



# INDEPENDENT ENVIRONMENTAL AUDIT REPORT



July 2012

Bulga Underground Operations



**REPORT TITLE:** Independent Environmental Audit Report

**CLIENT:** Bulga Underground Operations

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## 1 INTRODUCTION

Landloch Pty Ltd (Landloch) was engaged by Bulga Underground Operations Pty Ltd (BUO) to conduct an independent environmental compliance audit of BUO operations in Singleton NSW.

The audit was undertaken to determine compliance with operations conducted under Development Approval (DA) 376–8–2003 and subsequent modifications issued by the NSW Department of Planning and Infrastructure (DoP&I).

The audit included an assessment of BUO's implementation of the following approvals/documents:

- Conditions of Approval (CoA) issued with the DA
- Environment Protection License (EPL 563) issued by the Environmental Protection Authority – (EPA)
- Mining Lease (No. 1547) issued by the NSW Department of Resources and Energy (DRE)
- Environmental Impact Statement and Statements of Environmental Effects prepared in association with the Development.

A description of the independent environmental audit scope, methodology, audit findings and subsequent recommendations is presented below.

### 1.1 Audit Scope

The independent environmental audit was conducted to meet Schedule 6 Condition 6 of DA 376–8–2003 and was conducted over a period from 20 to 21 June 2012.

Project Approval was issued on 23 February 2004 and applies to 'Bulga Coal, Continued Underground Operations'. Environmental Impact Statement (EIS) titled Bulga Coal, Continued Underground Operations Volumes 1 to 5, dated July 2003 was prepared for this approval.

The following modifications have been made to this consent subsequent to the original approval:

- MOD 4-1-2006 and the letter from Umwelt (Australia) Pty Limited to the Department of Planning titled Section 96(1A) Modification of Bulga Coal Underground Operations (DA 376-82003) – Relocation of Men and Materials Drifts, dated 23 December 2005
- MOD 113-9-2006 Statement of Environmental Effects titled Coal Handling and Processing Plant – Increased Throughput, dated September 2006
- MOD 19-3-2007 and accompanying Statement of Environmental Effects entitled Statement of Environmental Effects for the Bulga Underground – Southern Mining modification – Section 96(2) Application to Modify Consent 376-8-2003, dated July 2007 and the Response to Submissions dated March 2007
- Mod 4 376-8-2003 and accompanying Power Generation and VAM Abatement Environmental Assessment dated December 2009 and the Response to Submissions Letter dated 22 April 2010

The independent environmental audit assessed compliance against a consolidated set of consent conditions that included the original approval and subsequent modifications.

The scope of the independent environmental audit included all activities and infrastructure associated with BUO operations in ML1547.

The independent environmental audit excluded activities and infrastructure associated with Bulga Coal Management's 'Bulga Coal Open Cut Mine' operations in ML1547.

## 1.2 Audit Objectives

As noted above, this independent environmental audit was conducted to comply with the requirement with CoA Schedule 6 Condition 6 contained in the Project Approval.

Therefore the independent environmental audit:

- was conducted by a suitably qualified, experienced, and independent team of experts whose appointment had been endorsed by the Director General of the DoP&I
- included consultation with the relevant agencies

- assessed the environmental performance of the development and whether it is complying with the relevant requirements in this approval and any relevant mining lease or EPL (including any strategy, plan or program required under these approvals)
- reviewed the adequacy of the strategies, plans or programs required under these approvals; and, where appropriate
- recommended measures or actions to improve the environmental performance of the development, and/or any strategy/plan/program required under these approvals

The audit team for this independent environmental audit included experts in the field of both subsidence and groundwater management. These independent subsidence and groundwater experts have been engaged directly by BUO.

### 1.3 Audit Process

The independent environmental audit was conducted using an audit checklist developed specifically for the BUO operations in compliance with the consolidated project approval, Environment Protection License (EPL) 563, Mining Lease No. 1547 and the Environmental Impact Statement.

The completed audit checklist is appended to this report as **Appendix A**.

The independent environmental audit was conducted by Wayne Jones (Lead Auditor).

