

1 December 2020

Stephen O'Donoghue
Director Resource Assessments
Energy, Resources and Compliance – Planning and Assessment
Department of Planning, Industry & Environment

Dear Stephen,

TARRAWONGA LIFE OF MINE MODIFICATION – RESPONSE TO DPIE-WATER RECOMMENDATIONS

Please find enclosed a response to the recommendations received from the Department of Planning, Industry & Environment – Water and Natural Resources Access Regulator in relation to the Tarrawonga Coal Mine Life of Mine Modification 7 (refer Table 1).

If you wish to discuss or require any further information to progress the assessment of the Modification 7 application, please do not hesitate to contact Tony Dwyer on (02) 6741 9316.

Yours sincerely



Tony Dwyer

Group Manager - Approvals and Environment

Table 1 – Response to Response to Supplementary DPIE-Water Recommendation

Recommendation	TCPL Response
Pre-approval Recommendation <i>The proponent is required to provide confirmation that the maximum water demands required from off-site sources can be obtained from a reliable and authorised supply.</i> <i>NRAR notes that where additional sources are required this may require additional impact assessment, approvals and the need to acquire additional water entitlement.</i>	As noted in Tarrawonga Coal Pty Ltd's (TCPL) Modification 7 Submissions Report, the recent rainfall has improved the current water inventory at the site following the lower than average rainfall during 2018 and 2019. Measured rainfall at the Boggabri Retreat Station in 2020 (to 12 November) was 596.8 millimetres (mm) (Bureau of Meteorology, 2020), which is considerably higher than the full 12-month period for 2018 (344.0 mm) and 2019 (262.8 mm). As a result, the current total stored water volume held on site at Tarrawonga in November 2020 is approximately 644 megalitres (ML). The starting volume used in the water balance model was 170 ML. Therefore, if the site water balance was re-run with the starting volume currently held on-site, the site water supply statistics would be much higher than those reported in the Modification Report. TCPL would adjust the scale and rate of operation to match its available water supply, consistent with Condition 31, Schedule 3 of Project Approval (PA) 11_0047. If further off-site water supply is required, TCPL will ensure appropriate licences are obtained and held for the relevant supply.
Post-approval Recommendation <i>Obtain necessary entitlement units for the Bluevale Water Source to offset predicted leakage losses from Goonbri Ck and to account with the Annual Report.</i> <i>Take from the Gunnedah-Oxley Basin Groundwater Source is to be limited to a peak of 99 ML/annum during the active mine phase as per the Modification 7 scenario which correspond to the level of impact approved with this modification.</i> <i>If there is any proposed increase in take greater than 99 ML/year the proponent will need to assess/demonstrate any increase in potential impacts against the NSW Aquifer Interference Policy 'minimal impact considerations' and this must be accepted by DPIE - Water prior to take.</i>	TCPL will ensure appropriate licences are obtained and held for the life of the mine and will report groundwater take from each water source in its Annual Reviews. In accordance with Condition 39, Schedule 3 of PA 11_0047, the Groundwater Management Plan for the Tarrawonga Coal Mine includes a program to validate the groundwater model, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions. It is noted that in the Tarrawonga Coal Mine Water Management Plan (TCPL, 2020a), TCPL report an entitlement of 300 units (WAL 31084 and WAL 29548) in the <i>Gunnedah-Oxley Basin Groundwater Source</i>.

