mine's monitoring and reporting requirements related to groundwater
- to detail specific groundwater management and mitigation measures for site personnel
- to provide clear definition of the roles and responsibilities for groundwater management that applies to all BCPL employees and contractors

Groundwater make collected within the site is stored and recycled for site operations such as dust suppression.

Further details of the groundwater management system are provided within the GMP and SWB.

3.4 Site Water Balance overview

The objectives of a site water balance are to provide:

- a summary of key climatic and environmental parameters influencing water management.
- a summary of the water demands, the site generated water supplies and the off-site water supplies including security and certainty in these demands/supplies.
- a summary of key water management infrastructure including storage dams and site reticulation (pumping).
- a summary of potential site discharges (if any).
- a monitoring and response process to track/manage water use and potential shortages or excesses.

Key climatic and environmental parameters for the site include rainfall and evaporation data and runoff potential for different land uses. Water demands for the site include potable water needs, dust suppression and water required for any industrial processing such as coal washing. Site generated water supplies refer to water intercepted, stored and recycled within the site such as surface runoff from contaminated areas and surface water or groundwater entering the pit. Off-site water supplies refer to licensed surface water or groundwater supplies that are managed and potentially drawn upon by the site where a water deficit is predicted and where appropriate water allocations are available from the licencing authority.

Further details of site water balance are provided within the SWB.

3.5 BTM Complex Water Management Strategy overview

The objectives of the BTM Complex Water Management Strategy are to:

- minimise the cumulative water quality impacts of the mines by coordinating water quality monitoring programs and water sharing arrangements
- review opportunities for water sharing/water transfers between mines
- coordinate water quality monitoring programs as far as practical to address specific matters relating to:
 - drawdown in the alluvial aquifer
 - drawdown in the hard rock aquifer
 - ongoing quality and quantity of both surface and groundwater to assess impacts on native vegetation
- undertake joint investigations/studies in relation to any complaints/exceedances of trigger levels where cumulative impacts are considered likely
- coordinate modelling programs for validation, re-calibration and re-running of the groundwater and surface water models using approved mine operation plans.

3.6 Construction Environmental Management Plan overview

The Construction Environmental Management Plan (CEMP) has been prepared for the overall management of various Contractors on the expansion project. This CEMP will be the overarching EMP for all Contractor activities associated with the Project EA including:

- Construction of a Coal Handling and Preparation Plant and associated auxiliary equipment including conveyors and an ultra-fines project. This plant will re-process fines facilitating increased resource recovery and reduced water demand;
- Construction of a 17 kilometre rail spur and loop including a viaduct over the Namoi River, Therribri Road and Kamilaroi Highway;
- Upgrading and modifying existing infrastructure (such as workshops and bathhouse), construction of additional Run of Mine coal hoppers and the extension of coal stockpiles, etc.; and
- Construction of a 132kV power line and modifications to existing 11kV power lines from near the Boggabri Coal Terminal to the mine infrastructure areas.

The CEMP is supported by a suite of environmental planning and management instruments (e.g. other Contract specific CEMPs, issue specific Environmental Management Plans, Environmental Work Method Statements (EWMS), Environmental Work Procedures (EWPs), instructions and forms that will be implemented during the Project to minimise and manage environmental and community impacts and risks.

Section 5.2 of the CEMP outlines actions that will be followed as part of the CEMP for surface water and groundwater. Further details on surface water and groundwater management are provided in the respective SWMP and GMP.

4. Procedural and reporting requirements

4.1 Roles and responsibilities

The names and contact details of BCPL team members, including contractors, are outlined in Table 4-1.

Table 4-1 Site contacts

| Title | Company | Name | Contact No |
|---------------------------------|-------------------|---------------|---------------|
| General Manager Operations | BCPL | Ken McLaren | 0417 161 260 |
| Manager Mining | BCPL | Lloyd Hardy | 02 6743 4775 |
| Environment Superintendent | BCPL | Chase Dingle | 02 6743 4775 |
| Mining Contractor | Downer EDI Mining | Mike Williams | 0427 460 414 |
| Coal Haulage Contractor | LCR | Mick Schultz | 0417 188 007 |
| 24 Hour Community Response Line | BCPL | - | 1800 Boggabri |

A definition of the key responsibilities for the site contacts are provided in Table 4-2.

