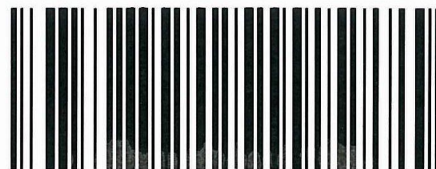




Office of Water



PCU014680

Major Development Assessments
Department of Planning
GPO Box 39
SYDNEY NSW 2001

16 September 2010

Attention: Daniel Howard

Contact: Fergus Hancock
Phone: 02 4904 2532
Fax: 02 4904 2501
Email: Fergus.Hancock@water.nsw.gov.au

Our ref: ER21128
Your ref: DA 29/95 MOD 4



Dear Daniel

Proposed LW 5a Austar coal mine

The NSW Office of Water (NOW) has reviewed the Environmental Assessment (EA) for the proposed Austar LW 5a extension. NOW directs your attention to its previous submission in relation to Austar coal mine dated 19 October 2007 with reference to its assessment of this application.

Austar Coal has conducted ongoing subsidence verification monitoring and reporting, which was assessed as requiring additional concentration on impacts and consequences to Quorrobolong and Cony Creeks for the approval of longwall panels A3-A5.

NOW emphasises the need to maintain water access to existing users, including environmental water requirements in the Upper Wollombi Brook Water Source. This may be achieved by recognising existing relationships of storage and transmission within Quorrobolong and Cony Creeks and their alluvium, protecting these relationships and accounting for potential lateral displacement of alluvial water.

This is mentioned in the EA, but no commitment is made in respect to protection of the water source, or accounting for potential lateral displacement of its waters. NOW emphasises the ability to account for lateral displacement of alluvial groundwater, and to ensure existing water user rights are protected should be critical outcomes to approval of the project. NOW has directed Austar Coal to develop an integrated surface and ground water monitoring programme as part of its revised site water management plan. The monitoring programme is required to be developed in order to:

- Verify predicted subsidence impacts on surface landforms, geological integrity, surface system flow and groundwater drawdown or displacement against actual impacts
- Be able to account for lateral displacement of alluvial groundwater and to ensure that water extractions from the Upper Wollombi Brook Water Source comply with relevant extraction limits established in the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009
- Determine probable riverine geomorphic response to subsidence, and prevent incision, erosion, avulsion or other geomorphologic change within Quorrobolong or Cony Creeks,
- Determine appropriate remedial measures which must be constructed and installed on affected watercourses, if subsidence impact triggers determine likely destabilisation

response will occur as a result of subsidence-induced changes in channel form, orientation or gradients

NOW advises the piezometric monitoring bores currently installed are insufficient to establish changes from baseline conditions to LW 3-5a subsidence envelope, and will therefore need to be expanded. This is critical to quantify lateral redirection of alluvial groundwater and account for reductions in piezometric heights and gradients along Quorroblong and Cony Creeks. As NOW has directed Austar to augment its piezometric monitoring and reporting as each longwall pass approaches Quorroblong then Cony Creeks, NOW requests this to be reflected in modified conditions of project approval.

NOW recommends revision of the Groundwater Monitoring programme and Surface and Ground Water Response programme for the Austar development consent. This is included in recommendations in Attachment A.

Should you require any clarification of matters raised in this letter, please contact Fergus Hancock on (02) 4904 2532.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'm. mignanelli', with a stylized flourish at the end.

Mark Mignanelli
Manager, Major Projects Assessments
Newcastle

**NOW RECOMMENDED CONDITIONS OF APPROVAL
YANCOAL AUSTRALIA AUSTAR COAL MODIFICATION 4 (DA 29/95)**

These recommended conditions amend the existing development consent conditions as specified.
Schedule 3 Specific Environmental Conditions

Condition 9 SURFACE WATER

Surface Water Investigation:

The following surface water investigations are to be undertaken and submitted to NOW for assessment prior to subsidence occurring and are to include the following:

- a) Geomorphic description of streams and rivers within and downstream of the project site (i.e. river style, geomorphic energy regime to bankfull discharge)
- b) Long profile survey along each watercourse to be subsided to the nearest stable (i.e. rock and/or stable vegetation) control point upstream and downstream, on an appropriately scale,
- c) Nature of bedload material and estimated pre- and post- subsided stream power relationships along each watercourse to be subsided
- d) Effective bank full discharge volume, velocity and tractive stress under pre- and post-subsidence conditions. Velocities under pre and post subsidence modelled for 2, 10 and 20 year ARI flood event, to define threshold limits to bed incision in subsided watercourses
- e) Change in stream velocity and stream power relationships between pre- and post-subsided conditions against threshold limits to bedload transport and/or stream bed incision
- f) Location and nature of geomorphic controls through each longwall trough and upstream to the nearest geomorphically stable control (i.e. presence of rock and/or stable vegetation controls)
- g) Nomination of critical thresholds to stream incision for each longwall panel and means to limit subsidence impacts to below threshold limits
- h) Mitigation measures to prevent/limit incision and subsequent degradation of stream channels for each longwall and the cumulative subsidence envelope

Condition 10, 12 GROUNDWATER

Groundwater monitoring plan

In addition to the groundwater monitoring protocol, extra piezometers must be established to triangulate alluvial groundwater drawdown levels and gradients. The programme must establish volumes and rates of displacement of alluvial groundwater from its current condition to post-subsidence conditions.

Groundwater Impacts Report

The Proponent shall provide an annual report of alluvial and hard rock groundwater levels. This report shall:

- a) Be provided to the NSW Office of Water (NOW) and the Department in the AEMR each year following the reporting period;
- b) Include interpreted drawdown levels resulting from existing and/or ongoing mining operations of the project;

- c) Include trend analysis of alluvial and weathered/hard rock groundwater levels and those associated with groundwater dependant ecosystems against rainfall and mining operations for pre and post subsidence
 - d) Account for any drawdown loss or displacement of alluvial groundwater or river flows to the satisfaction of the Director-General.
 - e) Assessment of depressurisation of coal measures will be undertaken by a suitable qualified hydrogeologist and results reported in the AEMR;
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