NSW EPA

Our reference : DOC16/7972
Contact: Ramya Gowda,
Date: 15 January 2016

Ms Rose-Anne Hawkeswood
Department of Planning and Environment
PO Box 39
SYDNEY NSW 2001

Dear Ms Hawkeswood,

Thank you for the opportunity to comment on the proposed modification for Tomingley Gold Mine (Ref No. 09_0155 MOD 3) received by the Environment Protection Authority (EPA) on 20 November 2015. My apologies for the delay in responding to your request.

The EPA has reviewed the information in the Environmental Assessment (EA) and has determined that it is able to support the proposal subject to the proponent addressing the information requirements outlined below and in **Attachment A. Attachment A** also contains the EPA's assessment of the proposal, including justification for the amendments and request for additional information.

Should DPE grant consent for the proposal, the EPA recommends DPE incorporate the recommended conditions of consent outlined in **Attachment B**.

Following its review of the information in the EA, the EPA notes additional information is required for the EPA to adequately assess impacts of the project in relation to air quality, noise amenity and water management. The additional information requirements are summarised below and are discussed in detail in **Attachment A**.

Air
Further assessment/information is required regarding the Air Quality Impact Assessment and impacts on local air quality.

Noise
Further assessment/information is required regarding the Noise Impact Assessment and impacts on local noise amenity.

Water
Further information/clarification is required regarding the proposed measures to protect surface water and groundwater from pollution.

The EPA recommends that the proponent be required to provide the additional information specified above and that the EPA is provided with a further opportunity to review this new information before the project proceeds to the determination stage.

It is also expected that the EPA will be given an opportunity to review the draft Director-General's Environmental Assessment report for this proposal prior to finalisation.

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The EPA would also appreciate receiving a copy of the submissions received by the DPE (or a report summarising these submissions) in response to the exhibition of the Environmental Assessment. This is to assist the EPA to review the draft Director-General's Report and to recommend additional conditions of approval, if required.

The EPA notes that the proposal will require a variation to Environment Protection Licence 20169 pursuant to the *Protection of the Environment Operations Act 1997* to commence construction activities and to undertake the proposed Scheduled Activities. The proponent will need to make a separate application to the EPA to obtain this licence variation once development project approval is granted.

Should you have any further enquiries regarding this matter please contact Ramya Gowda at the Dubbo Office of the EPA by telephoning (02) 6883 5306.

Yours sincerely

BRADLEY TANSWELL
Acting Head Far West Operations
Environment Protection Authority

Enclosed: Attachment A- Additional Information Requirements
Attachment B- Recommended Conditions of Consent

Attachment A

Additional Information Requirements

Air Quality Impact Assessment:

Predicted Impacts

A quantitative assessment of predicted impacts at sensitive receptors following modifications to operations has not been provided. An inventory of TSP emissions for the proposed modifications calculated using US EPA AP 42 emission factors is presented, and compared with the emissions inventory for existing operations. It is noted that the proposed modifications increase total TSP emissions by 10% from existing operations. Modelling of impacts at receptors from the proposed changes has not been undertaken. It is stated that based on the previous modelling assessment (AQIA 2011) an increase in emissions of up to 20% would have a negligible impact on predicted impacts at sensitive receptors.

The information provided is not sufficient for assessment of potential impacts from the proposed modifications

The EPA does not consider the information provided to be sufficient for assessment purposes:

- The Environmental Assessment and AQIA 2015 both refer to the AQIA 2011 for existing operations without providing a thorough summary and discussion of results at receptors and/or appending a copy of the original assessment to the current application. Each development application must include all the information necessary to assess the proposal within the documentation lodged for the proposal.

- The TSP emissions inventory detailed in the AQIA 2015 provides an estimate of the total emissions of the proposal, but does not show the potential spatial or temporal impacts of the proposed works. It is noted that there is an increase in total predicted emissions with changes in source apportionment with the proposed works. It is unclear from the information provided whether the proposed modifications result in works moving closer to receptors. A clear and unambiguous comparison of predicted impacts at sensitive receptors for the proposed operations compared with predicted emissions for existing operations is required.

- A summary table is provided in the Environmental Assessment (Table 22) comparing the ranges of predicted emissions from the 2011 AQIA with observed emissions from monitors that indicates that predicted impacts are generally consistent with observations. This table is not provided in the AQIA 2015. The EPA notes:

    - Monitoring data from the TEOM located at the nearest receptor to the mine site indicates that seventeen exceedances of the PM10 24 hour EPA assessment criterion were recorded between October 2014 and May 2015.
    - The 2011 AQIA did not predict any exceedances of the 24 hour average impact assessment criterion due to project only emissions, however some cumulative exceedances were predicted. Probability assessment indicated a likelihood of occurrence of approximately one day every three years. This is not consistent with the monitoring results.
    - In response to the measured exceedances the proponent developed a site specific dust management procedure outlining monitoring and management measures,

including wind speed, direction and temperature based triggers for mitigation measures and cessation of site activities, and a real time monitoring system. The proponent has also implemented the use of dust suppressant in addition to watering. It is stated that there have not been any further exceedances since the implementation of the procedure.

