Supporting Sustainable Water Use in the Namoi Catchment

Namoi Water

NSW Government Planning & Infrastructure
Re: Watermark Coal Mine
App no: SSD 4975

Submission Namoi Water
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Disclose reportable donations: We are a non-political organisation and do not make donations.

Privacy Statement: I have read the Department's Privacy Statement and agree to the Department using my submission in the ways it describes. I understand this includes full publication on the Department's website of my submission, any attachments, and any of my personal information in those documents, and possible supply to third parties such as state agencies, local government and the proponent. I agree to the above statement? Yes.

Namoi Water is a member of the Caroona Coal Action Group. We object to the proposed Shenhua Watermark Coal Mine at Breeza NSW. We have reviewed the submission prepared by Earth Systems for the Caroona Coal Action Group (CCAG) and we are writing in support of the CCAG submission.

Please find attached our submission in regard to the Watermark coal mine. Namoi Water represents water access licence holders across the Namoi. We are particularly concerned that the justification for the mine is based on the jobs created and economic activity, it should be noted that current employment rates are high in the Gunnedah Shire and surrounding regions. There is no indication that this mine will create local jobs through training, nor does it address the economic impacts to agricultural businesses through loss of staff and changes to local services. The mine application proposes to use the Werris creek Mac village for fly in fly out not local staffing solutions. Most of the negative impacts will be local, the benefits will be to state and federal government and oversees owners.

Our involvement in the Namoi Water study has improved our understanding of the cumulative impacts of mining and Coal seam gas extraction on our water sources in the Namoi Valley. The proposed mine will take the immediate groundwater zones back to per water sharing heights, the achievement of recovery to date has been largely attributable to the efforts of water users to achieve sustainable yield. The use of groundwater modelling and the certainties attached to the predictions is of major concern, in our review of this and other mine applications, it appears to be a common theme that there is potential for groundwater impacts to exceed modelled predictions and ground water quality impacts are not well understood nor is there sufficient longitudinal baseline data. The cumulative impact on surface water is not addressed sufficiently, of particular concern is the potential for disposal of waste water into the Mooki River. It has been our experience that mine plans inevitably fail, in this valley this has occurred due to the lack of compliance with approval conditions and the lack of enforcement by regulating authorities. Like other proposals there is a repeated pattern to allow the development of management plans after the approval process. Particularly given the economic impact from extreme rainfall events on employment has previously been used as a wedge to provide fast approval of licences to pollute.

The Watermark mine should not proceed, the exploration licence should not have been issued in the first instance. Please find attached our detailed submission for your consideration.

Regards
Jon-Maree Baker
Executive Officer

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The preservation of sustainable resources for agriculture – including water – must be absolute in addressing mining exploration or operational licence applications.

Introduction

Namoi Water is the peak industry group for irrigated agriculture in the Peel, Upper and Lower Namoi valleys in the North West of NSW. We are non-profit non-political organization supporting our members to achieve a sustainable irrigation industry that meets the environmental, economic and social needs of our local communities. Namoi Water as the peak water entitlement holder group represents approximately 1000 members. Entitlement holders within the catchment vary in size from single employee operations to businesses employing around seventy employees.

The agricultural activities range from grains and pulses such as sorghum, wheat, soybeans, peanuts, corn, lucerne, vegetables and cotton, to water used for intensive animal production and a variety of niche market food products. The direct contribution to our economy is $800 million per annum. We are one of the most experienced valleys in terms of water reform, having entered reform in NSW several years prior to other valleys. The Namoi has pioneered the NSW industry response to water reform and we apply this experience to the current challenges of mining expansion in our area.

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Watermark Coal Project

The project is for open cut mine, justified as:

1. Able to access the all coal seams
2. The number of jobs created and benefit to the State
3. The investment already made in terms of land purchase and the cost of exploration
4. The need to be meet the demand for coal from overseas
5. Better use of land in terms of return on investment
6. No net harm to environment

Comments

Jobs:

a. The justification is that the jobs will benefit the local area, but as employment rates are high locally this is likely to result in shift in employment rather that employment opportunities for the jobless within the region. The report does not indicate if any training will be given to locals to enable them to access jobs created as a result of the mine.
b. The use of the Werris Creek MAC centre to house workers. These will be FI/FO not local
c. Impact of new housing on the local infrastructure and the need for services. Local Government need to be able to impose cost recovery for the cost of suppling these.

