



Ms Samantha McLean
Executive Director
Independent Planning Commission

By email to: bradley.james@ipcn.nsw.gov.au

15 July 2020

Dear Ms McLean

**Vickery Extension Project (SSD 7480)
Additional Information – Water Resources**

I refer to your letter dated 7 July 2020 seeking additional information from the Department in relation to the Vickery Extension Project.

The Department has prepared a detailed response to each of the Commission's enquiries in **Attachment 1**.

If you have any questions, please contact me on [REDACTED]

Yours sincerely,

A handwritten signature in black ink, appearing to be 'S O'Donoghue'.

Stephen O'Donoghue
Director
Resource Assessments

Attachment 1

1. Confirmation from the Department of the water balance for the Project

The Department's assessment report contains a comprehensive analysis of the water balance for the project - see section 6.2.3 (Water Demand and Supply) and Appendix G6-8 (additional information from Whitehaven).

The EIS and information provided through the assessment indicates that water supply would be managed through a water use hierarchy of:

- (1) Recycling water in the Coal Handling Preparation Plant (CHPP) (see further details in Question 3 below).
- (2) Onsite surface water from rainfall runoff captured in accordance with harvestable rights exemptions and relevant exclusions under the *Water Management Act 2000*, and groundwater inflows into the pit through licensed entitlement under the relevant Water Sharing Plan.
- (3) Namoi River surface water entitlement operated in accordance with the rules of the relevant Water Sharing Plan.
- (4) The proposed groundwater bore-field in the Upper Namoi Alluvium Zone 4, operated in accordance with the rules of the relevant Water Sharing Plan.

The site water balance modelling for the project is based on 124 years of daily rainfall data. Under a 90%ile dry rainfall scenario combined with peak demand over the project life the water balance assessment predicts that a peak annual demand of around 2,100 ML, with around 1,350 ML required for dust suppression (mainly on haul roads) and around 750 ML as make up water required for the CHPP.

The independent surface water expert has advised that the water balance modelling is reasonable and covers appropriate representation of dry and wet cycles over this period and consideration of the effects of climate change variability.

Furthermore, the Department notes that Whitehaven has provided additional water balance and water security information in its response to the IPC dated 26 June 2020. This includes an updated site water balance that has extended the water balance modelling to include rainfall records for a further 2 years up to March 2020, to further extend into the recent drought period.

This additional water balance also considered the case where there would be no entitlement available from the Namoi River regulated river water supply, assuming the Available Water Determination (AWD) is zero, as has been the case during the current drought, and additional groundwater entitlement would be required from Zone 4 Namoi Alluvium. The additional analysis included water demand based on a 99%ile dry year which predicts a maximum demand of 2,276 ML – slightly higher than the 90%ile water demand documented in the EIS.

Whitehaven has proposed the following measures to address potential shortfalls in water supply during mining operations:

- periodic water balance reviews and forecasts to determine likely water availability and sources;
- adjusting its operations to suit the available water entitlements;
- implementing additional water efficiency measures, Whitehaven in its additional advice dated 26 June 2020 for example documented up to 50% water saving on monthly water usage with the use of chemical dusts suppressants on haul roads; and
- obtaining additional entitlements on the open market.

The Department has recommended conditions to ensure that water is appropriately managed, including the requirement to ensure it has sufficient water supply for all stages of the project or adjusting the scale of its operations to match the available water supply – see recommended condition B39.

2. How the water resource monitoring framework is intended to be implemented under the Department's recommended conditions

The Department has recommended that a comprehensive water quality monitoring program incorporating trigger-action-response plans (TARPs) be implemented for the Project, consistent with recommendations from the EPA, the Independent Expert Scientific Committee (IESC) and the independent surface water expert.

Whitehaven would be required to prepare and implement a Water Management Plan for the Project incorporating a site water and salt balance, erosion and sediment control plan, surface water management plan and groundwater management plan in consultation with DPIE Water and the EPA.

Ongoing water monitoring would be undertaken over the life of the project and integrated into refinements to the Water Management Plan on a progressive basis. The Department has also recommended that Whitehaven prepare its Water Management Plan to address the IESC advice and recommendations for surface and groundwater monitoring programs.

The key elements to the water resource monitoring framework incorporated into the Water Management Plan include:

- Water management performance measures as outlined in Table 8 in relation to surface water, groundwater, site discharges, on-site water and waste management, flooding and geomorphology.
- Specific conditions for maintaining adequate water supply for all stages of the development, compensatory water supply, site water discharges in accordance with EPA requirements, mine water storages, flooding and pumping from the Namoi River.
- Requirement to comply with these performance measures and conditions, including the development of site specific ambient in-stream water quality objectives in accordance with the ANZECC Guidelines, discharges in accordance with limits set in an Environment Protection Licence and requirement to meet the minimal impact considerations under the Aquifer Interference Policy, including drawdown on private groundwater bores. The
- Ongoing collection of baseline data, and monitoring programs to monitor and evaluate compliance against these performance measures.
- Implementation of TARPs including notification, reporting, mitigating and offsetting requirements.
- Ongoing groundwater model validation and development as informed by the monitoring program.