Galvin and Associates Pty Ltd were engaged by BUO to undertake an independent environmental audit of subsidence issues associated with BUO operations. The copy of this independent environmental audit report is appended to this report as **Appendix B**.

Dundon Consulting Pty Ltd was engaged by BUO to undertake an independent environmental audit of groundwater issues associated with BUO operations. The copy of this independent environmental audit report is appended to this report as **Appendix C**.

Ned Stephenson and Trescinda French of BUO were in attendance throughout the audit process.



## 2 AUDIT PROCESS

The independent environmental audit was conducted using an audit checklist developed specifically for the BUO operations in compliance with the consolidated project approval, Environment Protection License (EPL) 563, Mining Lease No. 1547 and the Environmental Impact Statement.

The completed checklist is appended to this report as **Appendix A**.

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Dundon Consulting Pty Ltd was engaged by BUO to undertake an independent environmental audit of groundwater issues associated with BUO operations. The copy of this independent environmental audit report is appended to this report as **Appendix C**.

Ned Stephenson and Trescinda French of BUO were in attendance throughout the audit process.

The independent environmental audit process at BUO included:

- offsite planning for the site audit
- collection of relevant background documentation
- preparation of audit checklist
- an opening meeting
- a site inspection
- collecting audit evidence through information gathering, observations and interviews
- review of previous audit recommendations
- review of EA Statement of Commitments
- a close out meeting
- evaluating audit documentation
- compiling this audit report

## 2.1 Opening Meeting

The opening meeting was held at the Blakefield South site office at 0800 hours on 20 June 2012.

The opening meeting was attended by Wayne Jones (Lead Auditor) and BUO personnel Ned Stephenson (BUO E&C Superintendent), Trescinda French (BUO E&C Officer), Ralph Northey (BUO E&C Manager) and Mark Munro (BUO Operations Manager).

An explanation of the independent environmental audit process was delivered and it was emphasised that the audit used a compliance sampling methodology whereby adherence to a checklist of approval conditions were audited. One implication of using this approach to auditing is that neither all compliances, nor all noncompliances, will be identified during the process. The audit methodology does, however, provide a statistically valid level of confidence for BUO's operations.

It was also stated that the audit report would be based on objective evidence.

## 2.2 Site Inspection

A site inspection of BUO facilities was undertaken by Wayne Jones, Ned Stephenson and Trescinda French on 20 June 2012 and included observation of:

- gas drainage and flaring infrastructure
- directional drilling station
- mine air ventilation fans
- power station
- various water management structures
- typical monitoring points
- surface facilities, including workshops and fuel and lube oil storage
- areas of recent subsidence
- areas of subsidence rehabilitation
- site access road intersections

## 2.3 Document Review

Ned Stephenson and Trescinda French provided assistance with collection and provision of appropriate audit documentation for each approval condition.

Supporting audit documentation was provided in electronic and hard copy format.

## 2.4 Review of Previous Audit Recommendations

A review of completion status of recommendations from the 2009 independent environmental audit was undertaken.

## 2.5 Review of EA Statement of Commitments

To provide a snapshot of compliance with statement of commitments, an assessment of compliance with the statement of commitments documented in the Power Generation and VAM Abatement EA was undertaken.

## 2.6 Closing Meeting

The closing meeting was conducted at 1700 hours on 21 June 2012 and included a presentation of preliminary audit findings to BUO personnel Ned Stephenson, Trescinda French, Ralph Northey and Mark Munro.

## 2.7 Audit Report

The completed audit checklist, attached as **Appendix A**, was compiled using:

- notes taken from discussions with BUO personnel
- review of appropriate Xstrata documentation
- observations and notes recorded during the site inspection

A summary of audit noncompliances and recommendations are included in **Section 3** of this report.

BUO is required to submit a copy of this independent environmental audit report to the Director General DoP&I, together with its response to any recommendations contained in the independent environmental audit report within six weeks of the audit being undertaken. And extension was sought and approved to extend the submission period.

