

Advice to decision maker on coal mining project

Proposed action: Tarrawonga Coal Mine Extension (2011/5923)

Requesting agency	Department of Sustainability, Environment, Water, Population and Communities
Date of request	30 November 2012
Date request Accepted	30 November 2012
Summary of request	<p>The Department of Sustainability, Environment, Water, Population and Communities (the department) advises the Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining (the committee) of an opportunity to comment on the Environmental Assessment. Specifically, the department seeks – taking into account the recent release of the <i>Namoi Catchment Water Study: Independent Expert Final Study Report</i> (July 2012) – the advice of the committee on:</p> <ol style="list-style-type: none"> 1. Does the committee consider there will be any significant impacts on matters of national environmental significance that are dependent on water resources, including as a result of cumulative impacts?

Advice

The committee was referred three coal mining project proposals (Boggabri Coal Mine extension, Maules Creek (Aston 2) Coal Mine, and Tarrawonga Coal Mine extension) in the Namoi region, all affecting the Leard State Forest. This provided the opportunity to consider the cumulative impacts of these three mines. The committee offers the following advice on both the potential cumulative impacts of the three mines and the impacts of the Tarrawonga Coal Mine Extension.

Leard Forest Precinct Mines (Boggabri, Maules Creek and Tarrawonga) Cumulative Impacts

1. The committee considers that water related impacts of the Tarrawonga Coal Mine Extension should be reviewed, as far as possible, as part of a cumulative assessment process. The Namoi Catchment Water Study (the Study) is an essential scientific study enabling cumulative impact assessment for the Leard Forest Precinct Mines to be considered on a regional scale. A relevant scenario to the three proposals under consideration predicts drawdown in some areas of the alluvial aquifer up to 2 m. This would represent as much as a 10 per cent reduction in the average saturated thickness of the aquifer in Namoi Groundwater Management Area 4. The Study also indicates that the expected cumulative drawdown in the adjacent hard rock aquifer (Gunnedah Basin Management Area) is predicted to be in excess of 10 m, which may exacerbate the impact on the alluvium by altering the direction of groundwater flow away from the

alluvium, which may impact on groundwater dependent ecosystems. The committee considers that the drawdowns outlined in the Study may be significant in terms of the ecology of groundwater dependent or influenced ecological communities.

2. In particular, the committee has concerns about the potential cumulative impact of groundwater drawdown as a result of the three mines and the consequent health of the remnant vegetation (the White box- Yellow box- Blakely's Red Gum Woodland community in the Leard State Forest, Leard State Conservation Area and surrounding areas). Insufficient information is presented on the intersection of the current water table, potential drawdown and the depth of the root zone of the protected ecological communities. The regulator should take the uncertainty of the mining impacts on the remnant vegetation around the mine site into consideration.
3. Consideration of the relationship between drawdown and root zone depth on these protected Communities has prompted the committee to consider the commissioning of a study to review scientific literature to determine the depth of the root zone for optimal deep rooted native hardwoods.
4. On the basis of information provided to the committee, it is understood that the Leard Forest precinct mines will result in the direct removal of a large area (in excess of 3,000 ha) of the vegetation communities listed under the EPBC Act which may impact on matters of national environmental significance in the region and have implications for dryland salinity. Recognising that the ecological impact of the vegetation removal is a matter for the Regulator to consider, in relation to water matters, the committee suggests that the potential for dryland salinity be taken into consideration in the selection of any biodiversity offset areas.
5. Should more than one mining proposal of the three under consideration be approved, the committee recommends a collaborative approach to ongoing monitoring of quality and quantity of both surface and groundwater to validate the groundwater monitoring and provide an indication of critical impacts on threatened ecological communities. This should provide a better understanding of the cumulative impacts which could aid further regulation of development as needed.
6. The Namoi Water Study showed that there is the potential for the types of impacts seen in the three project proposals to occur. The committee has provided their advice separately. The committee considers the consequential effects highlighted in the Study to be quite real. To be able to properly manage cumulative impacts, the committee recommends that comprehensive baseline information on surface water and groundwater quantity and quality be collected as a priority.

Tarrawonga Coal Mine Impacts

7. The committee has identified concerns relating to the proposed low permeability barrier to divert the groundwater flow from the Upper Namoi Alluvium around the open pit and the associated diversion of Goonbri Creek. In particular the committee's concerns relate to:
 - a. The likely environmental impacts associated with mining operations within alluvial areas. The committee is aware that operators of other proposed open cut mines have committed to avoid undertake mining in the alluvium, given the associated environmental risks;
 - b. The design criteria of the barrier does not specify it to be keyed into the bedrock. The base of the barrier is proposed to be located in a region which may be associated with saline groundwater. The committee is concerned there is a risk that the barrier will not be effective; and
 - c. As the barrier intersects the natural alignment of Goonbri Creek, if the barrier is effective, it is likely to impede groundwater flow. This may cause a build up of groundwater upstream of the barrier and subsequent surface discharge which may result in dryland salinity. The committee has identified that there is a risk of local contamination from potential upwelling groundwater as a result of the permanent

barrier and the Goonbri Creek realignment.

The committee recommends that a risk assessment of the environmental consequences of the proposed low permeability barrier and the Goonbri Creek realignment be undertaken. The committee recommends that the assessment be peer-reviewed.

A monitoring and management plan should be developed to address any identified environmental risks.

8. The committee recommends that an assessment of the risk of the disposal of mine water by irrigation be conducted. The assessment should include the risk of metal and salinity accumulation in irrigated soils. The committee recommends that the risk to the Murray-Darling Basin Authority's end of valley salinity targets should also be assessed.

**Date of
advice**

20 December 2012