NSW Government agencies including the EPA and DPIE Water have a key role in reviewing and providing advice on the extent of the monitoring network and ensuring it would also complement the existing NSW surface water and groundwater monitoring network. Monitoring data would also be publicly available and reported through the Annual Review required under the recommended conditions, along with reporting required by the EPA through its routine reporting requirements. This approach is in line with contemporary practice that is successfully applied across NSW.

3. How the Department has considered recycled water in the water budget for the Project

The project includes a standard mining industry water management approach, which is designed to separate clean water, dirty water (sediment laden runoff from disturbed areas into sediment dams), and mine water (including coal contact water and inflow and runoff into the open cut pit). Mine water and captured sediment dam water transferred into the mine water system would be reused for dust suppression and make up water within the CHPP.

Estimated water use for the project has been based on water usage data from other mines operated by Whitehaven in the area including the Maules Creek Coal Mine, which includes similar infrastructure components (such as the CHPP) and would have comparable dust suppression requirements.

The EIS specifies that all water used in the CHPP would be recycled, apart from the residual water retained in coal rejects following mechanical dewatering. The water demand used in the water

balance calculation is the net demand which will change over the life of the mine depending on the tonnage of ROM coal washed.

For comparison, the Department has reviewed the CHPP water balance data reported in the 2019 Maules Creek Coal Mine Annual Review against the assumptions provided in the project EIS. The 2019 Maules Creek Coal Mine Annual Review reports the CHPP net water use at 1,036 ML (2,392 ML inflow; 3,428 ML outflow), which equates to a water recycling efficiency rate of around 70% (for the CHPP). This is consistent with the assumptions provided for the project, which estimates the CHPP net or make up water requirement at about 120 litres per tonne of ROM coal processed.

Furthermore, the Department has included specific water management performance measures in its recommended conditions (see Table 8 of the Department's recommended conditions of consent), which would ensure the recycling and beneficial reuse of water within the project operations are maximised, including:

- maintain the clean water management system separate from the dirty (i.e. sediment laden) and mine water management systems;
- minimise the use of clean and potable water
- maximise water recycling, reuse and sharing opportunities
- maximise the capture and reuse of mine water and dirty water to meet operational demands for water, including dust suppression activities
- minimise the use of make-up water from licensed external sources
- design, install, operate and maintain water management infrastructure in a proper and efficient manner
- minimise risks to the receiving environment and downstream water users

The Department notes that Whitehaven Coal provided further details demonstrating how it would achieve these performance measures in its additional advice to the Commission dated 26 June 2020. The Department also notes that it is in Whitehaven Coal's commercial interest to be water efficient and reuse and recycle water.

4. How water sharing arrangements between the Applicant's surrounding mining operations are intended to work in practice

The Department considers water sharing between mine sites to be an efficient and beneficial use of surplus mine water. In practice, potential water sharing opportunities between mining operations can offer a substitute for other mine off-site water sources such as groundwater extraction. To this end, the Department has included a performance measure to maximise water recycling, reuse and sharing opportunities.

Water sharing arrangements would allow Whitehaven to make commercial decisions across multiple sites about the use of water within on-site storages and transfer or excess groundwater/ surface water entitlements between operations, subject to statutory requirements under the *Water Management Act 2000* and the EP&A Act.

The Department notes that Whitehaven has submitted a modification application for the Tarrawonga Coal Mine, which includes the construction of a water transfer pipeline connecting into the proposed Vickery Extension Project via the northern bore field. This application is currently under assessment by the Department and if both projects were approved, would facilitate transfer of water between Vickery and Tarrawonga mines. The Tarrawonga Coal Mine also has approval to truck water by road from the existing Vickery bore. There would be opportunity for this water transfer to be undertaken by pipeline subject to approvals.

The Department recognises that access to adequate water supplies for both the Tarrawonga Coal Mine and the Project is a commercial risk for Whitehaven and that both these projects have requirements to ensure there is sufficient water available for all stages of the operations.

Additional information relating to any proposed future water sharing opportunities and commercial arrangements should be directed to Whitehaven. The Department notes that Whitehaven has provided further advice on water recycling and water sharing in its additional advice to the Commission dated 26 June 2020.