A detailed validation of the 2011 AQIA predictions against monitoring data is required to justify the use of the previous assessment as being sufficiently representative of existing operations.

Further Information is required prior to recommendation of conditions of approval for the proposed mine modification

- A revised air quality impact assessment prepared in accordance with the requirements of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* that clearly details predicted impacts at sensitive receptors for the proposed works must be provided for the EPA's assesment. The assessment must:
    - Provide a detailed validation and discussion of the 2011 AQIA predicted impacts against monitoring data that demonstrates the modelling predictions are representative of existing operations;
    - Compare predicted impacts at sensitive receptors for the proposed operations against those for existing operations;
    - Details any additional management and mitigation measures to be implemented if required to ensure compliance with the EPA's impact assessment criteria for particulates.

There must be a clear and unambiguous link between air quality impact information discussed in the Environmental Assessment main report and the Air Quality Impact Assessment provided as an appendix.

Noise and Blast Assessment:

Appendix 2, Noise and Blasting Assessment, includes in Section 5.1.1:

- *"Existing operations were calibrated against in-field compliance measurements... conducted over three 24 hour periods in October 2015 (Noise and Sound Services). The compliance report did not state the exact meteorological conditions at the time of each survey..."*

Tomingley Gold Mine is regulated by the EPA via Environmental Protection Licence 20169, which specifies noise limits, where they apply, and the exact meteorological conditions under which they apply. It also specifies that the meteorological conditions are to be those measured at the meteorological station on site, and that such equipment is to maintained and operated in a proper and efficient manner.

It's not clear how noise from the existing operations was calibrated without knowing what the meteorology was. In order to complete the EPA's assessment of the potential impacts of the activity the EPA requests that the proponent provide the exact meteorological conditions (temperature, wind speed, wind direction, sigma theta and atmospheric stability category) from their meteorological station for the times of the October compliance measurements.

Water Resource Assessment:

Process water and Residue Storage Facility

The surface water quality management systems for the process water and the residue storage facility (RSF) remain generally adequate. The RSF is a prescribed dam under the NSW Dam Safety Committee and has a rainfall capture capacity equivalent to the 10,000 year ARI design storm event.

The EPA requests that:

The proponent confirm that a freeboard will be maintained for raw water and process water dams equivalent to a 1:100 year, 72 hour rainfall event based on the proposed site changes under the modification, also taking into account the proposal to pump dirty water system sediment basin wastewater to the process water system.

A clear commitment be provided in the response to submissions, and any implications clarified, in relation to the statement in the Environmental Assessment (EA) that: "the storage capacity of the Wyoming Central Dam may be increased to reduce the potential for in-pit storage of process water, noting that an increase in height of the dam wall would provide for an additional 20ML storage".

Discharges from "dirty water" sediment basins

It is proposed that the site will be a nil discharge site up to the design sizing of the sediment basins and dams, i.e. only managed overflows will occur. Managed overflows are associated with wet weather events where the volume and quality of the discharge is a function of the weather event and where controlled discharges are generally treated up to the design limits of the system but beyond this are not fully able to be controlled by the licensee. In these circumstances the EPA cannot reasonably expect a licensee to manage compliance with pollutant concentration and volume limits beyond the design parameters.

The EA states that:

> *"In the unlikely event of a discharge, it is expected the quality of the water would comply with salinity and pH criteria. While this water could contain elevated concentrations of total suspended sediment the criteria of EPL 20169 is not applicable under these conditions given the rainfall exceeds the design specification of the sediment basins (designed, constructed and managed in accordance with Blue Book standards)." and*
>
> In Section 4.3.4.1.3 Water Quality: *"the water quality criteria for total suspended sediment (TSS) of EPL 20169 should not apply and modification to EPL 20169 is recommended to reflect this.*

It is agreed that licence limits for TSS could be turned off for managed overflows provided that the other proposed controls, including increasing the size and pumping, are implemented.

Turning off licence limits for TSS during managed overflows recognises that the agreed design capacity of sediment basins has been exceeded and that overflows are a function of the weather event and therefore the Licensee is not fully able to control the sediment in the discharge and the volume discharged. It may also result in inappropriate use of flocculants in an attempt to meet the licence limits which may lead to higher risk of flocculants or coagulants being discharged. The EPA can regulate the managed overflows by conditions that minimise the environmental impact and ensure that other practical measures are taken.