Table 4-2 Roles and responsibilities

| Role | Company | Responsibility |
|----------------------------|------------|---|
| General Manager | BCPL | <ul style="list-style-type: none"> ▪ Ensure compliance with all relevant statutory requirements in relation to water management and reporting ▪ Ensure that responsibilities outlined in the WMP are undertaken ▪ Provide necessary resources for implementation of water management measures outlined in the WMP |
| Manager Mining | BCPL | <ul style="list-style-type: none"> ▪ Ensure compliance with all relevant statutory requirements in relation to water management and reporting ▪ Provide necessary resources for implementation of water management measures outlined in the WMP ▪ Investigate opportunities to improve water management onsite ▪ Provide training / inductions to employees regarding water management system / infrastructure |
| Environment Superintendent | BCPL | <ul style="list-style-type: none"> ▪ Coordinate and implement all water management activities as identified in the WMP ▪ Coordinate monitoring, inspection and reporting as identified in the WMP ▪ Analyse monitoring data, in consultation with the regulatory agencies where appropriate ▪ Investigate opportunities to improve water management onsite ▪ Provide training / inductions to employees regarding water management system / infrastructure ▪ Establish and maintain contact with relevant regulatory agencies ▪ Annual review and updating of the WMP (or as required if significant changes are made to the site water management system or to mining operations) ▪ Prepare Annual Site Water Balance report ▪ Prepare Annual Environmental Management Report |
| Mining | Downer EDI | <ul style="list-style-type: none"> ▪ Ensure that water management system / infrastructure |

| Role | Company | Responsibility |
|---------------|-----------------------------|--|
| Contractor | Mining | <ul style="list-style-type: none"> is operated responsibly ▪ Maintenance of water management system / infrastructure |
| All employees | BCPL /Downner EDI Mining | <ul style="list-style-type: none"> ▪ Undertake activities, as required, in accordance with this management plan under instruction from their supervisor. ▪ Inform the BCPL Environment Manager of any water related issues as they arise. ▪ Report incidents ▪ Participate in training sessions / inductions as required ▪ Operate relevant parts of the water management system / infrastructure responsibly |

4.2 Periodic reporting

Various reports will be prepared at regular intervals for the management of water at BCPL. Periodic reporting will typically be provided annually. Specific reporting requirements are discussed below. Event reporting requirements in response to an incident or specific requests are detailed in Section 4.4.3.

4.2.1 Annual return

The EPL contains conditions that require BCPL supply the EPA with an annual return. The annual return must be in approved form and comprise the following:

- a Statement of Compliance
- a Monitoring and Complaints Summary
- the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by the licence holder, or by a person approved in writing by the EPA to sign on behalf of the licence holder.

The following delivery and timing conditions are set out in the EPL for the annual return:

- the report must be submitted at the end of each reporting period
- 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 transferred licence not later than 60 days after the date of transfer was granted)
- BCPL must retain a copy of the annual return supplied to the EPA for at least a period of four years after it was due to be supplied to the EPA.

The incident and complaint management procedure is discussed in Section 4.4.

4.2.2 Annual Environmental Management Report

BCPL prepares and submits an Annual Environmental Management Report (AEMR) in respect of the environmental performance of the development to relevant agencies.

The AEMR must be submitted by the end of March each year.

Results from the Environmental Monitoring Programme measuring BCPL's environmental performance and compliance are published in the Annual Review (formerly AEMR), and

distributed to Government Agencies, employees, the Boggabri CCC and other interested stakeholders (Hansen Bailey, 2011).

4.2.3 Annual Surface Water Quality Monitoring Appendix

As part of the AEMR a surface water monitoring appendix will be prepared. This is further discussed within the SWMP.

4.2.4 Annual Groundwater Monitoring Appendix

As part of the AEMR a groundwater monitoring appendix will be prepared. This is further discussed within the GMP.

4.2.5 Annual Site Water Balance Appendix

As part of the AEMR an annual site water balance appendix will be prepared. This is further discussed in the SWB.

4.2.6 Independent Audit

An independent audit will be carried out by the end of June 2014, and every 3 years thereafter unless otherwise specified by the Director-General. The audit will include consultation with relevant agencies, assess the environmental performance and compliance of the Project and its management strategies, and recommend improvement measures where appropriate. BCPL will submit a copy of the audit report, along with responses, to the Director-General within 3 months of commissioning the audit.