Within three months of submitting the independent environmental audit report to the Director General DoP&I, BUO is required to review, and if necessary, revise the strategies/plans/programs required under their approval to the satisfaction of the Director General.

## 2.8 Agency Consultation

Six agency representatives were consulted in relation to the compliance audit:

- Greg Summerhayes (DRE)
- Steve Clair (EPA)
- Ben Harrison (DoP&I)
- Richard Pickles (MSB)
- Richard Bath (OEH)
- Fergus Hancock (NOW)

### 3 AUDIT FINDINGS

The findings of this independent environmental audit confirm that BUO's Environmental Management Strategy and Environmental Management Plans have generally been prepared to reflect the requirements of DoP&I's CoA, EPA's EPL, and DRE's Mining Lease Conditions, in addition to the commitments outline in the Environmental Impact Assessment and subsequent Environmental Assessments.

A specific example of BUO's proactive approach to innovative environmental management was the use of directional boring from a centralised onsite location. Containing the drive component of the boring activity onsite (which would typically be undertaken from a number of offsite properties) minimised the impact of many environmental issues such as noise and vibration, visual impact, community perception, water and air quality management.

#### 3.1 Site Inspection and Document Review

The site inspection and document review illustrated that BUO has generally shown a high level of compliance when implementing the environmental management requirements issued under the CoA including:

- proactive and effective community/agency consultation
- effective management of Bulga Coal Complex environmental issues through implementation of a unified environmental management strategy and associated set of environmental management plans
- implementation of an internal compliance database

There were, however, noncompliances identified which related to:

- construction certificates
- late submission of reports
- director generals approval of specialist consultants
- dangerous goods management
- water discharge

Noncompliances for the above aspects are provided in **Table 4.1** of this report.

Additional recommendations are further discussed in **Table 4.2** of this report.

### 3.2 Review of Previous Audit Recommendations

A review of completion status of recommendations from the 2009 independent environmental audit was undertaken. The results of this review are provided in **Table 3.1** below.

**Table 3.1 Review of 2009 Audit Recommendations**

Non Conformance (NC)	2009 Audit Recommendation (R)	2012 Audit Status
<b>NC1</b>	<p><b>R1:</b> It is recommended that BHM obtain construction and occupation certificates for all existing and proposed building works</p> <p><b>R2:</b> It is recommended that BHM obtain approval under Section 15 of the NSW Mine Subsidence Compensation Act 1961 for all existing and proposed building works</p>	<p>While construction and occupation certificates had been obtained for existing building works observed in the 2009 Audit, the newly constructed Blakefield South Shower and Training and Conference Room and Awnings have Construction Certificates but not Occupation Certificates</p> <p>Application was made to the MSB for existing buildings, however the application was rejected by the MSB because damage caused by the colliery to its own infrastructure is not covered by the Mine Subsidence Compensation Act 1961</p>
<b>NC2</b>	*No action recommended	–
<b>NC3</b>	<b>R3:</b> It is recommended that BHM submit Ventilation Stack #2 monitoring results to DECCW within three months of testing	Ventilation Stack #2 was commissioned and tested on 9 September 2010. AECOM stack monitoring report and PAE Holmes summary letter were submitted to DoP&I on 14 December 2010.
<b>NC4</b>	<b>R4:</b> It is recommended that a formal review of compliance with AS1940 be undertaken, including regular integrity	A formal review of compliance with AS1940 was undertaken on 1 August 2010 by Moore Consulting and Engineering Pty Ltd

Non Conformance (NC)	2009 Audit Recommendation (R)	2012 Audit Status
	testing of underground pipework	
<b>NC5</b>	<b>R5:</b> It is recommended that the 2012 audit be planned and a DoP approved independent auditor engaged by January 2012	While BUO made contact with the independent auditor before January 2012, it was June 2012 before the auditor was formally engaged
<b>NC6</b>	<b>R6:</b> It is recommended that the authors of the CCC meeting minutes be made responsible for forwarding a copy to the DG within a month of acceptance by the CCC	DoP&I has been included in the distribution list for CCC minutes since 2010
<b>NC7</b>	<b>R7:</b> It is recommended that BHM make a summary of monitoring results required under this approval publicly available on their website and update these monitoring results every three months at minimum	Quarterly monitoring reports were available for review on the Bulga Coal Complex webpage <a href="http://www.bulgacoal.com.au/EN/Pages/default.aspx">http://www.bulgacoal.com.au/EN/Pages/default.aspx</a>

### 3.3 Review of EA Statement of Commitments

An assessment of compliance with the statement of commitments documented in Modification 4 documentation, the Power Generation and VAM Abatement EA, was undertaken. The results of this review are provided in **Table 3.2** below.

