

Advice to decision maker on coal mining project

Proposed action: Moolarben Coal Mine – Stage 2 (EPBC 2008/4444)

Requesting agency	Department of Sustainability, Environment, Water, Population and Communities
Date of request	5 December 2012
Date request accepted	5 December 2012
Advice stage	Environmental Impact Assessment - Supplementary
Summary of request from the regulator	<p>The Department of Sustainability, Environment, Water, Population and Communities (the Department) is currently assessing the proposed project in accordance with the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (the EPBC Act).</p> <p>The Department advises the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (the Committee) of an opportunity to comment on the Environmental Assessment. Specifically, the Department seeks the advice of the Committee on:</p> <ol style="list-style-type: none"> 1. What are the likely impacts of the proposed mine on surface and groundwater resources, in particular, changes to surface and groundwater dynamics and water resources which may support surface habitat? 2. Does the Committee find the water balance and conclusions relating to water management provided by the proponent and attached to this brief to be reasonable? 3. Does the Committee consider that the landform subsidence that would result from the proposed mine to be of particular concern and, if so, why?

Advice

The Committee has been asked to provide advice to the Commonwealth regulator on the Moolarben Coal Mine – Stage 2 in the western coalfields in NSW at the final approval stage.

Cumulative Impacts (Moolarben Coal Mine – Stage 2 and Mt Penny Coal Project)

1. The Committee was referred two coal mining proposals (Moolarben Coal Mine – Stage 2 and Mt Penny Coal Project) in the Goulburn River catchment. The Committee recommends that water-related impacts of Moolarben be considered cumulatively with the nearby Mt Penny, Ulan and Wilpinjong Coal Mines. The lack of a regional water balance has constrained the Committee's capacity to assess these cumulative impacts.

-
2. The regional cumulative impacts are likely to include an increase in groundwater drawdown, subsidence, salinity and a reduction in water quality. These changes may affect water dependent ecological communities.
 3. The subsidence impacts are likely to be significant at the local scale and regional subsidence impacts could also affect surface water resources and ecological communities.
 4. The Committee is also concerned about the potential for increasing salinity and heavy metals concentrations as a result of multiple mines discharging into the Goulburn River and eventually reaching the Hunter River. There is a need to consider the capacity within the NSW Hunter Salinity Trading Scheme to manage and control the increased salt load resulting from these developments.
 5. A collaborative approach (across adjacent mines in this area) to ongoing monitoring of quality and quantity of both surface and groundwater is needed. This should provide a better understanding of the cumulative impacts.

Moolarben Coal Mine – Stage 2

6. The Committee notes that Moolarben Stage 2 is a proposed extension to the Moolarben Coal Mine (Stage 1) that has been operational since 2009. Changes are proposed to Stage 1 as presented in the preferred project report.
7. The Committee has significant concerns about the potential impacts on surface and groundwater resources from the proposal. The proponent's estimate of drawdown of approximately 5 m or more is extensive and has the potential to impact vegetation, groundwater dependent ecosystems, water quality and surface streams, including in the Goulburn River National Park and Munghorn Gap Nature Reserve.
8. Streams in the regions including the Wilpinjong, Murrumbidgee, Eastern, Moolarben, Lagoon and Springs Creeks, and the Goulburn River could be affected by reduced baseflows, realignment of creeks, increased sedimentation and reduced water quality. Given the potential spatial extent and proposed magnitude of the drawdown, the Committee is concerned about the effectiveness of proposed mitigation strategies. The Committee recommends regular monitoring of the surface and groundwater levels and groundwater flow be undertaken during and post mining. Effective management strategies should be developed to minimise impacts on streams and water dependent flora and fauna.
9. The Committee considers the proposal is likely to have an impact on the groundwater environment on a local scale and at the regional scale. The water balance calculations are site-specific and do not take into account water-related environmental impacts and regional impacts. The surface water modelling does not take into account neighbouring mines, the likely increased recharge from subsidence as a result of longwall mining and does not provide an assessment of the water-related environmental impacts.
10. The Committee recommends that the water balance be improved to account for evapotranspiration, rainfall and other recharge, accurate estimates of discharge from the site and annual predictions of water surplus and deficit. In addition, the Committee considers that routine water quality monitoring be undertaken. The surface water monitoring regime should be conducted in accordance with the National Water Quality Management Strategy.
11. Groundwater drawdown in the Ulan Seam is regarded as significant, and would impact the groundwater and water dependent resources at both the local and regional scale. While the Committee notes that the groundwater models and modelling techniques undertaken for the report are regarded as best practice, the analysis of the impacts on water resources is lacking. The Committee recommends assessment of cumulative impacts, aquifer connectivity impacts and regional impacts to improve model reliability and accuracy.
12. The proposal could have impacts on the 'Drip' and other water related assets including seeps, springs and sumps. Consideration should be given to protecting the associated cultural, heritage and ecological values of these assets. The Committee recommends that further work is conducted to ascertain the source water for the 'Drip' and confirm that there will be no impacts from drawdowns as a result of the proposed underground mine.

-
13. The Committee considers that current flood mitigation strategies in the proposal which are based on a 1 in 20 and 1 in 50 year event are inadequate and treatment and sedimentation ponds need to be designed to meet at least a 1 in 100 year Average Recurrence Interval flood event.
 14. Water quality could deteriorate as a result of a reduction in vegetation density along streams which could lead to erosion of stream banks, increased turbidity, sedimentation and concentration of salts. Mine operations could also affect water quality and the Committee questions the efficacy of the proposed use of clay linings in stream, which is likely to increase turbidity.
 15. The proposed diversion of creeks to previously mined areas where highly dispersive clay sub soils traverse the site of the creek diversions would increase the risk of turbidity. These issues have not been assessed from a sediment control perspective. The Committee recommends that specialised soil management techniques and remediation strategies be undertaken in consultation with a rehabilitation expert. The timing and quantity of released water should be considered to maximise environmental benefits and minimise negative impacts.
 16. No specific details are provided in regards to the final void. The Committee therefore recommends that a final void management strategy be developed. The Committee considers that best environmental practice is to backfill voids.
 17. The Committee notes that the subsidence across the underground mined area is predicted to be approximately 2 m and with additional settlement of the northern end subsidence could be up to approximately 5 m. There is a risk of downhill slumping of soils and possible failure of the northern out-of-pit emplacement slopes. This may further impact on the nearby work areas close to the south western corner of longwall 5. Surface water ingress into the northern out of pit emplacement area could increase this risk of downhill slumping. This degree of subsidence is highly likely to cause changes to surface and groundwater connectivity. There is potential for surface cracking, regional caving, ponding of drainage lines occurring within critically endangered ecological communities, with possible detrimental impact to these communities. The Committee recommends that a subsidence management strategy be developed to minimise impacts to water dependent resources.

Date of advice 1 February 2013
