

11 December 2015

Catherine Vanlaeren
Planning Assessment Commission
GPO Box 3415
SYDNEY, NSW 2001

Dear Ms Vanlaeren

**WOLLONGONG COAL RUSSELL VALE COLLIERY
PREFERRED UNDERGROUND EXPANSION PROJECT NO. MP 09_0013**

I refer to the discussion between the Planning Assessment Commission (PAC) and WaterNSW on 7 December 2015 regarding the above proposal. I thank the PAC for providing WaterNSW with an opportunity to provide further comments on the proposal.

WaterNSW notes PAC's first review of the Preferred Underground Expansion Project (UEP) and that the Commission made 15 recommendations requiring additional work and assessment to be carried out prior to a determination. The additional work included the establishment of an Independent Risk Assessment Panel (IRAP) to oversee an Integrated Risk Assessment (IRA), focusing between the subsidence and associated impacts of the mining proposal including on groundwater, surface water and swamps.

As part of IRA process, WaterNSW reviewed the draft and final IRA reports and Wollongong Coal's (WCL) Contingency and Closure Plans of the mine's application to extract Longwalls 6, 7, 9, 10 and 11 in the Cataract Dams Safety Committee (DSC) Notification Area and provided comments to the Department of Planning and Environment (DPE). WaterNSW considers that IRA process for the proposal was thorough and it identified all risks, associated likelihood and consequences.

WaterNSW has reviewed the DPE's Addendum Report and draft Conditions of Approval (dated 2015). WaterNSW has also considered the WCL final reports (Part 1 and Part 2) that addressed recommendations of the PAC Review including a final IRA in preparing this response to the PAC.

WaterNSW's remaining issues of concern related to the Preferred UEP application and the Department's response in the Addendum Report are discussed below. WaterNSW considers that these matters can be addressed via conditions of approval and a minor change to the mine layout.

WaterNSW Concern 1 – Setback of mining from Cataract Reservoir for protecting the stored waters of Cataract Reservoir

WaterNSW is concerned about the extent of intrusion of longwalls, particularly longwall 7, into the Cataract Reservoir Notification Area. WaterNSW notes that the preferred UEP longwall layout is designed to avoid any coal extraction inside the 35° angle of draw, however the calculations by WaterNSW identified that the western end of longwall 7 is within 35° angle of draw. WaterNSW requests clarification regarding this matter. If the clarification identifies that longwall 7 is within Notification Area, WaterNSW recommends the mine layout be amended to exclude the western part of longwall 7 from the marginal zone i.e. outside 35° angle of draw to ensure the protection of Cataract Reservoir which is an essential part of Sydney's drinking water supply system.

In its response to the DPE on the Contingency and Closure Plans (dated 2 November 2015), WaterNSW requested DPE include adequate financial provisions in approvals to compensate WaterNSW for any water losses from Cataract Reservoir that are greater than 1ML/day should the Contingency Plan measures fail.

If the Commission decides to recommend the mining proposal for approval, WaterNSW recommends:

- to amend the mine layout to exclude the western part of longwall 7 outside the marginal zone i.e. 35° angle of draw, if longwall 7 is identified to be located within 35° angle of draw
- to amend Condition 2 to include (2d) to adequately compensate WaterNSW for any water losses from Cataract Reservoir that are greater than 1ML/day should the Contingency Plan measures fail.

WaterNSW Concern 2 – Conflicting Estimates of Baseflow Losses in the Groundwater Assessment and Surface Water Modelling

WaterNSW has been concerned regarding the difference in predictions between the baseflow loss of 0.041ML/day in the groundwater assessment and the stream flow loss of 7.3ML/day in the surface water assessment.

WaterNSW has previously requested that the consent should only permit mining up to a point where the valley closure is predicted to be 200mm, consistent with the TARP for LWs 5 and 6.

The Addendum Report states that WaterNSW continues to express its dissatisfaction with the surface and groundwater modelling, particularly in respect of predicted baseflow losses; requesting further modelling and limiting baseflow loss of 0.05ML/day in conditions of approval in its final submissions in response to the IRA dated 2 and 6 November 2015.

The Addendum Report also states that:

- it is the Department's view that the additional long-term modelling as proposed by WaterNSW would serve no useful purpose. All surface water impacts of the project are required to be accounted for through water licensing. The Department considers that good baseline monitoring and impact monitoring would be more accurate than any predictive modelling. The Department also considers that there is no policy basis for restricting baseflow losses to an arbitrary (and exceedingly low) limit. Instead, the policy framework for dealing with baseflow losses across the State (including all mining operations and all water catchment areas) is one of licensing water take under the Water Management Act 2000

- the existing conditions of approval require a program to validate the surface water and groundwater models for the project, and compare monitoring results with baseline data and modelled predictions (Condition 10(h) of Schedule 3).