Table 3.2 Review of EA Statement of Commitments

Environmental Issue	Safeguards	Status
<b>Noise</b>	Construction will be limited to daytime hours of 7am to 6pm, Monday to Friday and 8am to 1pm on Saturdays if audible	Construction of offsite vertical bore was limited to daytime hours of 7am to 6pm, Monday to Friday and 8am to 1pm on Saturdays.  Construction of horizontal bores not audible at sensitive receptors.
	Equipment will be maintained and operated to minimise noise emissions	Equipment observed during the site inspection appeared well maintained and were being operated effectively
	The current Bulga Coal Complex Noise Management Plan will be updated for the RFTR and power generation units	The Bulga Coal Complex Noise Management Plan will be updated for the RFTR and power generation units upon commissioning
	Existing monitoring programs will continue to monitor noise levels arising from mining activities including the VAM abatement and power plant	Existing monitoring programs will continue to monitor noise levels arising from mining activities including the VAM abatement and power plant upon commissioning
	Continuous noise monitors will be installed in the community as part of the Bulga Coal Complex noise management initiatives. If excessive noise associated with the Project is identified, mitigative measures will be developed to minimise impacts to the residents	Continuous noise monitors have been installed
<b>Visual Impacts</b>	The existing tree screen along Broke Road will be maintained to minimise views of the RFTR and the power generators on site	The existing tree screen along Broke Road has been maintained



Environmental Issue	Safeguards	Status
	Construction materials will be designed as far as possible to blend in with the surrounding environment	Construction materials observed during the site inspection blended in with the surrounding environment
<b>Ecology</b>	<p>All works will be contained within existing disturbed areas during trench excavation and pipeline placement, ground disturbance will be minimised to avoid sedimentation of waterways, erosion and root damage to natural vegetation either side of the pipeline route</p> <p>Trenches will be backfilled as soon as feasible after digging to avoid animals falling in trenches</p> <p>Original topsoil will be replaced on top of the backfill so that natural regeneration of the native ground layer is assisted</p> <p>Regular weed control will be undertaken as required to ensure that the regenerated area does not become dominated by weeds, thereby suppressing the natural regeneration of native species</p> <p>Standard erosion control measures will be in place prior to and during excavation to ensure soil is not lost from the site</p> <p>If minimal clearing of trees or other native vegetation is required, a further assessment of potential ecological impacts will be completed</p>	<p>Belowground pipeline associated with supplying gas to the power station observed during site inspection was well vegetated</p> <p>Various erosion and sediment control measures were observed at various locations during the site inspection</p>

Environmental Issue	Safeguards	Status
	to ensure that impacts are minimal	
<b>Archaeology</b>	<p>All works will be contained within existing disturbed areas</p> <p>BCM will ensure that employees, contractors working on site are made aware of the location of the previously recorded sites in the general area to ensure that these are not inadvertently impacted</p> <p>Should skeletal material identified as human/possibly human be located during any construction works, all work shall cease in the area and the relevant Aboriginal stakeholders, DECC and the NSW Police Department notified immediately. No further works shall be undertaken in the vicinity of the skeletal material until management outcomes have been decided in consultation with the relevant Aboriginal stakeholders, DECC and the NSW Police Department</p> <p>Should previously unknown artefacts be uncovered during construction works, all works shall cease in the area and the relevant Aboriginal stakeholders and DECC notified immediately. No further works shall be undertaken in the vicinity of the skeletal material until management outcomes have been decided in consultation with the relevant</p>	<p>Power station construction is contained on a previously disturbed site</p> <p>Multiwork permits are utilised for all digging, excavation and clearing activities on site</p> <p>The Multiwork permit observed as an example during the site inspection included a figure which illustrated all of the constraints from the site GIS system. Should any previously recorded archaeology sites be in the general area of the works they would be identified on this figure</p>