4.3 Incident and complaint management

BCPL employees and contractors will identify failures/incidents within their water management systems through their monitoring programs and inspections. The process for the management of incidents and complaints is outlined in the following subsections.

4.3.1 Incident management

All water related incidents will be managed in accordance with the BCPL incident management procedure. This procedure outlines a process for identifying, reporting and correcting all environment incidents at the Boggabri Coal Mine. BCPL's Environment Superintendent will maintain records of all environment incidents in the Boggabri Coal Mine incident register.

All environment incidents that have the potential to result in offsite environment impacts will be immediately notified to the Director-General, and in accordance with the EPL, and if required to the EPA, in accordance with the *Protection of the Environment Operations Act, 1997* Section 148 – Duty to Notify Pollution Incidents.

Notifications will be followed by a written incident report to the Director-General within seven days of the date on which the incident occurred, in accordance with Project Approval Schedule 5, Condition 8.

All incidents causing or threatening material harm to the environment will be immediately notified to all relevant agencies, and written notification provided to the EPA within 7 days of the incident, in accordance with the EPL.

4.3.2 Complaint response protocol

BCPL has developed a procedure which details how to receive, respond to, and record and action any community complaints. This includes recording:

- the nature of the complaint
- the method of the complaint, i.e. telephone
- monitoring results, including meteorological conditions at the time of the complaint
- site investigation outcomes
- site activity and activity changes
- any necessary actions assigned

BCPL maintains a 24 hour community response line (1800 Boggabri) to field any complaints or inquiries from neighbouring residents or interested stakeholders.

The community response line has been advertised in the local media on at least an annual basis and is also available from site personnel and representatives on the CCC.

Contractors and subcontractors will recommend that the complainant contact the community response line or the BCPL Environment Superintendent.

Where the complainant wishes to pursue their complaint, the Contractor and Subcontractor will record specific details relating to any community complaint in accordance with this procedure. This information will be passed to BCPL's Environment Superintendent within 24 hours.

Where possible, complainants will be contacted within 24 hours of BCPL's Environment Superintendent being advised. A follow up on the complaint will be made by BCPL's Environment Superintendent, where necessary to notify the complainant of any required or remedial actions undertaken.

Every effort will be made to ensure that concerns are addressed in a manner that facilitates a mutually acceptable outcome for both the complainant and BCPL consistent with the principles of minimal impact on community and other water users, and with the compensation conditions of approval. If required, the Independent Dispute Resolution Process will be entered into. All complaints received will be tabled at meetings of the Community Consultative Committee.

BCPL will maintain completed complaint forms on file for a period of no less than five years.

In the event that a complaint is potentially related to a cumulative impact, in line with the complaint management protocol outlined in the WMS, BCPL will:

- seek comments from other mines on the complaint/issue
- refer any draft response to the complaint to other mines for comment
- resolve any differences prior to finalising a response
- log the complaint and its resolution on a cumulative impact response register

4.4 Corrective and preventative actions

Both Contractors and BCPL employees will be involved in implementation of corrective and preventative actions as outlined in the following subsections.

4.4.1 Non-compliances and corrective actions

Non-compliances will be detected through verification processes such as monitoring, inspections and audits.

The process for managing non-compliance issues is summarised as follows:

- When a non-conformance issue is detected, corrective actions will be identified, communicated with relevant employees and contractors, and then implemented.
- Relevant contractors will be notified immediately of any non-compliant activities that present a risk of causing material environmental harm.
- Corrective actions will include a review of any relevant plans and procedures following identification of any non-conformance.
- Where the non-conformance issue is associated with an inspection, audit or monitoring event, the actions will be linked to the record of that event.
- Non-compliance reports will be reviewed on a regular basis to ensure actions are progressed appropriately.

Corrective actions relevant to surface water, groundwater and cumulative impacts are detailed in the SWMP, GMP and WMS respectively, specifically:

- Surface water: Section 7 of the SWMP
- Groundwater: Section 7 of the GMP
- Cumulative impacts: Section 6 of the WMS

4.4.2 Preventative actions

Preventive actions will be managed as follows:

- A preventive action may be identified without an environment incident or non-conformance occurring.
- Preventative actions will be identified and agreed with BCPL before being implemented.
- Preventative actions may include physical works or changes to plans or procedures, training or other requirements.