WaterNSW notes no timeframe for validating the models has been specified in the condition as was required for the recently approved Springvale mine extension project. Given the short longwalls and rapid mining progress likely to be undertaken at Russell Vale, WaterNSW requests that this condition be amended to include a timeframe for updating these models to every two years.

WaterNSW disagrees with the DPE's assertion that the predicted extreme water loss is negligible. Water loss of 7.3 ML/day is unacceptable to WaterNSW, particularly during dry periods.

WaterNSW notes the DPE's statement that the baseflow loss estimates provided by groundwater modelling represent a "likely" estimate, i.e. of 0.04 ML/day (15 ML/year). WaterNSW does not support this conclusion for a number of reasons.

As pointed out in the Addendum report, the estimated baseflow losses are related to the regional aquifer only. WaterNSW considers a significant proportion of baseflow in this area is likely to be from perched and transient hill-slope aquifers following wet periods, and these are likely to be significantly reduced by near-surface subsidence cracking. Whilst WaterNSW understands that it may not be strictly appropriate that it be used in this way, the surface-water modeller's base-flow index of 0.317 (Table 4.1, WRM 14 August 2015) gives an approximate value of base-flow (though not considering that provided by swamps and other local storages). This value of approximately 30% is consistent with assessments made by WaterNSW (refer our submission D2013/29381, dated 12 April 2013) in other stream base-flow component estimates in the Special Areas, and could be reasonably used as a non-conservative, approximate guide to the volume of baseflow which might be lost from the stream reaches predicted to be subsidence-impacted reaches of Cataract Creek, Cataract River and Bellambi Creek. This estimate would suggest a "likely" baseflow loss significantly higher than 0.04ML/day.

WaterNSW accepts that there is little value in undertaking significant additional modelling for the purposes of deciding whether or not to approve the application. If the Commission decides to recommend the mining proposal for approval, WaterNSW recommends that the conditions of approval include requirements for:

- limits on total baseflow loss from all streams of no more than 10% of pre-mining (i.e. pre-UEP) flows, with suitable performance triggers and assessment system to be identified within a Water Management Plan, developed in consultation with WaterNSW.
- amend Condition 10(h), dot point 5 to require baseline data on surface flows include an assessment of baseflow components using an agreed methodology, that trigger levels for baseflow losses do not exceed 10% of pre-mining baseflow components, that include predictions of baseflow losses from streams and water storages at 1, 10, 50, 100 and 200 year timeslices be set out in the Water Management Plan, and these estimates be updated and validated at least every two years.

WaterNSW Concern 3 – Upland Swamps

WaterNSW reiterated its concern in its most recent response to the DPE about predicted impacts on upland swamps causing environmental consequences greater than negligible and considered this is an unacceptable level of environmental consequence.

The Addendum Report states that the Department accepts that:

- the current mine plan for the Preferred UEP would result in impacts to some upland swamps, particularly CCUS4 and the Department accepts that WCL has employed all feasible and reasonable measures to avoid swamp impacts during the development of the mine plan, and has avoided mining under several large swamps near the proposed longwalls
- some impacts on swamps are an unavoidable consequence of longwall mining, and that these impacts should be carefully weighed against the social and economic benefits of the project, and offset if they are greater than negligible. The Department's proposed approach to offsetting impacts to upland swamps (including CCUS4) is consistent with the Government's current draft Swamp Offsets Policy
- there is uncertainty in predicting subsidence and environmental outcomes for upland swamps. However, the Department considers it unlikely that this issue can be resolved through further technical work or analysis and that there is a need to accept there could be some variability in predicting impacts on swamps. Therefore, the Department considers that it would be unreasonable to hold WCL strictly liable for precise impacts on swamps. However, it is vital that there is strict monitoring of the impacts on swamps and an obligation to offset all such impacts. If offsets cannot be obtained, then WCL would have to adapt the mine plan to avoid greater than negligible impacts on swamps. To ensure there is a consistent approach to managing both uncertainty and impacts, the Department proposes that the project approval be revised to:
 - strengthen monitoring conditions, requiring expansion of the existing network of piezometers in and around the upland swamps; and
 - reflect the draft Policy Framework for Biodiversity Offsets for Upland Swamps and Associated Threatened Species Impacted by Longwall Mining Subsidence.
- WCL has committed to ensuring land-based offsets are located within the local catchment, where possible. The Department accepts that this may not be possible, and notes that the draft Swamp Offset Policy does not place any such restriction on the provision of offsets. Instead, it takes a broader perspective and requires the impact to be offset within the range or distribution of the relevant endangered ecological community or swamp community.
- while the Department agrees with WaterNSW that the additional piezometers should be installed as soon as practicable, it does not think this can be achieved within 3 months, particularly if the installation of these piezometers is to be informed by the advice of the proposed Independent Monitoring Panel. The Department has therefore recommended a condition requiring piezometers to be installed as soon as practicable after approval, to the satisfaction of the Secretary. The Department notes that all future installation of piezometers would be subject to further consultation with key agencies and would be described in future Extraction Plans. The Department has also recommended a condition requiring all raw piezometer and other monitoring data to be made available to the Department, OEH and an independent monitoring panel, on request.