Environmental Issue	Safeguards	Status
	Aboriginal stakeholders and the DECC	
<b>Traffic and Access</b>	Existing access points from Broke Road will be used for all access to the site	The existing Broke Road access point was utilised by South Blakefield
<b>Air Quality</b>	<p>All plant and machinery will be operated and maintained in accordance with the manufacturers specifications</p> <p>Vehicle movements across exposed soils will be minimised</p> <p>If excessive dust plumes are being generated by earthworks in windy conditions, work ceases, other than water spray vehicles</p> <p>Vehicles and construction plant will be switched off instead of being left idling to reduce exhaust emissions</p>	<p>All plant and machinery observed during the site inspection appeared to be well maintained</p> <p>Vehicles appear to utilise existing access roads</p> <p>Access to power station site has dust suppressant applied to the road surface</p> <p>Water trucks observed being utilised during site inspection</p> <p>Areas of exposed soil were observed ripped and seeded during the site inspection</p> <p>Exposed areas are promptly vegetated</p>
<b>Soil and Water Management</b>	<p>Erosion and sediment controls will be incorporated into the final site layout design plans and installed prior to construction commencing</p> <p>All activities associated with the project will be contained to previously disturbed areas</p> <p>Ongoing monitoring and maintenance of the access road and maintenance of the erosion and sediment controls will be undertaken</p> <p>Disturbed areas will be rehabilitated</p>	<p>Various erosion and sediment controls were observed during the site inspection. These included controls around gas wells and the recent construction of the flare and power station facility</p> <p>The access road to the facility appeared in good condition during the site inspection</p> <p>Areas of exposed soil were observed ripped and seeded during the site inspection</p> <p>Aerial seeding of existing overburden emplacements was observed during the site inspection</p>

Environmental Issue	Safeguards	Status
	promptly	

### 3.4 Independent Environmental Audit of Subsidence Issues

The Galvin and Associates independent audit report of subsidence performance at BUO concluded that:

1. Based on the information provided for review, systems consistent with project development approval conditions and processes for monitoring and managing surface subsidence effects, impacts and consequences continued to be implemented at Beltana No. 1 Mine during the audit period, and were established for Blakefield South Mine which commenced operation in this period.
2. Annual internal and external reviews indicate that surface subsidence monitoring systems are responsive and effective.
3. The scope of surface subsidence monitoring and the accuracy of surface subsidence predictions are considered adequate for providing a basis on which to assess environmental performance in respect of subsidence impacts and consequences.
4. In the case of Beltana No. 1 Mine:
  - i. Measured surface subsidence effects in respect of vertical displacement and tilt were generally consistent with those predicted in the EIS.
  - ii. Measured strains showed greater variability from predicted values. However, this is a characteristic of strain and is associated with all surface subsidence prediction methodologies. The variation was pre-empted in the EIS and is within the norm for such predictions.
  - iii. No outstanding matters from previous audits have been identified.
5. In the case of Blakefield South Mine:
  - i. There is limited subsidence data to review because longwall mining had to be curtailed during extraction of the first longwall panel due to a mine fire.
  - ii. The subsidence data collected to date is not fully representative of the situation that will exist after extraction of subsequent longwall panels.

- iii. Subsidence prediction is complex because longwall panels are being extracted at an oblique orientation to narrower, extracted longwall panels in an upper seam.
- iv. The limited subsidence monitoring to date generally shows good agreement with predicted maximum values of vertical displacement but, at the flanks of the longwall panel, distribution profiles of this movement vary from that predicted.