4.4.3 Event reporting

Triggers and corrective actions, including required notification of authorities and responsibilities, are provided in both the SWMP (Section 7) and GMP (Section 7) for events where material environmental harm and/or breach EPL 12407 licence conditions is caused or threatened. Corrective actions and reporting requirements have been based on the following:

- EPL 12407
- Part 5.7 Section 148 of the POEO Act

- Part 5.3 Section 120 of the POEO Act
- Schedule 5 condition 8 of Project Approval granted 18 July 2012 under Section 75J of the EP&A Act 1979.

Emergency and contingency planning form part of both the SWMP and GMP.

5. Revision and development

The WMP is a living document and will be updated, evolve and develop throughout the mine life. Triggers for these revisions could include:

- SWMP, GMP and SWB review as part of Annual Review
- changes to legislation, regulation and guidance
- changes/amendments to project planning approval
- changes/amendment to environment licences
- changes to mine operations, mine stage planning and water supply strategies, including if the irrigation system is commissioned onsite to dispose of surplus water
- feedback loop as part of plan implementation, internal review, testing, training and 'lessons learnt'
- agency consultancy
- if there are outcomes from an independent audit required under the approval conditions
- if there are actions or changes required as a result of an incident report

5.1 Annual review

This WMP, its operation and implementation, will be reviewed at least every twelve months by the BCPL Environment Superintendent, to ensure that the system is conforming to the BCPL MOP, environment policies, objectives and legal and other requirements.

At any time if preventative actions indicate that amendments to the WMP are required, this will also trigger the WMP review process including the related sub-documents (SWMP, GMP, and SWB).

5.2 Planning related changes

Non-site specific changes to legislation, regulation, guidance and related site specific changes to planning approvals and licences are likely to occur over the life of the mine. Any revisions relevant to the WMP and sub-plans will generally be documented as part of the annual review; however specific revisions may be required subject to the Environmental Superintendent's direction.

5.3 Changes to mine operations

Changes to mine planning and operation are likely to occur over the life of the mine and could result from changes such as budgetary constraints, increased/reduced production demands, water availability etc. Any revisions relevant to the WMP will generally be documented as part of the annual review; however specific revisions may be required subject to the Environmental Superintendent's direction. In addition, if there are significant changes to mine operations then this may trigger requirements for revised plans to be approved by DP&I in consultation with agencies and CCC.

5.4 Feedback loop

The WMP is intended to provide structure and guidance to the water management process, many elements relating to licencing compliance can be considered prescriptive in nature however opportunities exist as part of the plans implementation/revision for feedback to be incorporated. This feedback could include:

- mine staff, contractors and environment staff feedback, lessons learnt and previous experience
- testing of monitoring, water quality adjustment (i.e. flocculation, pH adjustment etc.), soils management and data
- community, stakeholders, authorities and other parties.

5.5 Agency and community consultation

Any revisions and updates to the WMP will be prepared in consultation with representatives from OEH, NOW and NCMA.

The Community Consultative Committee will be invited to provide feedback on the WMP on behalf of any interested community stakeholders.

5.6 Submission of incident report

The WMP including the related sub-documents (SWMP, GMP and SWB) will be revised where investigation and reporting following an environmental incident recommends additional or amended actions be taken relating to water management.

5.7 Independent environmental auditing

Independent environmental auditing is required to be carried out by the end of June 2014 and every 3 years thereafter, as specified in Schedule 5 condition 8 of Project Approval granted 18 July 2012 under Section 75J of the EP&A Act 1979.

Any measures or actions recommended during independent auditing relating to water management will be reflected in a revision of the WMP, including the related sub-documents (SWMP, GMP and SWB).

6. References

Aurecon (2013) Boggabri Maules Creek Rail – P5060 Drainage Hydrology and Hydraulic Assessment – Common and Boggabri, prepared for Leighton Contractors, May 2013

Hansen Bailey (2011) Environmental Assessment – Modification to Development Consent for Boggabri Coal Mine, dated August 2011.

Appendix A

Record of consultation



Idemitsu
GPO Box 1127
Brisbane QLD 4001

Attention: Jan Green

Contact Christie Jackson
Phone 02 6701 9652
Fax 02 6701 9682
Email christie.jackson@water.nsw.gov.au
Our ref ER20785

Dear Ms Green

Boggabri Coal Mine Water Management Plans

I refer to your letter email dated the 27 November 2013 seeking the NSW Office of Water's (Office of Water) comments on the Water Management Plans (WMP) and Site Water Balance (SWB) for Boggabri Coal Mine. The Office of Water has reviewed the WMP and our comments are as follows.

