

17 September 2021

Group Environmental Manager
Wollongong Coal Limited
7 Princes Highway
Corrimal NSW 2518
Attention: Richard Sheehan
C/O: Tom Frankham, EMM, via email

Richard,

Re: Wongawilli Colliery Surface Water Technical Report – Revised Groundwater Inflow Rates for Modification 2

Further to the EMM email of 7 September 2021 and subsequent correspondence, we have assessed the potential surface water impacts of the revised groundwater inflow rates predicted for the approved and proposed Wongawilli Colliery North West Mains Development (Modification 2). The outcomes of the assessment are documented herein.

Introduction

A supplementary groundwater impact assessment has been undertaken by Umwelt to address relevant government agency comments on the Modification 2 submission (Umwelt, 2021). As a component of the assessment, the numerical groundwater model originally developed and simulated for Modification 2 has been reviewed and revised resulting in revised predictions of groundwater inflow rates for the approved and proposed North West Mains Development (NWMD).

Based on the original numerical groundwater model simulations, SLR (2020) estimated a maximum annual total groundwater inflow associated with the Modification (for both the approved and proposed driveages) of 36.8 megalitres (ML). The revised groundwater model simulations have predicted an additional maximum annual volume of 17.1 ML equating to a maximum annual total groundwater inflow of 53.9 ML (Umwelt, 2021).

Accordingly, Hydro Engineering & Consulting Pty Ltd (HEC) has been requested to address the revised groundwater inflow predictions for the approved and proposed NWMD with respect to:

- the adequacy of the existing water management system to accommodate the increased predicted groundwater inflow volume; and
- compliance with the existing EPL 1087 discharge limit for licensed discharge point (LDP) 2.

The following discusses the outcomes of the assessment and presents an update of relevant components of Section 4 of the *Wongawilli Colliery Surface Water Technical Report* (HEC, 2020).

Adequacy of the Existing Water Management System

As described in HEC (2020), groundwater dewatering, along with water supplied to the underground for mining purposes that is excess to requirements, is pumped to the surface and discharged into a concrete drainage channel at LDP 2. The concrete drainage channel discharges to an unnamed tributary of Robins Creek which flows to the Mine Dam.

Groundwater inflow to the NWMD area comprises a relatively small component of the total groundwater inflow dewatering from the underground workings and discharged to LDP2 (refer *Groundwater Inflow and Mine Dewatering* section below).

Water is recycled back to the underground mine and extracted from the Mine Dam for coal stockpile dust suppression, firefighting purposes and vehicle washdown. An estimated 90 ML/year of water is extracted from the Mine Dam for use at the Wongawilli Colliery (WRM, 2010). Overflow from the Mine Dam discharges via a spillway to a tributary of Robins Creek.

The existing operational water management system is to be maintained for the proposed Modification, with only minor changes to surface infrastructure proposed. It is expected that the majority of the 53.9 ML predicted maximum annual groundwater inflow to be discharged to LDP2 would be extracted from the Mine Dam for use at the Wongawilli Colliery, with excess water discharged to a tributary of Robins Creek. As such, it is expected that the existing water management system would be adequate to accommodate the increased predicted groundwater inflow volume.

Overflow from the Mine Dam which discharges via a spillway to a tributary of Robins Creek may increase as a result of the predicted increased volume to be directed to the Mine Dam. The capacity of the tributary of Robins Creek to accommodate the potential additional flow, and any potential impacts on aquatic ecology, have not been assessed as a component of these works. Additionally, the pump capacity for underground dewatering and the capacity of the concrete drainage channel at LDP2 to accommodate the predicted increased inflow rate have not been assessed.

Potential Surface Water Impacts

Groundwater Inflow and Mine Dewatering

Umwelt (2021) estimate a maximum annual total groundwater inflow associated with the Modification (for both the approved and proposed driveages) of 53.9 ML and a maximum daily inflow rate of 250 kL/d occurring in late 2025. SLR (2020) previously estimated a maximum annual total groundwater inflow of 36.8 ML and a maximum daily inflow rate of 1,600 kL/d occurring for a short period in late 2024 to early 2025. Umwelt (2021) attribute the difference in rates to the approach adopted for calculating flux volume for each model stress period.

The historical site records show that a maximum annual volume of 860 ML and a maximum daily rate of 5,626 kL has been discharged to LDP2 historically (HEC, 2020). Based on a historical maximum discharge rate of 5,626 kL/day and the revised predicted maximum daily inflow rate of 250 kL/d for the approved and proposed NWMD (Umwelt, 2021), a maximum discharge rate to LDP2 of 5,876 kL/day may be required. This rate is below the current discharge limit of 10,000 kL/day at LDP2 and, as such, the discharge limits at LDP2 are not expected to be exceeded as a result of the additional groundwater inflow associated with proposed Modification.

Dewatered Groundwater Quality

The quality of groundwater inflow dewatered from the NWMD area and subsequently the quality of discharge to LDP2 is expected to be similar to that of the quality of dewatering discharged at present (Umwelt, 2021). As such, the water quality discharge limits at LDP2 are not expected to be exceeded as a result of the proposed Modification.

Baseflow Loss

The revised groundwater assessment (Umwelt, 2021) predicted:

- negligible change in net river flux associated with the proposed NWMD; and
- negligible drawdown in the upper units of the alluvium / weathered zone, Hawkesbury Sandstone or Bulgo Sandstone.

As such, there is expected to be negligible baseflow loss from surface water systems within the NWMD area and negligible impacts to surface water systems or groundwater dependent ecosystems (Umwelt, 2021).

Concluding Statements

Based on the above high-level assessment of the potential surface water impacts associated with the revised groundwater inflow predictions for the approved and proposed NWMD, the following has been concluded:

- the existing water management system is expected to be adequate to accommodate the increased predicted groundwater inflow volume;
- compliance with the existing EPL 1087 discharge limit for LDP2 is expected to be maintained; and
- potential surface water impacts are expected to be consistent with those described in HEC (2020).

Please contact the undersigned if you have any queries.

Yours faithfully,



Camilla West
Associate Water Resource Scientist



Tony Marszalek
Senior Principal

References

- HEC (2020). "Wongawilli Colliery – Surface Water Technical Report". Prepared for Wongawilli Coal Pty Ltd, November.
- SLR (2020). "Wongawilli Colliery – Modification North West Mains Development Groundwater Impact Assessment". Prepared for Wollongong Coal Limited, November.
- Umwelt (2021). "Wongawilli Modification 2 Supplementary Groundwater Impact Assessment". Draft version 1.0
- WRM (2010). "NRE Wongawilli Colliery Surface Water Management". Prepared for Gujarat NRE FCGL Pty Ltd, May.