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Submission

Moolaben Coal Mine Stage 1 MOD 14 & Stage 2 MOD 3

Central West Environment Council is an umbrella organization representing conservation groups and individuals in central west NSW working to protect the local environment for future generations.

The Council objected to the proposed modifications to Moolarben Coal Mine, as presented, on the grounds of Ecologically Sustainable Development principles.

We have reviewed the proponent's response to submissions, Government agency responses and the Department of Environment and Heritage final assessment report.

We are very concerned that there are many outstanding, unresolved issues with this proposal that the Independent Planning Commission must consider before making a final determination.

This submission will focus on the issues of land based biodiversity impacts and mine rehabilitation. However, the Council also has concerns about the cumulative impacts on the health of the Goulburn River, increased greenhouse gas emissions further exacerbating climate change impacts in Central West NSW, and the lack of a responsible cost benefits analysis.

The proposed modifications would disturb approximately 82 ha of land mostly associated with the Open Cut 2 and Open Cut 3 pit extensions. This area includes 39 ha of bushland containing 7 ha of two critically endangered ecological communities, consisting of Grassy Box Gum Woodland and Central Hunter Valley Eucalypt Forest and Woodland.

This bushland provides habitat for a significant number of threatened fauna species – 42, including 28 birds, 3 mammals and 11 bats. These include the Koala and critically endangered Regent Honeyeater and Brush-tailed Rock Wallaby.

A number of these species, threatened with extinction, are listed for protection under Federal environmental legislation and have triggered a "controlled action".

The proposal is to offset most of the biodiversity credits for this loss of critical habitat through the 'Gilgal' property, 10km the south of the mine, and already purchased by the proponent.

There is a commitment made in the Department's final assessment report, with recommended conditions, to secure the property as a biodiversity stewardship site under the NSW Biodiversity Conservation Act by 2021.

However, this property has a petroleum exploration license and a minerals exploration license over it.

The Department of Geosciences and Resources required an undertaking that the biodiversity offset would not have a significant impact on current or future extraction of mineral or energy resources. This undertaking includes not by limiting access to, or impeding assessment of, those resources, or be incompatible with current or future exploration.

Letters from the exploration license holders, Santos, Hunter Gas and Bowdens Silver are provided as additional information to the Department. These letters state that the biodiversity offset arrangement is unlikely to impact on prospecting or other activities.

This then begs the question: how secure will the biodiversity stewardship site be if exploration and mining can occur on it ? There are no assurances anywhere that the 1,033 ecosystem credits calculated to be offset on the 'Gilgal' property will not be disturbed by exploration and mining activities in the future.

We note that the response to submissions report states that the proponent's preference is to use credits generated by the Gilgal property to satisfy as much of the Modification offset liability as possible, with any residual credits to be satisfied by the other mechanisms provided by the Framework for Biodiversity Assessment.

The biodiversity stewardship site will only be secure if the portions of PEL 456 and EL 8159 falling on the 'Gilgal' property are removed from the licenses.

In addition, the 'Gilgal' property does not fully offset all the biodiversity values to be disturbed. The proposal is to offset 28% of the credits on mine rehabilitation. I will come back to mine rehabilitation later.

The modification proposes to relinquish an area of bushland currently approved to be disturbed by a permanent overburden dump. The proposal now is to backfill the open cut areas with the overburden and to leave an area of remnant vegetation in place.

CWEC supports this aspect of the modification as a demonstration that mining can be undertaken with a smaller disturbance footprint. This change in mining operations should have been adopted in the initial Stage 1 approval.

This relinquishment of a currently approved vegetation disturbance has been accepted by the NSW Government as a method of accounting for additional offset credits.

However, the Federal Environment Agency has not accepted this approach and requires the full proposed disturbance in the modifications to be calculated and offset.

These complex issues appear to have not yet been resolved.

The Council is concerned that very creative accounting has been used to justify the ongoing loss of critically endangered biodiversity values in the area through a very weak offset proposal with no protection.

This juggling act of credit calculations and highly questionable biodiversity offsets is based on the extraction of a small proportion of RoM coal over the life of the mine.