Groundwater Management

The parent Water Management Strategy report for the greater BTM Complex was not included in the original material submitted to the Office of Water. A copy was subsequently provided upon request, however it is incomplete and not current (March 2013) and it is understood that internal reviews are still underway. It would be preferable to review a final version to allow a complete assessment of the entire body of work.

It is understood that Boggabri Coal is currently investigating additional bore sites for WAL 15037, as the Daisymede Bore (GW969665) is not providing sufficient water. This discussion has been omitted from the documentation.

Water Licensing

Table 2.1 of the GWMP and Table 4.3 of the SWB omit WAL12767 (3ML) which according to Office of Water records is also held by Boggabri Coal Pty Ltd.

The GWMP does not contain a map showing the locations of the extraction bores and their proximity to the mine site or description of how the groundwater is conveyed to the mine site, although conveyance is discussed in the Site Water Balance report.

Groundwater Monitoring Bores

The information given for the monitoring bores listed in table 4.1 should be expanded to include the licence numbers, GW numbers, type of monitoring bore (i.e. open standpipe or a grouted bore with vibrating wire piezometers), and the screen intervals or level of each vibrating wire piezometer of each monitoring bore, as per the example given in the attached Table.

As well as the monitoring results being made publically available in these reports and at the Boggabri Coal Mine website, it is **recommended** that an electronic copy in excel format of all monitoring data be made available to the NSW Office of Water (via referrals@water.nsw.gov.au).

Overall, the number, location, depth of bores and the design of the monitoring regime is considered adequate for the project.

Pit Seepage

If the pit is to be used as a sump for extra wash off water or other water, detailed records have to be kept of any water that is pumped back into the pit so that double accounting of groundwater inflows does not occur. This is not discussed in the report.

Site Water Balance

The report should provide a succinct, easy to follow collation (table) of water volumes actually required for the whole project. It should link usage requirements, existing licensed water availability, and sources of onsite mine water availability such as groundwater seepages to the mine void, such that it clearly demonstrates the adequacy of licences held.

The NSW Aquifer Interference Policy states on p7 Section 2.1 *"It is the proponent's responsibility to ensure that the necessary licences are held with sufficient share component and water allocations to account for all take from a groundwater or surface water source as a result of an aquifer interference activity, both for a the life of the activity and after the activity has ceased."*

Groundwater policies

The NSW Groundwater Quantity Management Policy (draft) (DLWC, 2001) is not an endorsed policy of the NSW Government, and the GWMP should instead refer to the more recent NSW Aquifer Interference Policy and the relevant water sharing plans.

Recommendations

1. The parent BTM Complex Water Management Strategy be submitted to the Office of Water for review once final.
2. A map is added showing the location of the production bores and their proximity to the mine.
3. All information relating to monitoring bores be presented as per the example shown in attached Table.
4. A single concise table of the total site water balance, reflecting the volume of groundwater take, be included in the report.
5. An electronic copy in excel format of all monitoring data be made available to the NSW Office of Water (via referrals@water.nsw.gov.au).
6. Surface water monitoring is accordance with monitoring outlined on the Environmental Protection Licence administered by the Office of Environment and Heritage.

If you require clarification on any of the above please contact Christie Jackson on (02) 6701 9652 at the Tamworth office.

Yours sincerely,



Mitchell Isaacs

Manager Strategic Stakeholder Liaison
20 December 2013

Encl.

Table: Details of Monitoring Bores

| Licence | GW Number | Mine Bore ID | Easting | Northing | Screen Interval / VWP level (mBGL) | Screened Geology | Monitoring Frequency | Monitoring Parameters | Comment |
|------------|-----------|--------------|---------|----------|---|--------------------|--------------------------|--|------------------------|
| 90BL253843 | GW967862 | IBC2102 | 226891 | 6611780 | Note report= 85m. This is the TD not the screen interval | Merriown Coal Seam | Quarterly Half yearly | Water levels, field parameters Major ions, dissolved metals nutrients | Standpipe, Up gradient |
| Etc | Etc | Etc | Etc | Etc | Etc | Etc | Etc | Etc | Etc |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |



Local Land Services North West

Our ref: NAM00614

6 Feb 2014

Dr Jan Green
Manager Corporate Sustainability and Environment
Idemitsu Australia
GPO Box 1127
Brisbane 4001

Dear Dr Green,

Re: Boggabri Coal Project Water Management Plans

Thank you for the opportunity to review and comment on Boggabri Coal's water management plans. Please note the Namoi CMA ceased to exist as of the 1 January 2014. The Namoi CMA's functions continue with the North West Local Land Services. I have the environmental review role in this organisation and all requests to review documents should be forwarded to me.