### 3.5 Independent Environmental Audit of Groundwater Issues

The Dundon Consulting independent audit report of groundwater issues at BUO concluded that:

1. The groundwater review reports prepared at the end of each longwall panel continue to provide a sound basis for periodic reporting of impacts
2. Dundon generally concurs with the conclusions reached in the most recent end-of-panel reports (Aquaterra, 2011; RPS Aquaterra, 2011) however, data collected since those reports were issued suggest strongly that groundwater levels have been impacted by mining in one bore screened in the Wollombi Alluvium, ie WBR50A. The hydrograph for this bore shows a marked drop in water level of about 2m coinciding with the passage of the final longwall panel in the Lower Whybrow Seam in the Beltana mine, LW14, in early 2011. Following completion of mining in LW14 in April 2011, water levels have shown partial recovery. This response is the first time a response to mining has been observed in any alluvium piezometer. No other alluvium piezometers in the same general locality as WBR50A have shown a mining-related response. As the WBR50A response is not replicated in any other nearby piezometer, it is possible that the response observed in the bore may not be truly reflective of what is happening in the alluvium, possibly because the bore has become hydraulically connected to the underlying Permian as well as the alluvium. This should be investigated to confirm the cause of the response observed
3. The suggestion in Dundon's last audit report that alluvium piezometer WBR181 may have been showing a mining-related response, has not been borne out by subsequent monitoring
4. The groundwater inflows into the underground workings are generally consistent with the model predicted inflows

5. The monitoring systems and the monitoring program in place, together with the addition of additional monitoring bores which have been recommended in the MER and RPS Aquaterra reports, are considered appropriate to enable detection of the impacts of mining on the groundwater system

### 3.6 Agency Consultation

In accordance with CoA Schedule 6 Condition 6(b) consultation was undertaken with representatives of agencies relevant to the Blakefield South facility as part of this independent environmental audit. Feedback on this consultation is provided below.

Greg Summerhayes from DRE understood Blakefield South operated under a Subsidence Management Plan and Mining Operations Plan approved with interagency input and had no specific feedback on Blakefield South operations.

Steven Clair confirmed that EPA policy is to provide no specific comment and to refer all enquiries to the EPA Public Register. Review of EPL No: 563 on the Public Register webpage did not contain any specific notifications.

Ben Harrison confirmed DoP&I would review the independent environmental audit report and had no specific feedback on the BUO facility.

Richard Pickles from MSB confirmed he was familiar, with but had no specific feedback on Blakefield South operations.

Richard Bath from OEH confirmed that OEH policy is to provide no specific comment.

Fergus Hancock from NOW suggested there were three key areas to consider at BUO operations. These key areas included:

- confirming compliance with numerous water licenses held by BUO
- relationship between porous rock, alluvial and surface waters
- potential for interaction for water sharing with other mining facility in the vicinity of BUO, including Rio Tinto owned facilities

The key issues identified through agency consultation are addressed in this Audit Report.

## 4 NON COMPLIANCES AND ADDITIONAL RECOMMENDATIONS

The following section provides details of the nonconformances observed during the independent environmental audit and proposed recommendations to address these identified nonconformances.

### 4.1 Noncompliances

Noncompliances identified during the documentation review, interviews, and site inspection are documented in **Table 4.1**.

Recommendations have been proposed to address each identified noncompliance.

**Table 4.1 Noncompliances and Proposed Recommendations**

Non Conformance (NC)	CoA/EPL/Mining Lease Reference	Non Compliance Issue	Recommendation (R)
<b>NC1</b>	CoA Schedule 3 Condition 9	Blakefield South Bathhouse and Administration Building have Construction Certificates but not Occupation Certificates.	<b>R1</b> : It is recommended that BUO obtain an Occupation Certificate for the Bathhouse and Administration Building
<b>NC2</b>	CoA Schedule 5 Condition 12	An 'As Executed Report' certified by a practicing registered engineer was completed and submitted to the DoP&I, but not within one month of completing the construction of the Flood Exclusion Levee	*No recommendation – administrative non compliance
<b>NC3</b>	CoA Schedule 4 Condition 32 (C) (a)	While a revised Noise Management Plan was submitted to the Director General by the 30 August 2010, the appointment of the suitably qualified expert to prepare the management plan was not approved by the Director General.	*No recommendation – administrative non compliance