The justification for this access to additional coal resource is also highly questionable, particularly when considering the urgency needed to slow down climate change.

The Council recommends that the additional disturbance of 82 ha of land in extensions of Open Cut 2 and Open Cut 3 to access another 30 million tonnes of coal not be approved.

This will negate the need for the 'Gilgal' property to become a biodiversity stewardship site that has no security. We note that Moolarben Stage 1 biodiversity offset properties approved in 2007 have still not been protected under the required covenant arrangements. There is no certainty in the current approvals process in NSW that biodiversity offsets will ever be fully delivered or protected.

We also recommend that the proposal to backfill the open cuts with overburden rather than stockpiling it permanently out of pit is a vast improvement to the mining operation, and should be approved as a main modification to the Moolarben Coal Mine.

In regard to rehabilitation, it is proposed to reinstate 150 ha with some elements of the disturbed endangered ecological communities to make up residual credits.

There are several scientific papers in the peer-reviewed literature that clearly show how successfully recreating natural ecosystems on former mined lands is improbable (e.g. Doley & Audit 2013; Erskine & Fletcher 2013; Lamb et. al. 2015; Ngugi & Neldner 2015; Ngugi et. al. 2015; McDonald et al 2016; Chen et. al. 2018).

Ecological experts (eg Stephen Bell of Eastcoast Flora Survey) therefore do not believe that proposed mine rehabilitation objectives or expected environmental outcomes will be achieved, or that satisfactory re-establishment of cleared threatened ecosystems on mined lands will occur. "Novel ecosystems" (Doley & Audit 2013; Erskine & Fletcher 2013) will be established in their place, which are unlikely to provide an adequate offset for cleared threatened communities.

The Office of Environment and Heritage commented that rehabilitation can be used to generate biodiversity credits provided there are good prospects of biodiversity being restored. We consider this to be highly doubtful and unproven, as argued in the scientific papers referred to above.

There are no examples in NSW where Grassy Box Gum Woodland critically endangered ecosystems have been successfully re-established on mine rehabilitation. This ecological community is extremely difficult to re-establish on undisturbed land.

Overall, there is no certainty that the proposed disturbance of critical biodiversity values will be adequately offset.

There will be no residual offsets needed on rehabilitated mined land if the pit extensions are not approved.

In regard to the justification that the pit extensions are needed to ensure stability of some of the pit walls, we consider this to be an indictment on the original assessment and approvals process for Moolarben Stage 1. This problem could be solved by changing the current shape of the pits within their approved footprint through the Mine Operations Plan.

The pit extensions are not necessary to improve the safety and stability of the open cut high walls.

There are a number of other aspects of the modifications I wish to comment on.

Firstly, the Council supports the introduction of a reverse osmosis plant to remove salts from mine waste water before being discharged into the Goulburn River.

However, we do not support the proposed increase of volume from the approved 10 megalitres per day.

The justification for this increased volume of mine water discharge is again an indictment on the poor assessment process for Stage 1 Underground 4. The additional water predicted through an updated groundwater model is a significant, unassessed environmental impact.

We agree with the EPA that the proposal to store the brine residue in the underground mine is unacceptable.

We also recommend that the approved salinity level for mine water discharge is lowered to 500 EC to be consistent with the most recent approval at the neighbouring Wilpinjong Mine.

The significant issue of water management on the Moolarben Mine site and proposed unacceptable cumulative impacts on the Goulburn River has been caused through inadequate groundwater modelling.

This issue must be addressed and independently reviewed before a final determination can be made.

The Council recommends that the approval of Underground 4 be overturned because the impacts of the increased mine water, predicted by the upgraded groundwater model, are unknown and have not been assessed.

The likelihood of vastly increased losses of base flows to the Goulburn River and greater drawdown of the regional groundwater source is too great an impact to be left unassessed.

The Independent Expert Science Committee and the OEH science report highlight the critical nature of cumulative impacts on the Goulburn River through increased salt load, unassessed heavy metal pollution, changes in natural flow regimes, and various other river health issues.