WaterNSW supports the DPE's assessment that if offsets cannot be obtained, then WCL would have to adapt the mine plans to avoid greater than negligible impacts on swamps.

If the Commission decides to recommend the mining proposal for approval, WaterNSW recommends that:

- Define the determination of the 'negligible environmental consequences' as per the OEH draft Swamp Offset Policy.

- The impacted swamps are within the Metropolitan Special Areas and any offset proposal should therefore be applied within the Special Areas. If a like-for-like offset cannot be secured within the Special Areas, other options under the various 'rules' or supplementary measures that may be considered should be applied within the Special Areas.
- Swamps within the Metropolitan and Woronora Special Areas are managed and substantially owned by WaterNSW. The conditions should therefore explicitly include a requirement for consultation with WaterNSW in the development and implementation of an offset strategy including a variation to a strategy.
- Amend Condition 10(j, dot point 7) to include WaterNSW for the provision of swamp monitoring data.

WaterNSW Concern 4 - Subsidence Impact Performance Measures and Corresponding Monitoring Triggers

WaterNSW is concerned that the some of our recommended performance measures have not been included in the draft Conditions of Approval (see amended Table 1).

The Addendum Report states that the Department confirms that the recommended approval includes subsidence impact performance measures which are considered to be adequate to protect water resources, swamps, biodiversity, cliffs and steep slopes. The conceptual monitoring triggers proposed by WaterNSW are generally seen as useful. However, such triggers would normally be developed and included in future Extraction Plans. The Department supports careful review of these proposed triggers, in consultation with WaterNSW and other key agencies, during the preparation of future Extraction Plans.

WaterNSW has further refined performance measures for the mine proposal (see amended Table 1). If the Commission decides to recommend the mining proposal for approval, Water NSW recommends that DPE adopt all of the performance measures in Table 1.

WaterNSW Concern 5 - Socio Economic

WaterNSW notes the cost benefit analysis (CBA) in the Economic Assessment Report has been updated to reflect a loss of stream base flow of 15 ML/year, based on updated groundwater modelling by GeoTerra, to a high-end estimate of \$430,000 in net present value terms.

As noted above (Concern 2) however, WaterNSW remains of the view that the groundwater-modelled value for stream base flow of 15 ML/year is not conservative and that real surface water reductions are likely to lie within the range of 15 ML/year and 2.6 GL/year (the worst case scenario value derived by assuming that all surface flows above the subsidence impacted areas will be lost from stream flow).

WaterNSW notes the use of a value of \$2,000 per ML in the economic analyses, which is suggested to be based on the current (2010) Metropolitan Water Plan. The current IPART approved value of Long Run Marginal Cost is in a range that includes the current Sydney Water retail price of \$2.276 per kL or \$2,276 per ML (\$2015/16). IPART has set retail water prices to signal opportunity cost, and any resource decisions, either made by water consumers or by other parties such as miners, should be consistent with this value. WaterNSW is aware that both IPART and Sydney Water have revised this calculation, and that a different usage price on this basis may be set by IPART for Sydney Water by June 2016. In any case, the opportunity cost should be set at the retail price so that all resource decisions are on a level playing field.

The base-flow index of 0.317 (Table 4.1, WRM 14 August 2015) could be used as a guide to the volume of baseflow which might be lost from the stream reaches predicted to be subsidence-impacted (max 2.6 GL/year), i.e. a value of 824 ML/year (or 10% of baseflow loss from groundwater contribution). If the current replacement value of water of \$2,276/ML is used, a potential cost to WaterNSW (who does not own the water and does not therefore benefit from any compensation or licence fees paid to the NSW Government) of approximately \$22.1M could ensue, which is not significantly different from the threshold value of the project given by Gillespie of \$23M.