Non Conformance (NC)	CoA/EPL/Mining Lease Reference	Non Compliance Issue	Recommendation (R)
<b>NC4</b>	CoA Schedule 4 Condition 57 and EPL 563 Condition O1.1	Underground pipework identified in the previous AS1940 Audit has not been hydrostatically tested	<b>R7:</b> It is recommended that BOU undertake hydrostatic testing of all underground fuel lines to confirm integrity
<b>NC5</b>	EPL 563 Condition L1.1	On the 15 February 2009 C3 Dam overflowed. This dam is in the Bulga Surface Operations statutory area	*No recommendation – significant action has been taken across the Bulga Coal Complex since this event to improve the management, capacity and reliability of surface water management infrastructure on site
<b>NC6</b>	EPL 563 Condition R1.5	Review of past EPL annual return submission dates confirms that while returns were submitted in September they were submitted after 60 days	<b>R14:</b> It is recommended that BUO ensure this year's EPL Annual Return is submitted within 60 days of the end of the reporting period

## 4.2 Additional Recommendations

In addition to the noncompliance recommendations provided in this report, the independent environmental auditor recommended the following measures or actions be implemented to improve the environmental performance of the development, and/or any strategy/plan/program required under their approval.



Additional recommendations, not specifically relating to identified noncompliances, have been provided in **Table 4.2** to assist BUO improve overall environmental performance at the site.

**Table 4.2 Additional Recommendations**

2012 Audit Observation	Additional Recommendation (R)
While the water balances was generally in accordance with the predictions in the EIS, the water balance from the EIS was not included in these site water balance reviews	<b>R2:</b> It is recommended that BUO include the actual EIS table in the water balance review each year
The Bulga Coal Complex has recently updated their Site Water Management Plan. The Bulga Coal Complex SWMP refers to two types of water, clean and dirty water. DRE Guideline MOP and EMP preparation EDG003 suggests management of up to four types of water on site	<b>R3:</b> It is recommended that BUO update the SWMP and consider the individual management of clean, dirty, controlled discharge and contaminated water
CoA Schedule 4 Condition 15 requires the SWMP to contain baseline data and a monitoring program for the Wollombi Brook. While the required data is contained within the Wollombi Brook Ground Water Contingency Plan, it is not contained within the SWMP	<b>R4:</b> It is recommended that BUO update the SWMP to include reference to the Wollombi Brook Ground Water Contingency Plan and Bulga Complex Environmental Monitoring Programme
The Environmental Management Strategy (EMS) and Environmental Management Plans (EMP's) for the BUO site have generally been developed and comply with the requirements of all approvals.  Since the last independent environmental audit a number of BUO's and BSO's EMS and EMP's have been reviewed to produce Bulga Coal Complex EMP's for the integrated management of environmental issues at the Bulga Coal Complex  Review periods for EMPs vary up to 5 years between reviews	<b>R5:</b> It is recommended that BUO standardise the frequency of revising EMP's to a maximum of three years in accordance with Xstrata Sharepoint Protocols
In accordance with CoA Schedule 4 Condition 54,	<b>R6:</b> It is recommended that BUO update their Data

