



Office of Water

**Major Development Assessments
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Our ref : ER20915
Your ref: S02/01497

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Attention: Paul Freeman

Dear Paul

Whitehaven Rocglen expansion proposal MP 10_0015

The NSW Office of Water (NOW) has completed its assessment of the Whitehaven Rocglen expansion project application. NOW provides the following comments in relation to the predictive outcomes of the Environmental Assessment (EA) in light of NOW's submission to test of adequacy to the EA dated 16 August 2010.

Generally, the EA fails to adequately assess interaction between Zone 4 of the Upper Namoi alluvial groundwater source and localised porous rock groundwaters, including the target coal seams. As the Upper Namoi alluvium in the vicinity of the proposal forms part of the Upper Namoi Groundwater Source, governed under *the Water Sharing Plan for the Upper and Lower Namoi Ground Water Sources 2003* (WSPULNGWS), it is important to differentiate between the two groundwater sources, and properly define the likely and potential range of aquifer interference and consequential incidental groundwater take from these sources.

The lack of adequate attention paid to differentiating between the two groundwater sources in predictive modelling to the EA has imposed unnecessary difficulties in assessing the impacts to those water sources. NOW provided detailed comments in its correspondence to test of adequacy to address these issues. NOW emphasises that strict accounting to the take of surface and/or ground water from water sources governed under NSW water legislation is an essential component of any approval to the mining proposal.

NOW does not object to approval being granted to the Rocglen expansion proposal, on the proviso that rigorous verification and accounting processes be formally imposed as conditions for any approval which is granted to the application.

NOW requires the verification process include mapping of the alluvial boundary to the Upper Namoi alluvial groundwater source, including a clearly defined setback from the edge of mapped alluvium based on the relative levels between the base of the Belmont Seam and the static water level within the alluvial water source.

NOW requires surface water runoff capture is quantified and accounted for in adherence with the NSW Harvestable Rights policy. Any surface water capture which is not within the definition of harvestable rights and/or exempt classes of water capture can only be taken

in accordance with NSW water legislation including the rules stipulated for the unregulated Namoi catchment water source.

NOW has an on-going reservation that the site water balance may significantly over-predict surface water capture to the operation, at the expense of the necessary diversion of clean catchment runoff and/or stream flows to catchment dams. Should extended dry conditions recur during the period of mine life, water shortages may present an unavoidable limitation on the ability of the mine to operate. NOW requests a review of the mine site water balance based on the range of climate conditions which may occur, including drought conditions similar to that experienced in recent years.

There remains a need for further examination of the long term impacts to local groundwaters resulting from the size of the final void to the project. NOW requests a detailed review of groundwater drawdown and quality changes arising from the proposed extraction, in relation to the configuration of the final void for the project proposal.

NOW provides detailed comments on the groundwater impact assessment as **Attachment A**. The comments present the additional groundwater predictive assessment work necessary to clarify the issues raised above.

NOW provides recommendations to conditions of project approval as **Attachment B**. These conditions relate to water supply, accounting and licensing arrangements, and review of groundwater impacts and management, and final void configuration.

Should you require any clarification regarding the above, please contact Fergus Hancock on (02) 4904 2532.

Yours sincerely



Mark Mignanelli
Manager Major Projects and Assessment

NSW OFFICE OF WATER

COMMENTS TO WHITEHAVEN ROCGLLEN OPEN CUT EXPANSION (10_0015)

WATER LEGISLATION

Water Management Act 2000

The *Water Management Act 2000* allows for sustainable and integrated management of water sources of the State. Whitehaven Rocglen Coal Project possesses a licence under Part 5 of the *Water Act 1912*, which they are required to maintain to ensure groundwater abstracted during mining operations is appropriately accounted for and authorised. This license however does not authorise any abstraction or displacement of groundwater from an alluvial groundwater source which is administered under the *Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2003* (WSPULNGWS).

Upper and Lower Namoi Groundwater Sources Water Sharing Plan

The WSPULNGWS commenced in 2003. Zone 4 of the WSPULNGWS covers the alluvium immediately to the south and east of the Rocglen expansion application area. The proponent must not intercept or displace any waters from the WSPULNGWS without obtaining shares and an access licence to cover any water loss from this system and manage their impacts according to rules contained within the WSPULNGWS.

The applicant has not acknowledged the WSPULNGWS as a statutory regulation to the proposal. This may lead to inadequacies and investigation by NOW over quantifying any displacement of available waters in Zone 4 of the WSPULNGWS should the applicant fail to improve groundwater monitoring and additional modelling to interference drawdown in the alluvial groundwater source. NOW requests the applicant liaise with NOW in regard to aquifer interference within the Zone 4 groundwater system and by indirect aquifer interference transmission from the alluvium into the Belmont Seam and to the mining excavation.

WATER SUPPLY AND WATER BALANCE

NOW has experienced difficulties in determining the likely and potential volumes which will be intercepted and/or displaced, and thus determining volumetric licensing arrangements which will apply to the proposal. As a result, NOW requires accurate reporting of water balances predicted and actual and that all groundwater extracted is licensed. Conditions regarding the reporting of site water balances have been recommended in Attachment B.

GROUNDWATER RESOURCE PROTECTION

Although the alluvial deposits have been identified as limited and not connected, the ecological reliance on groundwater by any local Groundwater Dependent Ecosystems (GDE) must be protected, as such the conditions relating to GDE water source monitoring addresses these issues in Attachment B.