WaterNSW Concern 6 – Ongoing Role of the Independent Risk Assessment Panel

The Addendum Report states that WaterNSW indicated its strong support for an ongoing role of the IRAP during the operational stages of the UEP, and considered that this should be a conditional requirement.

The Addendum Report states that

- the Department agrees that an independent panel should continue to provide expert advice to WCL, the Department and relevant agencies on the environmental consequences of mining associated with the UEP.
- the Department has recommended a condition requiring the establishment of an Independent Monitoring Panel for the project (see condition 12 of Schedule 3). The panel is to be appointed by the Department, funded by Wollongong Coal and comprise suitably qualified experts in the fields of mining subsidence, groundwater and upland swamps.”

WaterNSW notes that the role of IRAP in Condition 12 has a focus on upland swamps. WaterNSW believes that the role of the panel must extend to water resources such as surface water and groundwater. In light of this, WaterNSW recommends amendments to Condition 12 to include water resources (see below).

Comments related to Draft Conditions of Approval:

Definitions

WaterNSW be included in definitions.

Schedule 3

- Condition 1, Table 1 – WaterNSW recommended performance measures have not been adopted. WaterNSW should recommend that its performance measures in table 1 be adopted.
- Condition 2b – there should be a time limit on when a report is required for an impact exceeding a performance measure. Reports should be required no later than 3 months after the performance measure has been exceeded or otherwise as directed by the Secretary.
- Condition 2 – there should be a requirement to compensate WaterNSW for any losses of water from Cataract Reservoir caused by mining where these losses exceed 1ML/d and where the contingency plan has failed to address these losses. This should be reflected in new point (d).
- Condition 3 – as any offsets are required as a result of an impact within the Special Area and as it is likely the impact relates to land or an asset owned by WaterNSW there should be a requirement for the proponent to consult with WaterNSW when they develop offsets.
- Condition 10 – (h) dot point 5 – requires a program to validate the surface and groundwater models for the project. This validation should be required every two years and if required the models should be updated.
- Condition 10 – (j) dot point 7 – WaterNSW requests that it also receive the raw piezometer and other monitoring data related to swamps.
- Condition 10(p) - Contingency planning shall result in a plan which can be implemented effectively over the short, medium and long term to maintain impacts within acceptable limits.
- Condition 12 – The Independent Monitoring Panel has a focus on swamps. The role of the panel must extend to water resources. The panel therefore needs to include suitably qualified experts in the field of water resources.
Condition 12b - also include water resources
Condition 12c - also include Surface and Groundwater Monitoring Program
Condition 12d – also include surface water

Schedule 4

- Condition 27(a) – WaterNSW should be included for consultation for the preparation of the Rehabilitation Plan.

Schedule 6

- Condition 6 – If there is a need to do more than a minor update to a strategy, plan or program required then there should be a requirement to consult with WaterNSW where WaterNSW has an interest.

Conclusion

If the Commission decides to recommend the mining proposal for approval, WaterNSW requests that its concerns be addressed by modifying the mine layout and via appropriate Conditions of Approval including:

1. Modify the proposed mining layout to exclude western part of longwall 7 from marginal zone i.e. 35 degree angle of draw, if longwall 7 is identified to be located within 35 degree angle of draw.
2. The consent should only permit mining up to a point where the valley closure is predicted to be 200mm, consistent with the TARP for LWs 5 and 6.
3. WaterNSW's performance criteria developed for the proposed mining area (Table 1) be adopted including for Cataract Reservoir, biodiversity and cliffs.
4. Adequate financial provisions are included in any approval granted to mine within the Cataract Dam Notification Area to compensate WaterNSW for any water losses from Cataract Reservoir should the measures in the Contingency Plan fail.
5. WaterNSW's other concerns related to DPE's draft Conditions of Approval specifically Schedule 3, Conditions 1, 2, 2b, 3, 10(h)-dot point 5; 10(j)-dot point 7, 10(p), 12, 12b, 12c, 12d; Schedule 4 Condition 27(a) and Schedule 6 Condition 6 be addressed. WaterNSW requests that, if the project is approved the amended conditions laid out in the attached submission be adopted.

Further queries about our submission can be directed to Malcolm Hughes, Manager Environment & Planning, who can be contacted on 4724 2452 or via e-mail malcolm.hughes@waternsw.com.au.

