



Department of Primary Industries

OUT13/8239

- 9 APR 2013

Mr Matthew Sprott
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

matthew.sprott@planning.nsw.gov.au

Dear Mr Sprott,

Proposed modification to North Wambo Underground Mine (DA 305-7-2003 MOD13)

I refer to your email of 7 December 2012 requesting the advice of the Department of Primary Industries in respect to the above matter, and to the proponent's documentation received on 11 December 2012.

Comment by NSW Office of Water

The NSW Office of Water provides the following key advices and the further detailed comments in Attachment A. Concerns are raised which require further response by the proponent and as such recommended conditions of approval have not been provided at this stage.

- (i) While the groundwater assessment has determined that the impacts are negligible and water losses are readily accounted for with existing licences held by the proponent, a key concern is the predicted fracturing to the surface and potential for long term water quality impacts to a highly productive groundwater source. It is recommended the proponent quantify the level of risk of post-mining salinity impacts to the groundwater and surface water systems.
- (ii) Based on the Environmental Assessment (EA), there is the potential that the proposal may not fall within Level 1 minimal impact considerations for water quality within the *Aquifer Interference Policy* with respect to mining activity below the natural ground surface within 200 metres laterally from the high bank or 100 metres beneath of a highly connected surface water source that is defined as a reliable water supply. This needs to be clarified by the proponent.
- (iii) There is uncertainty as to whether groundwater drawdown and pressure changes within the alluvial and porous rock water sources will exceed 2 metres at neighbouring water users bores. This is due to assessment of impacts being restricted to the additional impacts due to this project rather than the cumulative impacts. A cumulative impact assessment is a requirement of the *Aquifer Interference Policy*.

NSW Department of Primary Industries
Level 6, 201 Elizabeth Street, Sydney NSW 2000
PO Box K220, Haymarket NSW 1240

Tel: 02 8289 3999 Fax: 02 9286 3208 www.dpi.nsw.gov.au ABN: 72 189 919 072

- (iv) Groundwater dependent ecosystems have not been discussed within the EA hence there is uncertainty as to potential impacts due to the project.
- (v) The proponent has sufficient licensed water entitlement for the predicted maximum water take within the alluvial and porous rock water sources impacted by this project.
- (vi) Where the proposal does not meet the Level 1 minimal impact considerations of the *Aquifer Interference Policy* the proponent will be required to address the Level 2 requirements.

For further information please contact Rohan Macdonald, Planning and Assessment Coordinator (Newcastle office) on 4904 2642, or: rohan.macdonald@water.nsw.gov.au.

Comment by Fisheries NSW

Fisheries NSW advise the proposal raises no issues in terms of that Division's responsibilities.

For further information please contact Scott Carter, Senior Conservation Manager (Port Stephens office) on 4916 3931, or at: scott.carter@dpi.nsw.gov.au.

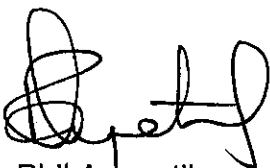
Comment by the Office of Agricultural Sustainability and Food Security

In accordance with adopted procedures for mining projects that affect agricultural land and involving the Office of Agricultural Sustainability & Food Security, that Office has provided separate advice to the Department by letter dated 8 January 2013.

For further information please contact Liz Rogers, Leader Regional Services (Orange office) on 63913642, or at: liz.rogers@dpi.nsw.gov.au.

Note that in relation to the comment in that letter that advice from the NSW Office of Water should be sought in respect to anticipated loss of flows in Wollombi Brook, comment is made in respect to this matter in Attachment A.

Yours sincerely



Phil Anquetil

Executive Director Business Services

Attachment A

North Wambo Underground Mine (DA 305-7-2003 MOD13)

Additional comment by NSW Office of Water

1. Licensing requirements

The Environmental Assessment (EA) identified a projected average take of 3.45 ML/annum from the alluvium of the Lower Wollombi Brook Water Source (under the *Water Sharing Plan Hunter Unregulated and Alluvial Water Sources*), and an average take of 241 ML/annum (maximum 617 ML/annum) from porous rock water sources (under the *Water Act 1912*) for the currently approved mine plan and the proposed modification.

The proponent currently holds licence entitlements of 70 ML/annum within the Lower Wollombi Brook Water Source and 1516 ML/annum (1500 ML/annum dewatering; 16 ML/annum stock and domestic) under the *Water Act 1912*. These amounts are sufficient to account for the predicted maximum take.