Metals

The limits for metals however, should remain on the licence for both controlled discharges and managed overflows since the design of the sediment basins (i.e. "Blue Book" standards) is based on areas with uncontaminated sediment only. The Blue Book standards do not relate to areas that contain pollutants other than sediment, however, the dirty water sediment basins receive runoff from waste rock emplacement areas that may contain metals. Appropriate treatment or containment of metals (commensurate with their higher risk compared to sediments) is required if concentrations may have a non-trivial risk of harm to human health or the environment. No monitoring data has been presented in the EA to assess the quality of any discharges that have occurred.

The EA states that:

> *"While it is assessed that the significant dilution mixing effect provided by the high volume of water likely to be flowing within the catchment would mitigate any impact associated with these discharges, further Investigation into the dilution / mixing effect be completed is recommended."*

Available dilution in receiving waters can be taken into account in revising limits for metals, however, it should be noted that the dilution that EPA takes into account is near-field (initial) dilution in-stream and not dilution from far-field processes. In addition, when considering adjustments to limits based on dilution the aim should be to ensure that there is no potential for acute toxicity in the mixing zone and bioaccumulation risks are taken into account.

Licence limits for metals can be adjusted to account for in-stream dilution where it can be demonstrated that dilution is available at the time of discharge, however, it is not clear if this is proposed. Dilution of metal levels in the sediment basins and in discharges due to high rainfall conditions has the potential to reduce metal concentrations in discharges which will assist in meeting current licence limits for metals.

The licensee may also consider other relevant steps in the ANZECC (2000) decision tree for toxicants to demonstrate lower risk compared to the default trigger values on which the licence limits are based.

Natural metal levels in receiving waters

The EA states that:

"*it is possible that the concentration of some of these metals naturally occurs at concentrations exceeding the criteria of EPL 20169.*"

With regard to taking into account natural metal concentrations in waterways, ANZECC (2000) provides specific guidance and methodology including:

- selecting reference sites (e.g. use of slightly disturbed reference sites where the level of protection is slightly to moderately disturbed); and
- deriving specific data requirements for deriving site specific trigger values (24 monthly samples for example).

If site specific trigger values are proposed to be developed then the use of data from moderately disturbed or highly disturbed sites is not appropriate and site selection should be clearly justified based on the ANZECC reference site methodology in consultation with the EPA.

Even where natural background levels of potential pollutants are elevated compared to environmental criteria it is important that higher concentrations of a pollutant do not occur more frequently than currently occur.

Regulation of pumping from sediment basin to internal storages

It is the EPA's intention to add a condition to EPL 20169 in relation to the maintenance and implementation of pumping to minimise overflow potential.

This includes addition of a condition that refers to the pumping requirement to be maintained and implemented.

Overland flow on private property

Overland flow on private properties prior to dilution instream would have a higher risk profile than direct discharge to streams and should be taken into account in any assessment of dilution. Where managed overflows may occur across private property then these discharges should be given priority in implementing water management controls.

Groundwater

Further information regarding construction of the RSF wall lift is required to ensure it will be sufficient to prevent seepage through the raised wall. This includes clarification as to whether the wall lift will be lined to meet the EPA permeability requirement of 1×10^{-9} metres per second (m/s) or less with a re-compacted clay liner of at least 90 centimetres (cm) in thickness.

Environment Protection Licence Inclusions

It is the EPA's intention to maintain or include a number of conditions in relation to the matters outlined below on EPL 20169:

- Total Suspended Solids (TSS) licence limits for any controlled discharges will remain at 50 mg/L;
- TSS licence limits for managed overflows (that occur above 10-day 90 percentile rainfall plus management actions including the proposed pumping) will not apply. The EPL will specify the design rainfall event and management actions such as pumping which apply to the TSS limits being turned off;
- licence limits for metals will remain unchanged for both controlled discharges and managed overflows at this stage;
- if instream dilution can be demonstrated then the EPA are amenable to reviewing the licence limits for metals to incorporate dilution;
- water management measures proposed in the EA to minimise the potential for overflow are implemented, including:
    - during heavier or prolonged rainfall events, initiate pumping to move water from the sediment basins to the process water management system (Raw Water Dam, Process Water Dam or Central Wyoming Dam);
    - if the capacity of any of the water storages of the process water management system reaches 90%, discharge wastewater to an alternative storage or an open cuts for temporary storage.

ATTACHMENT B
Recommended Conditions of Approval

WATER

The EPA recommends that DPE's consent (if issued) incorporate conditions in relation to the following matters:

1) *The proposal to increase water storage capacity of all relevant existing and additional sediment basins to contain rainfall up to a 10-day 90 percentile event; and*
2) *The internal sediment basin dewatering system (with a maximum pumping rate of 90L/s) is maintained to allow water to be pumped from the sediment basins to the Wyoming Central Dam and open cuts.*