Economic:

Most of the impact will be local; the benefits will be state and national. (Table 2.3 in Section 11 appendix AF).

The Mining Act over rides LEP thus the input of residents is secondary to the needs of the mining industry. This means it overrides the zoning E3 – Environmental Management.

Investment :

It was the previous Labour government that made the decision to issue the multi million dollar exploration licence, the significance of the figure attached to the Watermark licence is an indicator of the land and water value and the risk attached to mining in this area. This licence should not have been issued. It is surrounded by some of Australia's most fertile soils and water resources that at the time of issue, had just completed an extremely arduous planning and adjustment process to ensure sustainability of the water resources for the long term. That the company made the decision to purchase land is a commercial decision that should not influence this approval process.

Coal Demand:

We are already seeing a slowing of international demand for coal, it must be noted that coal can be found in many other places, however the quality of the soil and water resources of the Liverpool plains are often quoted as the best of the best. This mine must be considered high risk to the NSW Government due to land devaluation and water impacts resulting litigation for approval of detrimental impacts.

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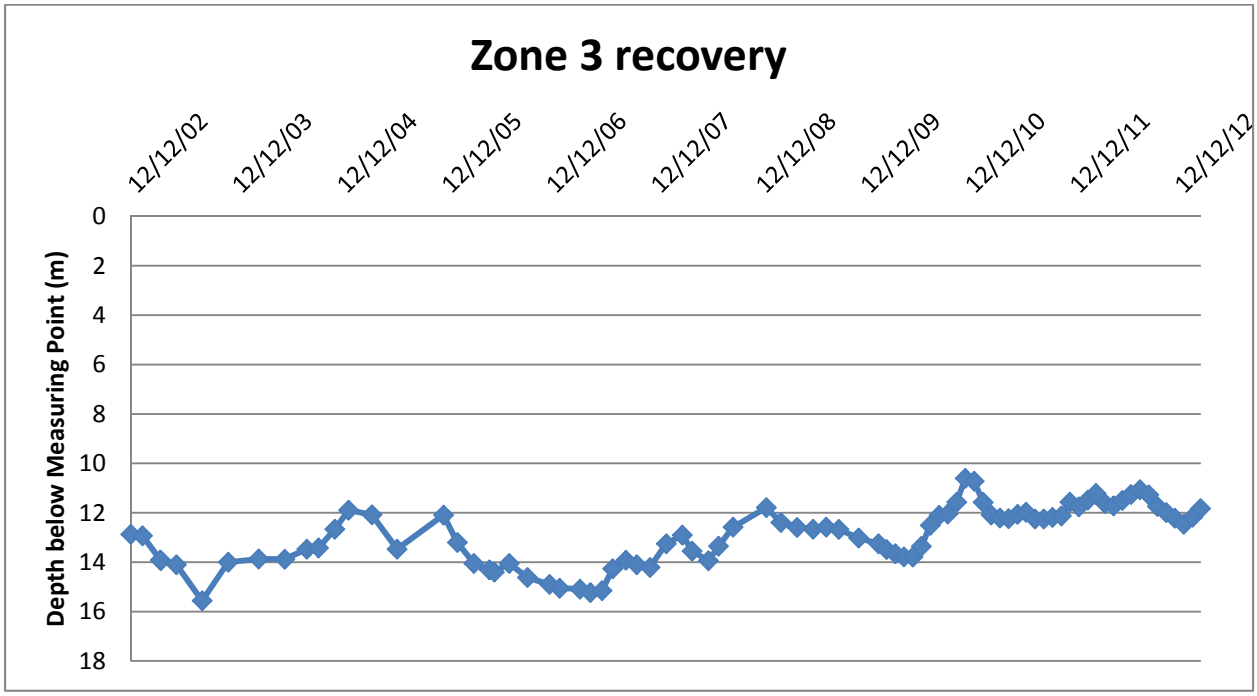
Water issues

The Earth Systems Review is a comprehensive report covering the major deficiencies in the EIS, we will not be summarising these issues in our submission. However we note that we fully support the statements and conclusions made in this report. We wish to highlight a number of other issues in relation to the reports and applications made.