Recommendation	TCPL Response
Post-approval Recommendation <i>Within a year of approval, use the Boggabri Tarrawonga Maules Creek (BTM) model to confirm drawdown impact to the alluvium and amend the management plan (and licencing) as required.</i>	The comments made by DPIE-water in relation to the predicted groundwater take from the Upper Namoi Zone 4 alluvium have been addressed in detail in the Tarrawonga Coal Mine Life of Mine Modification Submissions Report (TCPL, 2020b) and Groundwater Assessment (HydroSimulations, 2019). In summary: • The Modification eliminates several approved potential impacts on water resources. As described by DPIE-Water in its submission dated 21 July 2020 “<i>The proposed reduction in open cut extent which removes the requirement to mine within the Upper Namoi alluvium and to realign Goonbri Creek is supported as this reduces a number of key impacts.</i>” This is consistent with feedback during consultation with DPIE-Water/NRAR during development of the Modification. • Bore TA-65 is not in alluvium. The uppermost sensor (TA-65 30 m, in overburden) shows no clear impact to date, although it is only 5 m above the 35 m sensor in the Jeralong coal seam. • The trend noted at bore GW044997 (which is in the alluvium) is noted in the 2019 Annual Review as being due to dry conditions. • Baseflow loss from Goonbri Creek and the take from Upper Namoi alluvium are different mechanisms and should not be compared to each other. The Modification is predicted to have reduced impacts on streamflow losses relative to the approved case. • The permeability of the interburden and overburden surrounding the open cut in the groundwater model is between 0.00009 metres per day (m/day) and 0.0006 m/day, which is considered to form an aquitard. By comparison, the groundwater model for the approved Tarrawonga Coal Project adopted a hydraulic conductivity of 0.001 m/day for the low permeability barrier, which is approved to be installed within the alluvial material which would be partially mined-out. In addition, the surrounding rock between the modified open cut and Upper Namoi alluvium is substantially thicker than the approved low permeability barrier. Ongoing validation of the groundwater model and its predictions for the Boggabri Tarrawonga Maules (BTM) Complex is required under: • PA 11_0047 Schedule 3, Condition 39(iii), which requires the Groundwater Management Plan for the Tarrawonga Coal Mine includes <i>a program to validate the groundwater model for the project, including an independent review of the model every 3 year and comparison of monitoring results with modelled predictions;</i> and • PA 11_047 Condition 39(iv), which requires the Boggabri, Tarrawonga and Maules Creek Water Management Strategy to be prepared in consultation with the other mines to <i>co-ordinate modelling programs for validation, re-calibration and re-running of the groundwater and surface water models using approved mine operation plans.</i> Whitehaven agrees to using the BTM model to refine the drawdown impact predictions on the Upper Namoi Zone 4 alluvium, and to a subsequent review of licensing requirements associated with this groundwater source (if necessary). It is noted that Whitehaven holds substantially more units in this groundwater source than the predicted take.

Recommendation	TCPL Response
Post-approval Recommendation <i>Update the Water Management Plan in consultation with DPIE - Water. The update should include:</i> <i>Additional groundwater monitoring and reporting. There is need for several clustered alluvial sites east of the pit and west of Goonbri Creek to be installed promptly.</i> <i>A plan for the revision of the groundwater model</i> <i>Addressing the commitment that has been made to ensure the new site access road and intersection would be designed to meet the requirements of the Upper Namoi Valley Floodplain Management Plan. An application for a flood work approval will not be required where it is approved under the Water Management Plan.</i>	In the Tarrawonga Modification 7 Groundwater Assessment, HydroSimulations (2019) recommends five monitoring locations be added to the existing groundwater monitoring program currently implemented at the Tarrawonga Coal Mine. Three of five additional monitoring sites recommended by HydroSimulations (2019) would observe the status and any potential groundwater impacts to the alluvium as mining progresses to the east. This includes two bores that would be located between the Open Cut and Goonbri Creek and a further bore east of Goonbri Creek. Revision and validation of the groundwater model is required under PA 11_0047 Schedule 3, Condition 39(iii), as described in the response above. TCPL will liaise with Department of Planning, Industry and Environment – Water Division with regards to the incorporation of the new site access road in the Water Management Plan.

REFERENCES

Bureau of Meteorology (2020) *Climate Data Online*.

Website: <http://www.bom.gov.au/climate/data/> (accessed 19 November 2020).

HydroSimulations (2019) *Tarrawonga Coal Mine Life of Mine Modification: Groundwater Assessment*. Report prepared for Whitehaven Coal Limited.

Tarrawonga Coal Pty Ltd (2020a) *Tarrawonga Coal Mine Water Management Plan*.

Tarrawonga Coal Pty Ltd (2020b) *Tarrawonga Coal Mine Life of Mine Modification – Submissions Report*.