Yours sincerely



FIONA SMITH
Executive Manager,
Water Quality, Catchment Protection and People and Culture

Table 1: WaterNSW Recommended subsidence impact performance measures and corresponding triggers – Russell Vale Preferred Underground Expansion Project – December 2015

Environment	Performance Measures	Indicative/Conceptual Monitoring Triggers
Cataract Reservoir	<p>Negligible environmental consequences including:</p> <ul style="list-style-type: none"> • negligible reduction in the quantity or quality of inflows to the reservoir, • negligible leakage from the reservoir, and • negligible mine inflows sourced from the reservoir. 	<p>Performance triggers may be set using the following approaches:</p> <ul style="list-style-type: none"> • Quantity of stream flows entering the reservoir (gauged at Cataract Creek, Cataract River and Bellambi Creek) is not significantly different post-mining compared to pre-mining • Baseflow losses (assess by baseflow analysis using hydrograph separation approach) from Cataract Creek, Cataract River and Bellambi Creek reaching the reservoir be restricted to no more than 10% of pre-mining baseflows • Quality of water entering the reservoir is not significantly different post-mining compared to pre-mining • Groundwater levels and hydraulic gradients between existing and proposed mine workings and reservoir remain within limits derived from assessment of natural baseline variability • Monitored mine inflows, calculated mine water balance and mine inflow sources (by fingerprinting including tritium dating) not exceeding groundwater model predictions

Environment	Performance Measures	Indicative/Conceptual Monitoring Triggers
Streams: Cataract Creek, Cataract River and tributaries	Negligible environmental consequences including: <ul style="list-style-type: none"> • negligible diversion of flows or changes in the natural drainage behaviour of pools, • negligible gas releases and iron staining, • negligible increase in water cloudiness, • negligible increase in bank erosion, and • negligible increase in sediment load. 	Performance triggers may be set using the following approaches: <ul style="list-style-type: none"> • Stream flow continuity (e.g. by visual observation/mapping of surface cracking, stream sections with no flow, and differential stream flow gauging) is not significantly different post-mining compared to pre-mining • Water quality is not significantly different post mining compared to pre-mining (e.g. turbidity, suspended solids, total iron) • The extent iron staining in streams (by visual observation/mapping of stream sections with iron precipitates) is not significantly different post-mining compared to pre-mining • Natural pools drainage behaviour (e.g. by visual observation/mapping of rock bar cracking, monitoring of pool water levels) is not significantly different post-mining compared to pre-mining
Ecologically Significant Swamps: CCUS2 CCUS4 CCUS5 CCUS10 CCUS11 CCUS12 BCUS4 and BCUS11	Negligible environmental consequences including: <ul style="list-style-type: none"> • negligible change in the size of swamps • negligible erosion of the surface of swamps • negligible change in the ecological functioning of swamps • negligible change to the composition or distribution of species within swamps, • negligible change to the structural integrity of any controlling rockbar; and negligible drainage of water from 	Performance triggers may be set using the following approaches: <ul style="list-style-type: none"> • Groundwater levels in the peat substrate and sandstone bedrock (based on nested piezometers in combination with monitoring of subsidence effects) are not significantly different post-mining compared to pre-mining • Groundwater recession rates in the peat substrate are not significantly different post-mining compared to pre-mining, • Swamp water balance and outflow rates are not significantly different post-mining compared to pre-

Environment	Performance Measures	Indicative/Conceptual Monitoring Triggers
	swamps, or redistribution of water within swamps.	<p>mining</p> <ul style="list-style-type: none"> • Swamp conditions based on survey/mapping of the extent, peat thickness and/or cracking, vegetation conditions and proportion of bare land, integrity of controlling rockbars) are not significantly different post-mining compared to pre-mining • The extent, distribution, diversity of key ecological groups/species are not significantly different post-mining compared to pre-mining • Abundance of flora and fauna species (e.g. by surveys of threatened or vulnerable species, invasive species) is not significantly different post-mining compared to pre-mining
All other swamps: mapped in the PPR	No significant environmental consequences beyond predictions in the EA	Performance triggers may be set using the same approaches as listed for the ecologically significant swamps above
Biodiversity: Threatened species, threatened populations, or endangered ecological communities	Negligible environmental consequences, including negligible reduction in biodiversity	<p>Performance triggers may be set using the following approaches:</p> <ul style="list-style-type: none"> • Diversity and abundance of swamp fauna (e.g. by periodic surveys of threatened species) is not significantly different post-mining compared to pre-mining
Cliffs and Steep Slopes	Minor environmental consequences (that is occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 3% of the total face of such cliffs within any longwall mining	<p>Performance triggers may be set using the following approaches:</p> <ul style="list-style-type: none"> • Survey and visual observation/mapping of rock falls and surface cracks