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## OD Hydrology

6 May 2014

Coolmore Australia  
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Jerry's Plains, NSW, 2330

Darley Australia  
1030 Northwood Rd  
Seymour, VIC, 3660

### **Re: Review of Anglo American “Drayton South Coal Project Consequential Environmental Impact Assessment for Retracted Mine Plan”**

Dear Sirs,

As requested, the following provides advice in relation to those elements of the Drayton South Coal Project Consequential Environmental Impact Assessment for Retracted Mine Plan (Anglo American, 2014) (‘Retracted Project EIA’) that are relevant to surface water and groundwater assessment including long-term final void storage and salinity behaviour.

Of specific note, the findings of the Planning Assessment Commission (PAC) Independent Review Report (December, 2013) state that:

*“Any new mine plan for the site would need to be further assessed to ensure the visual, blasting, noise and dust impacts could be managed to an acceptable level at the neighbouring stud properties and should take into account worst case scenarios”*

and with particular reference to water issues, that:

*“Other impacts would need to be carefully considered ... particularly in relation to the long term water impacts and final landform”*

Further detail is provided below, however in summary the information provided in the Retracted Project EIA is qualitative only and generally refers to outcomes of previous assessment undertaken for now outdated mine plans. There is no additional assessment of the issues referred to in the recommendations of the PAC.

## Information provided in Retracted Project EIA

Information provided for the Retracted Project relevant to surface water and final void water issues is based on:

- Letter of advice from Australasian Groundwater and Environmental Consultants Pty Ltd (AGE, 2014) providing qualitative comment regarding change in groundwater conditions during and post-mining (including final void behaviour and impacts).
- Letter of advice from WRM Water & Environment Pty Ltd (WRM, 2014) providing qualitative comment regarding change in surface water conditions during and post-mining.

Review of this information finds no additional modelling assessment has been undertaken for the changes in groundwater behaviour and impacts associated with the Retracted Project. In particular, no assessment has been undertaken or additional evidence provided of a well-founded understanding of the long-term impacts associated with the final void. Long-term water impacts are addressed (within AGE, 2014) by reference to assessment undertaken for the previous Preferred Project Report (PPR) mine plan “reshaped void” with the statement:

*“At a high level the conclusions reached for the reshaped void are considered likely to apply to the void that will remain from the retracted mine footprint”*

With no additional information provided, our conclusions regarding concerns related to final void modelling and long-term impacts remain consistent with those described in our March 2014 review.

In regards surface water, again no additional quantitative assessment or updated modelling has been undertaken for the Retracted Project. A significant change in the overall water balance of the Project is recognised (in WRM, 2014):

*“The retracted mine plan is expected to reduce both the inflows and outflows to be managed within the water management system”*

however no quantitative assessment of the potential magnitude or implications of this change on mine operation, management or impact has been undertaken. As with groundwater/final void outcomes, in lieu of any additional information our conclusions regarding concerns related to surface water assessment and impacts remain consistent with those described in our previous review, with the additional issue of a modified minesite water balance that has not been meaningfully assessed.

## Conclusions

No surface or groundwater assessment or information has been provided in the Retracted Project EIA which could be considered to meet the PAC recommendation of further assessment and careful consideration of the impacts of any new mine plan. Information is qualitative in nature and refers generally to previous assessment and conclusions.

No additional information or evidence has been provided within the Retracted Project EIA in response to concerns/queries raised in our previous review in regards surface water and groundwater assessments (March 2014). Conclusions reached in the Retracted Project EIA regarding the level of impact are based generally on previous assessment based on previous mine plans and an assertion that this has been shown (in the opinion of the Proponent) to be acceptable and therefore that no additional assessment has been required.

In summary, our conclusions (including those previously reported) are:

Critical assumptions in the final void water and salt balance modelling:

- Do not appear based in science nor representative of real-world surface water/groundwater behaviour;
- Appear wholly subjective and are not consistent with, or supported by, any reported water movement behaviour between the final void and spoil;
- Imply an underlying imbalance in the assumed final void behaviour.

In regards assessment of compliance with the Aquifer Interference Policy:

- the highly simplified calculations (undertaken for the Hunter River only) reported do not provide meaningful assessment of likely salinity impacts on connected waters;
- reported outcomes show a significant and fundamental change in predicted long-term final void behaviour. Between the PPR and most recent round of modelling, predicted long-term salinity increased by some 500% from 800-1,300 mg/L to 3,600-6,700 mg/L;
- Estimate an ongoing and effectively continuous contribution of some 1,000 tonnes of salt per annum from the final void to the Hunter River over the long-term (> 1,000 years).
- Proposed an ongoing, uncontrolled discharge that would impact most significantly upon low flow salinity conditions within the Hunter River which the Hunter River Salinity Trading Scheme (HRSTS) was set up to improve and protect.
- any impacts would be uncontrolled, occur over the very long-term and be impractical, if not impossible, to mitigate once realised

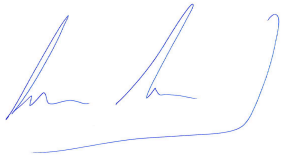
Regarding surface water assessment and impacts:

- The probabilistic values reported are not statistically valid and the forms of analyses are potentially misleading.

- This invalid statistical interpretation means that the design of the water management system is much more likely to be exceeded (i.e. 25% rather than 1%) than recognized or anticipated by the Proponent.
- The Retracted Project Mine Plan represents a significant change in the overall site water balance that has been recognised but not meaningfully assessed.

I trust the above is useful and if you wish to discuss any of the above or clarify anything further, please do not hesitate to call.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Owen Droop', with a long horizontal line extending from the end of the signature.

**Owen Droop**

*Director/Principal Water Resources Engineer*