In summary, Central West Environment Council wishes to make the following recommendations to Commissioners for consideration in the final determination of these modifications before you:

1. Reject the proposed extensions of Open Cut Pits 2 & 3
2. Require the exploration licenses to be removed from the Gilgal property to provide additional undisturbed biodiversity values adjacent to the Munghorn Gap Nature Reserve
3. Approve the removal of the overburden emplacement at Pit 3 to decrease the mine disturbance footprint and improve the rate of pit backfill
4. Require a reshaping of the high walls in Open Cut Pits 2 & 3 within the current disturbance footprint through the Mine Operation Plan
5. Approve the reverse osmosis plant
6. Lower the EC level to 500 for water release into the Goulburn River
7. Reject the additional 10 ML/day water release
8. Cancel the approval of underground mine 4

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Ability to recreate threatened ecological communities as part of mining rehabilitation

See Also →

Bell, S.A.J. (2016) *Review of Biodiversity Issues: United Wambo Open Cut Coal Mine Project.*

Mine Rehabilitation Offsets

My earlier concerns over the ability to recreate threatened ecological communities as part of mining rehabilitation remain unchanged. Since my earlier assessment, Umwelt (2017) have prepared a document on behalf of the NSW Minerals Council entitled "*Assessment of Mine Rehabilitation Against Central Hunter Valley Eucalypt Forest and Woodland Critically Endangered Ecological Community*". While I have not had access to or read this document, there is sufficient information contained in the response to it from OEH to satisfy me that it does not comprehensively show that recreating threatened ecosystems on mine rehabilitation is possible. Conversely, there are several scientific papers in the peer-reviewed literature that clearly show how successfully recreating natural ecosystems on former mined lands is improbable (e.g. Doley & Audit 2013; Erskine & Fletcher 2013; Lamb et. al. 2015; Ngugi & Neldner 2015; Ngugi et. al. 2015; McDonald et al 2016; Chen et. al. 2018). I therefore do not believe that the proposed mine rehabilitation objectives or expected environmental outcomes will be achieved, or that satisfactory re-establishment of cleared threatened ecosystems on mined lands will occur. Novel ecosystems (Doley & Audit 2013; Erskine & Fletcher 2013) will be established in their place, which are unlikely to provide an adequate offset for cleared threatened communities.

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Tozer, M. & Chalmers, A. (2016) Hunter Valley Weeping Myall Woodland in the Sydney Basin Bioregion should remain listed as a Threatened Ecological Community until strong evidence emerges in support of delisting. *Cunninghamia* 16: 31-34.

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Widening gap between expectations and practice in Australian minesite rehabilitation

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Summary

The basic methods for rehabilitating degraded land left after mining are reasonably well-understood and there are examples across Australia of these being currently implemented.

But there are many other situations where further research will be needed to achieve rehabilitation objectives.

In addition, a number of mines are yet to embark on any sustained program of rehabilitation and there is a disappointing number of cases of mines ceasing operations before rehabilitation is completed leaving sites in a badly degraded state.

Overall there appear to be surprisingly few examples in Australia of post- mining rehabilitation that has reached a successful conclusion. In part, this may be simply a matter of time and the problem will be resolved as more mines reach the end of their working lives.

But there is an apparent trend for mines to be placed into 'care and maintenance' or sold to other entities, to avoid the costs of rehabilitation.

Thus, we are concerned there is a widening gap between what should be possible and what is being done in practice.

We review some of the experiences of rehabilitating post-mining landscapes in Australia and conclude that problems have arisen because of :

- the inherently difficult task of restoring ecosystems at highly modified mine sites,
- institutional and management weaknesses and
- loose regulatory frameworks that allow a high level of company self-regulation.

A key problem is that the importance of rehabilitation appears to rank below that of production in the minds of many mine managers and is not accorded the level of priority that the community expects. The scale of the mining industry and its capacity to cause environmental damage means that there is a need to improve the way mine rehabilitation is currently undertaken. We suggest that this might be achieved by improving research programs as well as better institutional and regulatory arrangements.

The present situation represents a major ecological and financial risk to the nation as a whole and regulatory authorities need to develop more rigorous approaches to ensure effective rehabilitation standards are achieved.