Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining

Advice to decision maker on coal mining project

Proposed action: Extension of Warkworth Coal Mine

Requesting agency	Department of Sustainability, Environment, Water, Population and Communities
Date of request	13 June 2012
Project title	Extension of Warkworth Coal Mine (EPBC 2009/5081)
Summary of request	The Department of Sustainability, Environment, Water, Population and Communities (the department) has assessed proposed projects in accordance with the provisions of the E*nvironment Protection and Biodiversity Conservation Act 1999*. The department is seeking the advice of the Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining (the committee) on water-related impacts on matters of national environmental significance including the impact of the activity on water resources and the environmental values that this water supports. Specifically the department seeks a response to the following questions: 1) Given that the assessment considers that there are likely to be no water-related matters of national environmental significance (MNES), does the committee endorse the assessment? 2) Can the committee identify and make comment on any concerns it has on the Warkworth extension assessment report (Attachment E) in regard to water issues? 3) If the mitigation measure(s) proposed by the proponent are implemented, are there likely to be any water-related significant impacts?

Advice

1) The committee advises that there are several MNES that may be impacted by the project. Of concern are potential cumulative groundwater depressurisation impacts on:
   (a) the perched aquifer supporting the habitat of the Giant Burrowing Frog; and
   (b) the world heritage values of the Wollemi National Park.

2) The committee advises that cumulative impacts are not sufficiently understood, and may be potentially irreversible. As a result, the extent of surface and groundwater impacts should be further reviewed and if necessary, remodelled. For some impacts, such as cumulative impacts, the mine extension may have a greater impact on the hydrology of the area than originally predicted and no mitigation measures can be adequately designed until the extent of impact is more accurately assessed.

3) The committee notes, there are:
   a) numerous other mines in area (at least five within the Wollombi Brook catchment) and cumulative impacts of drawdown or extent (km) in the Permian layer have not been adequately assessed;

b) inconsistencies in the interpretation of the groundwater modelled information presented during various assessment stages of this project; and

c) findings of importance, such as a "change in flow direction towards the mine and a depressurisation of up to 25 m could potentially have a significant impact on the perched aquifers and its dependent ecosystems."

4) The committee advises that a robust groundwater monitoring program should be implemented to evaluate the performance of the project. Contingency plans (including the cessation of works) should also be developed (and implemented, if needed). As an interim measure, the committee suggests that where possible, modifications to the dewatering regime be proposed, in order to limit spatial and temporal impacts.

5) The committee advises that there is also a range of surface water and water quality impacts associated with the project, and therefore suggests that an improved data set (review of model, and if necessary, remodelling) be acquired as a condition of any possible future approval.

6) The committee considers that the flood modelling for the project may be inadequate. Flooding at the site may have a greater impact on the region's hydrology and water quality than predicted. The committee notes that Wollombi Brook is subject to flash floods with a high Flash Flood Magnitude Index of 0.86. In order to more accurately predict potential flood impacts, the committee suggests review, and if necessary, remodelling of flood gauge data.

7) The committee notes that the water balance for the project contains inconsistent information.

8) The committee suggests that any proposed management plan should include monitoring of the Hunter Lowlands Redgum Forest Ecological Communities and River Red Gum Floodplain Woodland Ecological Communities within the Wollombi Brook alluvium downstream of the proposed site.

Date of advice	29 June 2012