2. Groundwater Assessment

- Fracturing to surface as a result of the proposed mining activity is predicted and acknowledged by the proponent. Such fracturing could exacerbate the degree of hydrological connection between the deeper and shallow coal seams and the alluvial aquifer which is a highly productive groundwater source.
- The groundwater of the Permian aquifer is saline and, as identified in the conceptual hydrogeological model, is driven under a pressure gradient to discharge to the alluvial aquifer and surface water drainage features. The post-mining Permian groundwater pressure levels will still be driven by aquifer recharge occurring in the elevated hills.
- The NSW Office of Water advises there is a high post-mining risk for the uncontrolled and increased release of poor quality saline groundwater into the alluvial and surface water sources. This would occur when the groundwater system re-equilibrates and groundwater discharge is no longer constrained by low permeability barriers that existed pre-mining. It is recommended these long term post-mining groundwater issues are quantified to enable appropriate consideration of mitigation and contingency requirements as set out in the *Aquifer Interference Policy*.

2.1 Assessment against provisions of NSW Aquifer Interference Policy

The proposed project has been assessed against the provisions of the *NSW Aquifer Interference Policy*. The policy outlines the framework for the assessment of aquifer interference activities, namely:

1. The requirements for obtaining water licences for aquifer interference activities under NSW water legislation; and
2. Considerations in assessing and providing advice on whether more than minimal impacts might occur to a key water-dependent asset.

Minimal Impact Considerations

The *Aquifer Interference Policy* identifies two categories of groundwater source for the application of the minimal impact considerations, highly productive groundwater sources and less productive groundwater sources. Two primary groundwater sources are identified within the project area, a quaternary alluvial aquifer system of channel fill deposits associated with Wollombi Brook and North Wambo, Wambo and Stony Creeks (alluvial aquifer) and a hard rock aquifer within the underlying Permian strata (porous rock aquifer). The alluvial aquifer is considered a highly productive groundwater source under the provisions of the *Aquifer Interference Policy*, while the porous rock aquifer is considered a less productive groundwater source.

Assessment of the potential impacts of the proposal against the relevant minimal impact considerations from the *Aquifer Interference Policy* for each of these aquifers is given in Table 1 below.

Table 1. Assessment of proposal against Level 1 minimal impact considerations of NSW Aquifer Interference Policy.

Aquifer	Category	Level 1 Minimal Impact Consideration	Assessment
Alluvial aquifer	Highly Productive	Less than or equal to a 10% cumulative variation in the water table, allowing for typical climatic "post-water sharing plan" variations, 40 m from any: (a) high priority groundwater dependent ecosystem; or (b) high priority culturally significant site listed in the schedule of the relevant water sharing plan.	Within Level 1 - acceptable No high priority groundwater dependent ecosystems or culturally significant sites identified in the vicinity of the proposal.
		A maximum of a 2 m water table decline cumulatively at any water supply work.	Unable to determine Unclear from the EA whether cumulative drawdown impacts at neighbouring bores could exceed 2 m threshold. Groundwater management for the project should include monitoring of nearby bores and make good provisions for any bores impacted beyond this threshold.
		Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity. No increase of more than 1% per activity in long-term average salinity in a highly connected surface water source at the nearest point to the activity. No mining activity to be below the natural ground surface within 200m laterally from the top of high bank or 100m vertically beneath (or the three dimensional extent of the alluvial water source - whichever is the lesser distance) of a highly connected surface water source that is defined as a "reliable water supply".	Unable to determine Unquantified risk of post-mining salinity impacts to alluvial groundwater and connected surface water sources (see below for further detail). Unclear from the EA whether the proposed mining activity will intrude into defined buffer from alluvial aquifer and surface water sources. Further assessment required to determine potential long-term salinity impacts.
Porous rock aquifer	Less productive	Less than or equal to 10% cumulative variation in the water table, allowing for typical climatic "post-water sharing plan" variations, 40m from any: (a) high priority groundwater dependent ecosystem; or (b) high priority culturally significant site listed in the schedule of the relevant water sharing plan.	Within Level 1 - acceptable No high priority groundwater dependent ecosystems or culturally significant sites identified in the vicinity of the proposal.
		A maximum of a 2m decline cumulatively at any water supply work; or A cumulative pressure head decline of not more than a 2m decline, at any water supply work.	Unable to determine Unclear from the EA whether cumulative drawdown impacts at neighbouring bores could exceed 2m threshold. Groundwater management for the project should include monitoring of nearby bores and make good provisions for any bores impacted beyond this threshold.
		Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40m from the activity.	Within Level 1 - acceptable Proposal not expected to impact groundwater quality within the porous rock aquifer.