2012 Audit Observation	Additional Recommendation (R)
<p>BUO have developed a data collection procedure (BEL SD PRO 0016) to monitor, investigate and report greenhouse gas emissions generated by the development. The data collection procedure did not include development associated with onsite flaring and power station</p>	<p>Collection Procedure to incorporate monitoring data from the operation of the new power station and flaring facilities</p>
<p>CoA Schedule 5 Condition 3 required BUO to develop a procedure, in consultation with DECCW and NSW Health, for notifying landowners and tenants of air quality and health impacts.</p> <p>While letters identifying air quality impacts have been forwarded to landowners and tenants no reference to potential health impacts was observed</p>	<p><b>R8:</b> It is recommended that BUO forward the NSW Minerals Council Health Fact Sheet to landowners and tenants</p>
<p>CoA Schedule 6 Condition 1(b) documents that the EMS must identify the statutory requirements that apply to the development.</p> <p>While the EMS did contain a section which documented some of the most significant legislative requirements applicable to the Bulga Coal Complex it did not address all requirements</p>	<p><b>R9:</b> It is recommended that BUO update the EMS to reflect all of the environmental legislative requirements applicable to the Bulga Coal Complex</p>
<p>CoA Schedule 6 Condition 6 documents that BUO must undertake an independent environmental audit every three years</p>	<p><b>R10:</b> It is recommended that the 2015 audit be planned in advance and that an independent environmental auditor, approved by DoP&amp;I be engaged by January 2015</p>
<p>In accordance with CoA Schedule 6 Condition 12, BUO must notify the DoP&amp;I and other relevant agencies, within 24 hours of detecting an exceedence of the limits/performance criteria, or detecting an incident that causes (or may cause) material harm to the environment.</p> <p>In accordance with CoA Schedule 6 Condition 13,</p>	<p><b>R11:</b> It is recommended that BUO update the EMS and all EMP's to reflect 24 hour and six day written report notification requirements</p>

2012 Audit Observation	Additional Recommendation (R)
<p>BUO must provide a written report to the DoP&amp;I and other relevant agencies, within 6 days of notify of an exceedence of the limits/performance criteria, or detecting an incident that causes (or may cause) material harm to the environment.</p>	
<p>While the Bulga Coal Complex illustrate various water management structures in their MOP in accordance with ML1547 Condition2(4)(g), BUO have not included details of the flood levee</p>	<p><b>R12:</b> It is recommended that BUO update MOP figures to reflect the installation of the flood levee as a site water management structure</p>
<p>While the Bulga Coal Complex maintain EPL 563 for the site, the mining and exploration lease details contained within Condition A2.1 have not been updated</p>	<p><b>R13:</b> It is recommended that BUO update Mining Lease and Exploration Lease details in the sites EPL</p>
<p>While not part of this audit scope of work it is appropriate that all water license conditions held by BUO be audited</p>	<p><b>R15:</b> It is recommended that BUO undertake an audit of all water license conditions held by BUO prior to the next compliance audit</p>
<p>While not part of this audit scope of work it is suggested that potential for interaction and water sharing with local mining facilities may exist</p>	<p><b>R16:</b> It is recommended that BUO consider potential for interaction and water sharing with local mining facilities prior to the next compliance audit</p>
<p>There is no conclusive evidence in the monitoring data of any loss of storage in the Wollombi Brook alluvium, however, the observed mining-related impact in WBR50A needs to be further investigated to confirm whether this response is a true alluvium response, or is a consequence of the bore becoming hydraulically connected to the underlying Permian</p>	<p><b>R17:</b> It is recommended that BUO consider further investigations to confirm whether the response in WBR50A is a true alluvium response, or is a consequence of the bore becoming hydraulically connected to the underlying Permian</p>
<p>While not part of this audit scope of work an independent auditor should assess compliance with the commitments outlined in the original Environmental Impact Assessment and</p>	<p><b>R18:</b> It is recommended that BUO consider engaging an independent auditor to review all Environmental Impact Assessment documents associated with the facility and tabulate the commitments in a table prior to the next</p>

2012 Audit Observation	Additional Recommendation (R)
subsequent Environmental Assessments	compliance audit. This table can then be audited by subsequent compliance auditors and agencies

## 5 CONCLUSION

The quality and scope of the site's Environmental Management Strategy and Environmental Management Plans, and the attitude of the BUO environmental staff and management, illustrate BUO's commitment to maintaining a high level of compliance, community consultation and environmental performance.

The Environmental Management Strategy and Environmental Management Plans for the BUO site have generally been developed to comply with the requirements of approvals reviewed.

The recommendations provided in this report will assist BUO further improve compliance with their approval requirements.



**Appendix A**  
**Audit Checklist**

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**Appendix B**

**Galvin and Associates Independent Audit**

**Of Subsidence Performance**

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## Appendix C

### Dundon Consulting Independent Audit Report

## Audit Photographs