Water Reform:

It is interesting to note the proponent chose to highlight the DLWC report from 2000 regarding highest risk to inland aquifers. That licence holders reduced their entitlement in the Upper Namoi zones as much as 95% and on average by 60% (with minimal compensation) shows commitment of the landholders to achieving sustainable yield. As Barret rightly points out there was a declining trend in groundwater hydrographs in this highly developed groundwater area, however the hydrograph below shows the impact of water reform and trend reversal. It is noted that the reference to the groundwater aquifers in the Namoi as being unconfined is a generalisation and is incorrect in the context of the Watermark mine. It also does not take into account current data and given most reviews referenced were conducted prior to and at the time of Water Sharing Plan reform are no longer as relevant.



Source : NSW Office of Water Hydrograph tables on line

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Flooding:

The EIS States that Flooding will impact on a small area during period of high rainfall. *A small area in the south-east corner of the Disturbance Boundary will be inundated to ta depth of 1.7 metres. Placement of overburden on this small area will not affect flood behaviour on the floodplain; however it will reduce the flood storage of the larger Mooki River floodplain by approximately 235 Mega litres. Given the high propensity for bank erosion along the watercourses, a range of sediment and erosion control measures will be implemented and outlined in an associated management plan.*

This will impact on irrigators water availability via reduced surface water runoff and further there is potential for off-site spills from mine water storages and with the proposed pipeline to the Mooki it is probable there will be controlled discharges during extreme events with "licence to pollute" issued. These licences are issued to keep the mine operational rather than deal with the real issue of Mine Plan failure. The Mooki river is unregulated and although discharge would be approved based on favourable dilution rates, it reduce access, legitimate access by those with Unregulated licences on the Mooki who would not wish to pump when contamination is occurring.

We also note that mine interception will impact on both unregulated licence holders in the Mooki system but also further downstream on the Namoi accessing supplementary events. It is plausible there are likely to be a number of "extreme" events that could occur during the mine life, and there is concern the the build up of contaminants in the river and on farm is a high risk not covered in baseline assessments in the EIS.

Part of the exploration lience condition is that development approval is not to be sought anywhere on the floodplain. The EIS shows that floodwaters are being managed by the design of embankments to channel water away from the mining area. It also states that part of the western mining area will be inundated with floodwaters. Therefore the mine is partially on the floodplain. The experience of landholders in the surrounding area notes the storage dams proposed for the mine are insufficient for the events that occur in this region, the impact of high rainfall events in short time frames cannot be understated and is often not well modelled or planned for (note Boggabri Coal and Tarrawonga both discharged waste water into the Namoi during flood events in the last 2 years).

Namoi Water does not support the buffer zone of 150m proposed in the application as it is not substantiated and has been used in other mine proposals with negative impacts occurring in the Hunter.

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Groundwater:

In two main systems:

1. *The Quaternary /Tertiary Alluvial systems f the Upper Namoi alluvium*
2. *The older, deeper and poorer quality bedrock that contained localised aquifers within weathered rock, porous sandstones, fractured zones, volcanics and the coal seams of the Gunnedah Basin (Permian Formations)*

The groundwater was modelled in accordance with the approach recommended in the Australian Groundwater Modelling Guidelines 2012 as required by the Aquifer Interference Policy. This does not appear to take into account the cumulative impacts of other mines as highlighted in the Namoi Water study.

The groundwater model was calibrated via two processes: a steady state calibration and a transient calibration. The modelling effect indicates that the groundwater seepage into the mining areas will average 0.5 Mega litres per day over the life of the project. The peak annual average seepage into the mining areas is estimated at 201 Mega litres per day in year 23. The predicted cumulative inflow of groundwater over the project is approximately 5,500 Mega litres, which represents less than 0.1% of the extraction limits set for the Gunnedah-Oxley Basin Murray Darling Basin Zone (Other) as prescribed under the Water Sharing Plan for the Murray-Darling Basin Porous Rock Groundwater Sources. The model predicts a drawdown of 25 metres or less in the Permian underlying the Narrabri Formation. The depressurisation in the Permian extends to the south where the overlying Gunnedah Formation is present. The depreciation and associated take of water from the alluvial aquifer is considered to be a small and represents a negligible change in groundwater availability to adjacent groundwater users. The change in the upward flow from the Permian to the alluvium due to mining is negligible beyond the immediately adjacent zone 7 of the WSP of the Upper and Lower Groundwater Sources 2003. Zone 3 and Zone 8 of the WSP for the Upper and Lower Namoi Groundwater Sources 2003 report only very small change. The increase in seepage from the Mooki River to the underlying alluvium of 0.13 Mega litres per day represents an undetectable proportion of the total river leakage along the Mooki River of 0.4%.