The North West Local Land Services has reviewed the water management plans and has no comment.

If you have any questions please do not hesitate to contact me on (02) 6764 5950 or email dennis.boschma@lls.nsw.gov.au.

Yours sincerely

Dennis Boschma
Team Leader, Land Services (Native Vegetation)
North West Local Land Services

From: Collins, Lynda [<mailto:Lynda.Collins@environment.gov.au>]
Sent: Thursday, 30 January 2014 10:36 AM
To: Jan Green
Cc: Keast, Justin; Taylor, Alex
Subject: review of draft water plans - Boggabri EPBC 2009-5256 [SEC=UNCLASSIFIED]

Hi Jan, we have reviewed the draft water plans you submitted for consideration. See attached table for comments – overall plans are good but there are some minor points raised in the attached table that require addressing in the final documents in order to meet the conditions of your approval – if you think this information is included in a plan could you please advise Justin ASAP. Thank you

Lynda Collins

Assistant Director
Queensland 3 and Sea Dumping
Queensland and Sea Dumping Assessments Branch
Environment Assessment and Compliance Division
Department of the Environment
GPO Box 787 Canberra ACT 2601
☎. (02) 6274 1870
✉. lynda.collins@environment.gov.au
www.environment.gov.au



From: Keast, Justin [<mailto:Justin.Keast@environment.gov.au>]
Sent: Wednesday, 5 February 2014 4:20 PM
To: Jan Green
Cc: Collins, Lynda; McLachlan, Karina
Subject: RE: Boggabri EPBC 2009/5256 handover of project to Approvals Monitoring [SEC=UNCLASSIFIED]

Hi Jan

As per our discussion regarding condition 19. The department notes that the *Boggabri Coal Pty Ltd Groundwater Management Plan* (November 2013) provides on page 10 that “An irrigation management area is not currently planned for the Boggabri Coal Mine”. Based on this information, it would appear reasonable that you would not conduct a risk based assessment for the disposal of mine water by irrigation on soils. However, please note in the plan that in the event that irrigation management is to be conducted then you will vary the plan to include risk based analysis as per condition 19 of the EPBC Approval.

Regards

Justin Keast | Assessment Officer | Queensland 3 and Sea Dumping
Environment Assessment and Compliance Division | Department of the Environment
(02) 6275 9953 | justin.keast@environment.gov.au



Documents reviewed in regard to Boggabri Coal Pty Limited approval conditions for Boggabri Coal Mine Extension (EPBC 2009/5256)

Plans submitted by proponent December 2013:

Surface Water Management Plan (SWMP)

Groundwater Management Plan (GMP)

Water Management Plan (WMP)

BTM Complex Water Management Strategy (WMS)

| Condition | Review |
|--|--|
| <p>15 The person taking the action must provide to the Minister for approval, the <i>surface and groundwater management plans</i> as identified in condition 38 of the NSW state government Project Approval dated 18 July 2012 (application number 09_0182). The <i>surface and groundwater management plans</i> approved by the Minister must be implemented prior to the commencement of new mining operations.</p> | <p>Documents were provided 2 December 2013.</p> |
| <p>16 The <i>surface and groundwater management plans</i> must be consistent with the National Water Quality Management Strategy.</p> | <p><i>See comment on 17e below</i></p> |
| <p>17 The person taking the action must within 6 months of this approval, in collaboration with the person taking the action to develop and operate the Maules Creek Coal Project (EPBC 2010/5566) and any other approved mines within 20 km of the mine site provide written advice to the Minister demonstrating how the approved <i>surface and groundwater management plans</i> (specified in condition 15), addresses the cumulative impact of groundwater drawdown as a result of mining and how this may impact on the consequent health of the remnant native vegetation in the Leard State Forest, the Leard State Conservation Area and surrounding areas. In particular the advice must address the following matters:</p> | |
| <p>a. maximum amount of allowable drawdown in the alluvial aquifer</p> | <p>Although discussed in section 5 of the GMP the limits for drawdown are not provided.</p> |
| <p>b. drawdown in hard rock aquifer</p> | <p>Although discussed in section 4 of the GMP the limits for drawdown are not provided.</p> |