SURFACE WATER

The application area extends into a weathered rock aquifer connected to an unnamed watercourse which drains to the Namoi River. The surface water assessment of the EA failed to address items of the Director General Requirements submitted by NOW to DoPI. During the consultation period between the Test of Adequacy (TOA) and the exhibition of the EA some issues were addressed but the EA been exhibited before NOW was satisfied that all surface water assessment information had been provided.

The information presented does not present details on diversion of the third order unnamed watercourse. As the diversion of this watercourse would require a water management works approval if not authorised under a project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EPAA), NOW requires additional details regarding the construction, maintenance and completion criteria to the proposed diversion.

The outstanding surface water information required includes:

- a) Geomorphic description of watercourses 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 reconstructed or diverted from the nearest stable (i.e. rock) control point upstream to downstream, on an appropriately expanded scale, with stable rock or other control points
- c) Nature of bedload material and estimated stream power relationship along each watercourse to be reconstructed, diverted or otherwise affected
- d) Effective bank full discharge volume, velocity and tractive stress under pre- and post- diversion conditions. Velocities under pre and post subsidence should be modelled for 2, 10 and 20 year ARI.
- e) Criteria to manage any change in stream velocity and stream power relationships against threshold limits to bedload transport for existing and post-diversion conditions
- f) Nomination of critical thresholds to stream incision for nominated controls and means to limit changes in stream power/tractive stress to below threshold limits
- g) Mitigation measures to prevent/limit incision and subsequent degradation of stream channels under all feasible conditions to diversion design and construction

A condition has been recommended (Attachment B) for these investigations to be completed and supplied to NOW for review prior to approval of the Site Water Management Plan (SWMP).

End Attachment A
6 April 2011

**NSW OFFICE OF WATER
RECOMMENDED CONDITIONS OF APPROVAL
WHITEHAVEN ROCGLLEN EXPANSION PROPOSAL MP 10_0015**

The NSW Office of Water makes the following recommendations to conditions of project approval to the Whitehaven Rocglen expansion.

Water supply

The applicant shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its water supply.

The applicant must ensure it has all necessary licences applicable under the *Water Act 1912* and/or *Water Management Act 2000*. This must include:

- a) In addition to site water balance in the water management plan, an annual comparison between the reporting period site water balance inflow and outflows and the previous periods to be reported in the Annual Environmental Management Report (AEMR). This must include details on any substantial increases/decrease in inflows and outflow, comparison between measured and predicted inflows and detail water use efficiency achieved during the reporting period and any projects that have contributed to improved site water efficiency and reuse of saline and contaminated water.
- b) Annual review of management of segregation of contaminated, sediment laden and clean water volumes.

Groundwater management

The applicant must conduct further calibrated groundwater modelling with regard to operational and post-mining drawdown in Zone 4 of the Upper Namoi Alluvial Groundwater Source and the Gunnedah Basin porous rock groundwater management area.

The applicant must develop a Groundwater Management Plan (GWMP). The GWMP must present additional modelling and a verification process to predictions made in the EA in consultation with the NSW Office of Water.

The GWMP must present additional information resulting from the groundwater modelling undertaken and to ensure that a full range of contingencies and mitigation measures have been considered for groundwater impacts.

The GWMP must present and justify trigger levels for response action, which must include maintaining satisfactory water supplies for surrounding landholders.

The GWMP must present notifications once trigger levels are exceeded, and develop contingency responses to trigger level exceedences in consultation with the NSW Office of Water.

The applicant must review and expand the current groundwater monitoring and reporting programmes, to include comprehensive baseline water quality data, to identify adverse impacts on local and regional groundwater systems and quantify any impacts to surrounding landholder water supply.

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) 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 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;

Surface Water Investigation:

As part of the Site Water Management Plan (SWMP), the following surface water investigations need to be undertaken and submitted to NOW for assessment prior to approval of the SWMP. The investigations 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 affected by minning development to the nearest stable (i.e. rock) control point upstream and downstream, on an appropriately expanded scale, with stable rock control points
- c) Location and nature of geomorphic controls along the existing watercourses) and upstream to the nearest geomorphically stable control (i.e. presence of rock controls)
- d) Nature of bedload material and estimated stream power relationship along each watercourse to be reconstructed, diverted or otherwise affected by mining operations
- e) Effective bank full discharge volume, velocity and tractive stress under pre- and post- diversion conditions. Velocities should be presented to a minimum of pre and post diversion modelled for 2, 10 and 20 year ARI.
- f) Change in stream velocity and stream power relationships under diversion conditions against threshold limits to bedload transport
- g) Nomination of critical thresholds to stream incision for any diverted or reconstructed watercourse, and means to limit changes in stream power/tractive stress to below threshold limits
- h) Mitigation measures to prevent/limit incision and subsequent degradation of stream channels for any diversion and sign off criteria to any diversion design

Final void

The applicant must present a final void management plan, which presents and justifies the configuration for any final void to the proposal. This must consider changes in groundwater levels and quality which result from the open cut excavation and likely and potential long term impacts to groundwater flow and quality.

The final void management plan must consider options to the final landform for the site, including any final void, and provide assessment of the options, including justification to any open water body or void which is proposed.

End Attachment B

6 April 2011