The predicted groundwater levels within the Western Mining Area final void will slowly recover and reach equilibrium at approximately 303 metres Australia Height Datum after approximately 2,000 years post-mining. Groundwater levels remain below the regional water table by approximately 1-2 metres, indicated the pit lake void will act as a groundwater sink, not a source.

The use of final void is unacceptable, Namoi Water does not support voids which act as groundwater sinks, the impacts from this continue to effect landholders long after the mining company has disappeared and the community is left with the shelf company and environmental contamination.

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The Project will create a zone of depressurisation induced by mining in the Permian formations underlying the Gunnedah Formation. The average pumping rate from a single licensed agricultural bore in the Upper Namoi alluvium (within 10 km) is 142 Mega litres per year. The combined movement of water is a very small quantity of water being equivalent to no more than the usage from a single licenced agricultural bore in the peak years of mining. There are 35 bores within 10 km of the project boundary. It is predicted that these bores will *experience maximum groundwater level reductions of greater than or equal to 0.1 metres* with a *maximum predicted drawdown between 1 metre and 2 metres. An area of approximately 108 ha, which originally drained to Lake Goran, drain into the final void of the Western Mining area.*

The above statements are based on broad assumptions of connectivity and averages, it is noted the Namoi Water Study is a key resource in assessing cumulative regional impacts from mining and CSG on water resources which clearly shows groundwater zones in close proximity to mines to be at high risk of water drawdowns in excess of 5 meters. Yet this report conveniently comes under the governments new Aquifer Interference policy assessment criteria. The EIS must provide robust science on connectivity, given Shenhua's involvement in the study they clearly understand the data gaps in terms of water quality impacts and connectivity. This must be addressed prior to any approval being provided.

Shenhua Watermark has or will acquire on the open market the necessary licences.
What happens if they are unable to acquire the necessary water?

Additional monitoring bores will also be installed within the predicted zone of depressurisation to assess the extent the extent and rate of depressurisation against model predictions.
What does the proponent propose to do if the monitoring shows greater than predicted adverse effects? This is particularly relevant given once the "pulse" of the mine impacts starts, the impacts on groundwater is effectively irreversible. Page 318 of the Groundwater Impact assessment is underwhelming in the provision of mitigation if the assumptions are incorrect in the modelling and elsewhere in the EIS. How does a mine make good to the groundwater users below the mine on the floodplain in zone 3 with their stranded assets?

The proposed water management system; during wet years it may be possible to obtain all water requirements from run off. However, during average and dry years it is predicted that annual volumes up to 600 Mega litres will be required to supplement the mine water supplies.

The maximum total average salt load associated with the runoff from disturbed areas is predicted to reach 65.7 tonnes per day at year 30, which represents an increase in the pre-mine salt load of approximately 0.8%. This configuration ensures that the Project does not significantly impact on the downstream catchment and water quality.

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In short this statement cannot be verified as there have not been sufficient baseline studies of all parameters undertaken. There are many water quality parameters not covered, in particular Namoi Water is keen to understand the change in micro nutrient levels and it impact on soil over time before mining occurs. Bacteria is not well understood and is often missing from water quality assessments, the potential for human health impacts and soil chemistry changes from bacteria is not included in this report.

Water quality is a key data gap from the Namoi Water study and until such time as further work has been undertaken to understand baseline water quality for both surface water and groundwater resources the application should not be approved. Analysis of discharge water including concentrations and loads of toxicants, including bacteria should be undertaken in other mines to better understand their impacts on the system. Simple dilution is not sufficient mitigation and the cost of water treatment and the compliance to treatment standards is not sufficient to provide protection to existing water users and our communities. In particular the continued reuse of saline mine water and potential contamination through runoff or leaching is of concern.

Air quality

There are six private receivers that are predicted to experience exceedances of the 24-hour average Particulate Matter of less than 10 microns assessment criterion for between 1 and 36 days per year. These maximum impacts represent the worst case operation. Proactive management measures will modify or curtail offending activities.