| Condition | Review |
|--|--|
| <p>c. trigger levels pertaining to drawdown in the alluvial aquifer when corrective actions will be required to be undertaken</p> | <p>Appropriate trigger levels are provided. These are based on recognised standards, except where monitoring data fall outside these; in these cases, thresholds of the 80th percentile of monitoring records have been used (in accordance with the ANZECC guidelines).</p> |
| <p>d. identify the depth of root zone of the native vegetation</p> | <p>The SWMP provides a brief discussion of likely areas and types of groundwater-dependent ecosystems and provide literature values for root depth of sclerophyllous shrubland and forest, and for temperate grassland. Detailed information on groundwater-dependence and measurement of root depth has not been provided; however, the GMP does propose a methodology for this to be studied. It states that the root depth study will be undertaken as part of a wider groundwater-dependent ecosystem study, “as soon as practicable within Year 1 of mining.”</p> |
| <p>e. monitoring to assess the ongoing quality and quantity of both surface and groundwater to identify impacts on the native vegetation.</p> | <p>Quarterly to half-yearly monitoring of groundwater quality and standing water levels have been undertaken since 2006. Two bores will have data loggers installed, to allow for quasi-continuous monitoring of water levels. Surface water monitoring will be undertaken following commencement of discharge; reference site/baseline monitoring in Nagero Creek will be undertaken as soon as possible after the start of a flow event. Monitoring in Nagero Creek will be for a minimum of six months and a maximum of two years. The ANZECC Guidelines (section 7.4.4 (1)) require “a minimum of two years of contiguous monthly data” before it is considered that sufficient data are available to set trigger levels. The Guidelines further state that monitoring should be ongoing, with trigger levels based on the most recent two years of data. Given the ephemeral nature of Nagero Creek, monitoring after rainfall events, as proposed, is a sensible alternative to monthly monitoring; however, this monitoring should be conducted on an ongoing basis.</p> |
| <p>18. The person taking the action must within 6 months of the date of this approval, or such other timeframe specified by the Minister, provide to the Minister a report on:</p> | |
| <p>a. any updated modelling of surface and groundwater impacts that has been undertaken in preparing the <i>surface and groundwater management plans</i></p> | <p>Please provide an explanation to identify if modelling has been updated during the drafting process.</p> |

| Condition | Review |
|--|--|
| <p>b. how the <i>surface and groundwater management plans</i> addressed groundwater and surface water impacts on native vegetation</p> | <p>The SWMP addresses management of impacts to riparian vegetation. The GMP outlines plans for investigation of groundwater-dependent ecosystems. "If potentially impacted GDEs are identified, the groundwater monitoring plan will be revised accordingly, to record changes in the local groundwater system". Management responses have not been outlined.</p> |
| <p>19 A risk-based assessment of the disposal of mine water by irrigation on soils must be undertaken. The assessment must include the risk of metal and salinity accumulation in soils.</p> | <p>The proponent states (GMP p10) that, "An irrigation management area is not currently planned for the Boggabri Coal Mine." Please provide advice on the risk based assessment</p> |

AGENDA

| | | | |
|---------------------|----------------------------------|-------------|----------------|
| Meeting: | Community Consultative Committee | | |
| Date: | 30/04/2013 | Start time | 2.30pm |
| | | Finish time | Approx. 6:00pm |
| Venue: | Boggabri Coal Board Room | | |
| Chairperson: | TBA | | |
| Recurrence: | Quarterly | | |
| Meeting status: | | | |
| Required attendees: | CCC Committee Members | | |
| Next Meeting | | | |

MEETING AGENDA

| | |
|----|---|
| 1 | Apologies, previous minutes and business arising |
| 2 | BCCC nominations and chair – Chase Dingle |
| 3 | Boggabri Coal Environmental Management Plans – Jan Green & Belinda Bird |
| 4 | Boggabri Coal Expansion Project Overview – Wayne Jones & Tony Simpson |
| 5 | Presentation update on monitoring results – Joe Rennick |
| 6 | Community complaints – Chase Dingle |
| 7 | Dust management during the winter months |
| 8 | 2013 tree clearing program – Joe Rennick |
| 9 | MOP update – Chase Dingle & Joe Rennick |
| 10 | General business/questions |