Again there is no baseline information available locally from Gunnedah for air quality, there is no comparison able to be achieved in this application. It is essential that Gunnedah has baseline air quality parameters established and the Health Impact Assessment proposed for the region will be important in addressing this gap if funded federally. However in this instance there is no comparison, nor are the mitigation measures proposed sufficient as also seen in the water section.

Other mines in the valley have seen dust explosions of plumes of toxic material burning exposed skin and irritating eyes. The air quality impact assessment does not cover those areas considered outside the zone of affectation, yet many on the floodplain below will be impacted by the very nature of their working outside in the environment.

As per the Hunter valley the issue of coal dust impacting on quality of life, drinking water and property values is significant, this is inadequately addressed in the EIS. In particular the experiences of landholders in the Boggabri region has been bitter in terms of mine impacts in zones of affectation – no longer being able to sleep with their doors and windows open in summer, yet mitigation from the mine

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is to provide reverse cycle air-conditioning units until such time as air quality monitors trigger the need to compulsory acquire property. This is not done at the farms true value pre mine, but at the post mine devaluation price that has already forced the landholder to endure a lower quality of life, farming productivity and finally buyout. This is occurring now in the Namoi and it has landholders held to ransom on their own farms, this is particularly distressing for those that have previously operated well with the smaller mine development that was locally owned. The impacts from coal dust on drinking water resources are not addressed in the EIS.

Ecology

4,084 ha of vegetation will be removed progressively over the life of the Project, including 738 ha of Box Gum woodland and Derived Native Grassland and 51 ha of other environmental land. *This is likely to represent a loss of locally important habitat for various fauna species. Extensive vegetation clearing has already and continues of occur in the bioregion as a result of agriculture, forestry and other mining projects.*

This project should be subject to the same controls and restriction as their neighbours i.e. under the Native Vegetation Act and the not except. Also what are the cumulative impacts of the clearing? *Clearing has been excluded from the Breeza state forest.*

The impact has been mitigated by the development of the Biodiversity Offset, which is indirectly connected to a nearby national park and builds onto exiting proposed offset area of other mining projects. Also the onsite Biodiversity offsets, this consisted of the existing management of the Mt Watermark offset, offset Area 6 and Mooki River offset, and the rehabilitation of mined area. It is noted that the Koala populations are well established in the Gunnedah region, the community promotes itself as the Koala Capital of Australia. The EIS proposes relocating these colonies, it is understood that this is not successful with a high rate of death once relocated.

Land Capability

The current capability classification within the Disturbance Boundary ranges from Class ll to Class Vll, with Class Vll dominating in the existing landscape. No Class ll will be disturbed as a result of the Project. 1,000 ha will be rehabilitated to Class lll and returned to agriculture; the remaining 2,000 ha or so will be used for ecological conservation. There will be a 5% increase in land Class ll this has been developed from other class land but not the Class ll land. Post mining the land will be rehabilitated to create gentle slopes to minimise erosion risk.

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The final void of the Western mining area will have a depth of 80 metres. It is considered to be uneconomic to fill this void in. In recognition of the further potential coal resources and the ability of the Western Mining Area void highwall to provide access to these resources, the cost/benefit analysis found that the retention of a safe and stable final void in the Western Mining Area was the most appropriate outcome.

What this indicates is that underground mining is a viable alternative. If approved this mine paves the way for mining under the floodplain – which is completely unacceptable. The risk to the water resources, subsidence and cumulative impacts with other proposed mining will render this area unproductive for irrigated agriculture. The final void has not been assessed adequately to determine the long term impacts on both ground and surface water resources.

Conclusion:

The Namoi Water study has identified a number of issues from cumulative impacts of mining and CSG on water resources both in terms of quality and quantity. These impacts result in unacceptable drawdown in zones within the immediate vicinity of mining activity. The study also highlighted data gaps in assessing impacts from mining activities in particular water quality and connectivity.

The review by Earth Systems has provided clear guidance on how the proponent's EIS is lacking in terms of meeting its regulatory requirements.

Mine Water Management Plans and Mine Plans fail – this is already evidenced here in the Namoi.

If this mine is approved the government is knowingly taking water users back to prewater sharing plan heights in groundwater systems and are agreeing to these impacts at the cost of water users who have already given significantly to ensure their farming systems and productivity can be sustainable.

This application should not be approved, the exploration lease should not have been issued in the first instance.

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